



ANEXO 1: PROJECT IDENTIFICATION FORM (PIF).

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

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PART I: PROJECT INFORMATION

Project Title:	Asuncion Green City of the Americas ó Pathways to Sustainability		
Country(ies):	Paraguay	GEF Project ID:	
GEF Agency(ies):	UNDP	GEF Agency Project ID:	5188
Other Executing Partner(s):	SEAM together with Municipality of Asuncion and MOPC	Submission Date:	2014-08-08
GEF Focal Area(s):	Multi-focal Areas	Project Duration (Months)	60 Months
Integrated Approach Pilot	IAP-Cities <input checked="" type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/>		Corporate Program: SGP <input type="checkbox"/>
Name of parent program:	N/A		

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES:

Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs)	Trust Fund	(in \$)	
		GEF Project Financing	Co-financing
CCM-1 Program 1 CW-1 Program 1 BD-1 Program 1 IAP-Sustainable Cities	GEFTF	10,113,004	257,840,000
Total Project Cost		10,113,004	257,840,000

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: *Improve the quality of life in Asuncion and deliver multiple benefits through the integration of transport and solid waste management and green infrastructure into a framework for a sustainable and resilient city*

Project Component	Financing Type	Project Outcomes	Trust Fund	(in \$)	
				GEF Project Financing	Co-financing
1. Enabling framework for a green sustainable city	TA	Increased capacities for planning, implementing and monitoring sustainable and resilient urban growth delivers multiple health; social; and local, national and global environmental benefits through: <ul style="list-style-type: none"> Integrated Planning for a Sustainable City Sustainable City Finance Strategy Strengthened Institutional capacities for integrated planning Public Awareness Programs for Sustainable cities Disaster risk management planning Monitoring system for Sustainable City 	GEFTF	3,255,310 CC 950,000 BD 450,000 SC 1,305,310 CH 550,000	2,540,000
2. Sustainable mobility and transport in metropolitan Asuncion,	TA	Reduced GHG emissions from urban transport resulting from implementation of sustainable transport measures through: <ul style="list-style-type: none"> Multi modal transport measures implemented Traffic management plan implemented Public transport feeder routing system implemented to complement the MetroBus Maintenance and upgrade standards implemented for public transport vehicles. 	GEFTF	1,953,310 CC 1,253,310 SC 700,000	211,000,000
3. Improved chemicals and waste management system	TA	Reduced emissions of UPOPs, GHGs, and toxic chemicals through an improved chemicals and waste management system <ul style="list-style-type: none"> Pilot projects on solid waste management to reduce the releases of UPOPs and other harmful pollutants Waste recovery and recycling activities operational 	GEFTF	1,850,000 CH 1,450,000 SC 400,000	5,000,000
4. Emplacing and Improving Protected	TA	Increased management effectiveness of at least 2 SINASIP PAs increases protection to at least 1% of global populations of 5 endangered bird species during migration periods through: <ul style="list-style-type: none"> Bahia de Asuncion management plan approved and under 	GEFTF	1,602,000 BD 902,000 SC 700,000	1,800,000

Area Management		initial implementation including habitat restoration actions. <ul style="list-style-type: none"> • Minimum management standards in place for green areas key for biodiversity conservation • Financing mechanisms in place in key protected areas. 			
Subtotal				8,660,620	220,340,000
Project Management Cost (PMC)			GEFTF	450,000	20,000,000
Total Project Cost				9,110,620	240,340,000

C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
Recipient Government	MOPC	Grants	230,700,000
Recipient Government	SEAM	In-kind	175,000
Recipient Government	SEAM	Grants	175,000
Recipient Government	Secretariat for Emergencies	Grants	300,000
Others	Asuncion Municipality and others	In-kind	360,000
Others	Asuncion Municipality and others	Grants	5,450,000
Others	IADB and other multilateral agencies	Grants	2,260,00
Others	Guyra Paraguay Foundation and others	In-kind	310,000
CSO	Guyra Paraguay Foundation and others	Grants	310,000
GEF Agency	UNDP	Grants	300,000
Total Co-financing			240,340,000

D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY, COUNTRY AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country/Regional/Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing	Agency Fee	Total
UNDP	GEFTF	Paraguay	Climate Change	(select as applicable)	2,203,310	209,314	2,412,624
UNDP	GEFTF	Paraguay	Biodiversity	(select as applicable)	1,352,000	128,440	1,480,440
UNDP	GEFTF	Paraguay	Chemicals and Wastes	(select as applicable)	2,000,000	190,000	2,190,000
UNDP	GEFTF	Paraguay	IAP-Cities	(select as applicable)	3,555,310	337,754	3,893,064
Total GEF Resources					9,110,620	865,506	9,976,129

E. PROJECT PREPARATION GRANT (PPG)

Is Project Preparation Grant requested? Yes No

PPG AMOUNT REQUESTED BY AGENCY, TRUST FUND, COUNTRY AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country/Regional/Global	Focal Area	Programming of Funds	(in \$)		
					PPG (a)	Agency Fee (b)	Total c = a + b
UNDP	GEFTF	Paraguay	Climate Change	(select as applicable)	25,000	2,375	27,375
UNDP	GEFTF	Paraguay	Biodiversity	(select as applicable)	25,000	2,375	27,375
UNDP	GEFTF	Paraguay	Chemicals and Wastes	(select as applicable)	25,000	2,375	27,375
UNDP	GEFTF	Paraguay	IAP-Cities	(select as applicable)	50,000	4,750	54,750
Total PPG Amount					125,000	11,875	136,875

F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	5,000 hectares
3. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO _{2e} mitigated (include both direct and indirect)	1,200,000 tons CO ₂
4. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	UPOPs emission reductions TBD during PPG
	Reduction of 1000 tons of Mercury	N/A
	Phase-out of 303.44 tons of ODP (HCFC)	N/A

PART II: PROJECT JUSTIFICATION

A.1. PROJECT DESCRIPTION

PROJECT OVERVIEW

1. This project seeks to place the metropolitan area of Asuncion (known as the Gran Asuncion) on a pathway towards a sustainable and resilient city by building on important baseline programmes that will be executed in the next four years to address the principal current urban problems; notably transport, solid waste disposal, and management of green areas. The project will implement a framework that attends to these issues in a systematic and integrated manner, thus providing a critical step forward to improve the city's sustainability. The Gran Asuncion has not yet reached the proverbial point of no-return and therefore the proposed outcomes can be achieved by exploiting the synergies with the baseline projects.

2. Asuncion has been named the "Green Capital" of the Union of Capital Cities of Iberoamerica (UCCI)¹ due to the unique cohabitation of an urban setting and a large number of parks and protected areas that host a unusually high level of biodiversity. This coexistence of urban and natural habitats provides a number of benefits to the city, including reduced air pollution, increased resilience to soil erosion and flooding, and access to green infrastructure for rest and recreation. However, these benefits are not always recognized and valued, and can therefore diminish as a result of a disorderly and rapid urban expansion. The project will implement "green corridors" that promote urban connectivity while strengthening the city's parks and protected areas systems. This is complemented by strengthened waste management practices that will also reduce the pressures on the city's ecosystems. By identifying these synergies and promoting an integrated planning and investment framework, the project will create the building blocks that will steer the city towards a sustainable path. It will also optimize the delivery of multiple global benefits (fully aligned with the UNFCCC, CBD, and the Stockholm and the Minamata Conventions), as well as local benefits including improved health, prevention of crime, increased productivity, and an overall improved quality of life.

3. The project strategy is aligned with the GEF 6 Sustainable Cities Integrated Approach initiative, which focuses on tackling global environmental concerns within the context of urbanization. Asuncion is geographically unique; however, its demographic growth trends and the problems it faces as a consequence are highly representative of medium sized capital cities in Latin America and world wide. Furthermore, the level of investment in urban infrastructure that will occur over the upcoming four years ensures the delivery of tangible results over the project lifetime. Therefore, the Gran Asuncion makes for an excellent pilot project, changing the way planning and investment decisions are made in cities and creating a planning and financing platform that is tailored to Asuncion's needs but can be replicated across the world.

¹ Asuncion was nominated as Green Capital in the XII Environmental Sector Meeting of the UCCI, held in April 2014, and will be officially named as such in the XVI UCCI Plenary meeting to be held in September, 2014.

1. THE GRAN ASUNCION IN CONTEXT ó GLOBAL ENVIRONMENTAL PROBLEM

General context

4. Of the 6.6 million people that live in Paraguay, around 35% live or work in the metropolitan area of Asunción ó also known as the Gran Asunción. The Gran Asunción comprises 11 municipalities² and has an overall population of about 2.3 million people, as of 2012. The central municipality, the City of Asunción doubled its population in 40 years (from 250,000 in 1962 to around 512,000 in 2002³) but has remained stable in the past 10 years, with a population growth rate of only 0.6% between 2002 and 2012. The growth has instead moved to the neighboring municipalities, leading to a larger urban footprint increasing from 652 km² in 2002 to 809 km² in 2012 (corresponding population density of 2,400 inhabitants/km² and 2,800 inhabitants/km²). Thus although the population has grown by 43% in the last 10 years the urban density has only increased by 16%, confirming that the current urban growth of the Gran Asunción is based on a horizontal expansion model. Despite this expansion, the main economic activity and provision of services are still centered in the City of Asunción. The neighboring cities serve as commuter towns that depend on Asunción for economic activities, creating a significant daily influx into the City and a demand for appropriate transport.

