

DAKAR

RESILIENCE STRATEGY

December 2016



VILLE DE DAKAR

PIONEERED BY THE
ROCKEFELLER FOUNDATION

100

RESILIENT

CITIES





**PREPARING FOR A CITY
THAT IS CLEAN, SAFE,
ENERGY EFFICIENT
AND POISED
FOR INCLUSIVE GROWTH**

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WELCOME TO THE CITY

COME Y OF DAKAR



RESILIENT DAKAR

FOREWORD BY THE MAYOR OF DAKAR



Khalifa Ababacar Sall
Mayor of the city of Dakar

Dakar, the first African city to join 100 Resilient Cities - Pioneered by The Rockefeller Foundation alongside Durban, has put in place a framework to develop its urban resilience strategy. This framework came to life through the “Resilient Dakar” program coordinated by my Chief Resilience Officer (CRO).

Anchored around an inclusive approach and integrating a diversity of functions, the strategy drafting process has mobilized the city’s stakeholders, sparking participation and developing dynamic actions aimed at articulating the various resilience objectives. The strategy has also enabled an integrated approach to address the multiple risks and challenges that can affect a city.

Thanks to the support of the city’s stakeholders, especially the members of the steering committee who I would like to thank for their contribution, the city of Dakar was able to develop an urban resilience strategy which, in addition to consolidating the diagnostic and identifying actions to be



taken, seeks to restore the territory's structural stability and to develop urban functions in the context of a city currently characterized by inadequately controlled urbanization.

With strategy development complete, additional efforts are required to initiate and achieve the actions identified for sustainable urban management. The implementation of the resilience strategy sets the city into an exercise in both operational and prospective dimensions to enable the city to not only anticipate and resist shocks, risks, and constraints, but to act on the socio-economic dimension in order to improve the living conditions of its citizens.

We can realize these efforts thanks to our sheer will, the combined efforts of all public authorities, the enthusiastic participation of citizens, and with the support of our partners including 100 Resilient Cities - Pioneered by The Rockefeller Foundation, and its president Michael Berkowitz to whom I express my congratulations for putting forth such an unprecedented initiative. I would like to renew our sincere gratitude for the support of 100 Resilient Cities in developing the present urban resilience strategy. I would also like to reaffirm the interest of the city of Dakar in the 100 Resilient Cities network - the platform for exchange of best practices among cities - and to express our availability to pursue further partnership, namely by receiving its technical assistance to ensure the successful implementation of the first urban resilience strategy in Africa.





NOTE FROM THE CHIEF RESILIENCE OFFICER

I was motivated to become Dakar's Chief Resilience Officer (CRO) given the position's potential impact on the lives of Dakarais. And upon notification of the city of Dakar's acceptance to the 100 Resilient Cities network, I accepted Mayor Sall's invitation to launch Dakar's resilience journey.

In my role as the CRO for Dakar, I have worked with a broad group of stakeholders to:

- 01 Create a compelling vision of resilience within the city,
- 02 Generate excitement and facilitate the resilience discussion across a diversity of sectors and actors, and
- 03 Ensure active and inclusive public participation throughout the whole process.

Assembling the pieces that form Dakar's present strategy has not always been an easy task. All those who took part in this exercise have been pushed to tackle and resolve various challenges and concerns which we had, in order to effectively and efficiently complete our work. Through this process, the entire team acquired a valuable understanding that in order for Dakar's Resilience Strategy to be successful, it had to acknowledge and be built around the complex and interconnected challenges that the city faces. This will position the city to best identify downstream impact, and create appropriate solutions.

I thank Mayor Sall for the opportunity to serve the City of Dakar through this process in my capacity as CRO. I am also thankful to Dalberg Global Development Advisors, and the staff and leadership of 100 Resilient Cities and Dakar's Resilience Steering Committee. Individually and collectively, these teams have made it possible to address Dakar's resilience challenges in a holistic and integrated way, leveraging innovation to address our city's emerging and chronic challenges of rapid urbanization.

Dakar's Resilience Strategy will prepare the city for a shared vision towards a stronger, more resilient city that is able to adapt to the demands of the 21st century and beyond. It will foster a shared confidence between all actors to better define problems, inform policies and utilize tools to prioritize, make informed choices, and plan for the future.

I am immensely excited about my contribution towards launching Dakar's Resilience Strategy and the work of my team. I very much look forward to carrying forward the implementation of the Strategy's many critical initiatives.