5. As Asunción has evolved from a small city to a metropolitan region it has experienced problems experienced by many Latin American cities with similar growth patterns. The growth of metropolitan Asunción has been unstructured rather than planned, creating a series of urban problems that affect the city's environment, economy, and quality of life. Furthermore, investment in key infrastructure and services, such as water distribution and treatment, roads, and waste management facilities has lagged. As a result, Gran Asunción suffers from several structural inefficiencies as well as large discrepancies in the services received by the population, depending on location and income. The municipalities surrounding Asunción have grown out of necessity with no zoning laws, creating a poor distribution of urban infrastructure and green spaces.

6. Asunción also displays unique characteristics that provide both challenges and opportunities for sustainable and resilient growth. These include its vulnerability due to the location on the shores of the Paraguay River and related cyclical floods, posing additional challenges for transport and waste management. The timing and degree of floods varies in part caused by El Niño events but increasingly due to the changing global climate. As long as City planning does not consider flooding risks adequately, the repercussions will worsen with time. For instance, the recent flooding (the worst in the past 22 years), resulted in the displacement of about 17,000 families in Asunción and caused leaching of hazardous chemicals from the landfills to the river. The rainy season is yet to start in Asunción and there is an 80% probability that floods expected at the end of the year will be even greater.

7. On the other hand Asunción has an extraordinary endowment of natural resources in part because of its location on the shores of the river and its position at the confluence of four distinct ecoregions⁴, along with its unusually high number of green areas for a city of this size and stage in growth. These green areas include 1,956 parks, plaza and bays that collectively represent 28% (3,565 hectares) of the Asunción land area. At least 10 of the larger green areas are under formal protection through different management regimes (municipal, national, NGO/ Municipal) and 3 are included in the national protected areas system SINASIP⁵ ó one is a globally recognized Important Bird Area⁶. A further 23% of the municipal territory comprises green areas in built up areas (residential gardens, empty lots) and 10% rivers, streams and lakes. Together these host a unique biodiversity of global significance which is exceptional for an

² Gran Asunción: 1) Asunción 2) Capiatá 3) Fernando de la Mora 4) Lambaré 5) Limpio 6) Luque 7) Mariano Roque Alonso 8) Ñemby 9) San Antonio 10) San Lorenzo 11) Villa Elisa

³ Atlas Censal de Asunción, 2002, DGEEC

⁴ Atlantic Forest; Cerrado; Chaco and Southern Grasslands

⁵ SINASIP: Sistema Nacional de Areas Silvestres Protegidas- National System of Protected Wild Areas

⁶ The *Bahía de Asunción* ó is a major lay over site in bird migratory routes both north-south and west east across the southern cone. The Bahía (Bay) is an Important Bird Area (IBA) recognized for conservation of globally significant bird populations during migratory seasons. This includes at least 5 globally endangered species one of which is the Buff-breasted sandpiper (*Tryngites subruficollis*) for which between 1% and 3.5% of the global population pass through the bay during south bound migration. It is an ecological reserve included in the SINASIP. The Cero Lambaré is also included in SINASIP along with the Managed Resources Reserve of the Ñu Guazu. Annex 1 provides additional details on Asunción protected areas and biodiversity.

urban setting. Indeed Asuncion has been cited amongst the highest biodiversity urban areas in the world. For example a recent study of bird diversity in 54 cities listed Singapore at the top with 368 species, however 347 are exotic. Asuncion has 355 bird species, only 2 of which are exotic leaving 353 native species of birds, which is above cities such as Melbourne, and Porto Alegre which are well known for their biodiversity⁷. To put the Asuncion in a national context these green areas house 49% of the entire bird species of the country. In addition to the global significance of this biodiversity Asuncion's green areas afford other significant ecosystem services to the cities inhabitants such as carbon storage; reduction of air pollution and flooding, food production (artisan fisheries) as well as recreational opportunities - all vital elements in a sustainable city.

Global environmental problem

8. The horizontal growth of the city is causing land use changes that not only threaten this landscape, but also increase the metropolitan region's vulnerability to natural disasters and diminish the quantity and quality of the city's green infrastructure. In the short term three main priority issues need to be addressed to move along the city towards a more sustainable city path; transport; solid waste and conservation of critical ecosystem services.

9. One of the main problems in Asunción is its urban transport network. The rapid, unplanned urban expansion has resulted in an unsustainable transportation system that has contributed to the city's increased congestion problem rather than providing a solution. In 1988, 64% of the urban population depended on public transportation, but nowadays only 50% of the population is dependent on it. This is understandable due to the poor quality of public transportation; as an example, more than 90% of the buses that serve the metropolitan area are at least 10 years old and 50% are more than 15 years old. In this context, and with rising incomes and increased access to credit, many people opt for private vehicle ownership to public transportation. Paraguay as a whole has seen the rate of vehicles per 1,000 inhabitants increase from 30.3 in 2001 to 152.5 vehicles⁸ per 1,000 inhabitants in 2011⁹, with about 50% of all vehicles registered within the Gran Asuncion area. The infrastructure to manage this increased volume is not in place, leading to traffic congestion, increased travel times, and greenhouse gas emissions.

10. Around 223,000 vehicles enter the city limits of Asuncion on a daily basis (154.8 vehicles per minute); 80% of which run on diesel. This has a direct effect on travel times, air quality and greenhouse gas emissions. The current average travel time within the Gran Asuncion is around 12 km/hr, dropping from around 18 km/hr. 10 years ago (for reference the average human walking speed is 5 km/hr). As of now, in the Gran Asuncion area there are no dedicated lanes for public transportation or for other forms of alternative transportation (i.e. carpool or bicycle lanes). The combination of slow moving traffic and the poor quality of public means of transportation has created a vicious cycle: people prefer private vehicles to public transportation thus creating even more traffic congestion. The concentration of particulate matter (PM2.5) in the air, produced from vehicles' incomplete combustion of fuels, has been measured to be over the WHO¹⁰ recommended level 39% of the time. The particulate matter considered has a toxicity level higher than that found in Santiago, Chile ó a City well known for its air quality problems¹¹.

11. The unsustainability of the transport sector is tightly bound to the low energy efficiency and high GHGs emissions. During 2008 through 2012 average emissions from motorized transportation, in Paraguay were about 4.6 MtCO₂-eq per year. Given that the size of the transportation fleet (around 1,000,000) the emissions per vehicle were about 4.6 tCO₂-eq/vehicle/year. A recent energy analysis of the transport sector, which considered fuel sold and average kilometers travelled per vehicle, showed that in 2011 the road transport of Paraguay as a whole was 22% efficient ó basically 78% of the fuel consumed is considered waste¹². Within the Gran Asuncion the total emissions from motorized transport in 2012 was around 2.1 MtCO₂-e¹³ ó about 45% of all the national emissions are enclosed in 0.2% of the land area.

⁷ Aronson et al. (2014)) and (Sec CBD 2012)

⁸ Including motorcycles

⁹ Data from the Direccion Nacional del Registro de Automoteres and the Direccion General de Estadistica, Encuestas y Censos.

¹⁰ World Health Organization

¹¹ Centro Mario Molina Chile, Plan de Accion para Combustibles y Vehiculos mas Limpios en Paraguay, por UNEP y Petrobras, 2011.

¹² Itaipu Binacional y Fundacion Bariloche, Balance Energetico Nacional en Energia Util de la Republica de Paraguay

¹³ Values from the Interamerican Development Bank study on Asuncion's GHGs emissions done in 2013.

12. The municipality of Asuncion and the surrounding municipalities that make up Gran Asuncion, also lack an integrated approach to the management municipal solid waste. The amount of waste produced by the population of Gran Asuncion reaches about 1440 tons per day. Of this, about 440 tons of waste is disposed of at 20 illegal dumpsites, while the remaining waste volumes are dumped at the semi-regulated waste dump Cateura in the municipality of Asunción and the semi-regulated waste dump el Farol in the municipality of Villa Hayes. It is assumed that in particular waste from households, not serviced by waste collection vehicles (~30 ó 40%), ends up on illegal dumpsites, next to roadsides, in backyards and in local water bodies.

13. The indiscriminate dumping of waste at illegal dumpsites and non-sanitary landfills, is resulting in the pollution of soil and water resources from leachate and in air pollution from the open burning of waste which releases Unintentionally produced Persistent Organic Pollutants (UPOPs), as well as in the formation of greenhouse gases (GHGs) as a result of decomposing wastes. Air, water and soil pollution poses serious health risks to communities who often live next to the dumpsites as housing zoning laws are not being strictly enforced. However, the proximity to waste dumps also increases communities' exposure to toxic and hazardous chemicals that might (illegally) have been dumped, as well as an increased risk to vectors carrying diseases (e.g. dengue's Aedes Egypt), which prefer to breed in water retained by waste items, such as tires. Although communities located next to waste dumps are at the highest risk, releases of UPOPs and GHGs have a global impact, and wreak havoc in communities and environments located far from where these global pollutants are being released.