Monsieur Antoine Faye

Chief Resilience Officer - CRO
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▲ **Contact**



LETTER FROM 100 RESILIENT CITIES

On behalf of the entire 100 Resilient Cities team, it is my honor to congratulate the city of Dakar on the release of Africa's first resilience strategy. The work outlined within the strategy takes a bold approach toward confronting Dakar's current and future shocks and stresses. The strategy provides a roadmap towards a city that is clean, safe, energy efficient, and poised for inclusive growth. This reflects exactly the type of holistic urban resilience approach that 100RC seeks to spread far beyond our network of member cities.

The support and leadership of Dakar's Resilience Steering Committee - spanning a diversity of representatives, from academia, public, and private sectors - was critical to the development of this document, and we thank them for their commitment to the strategy process. Of course, this strategy would not have been possible without the dedication of Dakar's Chief Resilience Officer, Mr. Antoine Faye, and the tireless efforts of his team.

While the release of this strategy represents an important milestone in the pursuit of a more resilient Dakar, we know that our work is far from over. Building urban resilience is a multi-generational effort that will take continued commitment and action to ensure positive impact. We know that our success will not be measured by how well we plan for our future challenges, but rather how we implement the projects that will make the city as a whole stronger in the face of those challenges, no matter what form they may take.

For this reason, we are so excited to continue our partnership into the implementation phase, transforming the innovative projects presented within into reality. This body of work will positively impact the lives of all who reside in Dakar, both when disaster strikes and during times in-between.

These projects will also serve as a valuable best practice for the rest of the 100RC Network to learn from and emulate. As one of the African cities selected in the first round of the 100 Resilient Cities Challenge, Dakar has time and again been a pioneer in our global movement. We could not be more excited to continue to partner with Dakar as this city helps to spread the urban resilience revolution to cities across the region, and the world.

Congratulations again on this important achievement, and we look forward to the shared journey ahead.

Yours Faithfully,

A stylized, handwritten signature in black ink, consisting of a large, sweeping 'M' followed by a horizontal line that tapers to the right.

Michael Berkowitz
President, 100 Resilient Cities



DAKAR: A CITY OF CHALLENGES AND OPPORTUNITIES

Dakar, Senegal's capital city, benefits from a strategic position as the western-most part of the African continent – it is at a junction point between Africa, Europe, and the Americas. Dakar is also an important metropolitan center for Senegal as well as the West African region as a whole.

Dakar is the 5th most populated city in West Africa, with a population estimated at 3.3 million in 2015.¹ Sustained urban migration since the 1970s, along with a population growth rate of 2.6%², contribute to the rapidly increasing population of Dakar. These trends have translated into a high urbanization rate of 4% on average between 2010 and 2015.³ At this pace, Dakar's population will double by 2025.

Dakar is facing many shocks and stresses that come with rapid urbanization, which are seriously outstripping its capacity to provide adequate services and quality living conditions to its citizens. Five areas have been identified as critical levers to reinforcing Dakar's resilience following a review process with the city's stakeholders. The perceptions gathered from these stakeholders and developed after a risk and asset analysis, were the basis of the selection process for the top five discovery areas. These discovery areas also have the potential to highly impact the city's social and economic resilience: (i) civic engagement, (ii) climate change readiness, (iii) sanitation, and (iv) energy efficiency. Urban mobility, which is as critical, will be addressed later due to capacity. Main challenges in each of these discovery areas are described below.

CIVIC ENGAGEMENT



The recurrence and persistence of risks facing the city is strongly linked to the behavior and attitudes of its citizens. Weak civic engagement, inconsistent construction practices, poor waste disposal behaviors, misuse of roads, poor hygiene, and environmental degradation are all stresses caused by citizens' behaviors. The inability to control and correct such behaviors and attitudes can have massive repercussions or can become important shocks for the city (fires, epidemics, infrastructure disrepair, violence, etc.).

CLIMATE CHANGE



Climate change also presents a considerable challenge to the city. Rising sea levels are a threat to Dakar's coastlines and several other coastal West African countries. The resulting coastal erosion not only threatens the city's beaches which have an important touristic appeal, but also threatens to displace 12 of the city's 19 communes by the Atlantic sea front. Coastal erosion also affects infrastructure such as the harbor, and other industrial plants along the coast such as the Cap des Biches power plant which is located one meter below sea level and has suffered floods caused by strong seasonal swells. Climate change is represented as a cross-cutting challenge throughout the identified focus areas.

¹ UN Habitat, State of the World's Cities, 2012/2013

² ANSD, RGPHAE 2013

³ Ibid.