14. Currently no large-scale waste recycling or recovery initiatives exist, although a few small scale SMEs make their living in this sector. Because of the non-existence of large-scale waste recycling, valorization and recovery initiatives, it's mostly the informal sector (sometimes organized in Co-ops) that make a living from waste picking. Because the waste recycling/recovery and valorization sector remains underdeveloped, large volumes of waste continue to be transported and disposed of at dumpsites, increasing costs for municipalities and taxpayers and resulting in unnecessary pollution and indiscriminate (and sometimes illegal) mixing of different classes of waste.

15. An additional concern is the management of particular (hazardous) waste streams. Most industrial or hazardous waste is treated and sent to a specialized landfill in El Chaco. In some cases though, industries have internal recycling programmes for the re-use of materials, or sell industrial waste for co-processing or incineration (e.g. as fuel). However, the specialized hazardous landfill and the management of hazardous waste in general is not closely monitored, audited or controlled and as a result such wastes still find their way to municipal waste dumps. In addition, there are a number of particular waste streams, such as tires and e-waste, for which currently no waste management approaches are in place. In the case of waste tires, most of these are burned in the open to retrieve the metal structure of the tire for further recycling, resulting in the generation of UPOPs. It is assumed that similar practices are applied to extract valuable elements from electronic waste. Such processes can also result in releases of UPOPs, PBDEs and toxic metals such as Mercury and Lead.

16. With a rapidly increasing population in Gran Asuncion, and a waste management system that faces difficulties in managing its present waste amounts and specific waste streams, urgent interventions are needed to establish an Integrated Transport and Waste Management System for both municipal as well as industrial/hazardous waste. Such an integrated system can significantly reduce human health and environmental risks both at local as well as global level.

17. In addition to the threats posed to human health, transport related air pollution and waste dumps are impacting the green areas of the city and degrading the ecosystem services these provide. This includes biodiversity. Of particular concern is the Cateura dumpsite, which although partially regulated can not be considered a sanitary landfill. The landfill is located next to a wetland that borders the Paraguay River. Not only does the leachate from the dumpsite flow into the wetlands and river, but each time the river level rises, the landfill is flooded and waste ends up in the river affecting aquatic biodiversity and fisheries that provide critical livelihoods and food security to communities that live along the Paraguay River. Similar negative impacts are caused by numerous illegal dumps sites, including one located within the borders of the protected area Bahia de Asuncion.

18. Furthermore although the extension of green areas remains relatively constant, the global value of this biodiversity endowment is being eroded through habitat conversion and degradation leading to fragmentation, reducing the viability of populations. This is largely due to expansion of the transport system to accommodate daily flux of people from surrounding cities and the increased production of solid and liquid waste. A dramatic example of threats to these global benefits is the drop in migratory species noted following the recent construction of phase one of a waterfront parkway (known as the Costanera) that cuts through the western section of the bay. Construction material extracted from sand banks within the area and dredging damaged foraging and roosting habitat critical for migratory birds. Migrant populations, monitored since 2000 show a marked decrease in species diversity and abundance¹⁴, although a detailed analysis still needs to be carried out and it is still early to understand the long-term impact.

19. Despite these problems, however, Gran Asunción is in a development phase where several negative trends can be contained and even reverted. The need for change is widely recognized at the central and local government levels, and significant investment is projected for projects in transport, waste management, and water treatment. The endowment of natural resources and existing green spaces provides a unique opportunity to develop a model for urban biodiversity conservation with clear benefits for the city, including reduction of air pollution, increased resilience, connectivity, health, and public recreation. Building upon its natural richness and the Government's willingness to invest, a Sustainable Asunción is a realistic and feasible vision that can be achieved in the upcoming decade.

2. BASELINE

20. Acknowledging the problems that the city faces, the Government of Paraguay and the Municipalities of Gran Asunción are undertaking a number of activities to improve the public services offered by the City. Many of these actions are targeted investments designed to address key problems faced by the city in the areas of transport and waste management. These baseline projects are an important foundation for the GEF intervention, as they are clearly designed to reverse negative trends and shift the city's development on a more sustainable path. However, these baseline projects have limitations and can be enhanced to ensure the maximum delivery of global environmental benefits.

21. Furthermore, the aggregation of these initiatives results in a set of actions that significantly contributes to the sustainability of Gran Asunción. Nonetheless, since the activities are taken independently by different institutions seeking sector-based solutions, this results in inefficiencies, superposition of actions, and missed opportunities for inter-sectorial collaboration. An integrated approach to planning and allocating resource is needed to define overall objectives, identify synergies and exploit the cross sectorial benefits of integrated actions. There is recognition of this need at the government level, and a process to work collectively towards a sustainable Gran Asunción is emerging.

22. The sections below describe the baseline actions being undertaken to promote integrated planning, as well as in each sector addressed in this project. The limitations of the proposed baseline initiatives are also described in each sub section.

Transport

23. The Ministry of Public Works and Communications (MOPC in its Spanish acronym) is the main agency that spearheads most transport projects in the Gran Asunción. The largest project under development is the Electric-run Bus Rapid Transit (BRT) system for the Gran Asunción, known locally as MetroBus, which will be a first in Paraguay. This system will connect three of the main municipalities of the Gran Asunción. Its first phase, to be constructed in the 2015-2018 period, will consist of 18 kilometers of exclusive lanes for electric buses between the cities of San Lorenzo, Fernando de la Mora and Asunción. This is being financed through a public-private partnership at a cost of around US\$ 312 million - around US\$ 125 million coming from an Inter-American Development Bank loan. In its design the BRT system expects to introduce about 200 new electric buses displacing approximately 500 to 1,000

¹⁴ Abundance of birds has reduced noticeably dropping almost half from the preconstruction total of about 10,000 individuals that passed through the bay (Clay & Lesterhuis 2001). Also of the 22 Nearctic shorebird species recorded pre-construction only 14 species were recorded in 2013. Of the flagship species, the Buff-breasted Sandpiper, only small flocks of 10 -15 birds passed through in 2013 as opposed to 100 pre-construction. Other common migrants such as the Pectoral sandpiper, Lesser yellowlegs and White-rumped Sandpiper were much lower than in previous years.

Diesel run buses that are mostly old and poorly maintained. In the pre-design phase, the project also includes around 100 km of bike lanes that would feed into the main bus stops. The long-term project of the BRT contemplates the construction of another 100 km of bus lanes with a similar transport service. Overall the impact to health would be significant due to the improvement in air quality, reducing GHGs emissions and reducing congestion and travel times.

24. The MOPC has also started a project to modernize the diesel run bus fleet in Asuncion by leasing buses to owners whose vehicles are at least 15 years old. The modernization plan also intends to adjust the price of the bus fare and introduce the electronic ticketing for the bus system. This measure will clearly improve the quality of the service and reduce energy expenses, but more importantly it would improve the quality of the air in Asuncion and reduce GHG emissions.

25. The above mentioned investments add up to a strong baseline program, clearly addressing the city's transport issues with a highly necessary focus on public transport. However, important opportunities offered by these projects, most notably the Metrobus, to transform urban mobility have not been fully exploited. The implementation plans of the BRT focus on the construction of the exclusive bus lanes and the implementation of electric buses. However, insufficient emphasis has been placed on the means through which people will access the BRT system, whether it is on foot, bicycle, or public transport feeder routes. This requires a similar level of design and implementation effort (although a much lower financial investment) in order to maximize the benefits of the system. Likewise, current plans do not provide a comprehensive response to the city's overall traffic management problems, and hence it is unlikely that the levels of congestion will diminish. The modernization of the bus fleet is being managed as a one-time effort, without responding to regulations on key issues such as emission standards, maintenance requirements, traffic zoning laws for different vehicle types and fleet retirement and dismantling, thus undermining the sustainability of the effort. As such, while the baseline situation is likely to make improvements to the status quo, it is unlikely to comprehensively address the city's transport issues in the medium term. Additionally, the BRT project, which will use clean energy (from electricity generated by the Itaipú hydroelectric plant) has no study to ensure the optimization of GHGs emission reductions or the improvement of the air quality the Gran Asuncion.

26. The interrelation of investment in transport with other relevant sectors also needs improvement, as it is clear that problems or potential co-benefits are not currently being fully considered. As an example, the recently built Costanera road was constructed to improve traffic flow but unintentionally created the environmental problems in the Bahia de Asunción described above. It has also increased the vulnerability of coastal areas, including the road itself, to flooding. Furthermore, the co-benefits of biodiversity conservation and urban connectivity are not being exploited. Natural systems can be used to increase the resilience of urban infrastructure, mitigate the impacts of severe rain and flooding, and improve the quality of urban walkways and bicycle paths that interconnect the city. Likewise, making use of native vegetation along transport corridors will connect green areas and increase the resilience of urban biodiversity.

Waste Management

27. There are a number of waste related initiatives, which are either on-going or are being planned by the Municipality of Asunción, that aim to improve current challenges faced by the numerous cities within the limits of Gran Asuncion.

28. Some of these challenges are: i) Each city within the limits of Gran Asuncion currently has a different approach to handling, sorting and managing municipal waste; ii) Financial resources of municipalities are currently not sufficient to cover the costs necessary to extent quality services to all its residents and close semi-controlled dumpsites; iii) Lack of specific regulations for various waste streams, prescribing its collection, recycling, treatment and disposal in combination with insufficient monitoring and enforcement of the waste management regulations; iv) Insufficient (technical) capacity for the treatment of particular waste streams of concerns (e.g. chemicals, e-waste, tires, etc.); v) Lack of public awareness on waste related issues, such as proper separation and disposal, as well as overall awareness on the implications to human health and the environment caused by improper waste management.

29. In order to address some of these challenges, the Municipality of Asunción is in the process of analyzing three (3) interventions of importance: A) With financial support provided by the Inter-American Development Bank (IADB), led by the SEAM and executed by the Louis Berger Group, an ISWM assessment is currently underway. Following the outcomes of the ISWM assessment, the Government of Paraguay anticipates that with proper funding it would be able to develop a National Solid Waste Management Strategy and Plan and construct a sanitary landfill in the Gran Asunción metro area that will allow for the closure of the 2 partially regulated dumpsites and the removal of 20 illegal dumpsites. This is the long-term goal of the Municipality of Asunción and funding for these activities has not yet been secured; B) The Municipality of Asunción anticipates to close the Cateura dumpsite and move all waste disposal operations to the el Chaco dumpsite. This action is an immediate response to a recent incident, when the level of the Paraguay River rose to such a height that hazardous and municipal waste from the dumpsite ended up in the river, polluting the water and impacting downstream biodiversity and communities. Closure of the Cateura dumpsite will constitute part of the baseline project for the proposed GEF project and is expected to be funded (in part) by the Municipality; C) As per the Waste Management Plan of the Gran Asuncion area, a waste separation and classification unit to facilitate recycling of waste streams will be established at a landfill (location still to be determined). The establishment of the recovery/recycling facility will constitute part of the proposed GEF project's baseline and will be co-funded by the Municipality.

30. Law 3966/10 stipulates that the responsibility for collection, transportation, treatment and disposal lies with the Municipality. All Municipalities apply Public Private Partnerships (PPPs) to enter into service contracts with companies, which on their behalf assume the collection and disposal of municipal waste, although service coverage is not a 100%. The current system will be re-evaluated and adapted according to the new location of the landfills/dump sides.

31. The above-mentioned activities constitute the project's baseline activities, and provide essential co-financing to the proposed project at an estimated cost of 5 million US\$. The project will build on these activities and complement municipality efforts in particular in relation to UPOPs reduction efforts and minimizing releases of other global chemicals of concern. The baseline activities are all complementary and the project will intend to achieve a strong coordination in order to generate synergies that will benefit the environment.

Management of Parks, Plazas and Protected Areas:

32. In the baseline, work will continue through different institutions to manage Asuncion's extraordinarily high number of green areas and water bodies. The overall amount is estimated at a minimum to be USD 5,000,000. This includes actions related to the management of Bahia de Asuncion. The NGO Guyra Paraguay Foundation has recently signed an agreement with the Asuncion Municipality for joint management of the area that provides model for the entire SINASIP. Baseline work will include (i) annual monitoring of Canadian migratory birds; (ii) further development of a draft management plan for this area; (iii) initial habitat restoration work in foraging and roosting areas of Canadian migratory birds including scrub (*Mimosa pigra*) removal in collaboration with the General Direction of Environmental Management of MA. In addition through an agreement with MOPC, the MA and the Environment Secretary (SEAM) work will start recovery of shallow water habitat including sandbag dams to retain water and recreate feeding habitat once permits are emitted. Voluntary brigades will undertake waste recollection and through IDB funding waste treatment plant will be constructed to clean the current outlet into the bay which is one of the actions required prior to final recognition of the Bahia as a Ramsar site. The second phase of the Costanera, joining the Botanical Gardens with downtown Asuncion is projected to start within the year. This includes compensation resources recognizing the damage of phase I to habitats in Banco de San Miguel Ecological Reserve in the Bahia. This will provide important resources for habitat restoration work. Whilst restoration work and other baseline actions are important they will not be guided by an integrated and approved management plan and human and financial constraints will continue. Management levels will shortfall of those needed to protect global biodiversity values.

33. Other areas of importance for biodiversity conservation such as the Botanical Gardens and the Parque Guazu (see map and table in Annex 1) will receive some support from municipal or national institutions for their up keep. Nonetheless the management is below optimal and rarely focused specifically on well-defined biodiversity conservation objectives. Whilst these larger areas will provide some protection to species within their limits increasing

pressure from air pollution, waste accumulation and increasing public use, species populations are likely to dwindle. Furthermore management approaches in each area will not take into account the need to manage the city's biodiversity as guild of species to maintain the global significance of the mix of species representations from Chaco forest, Atlantic Forest; Cerrado and grasslands.

34. In this regard of particular importance in the baseline, is a campaign headed by the municipal government of Asuncion to declare the city *Green Capital of Iberoamerica* which is currently under consideration by the Ibero-american Union of Municipalities. As a first step the AM has set out a policy regarding the improvement of its streams, parks, air quality, noise and a strategy to better handle its solid waste. Biodiversity is included as one of its 8 strategic policies. A recent campaign "Asunción - Te quiero verde" has been launched that includes the joint work with Guyra in a Municipal ecological park in *Viñas Cue* containing the NGOs headquarters, an animal rescue site and information centre. The overall policy also puts forth the idea connectivity between the existing green areas through corridors. In parallel MOPC is also proposing a green belt with the Municipal Parque Guasu as a major hub. Both these initiatives provide a unique opportunity to increase the long term sustainability of existing large green areas and facilitate the connectivity and gene flow between these. The 10 largest protected areas (mostly parks) collectively represent 1,651 hectares in Asuncion (see Annex 1). Although the city has a diagnostic description of the biodiversity they are no set resources to evaluate the overall condition or financial program to establish corridors and maintain protected areas for optimizing biodiversity conservation. A range of NGOs and Civil Society along with Municipal governments are actively engaged with educational and awareness biodiversity campaigns but this is not linked to important issues such as transport and solid waste management in an integrated fashion.

Integrated Planning for Sustainable Asuncion

35. All the projects or initiatives mentioned, taken by themselves, address endemic problems of Gran Asuncion regarding transport, biodiversity and solid waste management. They all contribute to the solution of the specific issue they are addressing. However, there is an understanding that the city requires a broader vision for the medium and long term. To this effect, there are incipient initiatives to identify long-term objectives and promote integrated planning; bringing together the numerous institutions and stakeholders engaged in Asunción's development.

36. In 2013 Asunción joined the Inter American Development Bank's "Emerging and Sustainable Cities Initiative", a technical assistance program that helps intermediate cities in Latin America and the Caribbean in identifying, prioritizing, and structuring projects to improve their environmental, urban and fiscal sustainability. The Initiative integrates environmental sustainability (including climate change), comprehensive urban development, fiscal sustainability and good governance, and provides emerging cities with a set of tools to: (a) Identify key bottlenecks that they may face in their path towards sustainability; (b) Weigh and prioritize the identified problems to guide investment decisions in the sectors that may generate more positive impacts, (c) Find specific and adequate solutions according to a cost-benefit analysis that would pave the road towards increasing sustainability through prioritized interventions. In addition, solutions should take into consideration potential different local sources to finance them as well as the institutional capacity for their implementation, and (d) Follow up on progress and advances.¹⁵ For Gran Asunción, the following 5 areas have been prioritized; 1) mobility and transport; 2) land use; 3) wastewater treatment; 4) Urban inequality; and 6) vulnerability to disasters; followed closely by education, energy, participative public management, and water supply.

37. The Emerging and Sustainable Cities Initiative Action Plan is an incipient effort that needs to be sustained in the long run and will require implementation support. Most of the ongoing work involves identifying priorities and developing medium and long term plans. The institutional framework for integrated planning needs to be strengthened, and financing strategies need to be put in place. While the vision of integrated planning for a Sustainable Asuncion is gaining a foothold amongst stakeholders, transforming that into a different way of planning and executing resources is a major challenge. The Emerging and Sustainable Cities Initiative is a strong baseline program to catalyze this change, and provides an important platform for further action along these lines.