SANITATION



The city's waste water drainage infrastructure is constantly put to the test, especially in neighborhoods that were built on old shallows that have long been dried by years of drought. Furthermore, inconsistent construction standards have rendered the network of rainwater flow vulnerable. Waste disposal systems have also become obsolete – waste collection services reach only 39%⁴ of the population for solid waste, and between 10 to 30%⁵ for liquid waste. This waste is often disposed of in the open - in streams, the ocean, or dumps, without prior treatment.⁶ With the return of heavy rains, floods have been recurrent for the past few years, leaving citizens in vulnerable neighborhoods exposed to dangerous pathogens. In a region where diseases such as cholera and malaria are rampant, the amplitude of this public health hazard can have far reaching consequences.

ENERGY EFFICIENCY



Dakar also incurs the costs of limited supply of energy and frequent power. These lead to a loss of one percentage point in the city's GDP every year.⁷ Furthermore, Dakar consumes 56.9% of the national energy supply (about 1.3 TWh in 2013) and will need an additional supply of 50MW to meet its current demand.⁸ The majority of this electricity is produced by power stations built between the 1960s and 1980s, with a higher production cost (170 CFAF/kWh) than its market value (118 CFAF/kWh).⁹ Electricity production in Senegal is dependent on fossil fuels, which is one of the most expensive sources of energy and the likely driver of production costs. Thus, the final cost of energy to Senegalese consumers is one of the highest in West Africa.¹⁰ Moreover, the demand in electricity will rise two-fold between 2013 and 2030¹¹ due to inefficient consumer practices such as the use of incandescent lamps accounting for about 70% of Dakar's lighting, and consuming more than five times more electricity than a LED lamp, or the use of air conditioning without inverters which don't optimize for temperature changes.¹²

⁴ UCG (Solid Waste Coordination and Management Unit), Internal workshop report on waste management in the Department of Dakar, 2016

⁵ ONAS (Senegal's national sanitation office), Planning strategy for sewerage in Dakar 2025, 2013

⁶ UN Habitat, Senegal: urban profile of Dakar, 2008

⁷ World Bank, Infrastructure of Senegal: a continental perspective, 2011

⁸ ANSD (National statistics agency of Senegal), Regional economic and social situation, 2013

⁹ Government of Senegal, technical note: Infrastructure and energy services, 2014

¹⁰ World Bank, Infrastructure of Senegal: a continental perspective, 2011

¹¹ Dalberg estimates

¹² AEME (Agency for the savings and management of energy), 2013; Dalberg, 100 Resilient Cities Initiatives, Energy Efficiency Strategy for the City of Dakar, 2016



The public transport service is inadequate and is deteriorating from year-to-year. It is difficult to move in Dakar by public or private transport, either because of the congestion encountered on the main roads, especially in the central city area, or the poor quality of service. More than 100,000 vehicles enter and exit Dakar every day on a congested, double-lane road¹³, as up to 80%¹⁴ of economic activities are concentrated in the capital city. Since 2000, conventional bus services are operated by Dakar Dem Dikk (DDD), but capacity provided by DDD is very low (few vehicles are operated daily), resulting in low and irregular frequencies. In response to the low capacity to meet public demand, smaller buses, known as “cars rapides”, with between 25 and 40 seats, arose with 2,500 to 4,000 buses operating in the city.¹⁵ The majority of cars rapides are concentrated on the routes from the periphery to Dakar center. The quality of service is judged as bad by many users/observers. In particular, the service provided by the cars rapides is usually characterized by old and polluting vehicles, bad maintenance, poor safety standards, drivers stopping anywhere on the street to pick up passengers, intimidation by controllers, the practice of cutting routes, obliging users to pay two or three times the fare for one trip, poor route information, long waiting times, and vehicles turning short of their stated destinations. The government plans to phase

out these vehicles by 2018¹⁶ and replace them with new buses that will improve safety, comfort, accessibility, while also being much more environmentally-friendly.

Consequently, the development of a resilience strategy aims to build the city of Dakar’s capacity and preparedness to address these challenges. It is furthermore evident that without the full participation of the city’s inhabitants, even the most promising projects will likely fail. In the resilience strategy, we will thus begin by implementing targeted awareness raising activities in order to solidify efforts to find the best possible solutions for the urban resilience of the city. While not an exhaustive approach to resolving each of Dakar’s identified challenges, the current resilience strategy provides details on prioritizing and addressing the challenges in a manner poised to yield near term resilience dividends.

We have the ambition to transform Dakar’s current challenges into opportunities. We envision to empower citizens advocating for the active engagement of their counterparts in the private and public spheres (local and national government) to make Dakar a city **THAT IS CLEAN, SAFE, ENERGY EFFICIENT AND POISED FOR INCLUSIVE GROWTH** to sustain any future shocks or stresses.