¹⁵ <http://www.iadb.org/cities>

3. GEF RATIONALE AND INCREMENTAL COST REASONING

38. Coping with urban growth and responding to the needs for public services in Gran Asunción is challenging and demanding. The initiatives outlined above demonstrate that there is a strong effort to respond to the main issues through a portfolio of public investment projects and targeted projects. These initiatives are likely to cause significant positive change, but as stand-alone projects they are unlikely to have a full transformative impact on the city. The multiple institutions working on improving the quality of life face numerous challenges to achieve a fully integrated, sustainable management of the metropolitan area. On the other hand, there is a unique opportunity to integrate these activities and optimize multiple benefits both locally and globally.

39. The Government of Paraguay is requesting the GEF to support this integration effort in Asuncion, optimizing the individual activities' contribution to both local and global benefits and catalyzing a shift towards a more sustainable and resilient city. The proposed project approach will take action at two levels. The first level, which is the focus of Component 1, focuses on the medium and long term, and will have a broader geographical and thematic scope. It will develop the enabling framework for a sustainable city, integrating sectorial planning and defining short, medium and long term goals; developing capacities for their implementation and long term funding needs, and setting up monitoring systems needed to guide and adapt plans over time. This level will focus on the broader Gran Asuncion and work over time scales and thematic issues that go beyond the current priority actions. It will complement the work conducted by the Emerging and Sustainable Cities Initiative, building upon and expanding the Action Plan currently under development¹⁶. The goal of this component is to promote a more coherent and integrated vision for the future of Asunción, in which common goals govern policy, planning and investment decisions.

40. Secondly, Components 2 - 4 will take on the ground action to address the most critical problems within the Asuncion city and a few key surrounding municipalities, optimizing the baseline programmes and delivering solutions to global environment problems in a cost effective way. This includes improving the transport and management of municipal and hazardous waste management to reduce GHG and chemicals releases; and improve the management of green areas to conserve global biodiversity values and provide ecosystem services that contribute to GHG reduction and health related benefits. While these interventions will be at the sector level, their interconnection at city level offers substantial opportunities to identify and implement measures with cross-sectorial benefits and provide important inputs and guidance to the broader framework for a sustainable and resilient City.

41. The project objective is to "Improve the quality of life in Gran Asuncion and deliver multiple benefits through the integration of transport and solid waste management and green infrastructure into a framework for a sustainable and resilient city". The four components and their constituent outputs are summarized below.

Component 1: Enabling framework for a green sustainable city
<p>Output 1.1 <u>Integrated Planning for Sustainable Cities (multiple sectors)</u></p> <ul style="list-style-type: none">• Asuncion Zoning Master Plan and expanded Strategic Master Plan for Asuncion and Gran Asuncion (building on the Emerging and Sustainable Cities Initiative Action Plan)• Integrated transport master plan (BTR; roads; trains etc)• Green Corridors Plan linked to new transportation schemes and connecting parks and natural urban ecosystems. This includes determining appropriate mixes of native species and physical structure and routes to best connect key core protected areas. Possible corridors include along the railway to the Botanical Garden and the Vinas Cue park; Itay stream along cycle paths and metro lines etc; <p>Output 1.2 <u>Sustainable City Finance Strategy</u></p> <ul style="list-style-type: none">• Ecosystem services assessment and payment schemes (values derived from the green areas)• BRT project recognition as a NAMA under UNFCCC• Marketing campaigns eg adoption of alternative transportation

¹⁶ IDB estimates the Action Plan to be finalized by September 2014

Output 1.3 Institutional and regulatory capacities strengthened for integrated urban planning including

- Conduct a hazardous waste baseline assessment (focusing on global pollutants)
- Revision and/or drafting of regulations and guidelines pertaining to management, collection, recycling and treatment of chemical wastes and their releases (e.g tires, e-waste, mercury containing waste, etc)
- Roles and responsibilities defined for oversight and upkeep of vehicle fleet;
- Training programmes (SEAM; MOPC; Municipalidades; SEN, policia etc)
- Strengthen national capacities for urban planning and enforcement, monitoring and surveillance on waste management
- Improved the management of waste streams in improving coordination/collaboration between different municipalities.

Output 1.4 Public Awareness programs on

- Sustainable cities (based on IADB's ESCI) and resilient cities.
- Traffic regulations and alternative transportation and Municipal drivers programme
- Green areas/urban biodiversity
- The benefits for waste collection at domestic and community level, and paying waste fees

Output 1.5 Disaster risk management

- Asuncion risk management and reduction plan
- Early warning and recovery systems

Output 1.6 Monitoring and control system for a Sustainable City

- MRV system implemented to monitor air quality, GHGs and SLCRFs emissions. (includes baseline for emissions of climate change agents, health issues and economic factors)
- Identification of air quality standards for different contaminants coming from vehicle exhaust.
- Selection and measurement of sustainability indicators of health; BD; energy; water; resilience (complementing IADB)

Component 2: Sustainable mobility and transport in metropolitan Asunción

Output 2.1 Multi modal transport measures implemented

- Implementation of a low emissions BRT line (phase 1 of MetroBus)
- Development of a master plan for non-motorized urban connectivity in Asuncion, integrated to MetroBus and following the green corridor plan under component 1. This includes the design of bicycle paths and walkways, transfer and parking facilities, and measures to promote the use of bicycles
- Implementation of 100 km of dedicated urban bicycle paths and parking/transfer facilities in Asunción, including urban biological corridors.
- Implementation of pedestrian friendly areas in critical city zones (markets, city center, and others)

Output 2.2 Traffic management plan implemented.

Implementation of smart traffic management technologies (signs and information dissemination programs)

- Establishment of regulations to limit private vehicle use at peak times to reduce bottleneck zones and creation of restricted parking zones.
- Implementation of measures to limit circulation of high emission private vehicles (including partial circulation limitations, emission standards, and/or improved inspections, amongst others)

Output 2.3 Public transport feeder routing system implemented to complement the MetroBus.

- Development of a public transport route plan that feeds into the central MetroBus line
- Establishment of agreements with existing transport cooperatives to implement public transport routes
- Establishment of optimal financing mechanisms for integration of MetroBus with feeder route transport providers

Output 2.4 Maintenance and upgrade standards implemented for public transport vehicles.

- Development and approval of vehicle regulations on emissions standards, maintenance and replacement programs and retirement.
- Establishment of a pilot emissions certification program for public vehicles for the Gran Asuncion area.
- Establishment of a vehicle retirement program for the permanent removal of obsolete buses.

Component 3: Reducing emissions of UPOPs, GHGs and toxic chemicals through an improved Chemicals and Waste management system.

Output 3.1 Pilot projects on solid waste management to reduce the releases of UPOPs and other harmful pollutants

- Initial restriction of use of Cateura facility, followed by a gradual clean-up of and permanent closure of Cateura facility, with

transfer of operations to another location.

- Support of Bahía de Asunción Park in building necessary institutional and monitoring capacity to improve the management of municipal and hazardous waste streams within the park boundaries, support the removal and clean up of illegal dumpsite(s) and introduce an integrated approach for the management of wastes to minimize impact on biodiversity (incl. development of waste management plans/budgets/monitoring systems/tariff setting and collection; increased public awareness, etc.).

Output 3.2 Waste recovery and recycling activities operational

- Cost-Benefit Analysis of waste recovery/recycling/valorisation interventions undertaken and business plans developed for most viable interventions.
- Provide access to finance, tools, business skill and technical training for service providers, NGOs, CBOs and waste handlers for the production of waste derived products and recycling in a number of viable sectors (e.g. composting, tires, e-waste, plastics, paper, etc.) with a particular focus on accommodating waste pickers that will be impacted by the closure of Cateura.
- Support the creation/establishment of markets for recovered waste streams and waste derived products.
- Establish a formal waste separation and classification unit for further recycling purposes at landfill site to demonstrate BEP/BAT for recycling of various waste streams with the aim to replicate similar activities across the Gran Asunción Region.

Component 4: Emplacing and Improving Protected Area Management

Output 4.1 Bahía de Asunción management plan approved and under initial implementation

- Finalization of the draft management plan, public consultation and official approval;
- expanding the voluntary park guards brigades; up-dating equipment and infrastructure (patrol and communication equipment, signage; observation towers, information centers);
- Habitat restoration programmes.

Output 4.2 Minimum management standards in place for green areas key for biodiversity conservation

- Developing biodiversity conservation objectives and specific management plan for targeted areas that would act as hubs or anchors in the green corridors and include the Ñu Guasú Park, Aeropuerto Silvio Pettirossi, Comando de Aviación, Aeronáutica Civil, CONMEBOL, Jardín Botánico, Parque Viñas Cué, Club Cerro Corá, Comité Olímpico Paraguayo and Ex Caballería.
- Developing an information centre in the Parque Guasú that would act as the main hub for the awareness programmes (component 1). This would include recreational areas in the park with numerous concessions that would feed into the finance strategy. It would also include conservation of key grassland habitat for endemic birds.
- Developing a proposal for a PA network for Asunción and recognition under a protected landscape approach

Output 4.3 Financing mechanism in place for key protected areas.

- Finance plans developed for key areas and mechanism tested including a municipal wide bird watching tourism related finance scheme for Bahía de Asunción, and Ecological Reserve Banco San Miguel, el Jardín Botánico, Cerro Lambaré (fees-setting, resource distribution and management); municipal fiscal incentives; voluntary donations; fees revenues from concessions
- Protected area fund structured and capitalized. GEF funds would be used for the design and capitalization from different sources such as fines from infringement of environmental laws; the 1% compensation rule of public works. This would be linked to ES assessments under component 1

4. GLOBAL ENVIRONMENTAL BENEFITS

42. The project will deliver multiple global environmental benefits- In terms of Climate Change Mitigation ó A preliminary estimation of the GHG benefits resulting from the implementation of the first BRT line and 100 km of bicycle paths results in a reduction of approximately 1.2 million tons of CO₂ over a 20 year lifespan. This does not include the potential benefits of implementing public vehicle minimum standards and replacement program, or the impacts of a city-wide traffic management plan that would also reduce the amount of short lived climate forcers such as black carbon. Furthermore it does not include potential co-benefits that can be achieved through the implementation of the biodiversity and waste management components of the project. A full estimation of direct and indirect emission reduction benefits will be presented at the time of CEO Endorsement.

43. In terms of Chemicals and Waste (CW) management, through the improved management of municipal and hazardous wastes the project is expected to reduce UPOPs releases by approximately 10 % as compared to the

baseline¹⁷, which will be established in detail during the project's PPG phase. These UPOPs release reductions will be the result of the reduced open burning of wastes through closure and clean-up of dumpsites, as well as the introduction of BAT/BEP for the management, recycling and disposal of particular waste streams of concern (e.g. tires and e-waste). The CW project activities will also have co-benefits such as reduced GHGs emissions from improved SWM, reduced open burning and segregation of organic from non-organic waste streams as well as reduced releases of harmful and toxic chemical substances (e.g. Mercury, Lead, etc.). The level of these co-benefits will be determined in more detail during the PPG phase.

44. In terms of biodiversity, the improved management and financing of the SINASIP protected areas within Gran Asuncion and the restoration of key habitats will increase protection to at least 1% of global populations of 5 endangered bird species during migration periods. The definition of specific biodiversity conservation objectives and minimum management standards for Asuncion's other large green areas and the establishment of green corridors linking these, will facilitate the mobility of species from one area to another. This will increase genetic exchange, seed dispersal, pollination of flowers, and gene flow between populations increasing the genetic variability and sustainability of a unique guild of species from 3 globally significant ecoregions (Atlantic Forest; Chaco and Cerrado). This assemblage of species is extraordinary for an urban setting and matches the diversity of some SINASIP national protected areas in more remote and wilderness areas of the country. It is outnumbered only in two much larger PA that have years of long standing established protected area management - the Mbaracayú Forest Reserve, 64,000 ha and the area of San Rafael, Managed Resources Reserve 73,000 ha. Annex 1 provides more details on biodiversity.

5. INNOVATIVENESS, SUSTAINABILITY AND POTENTIAL FOR SCALING UP

45. The project is innovative both for Asuncion and for the GEF. The Sustainable Cities Integrated Approach provides an opportunity to program GEF resources in a way that is aligned to the city's needs and promotes further integration across sectors. The project aims to introduce innovative ways of planning, budgeting, financing, and executing projects at the metropolitan level to ensure alignment with a broad sustainable development framework for the city. Furthermore, the project identifies and exploits synergies between GEF focal areas at the city level, thus delivering concrete on-the-ground cross sectoral benefits. While UNDP has worked extensively in urban settings in the context of GEF projects, this is one of the first proposals that seeks to integrate multiple focal areas in a specific urban area.

46. Component 1 of the project is the most innovative aspect of the project and is specifically designed to promote project sustainability since it is focused on the medium and long term. While Components 2-4 will deliver direct benefits within the project lifetime, Component 1 will ensure that the benefits derived from integrated planning and budgeting are mainstreamed into the city's decision making processes. This includes the establishment of sustainable finance mechanisms, most notably a transport NAMA for Asuncion and a Payment for Environmental Services scheme for urban green areas. Likewise, it develops detailed integrated master plans, and strengthens institutional capacities for their implementation, as well as MRV capacities to track progress. Disaster risk management is also included as it is an essential aspect to strengthen the city's resilience. Ultimately, the success of this component will ensure that the city develops along a sustainable path. While the project is designed to respond to the specific conditions of Asuncion, this approach can be scaled up across several cities with similar conditions in Latin America and across the world. The project design is aligned with the guidance provided by the 2014 Guidance provided by STAP for sustainable cities¹⁸.

¹⁷ The NIP of Paraguay (2007) estimates that out of a total of 257 g EQT/year, 123 g EQT/year corresponds to the uncontrolled combustion process and 67 g EQT/year to the wastes incineration. The actual emissions reductions for Gran Asunción area will be determined during the PPG phase.

¹⁸ STAP 2014. Sustainable Urbanization Policy Brief: Proliferation of Urban Centres, their Impact on the World's Environment and the Potential Role of the GEF. Report to the 5th GEF Assembly, México May 2014. GEF, Washington, DC

A.2. STAKEHOLDERS. Will project design include the participation of relevant stakeholders from civil society and indigenous people? (yes)

The project design will be led by Governmental institutions responsible for implementation. These are listed below. During the project design civil society will be invited to participate in preparatory activities to define the scope of specific project components such as design of green corridors, approaches to solid waste management etc and also to provide input to the overall project design. During these meetings, workshops and consultations the role of civil society in project implementation will also be further detailed. Civil society in this case will be mainly represented through NGOs and CSOs that are involved in related issues in Gran Asuncion. **Public Sector Stakeholders leading the design include the following:**

Secretariat of the Environment - SEAM - in charge of environmental policies and regulating environmental matters; presiding the National Environmental Council; hosting GEF focal points and overseeing the planning and monitoring of GEF funded projects; managing the ER Bahía de Asunción and Banco San Miguel with Asuncion Municipality.

Ministry of Public Works and Communications- MOPC óin charge of policies and regulations on transport, public works, communications and energy, amongst others. Some public parks within the city of Asunción are under its ownership.

National Secretariat of Emergencies- SEN - in charge of policies and regulations on risk management and attending emergency situations such as current flooding within the Asuncion area.

Ministry of Public Health and Social Welfare- MSPBS- in charge of public health care and policies and regulations on health issues including dengue (poor waste disposal related sickness).

Municipality of Asunción- MA- in charge of the provision of public services to Asuncion`s citizens including municipal traffic control, waste recollection and management and the maintenance of green public areas and some parks including the Bahia de Asuncion jointly with SEAM. The MA led Green Capital of Ibero-America campaign

IDB: Public institutions will also work closely with IDB that are funding relevant projects such as: the Sustainable and Emerging Cities and loans for the Bahia de Asunción restoration through modernization of the sewage system and a preliminary treatment plant in the Parque Solidaridad area; the Metrobus & downtown revitalization and housing improvement of õchacarita altaõ neighborhood (within Asunción).

NGOs & CSO that will be consulted and participate in project design

The Paraguayan Sustainable Cities Network that supports information and awareness campaigns for civil society, enterprises and municipal governments to transform Paraguayan cities (including Asunción) in fair, democratic and sustainable cities. This network is a member of the Latin-American network for fair, democratic and sustainable cities.

Altervida that supports citizen participation in local government and has biodiversity, protected areas and health expertise.

Guyra Paraguay with expertise on protected area management, environmental policies and awareness raising, biodiversity monitoring. It is part of the Asunción õGreen Capital of Ibero-Americaõ alliance and has an agreement with the City for supporting management of the Banco San Miguel and Bahía de Asunción and is developing a Viñas cue biocenter.

Fundación Milenio that is engaged in environmental protection and has members from businessmen/women and experts engaged in CSR actions. It promoted the õEco-Bahia de Asunciónõ project.

Sobrevivencia that engages in citizenship and socio-environmental public awareness, and conservation, restoration, and sustainable management of natural and cultural assets.

Geam involved in potable water and sanitation; land use planning, waste management

Centre for Information and Resources for Development ó CIRD- that strengthens civil society, youth development, and dialogue and knowledge management between civil society and public sectors

Fundación Ita Enramada with expertise including batteries recycling/management.

Neighborhood Commissions working to improve the quality of life of a specific sector or neighborhood through dialogue, information and participation in decision making processes related to their environment. (neighborhood commissions)

A.3. GENDER CONSIDERATIONS. Are gender considerations taken into account? (yes) . Gender conditions within this project shall be considered as follows:

47. Efforts to ensure the Sound Management of Chemicals, including UPOPs, have important gender dimensions. In daily life, men, women, and children are exposed to different kinds of chemicals in varying concentrations. Biological factors ô notably size and physiological differences between women and men and between adults and children ô influence susceptibility to health damage from exposure to toxic chemicals. Social factors, primarily gender-determined occupational roles, also have an impact on the level and frequency of exposure to toxic chemicals, the kinds of chemicals encountered, and the resulting impacts on human health.