¹³ Sub-Saharan Africa Transport Policy Program, Private Sector Involvement in Road Financing, 2014

¹⁴ Papa Elimane Faye, Modernization and/or Sustainable Transportation System in Dakar: Identification of Problems and Mode Requirements, 2012

¹⁵ Ibid

¹⁶ <http://www.cnn.com/2016/06/30/travel/car-rapides-senegal/>



VISION: A RESILIENT DAKAR

By joining 100 Resilient Cities - Pioneered by The Rockefeller Foundation, Dakar hopes to accelerate its evolution to become a model African city, which will have successfully aligned its rich heritage to opportunities that the 21st century offers. Dakar is also a microcosm of the challenges that a majority of African cities experience, and could serve as a sandbox for local solutions to challenges posed by rapid and complex urbanization. Dakar thus foresees becoming a flexible and evolving city that adapts to be more robust,

capable, and equipped to recover from socio-economic as well as climatic and environmental stresses.

The urban resilience strategy of Dakar offers possible opportunities for a sustainable city which will be able to respond to a catastrophe by recovering its operational functions quickly, and will have lessened the impact of dysfunctions caused by its population boom, geo-climatic disruptions, and environmental pollution by addressing them from the root. Dakar will achieve this vision through five strategic objectives:



PROMOTE AN INCLUSIVE RESILIENCE AGENDA BY AND FOR DAKAR CITIZENS

We will put those who live in Dakar firmly at the heart of the resilience strategy in laying the foundations for active and sustainable citizen participation



LEVERAGE ENERGY EFFICIENT TECHNOLOGIES TO SUPPORT THE CITY'S RESILIENCE

We will leverage the wasted potential of energy saving technologies to solve long-standing unresolved electricity challenges



PROVIDE A HEALTHY LIVING ENVIRONMENT TO DAKAR'S CITIZENS

We will make Dakar a pleasant city to live in by building more green spaces and ensuring a better system for citizens and professionals to manage waste



PROMOTE INCLUSIVE AND EFFICIENT GOVERNANCE

We will put in place collaborative platforms that encourage all stakeholders to take part in initiatives which support resilience



POSITION THE PRIVATE SECTOR AS A RESILIENCE PARTNER

We will foster and support the involvement of the private sector - both formal and informal - in building resilience

EXECUTIVE SUMMARY OF THE DAKAR RESILIENCE STRATEGY



Soumbédioune fish market

By aligning with the definition of resilience as “the capacity of a city and its systems to anticipate, absorb, respond, and recover from any challenges and disruptive changes”, we are convinced that the success of the Dakar resilience strategy rests on the:

- active participation of the city’s population in its implementation,
- creation of a safe and clean environment for Dakar’s citizens,
- private sector’s contribution of innovative solutions and employment,
- use of technology as a lever for resilience,
- implementation of an inclusive and efficient governance strategy.

DEVELOPMENT PROCESS OF THE RESILIENCE STRATEGY FOR DAKAR

The drafting process of Dakar’s resilience strategy has sparked a lasting collaboration between several stakeholder groups, particularly experts and decision makers from all levels of the public, private, and civil society spheres.

In celebrating the choice of Dakar as part of the 100 Resilient Cities network, the workshop to launch the strategy development process also served to anchor the framework and pillars for the development of a comprehensive resilience strategy for Dakar. More specifically, the workshop also accomplished the following:

- a broad common understanding of the justification for the 100 Resilient Cities initiative, its mission and services in support to members;
- a definition of resilience agreed upon by all stakeholders;
- acceptance of the key concepts, definitions and institutional framework for resilience, as anchors to the approach and thinking to develop the resilience strategy for Dakar.

Over 50 stakeholders and stakeholder groups were consulted during the Preliminary Resilience Assessment (PRA) phase. Interviews were conducted with each of them to: (i) present the initiative concept; (ii) understand their vision for the city’s resilience and the project; and (iii) identify the most critical shocks and stresses that the city may face. These interviews have also allowed us to: (iv) identify similar initiatives implemented or being planned; (v) identify the main stakes this strategy would have to consider; and (vi) gauge the stakeholders’ interest in participating in the drafting of the strategy within the thematic groups. This in anticipation of the lasting platform we will put in place to reach concrete results and ensure the successful is delivery of the resilience strategy of the city.