48. During the project's PPG phase, a detailed analysis of chemicals exposure (e.g. POPs, hazardous chemicals, Mercury, etc.) and impacts as related to gender will be undertaken, based upon which project activities will be tailored in such a manner, that the groups at most risk, whether these turn out to be children, women or men, will be targeted in such a way to reduce their exposure.

49. Gender considerations will in general be considered throughout the project. In the public transport component a possibility of having only-women busses will be evaluated, as this policy has been implemented in several countries in the region lately. Finally, the project will do its utmost to ensure a gender balance, where feasible, in activities that encompass awareness raising, capacity building, training, etc.

A.4 RISK.

Risk	Rating	Mitigation Measures
<i>Political</i> Changes in public sector representatives (at technical and political level) affect project design and implementation.	Moderate	A strong execution unit will be put in place to ensure adequate coordination amongst all institutions and stakeholders, with clearly defined roles and responsibilities and decision-making channels. Furthermore, the project will develop institutional mechanisms for coordinated planning and budgeting across sectors and involving multiple stakeholders. This framework is for the medium and long term and is expected to withstand changes in individuals, as well as political shifts.
<i>Technical</i> a) Construction of the Metrobus project is delayed. b) Poor integration of Metrobus reduces the impact of bicycle lanes, traffic lights or urban zoning laws	Moderate	During PPG design phase, it shall be ensured that representatives from Municipality of Asuncion, MOPC and IADB in charge of Metrobus design/construction/financing are the same as those taking part in discussions regarding GEF-funded complementary works so as to efficiently coordinate implementation. In this context, a delay in the implementation of MetroBus would not have a highly negative impact; it would only delay the integration of the complementary works to the main infrastructure.
<i>Social/environmental</i> Consensus is not reached regarding location of waste disposal sites and recycling facilities.	Moderate	The SEAM and the Municipality of Asuncion have been working with key stakeholders on the different aspects of waste management and are planning to launch the Solid Waste Management Plan for Asuncion and Metropolitan Area by the end of 2014. With the support of GEF funding, consensus-building mechanisms will be strengthened, as well as the institutional capacities of both SEAM and the Municipality so as to ensure adequate empowerment and leadership in waste management issues.
<i>Social</i> Informal workers that currently benefit from picking and recycling waste in a semi-formal manner at Cateura are opposed to new recycling programme and resettlement.	Moderate	The GEF supported project would support several consensus building exercises between the private and public sector as well as waste Co-ops, NGOs and CBOs to determine and agree upon the approaches of new waste management interventions which will ensure to safeguard livelihoods, legitimizes informal workers, improves their working conditions and result in financial gains. Experiences from other countries have shown that improved waste separation and classification for recycling purposes can increase substantially the incomes of the waste pickers and transforms their work to a more formal setting.

A.5. COORDINATION.

50. The project will coordinate with the UNDP/GEF Cross Cutting Capacity development for improved decision-making for the global environment project, currently in the design phase. While the Cross Cutting initiative is focused mostly on national level decision making processes, the metropolitan decision making framework implemented by this project is highly relevant. There is clear potential for the projects to complement each other and particular attention will be placed on this coordination during the project design phase.

51. Amongst the non-GEF financed ongoing initiatives, the most relevant program is the "Emerging and Sustainable Cities Initiative" supported by IADB in conjunction with municipal authorities. As described in the baseline section of this document, this initiative is fully integrated into the project design, specifically in Component 1. Incorporating this initiative into the scope of the project ensures coordination between IADB and UNDP, as well as amongst national and local stakeholders.

DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

B.1 NATIONAL STRATEGIES AND PLANS OR REPORTS AND ASSESSMENTS UNDER RELEVANT CONVENTIONS

52. The project is consistent with the National Environmental Policy (2005) and will contribute to the implementation of the Central Government's National Development Plan (to be launched in September 2014) which promotes, as a general strategy, a urban development that results in a better quality of life and optimizes resources and services based on adequate zoning and territorial articulation between public and private sectors. The project is also consistent with several sectorial plans that includes the Transport Master Plan, the "Franja Costera" Development Plan and the Zeta Plan(*). It will build upon the Asunción and Metropolitan Area Waste Management Plan, the Master Plan for Rain Water and Flood Control Plan, and the Asuncion and Metropolitan Area Strategic Master Plan currently being designed.

53. Through project implementation, contributions will be made to the Third National Communication on Climate Change and to the National Biodiversity Strategy and Action Plan currently being prepared under SEAM's leadership. It will also enable and/or contribute to the enforcement at urban level of several environmental laws such as the Environmental Service Law, the Protected Areas Law, the Wildlife Law and the law on Environmental Crimes, among others.

54. The project will also contribute to the achievement of several Aichi targets amongst others 3, 11 and 12. For target 3, that relates to incentives for the conservation and sustainable use of biodiversity, Asunción's city authorities have key mandates and this project will contribute to increasing their role in strategies such as promoting and attracting green investors, and mainstreaming of "payment for ecosystems services" mechanisms. For target 11 that relate to the per cent area of terrestrial and inland water under conservation, the proposed parks, corridors, and municipal parks (public and private) will contribute to reaching national targets. For target 12: related to the prevention of extinction of threatened species, awareness raising campaigns managed by city regional authorities along with NGOs and museums will raise critical attention and funds and provide technical assistance for the conservation of threatened species.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT AND GEF AGENCY

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT ON BEHALF OF THE GOVERNMENT:

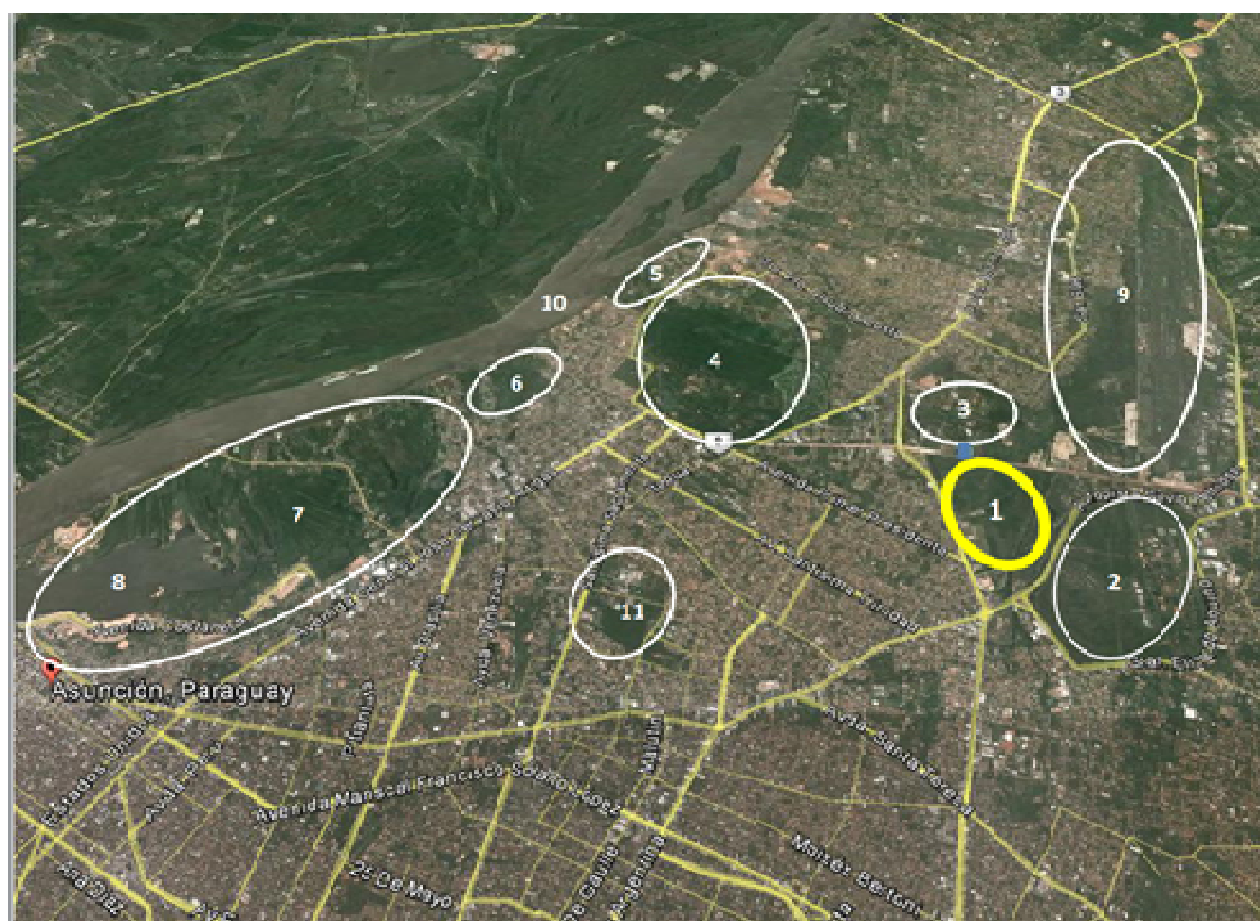
NAME	POSITION	MINISTRY	DATE <i>(MM/dd/yyyy)</i>
Ulises Pedro Lovera Gaona	Director of Strategic Planning	ENVIRONMENT SECRETARIAT	

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for project identification and preparation under GEF-6.					
Agency Coordinator, Agency name	Signature	Date <i>(MM/dd/yyyy)</i>	Project Contact Person	Telephone	Email
Adriana Dinu, UNDP- GEF Executive Coordinator and Director a.i.			Oliver Page, Regional Technical Advisor	(507)302-4548	oliver.page@undp.org

ANNEX 1. ASUNCION: GREEN INFRASTRUCTURE; BIODIVERSITY CONSERVATION

Type	Number	Area (hectares)	% area of municipality
Water bodies (rivers, streams and lakes)	104	1,304	10
Built area (buildings, houses, paved streets)	NA	4,865	38
Green areas in built-up areas (Patos, backyards and empty lots)	NA	2,985	23
Green areas (parks, plazas and swamps)	1,956	3,565	28
TOTAL		12,719	100



Number 9 is the location of the Silvio Pettirossi Airport and 10 the Paraguay River

Name of relevant Green Areas	No. Has
1. Guasu and Ñu Guasu Park	150
2. Aeronáutica Militar	286
3. Caballería	152
4. Botanical Gardens	583
5. Parque Municipal del Río ó BioCentro de Guyra Paraguayo	14
6. Bañado Caracará	49
7. Banco San Miguel (SINASIP)	381
8. Bahía de Asunción (SINASIP)	
11. Parque de la Salud	19
12. National Reserve Cerro Lambaré (SINASIP)	17
Not marked on map: Parque de la Solidaridad	6
Not marked on map: Caballero Park	7

BIODIVERSITY IN ASUNCION

Paraguay is located at the confluence of 3 major bio-geographical areas: the Chaco; the Paranaense and the Cerrado, giving rise to a rich mix of vegetation throughout the country. Its capital, Asuncion, is located on the left bank of the Paraguay River and falls at the confluence of two ecoregions, the Chaco and the Atlantic Forest of Alto Paraná and has strong influence from two nearby ecoregions -the Southern Grasslands and Cerrado.

The metropolitan area of Asuncion (Gran Asuncion) covers 809 km² and contains 11 municipalities. The central municipality the City of Asuncion is the oldest and has an exceptional expansion of green areas totaling 1,956 and covering 3,565 hectares or 28% of the municipality's territory. These range from small plazas, parks and marshes to at least 10 larger areas under different types of formal protection including protected areas as part of the National System of Protected Area (SINASIP) (see table on previous page) The larger areas house significant forest representations of 3 different forest/scrub ecoregions. This includes large forested areas in the city's hills that have species representing the Atlantic Forest from the east and Chaco and Cerrado from west and north respectively. In the west of the city on flatter land, habitats include those typical of the Paraguay River shoreline important for migratory birds (see below) and species from the southern grasslands. In addition to formal green areas, a further 23% of the municipal territory is made up of green areas in residential gardens and courtyards and 10% in water bodies (rivers, streams and lakes). The result is a capital city that has a rich and diverse biodiversity that houses an extraordinary assemblage of species from 4 different ecoregions. This matches the diversity of some protected areas of the SINASIP from more remote and wilderness areas and is outnumbered only in two much larger protected areas that have years of long-standing well established management - the Mbaracayú Forest Reserve, 64,000 ha and the area of San Rafael, Managed Resources Reserve 73,000 ha.

The most detailed data on biodiversity is available for bird species. The City is home to around 355 bird species which is almost half the 715 registered for the entire country (Del Castillo & Clay, 2005). The Bahia de Asuncion (Asuncion Bay) and the Botanical Gardens have the highest number of registered bird species with 292 and 160 respectively. This extraordinary level of avian diversity in Asuncion is partly due to its strategic position on the Paraguay River migration route. The Bahia is an important stop-over site for species that make short migrations across the southern cone and also for the longer north-south migration routes crossing the continent. A total of 110 migratory species have been registered in the Bahía de Asunción (29% of the bird species in the city). One of SINASIP Protected Areas the Bahia is also part of the Western Hemisphere Shorebird Reserve Network. The Bahia is also considered one of the top 20 Pampa Ecosystems and is an Important Bird Conservation Area - IBA recognized globally for the conservation of several species of endangered birds, in particular the Buff-breasted Sandpiper (*Tryngites subruficollis*). At least 3% of the global population of this species uses Bahia habitat for roosting and feeding during migration. Other registered migratory species include the globally endangered cappuccino gray crown (*Sporophila cinnamomea*) the near threatened Dinellie's doradido (*Pseudocolopteryx dinelliana*). Among the 32 Nearctic migratory species registered in the Bahia are shorebirds from the Charadriidae and Scolopacidae families such as the golden plover (*Pluvialis dominica*), the guy pittoi lesser yellow legs (*Tringa flavipes*), the white-rumped sandpiper (*Calidris fuscicollis*), the pectoral sandpiper (*Calidris melanotos*), and the common phalarope (*Phalaropus tricolor*). A less frequent migratory species is the Bobolink (*Dolichonix oryzivorus*). Though this species is not protected globally, the population trend of the species is negative and recently has been listed in Appendix II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) (Cartes et al., 2008).

As well as migratory species the city houses a wide range of native bird species found more commonly in urban settings and others that are more recently adapted to urban habitats. For example the small black falcon or taguato mbyju'i falcon (*Falco ruficularis*) that has been seen in recent years nesting in one of the buildings of the City. It is only the third time that this species normally associated with large forests, has been recorded using artificial structures for nesting throughout its geographic range, which runs from Mexico to Argentina.

In addition to birds Asuncion has a high diversity of species from other taxa. Although registries are incomplete 23 species of amphibians have been recorded to date representing 27% of those registered in the country (Weiler et al, 2013) and 75 species of reptiles, 40 % of all species recorded for Paraguay (Cacciali, 2011; Cabral & Weiler, 2014). Among the reptiles, are the Boa constrictor or Mboi ro'y and broad-snouted caiman *Caiman latirostris* (Appendix I

of CITES) *Caiman caiman* or alligator hu, the *Eunectes notaeus* Paraguayan anaconda or curiyú and *Salvator merianae* or Black and white Tegu (Appendix II). In addition there are 15 mammal species excluding the 27 recorded bat species, but including some species uncommon in urban environments for example the ka'i paraguáiy or Capuchin monkeys (*Cebus apella*), the jaguarundi, mbaracaja eira cat (*Puma yagouaroundi*); the crab eating racoon (*Procyon cancrivorus*) and neotropical otter (*Lontra longicaudis*).

Some 20,000 species of invertebrates have been recorded including the giant spider genus *Nephila* golden fabric; the spider, *Parawixia bistrriata*, and freshwater shrimp and sponges. Fifty three (53) fish species have recorded, mostly in the Bahia. Asunción's flora includes pristine areas such as the some banks and sandy beaches on the Paraguay river with important endemic flora *Salix humboldtiana* var. Marti (criollo sauce), *Crataeva wall* (alligator whistle) and *Tessaria integrifolia* (bobo post).

Although there is not systematic monitoring species in all of the large areas in general forest and grassland habitat remains are largely constant in the terrestrial areas. By increasing the management effectiveness of formal and informal protected green areas in Asuncion the project will advance management of this unique guild of species. By linking these areas through green corridors habitat fragements will be better connected ensuring gene flow throughout the network of green areas thus increasing long term sustainability of populations. Solid and liquid waste treatment and improved transportation systems reducing air pollution will also positively affect the long term survival of species. In regards the habitat areas for migratory bird in the Bahia de Asuncion that have been negatively affected by transport infrastrutre (see PIF context) although stopover populations have been reduced it is thought that migratory birds are seeking habitats along the Paraguay River that may provide temporary alternatives. If habitat loss is reversed in the next 5 years, Nearctic shorebird diversity and abundance should respond positively. The project will accelerate and expand baseline efforts of habitat restoration activities to reverse the habitat loss.

The proposed project will deliver significant biodiversity global environmental benefits. Indicators to be developing in the PPG could include maintenance of urban forests at current levels; the area of natural corridors that serve the movement of wildlife seed dispersion; the abundance of indicator species including globally endangered species; the increased management effectiveness of protected areas measured by METT and reduced funding gap (or increased revenues) of urban protected areas.

Aronson et al. 2014. A global analysis of the impacts of urbanization on bird and plant diversity reveals key anthropogenic drivers". Proceedings of the Royal Society B, 7 April 2014 vol. 281 no. 1780

Cabral & Weiler, 2014. Lista comentada de los reptiles de la Colección Zoológica de la Facultad de Ciencias Exactas y Naturales de Asunción, Paraguay. Cuadernos de Herpetología, 28(1): 19-28.

Cacciali, 2011 Reptiles del Paraguay: Una aproximación al estudio de su diversidad y distribución geográfica. Tesis de Maestría, Universidad de la Republica, Pedeciba ó Biología, Montevideo

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Secretariat of the CBD 2012. Cities and Biodiversity Outlook Montreal 64 pages