The interviews with the different stakeholders enabled a refinement of the strategy through an iterative process of generating new ideas and a prioritization of existing ideas. Following this, we formed a group for each priority theme of the strategy. Each group was formed to promote diversity of backgrounds and maximize the quality of ideas generated. We then organized a workshop bringing together the CRO, citizens of Dakar, subject matter experts, and municipality professionals to share the main insights from detailed analyses of the different identified themes. This brought out the main strategic objectives and secondary objectives that were identified for the city.

An awareness workshop on the drafting of the resilience strategy was conducted at the same time with the different services of the municipality, other internal stakeholders in the city, as well as representatives from all 19 communes. This workshop was delivered with the large group first and then in smaller groups. The 100 Resilient Cities process was presented to participants who then engaged in conversations around the key themes of urban resilience.

This participatory design process for the resilience strategy also helped identify a number of other initiatives. The ones that were shortlisted will allow stakeholders to better address the numerous shocks and stresses that Dakar faces to date or will likely face in the near future.

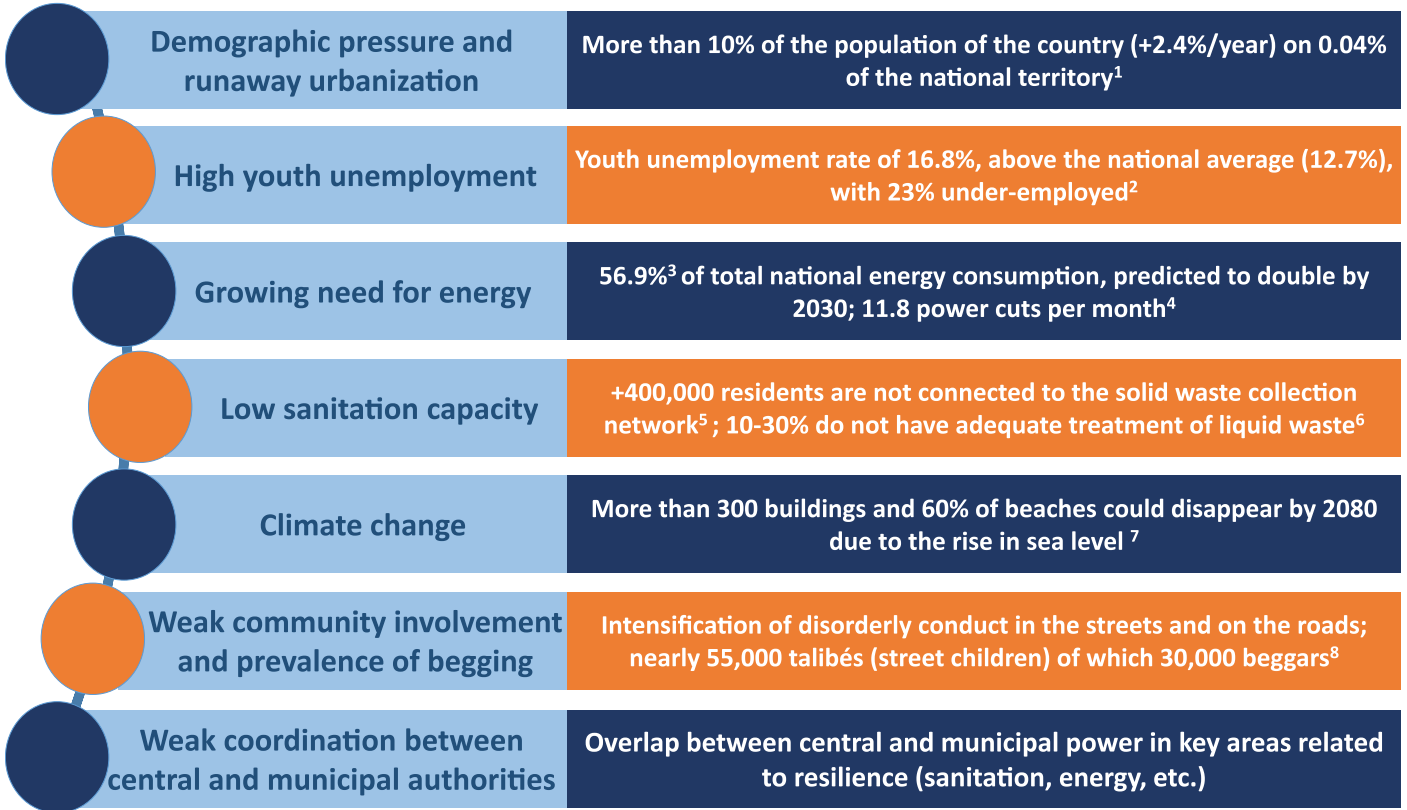


Figure 1: Attendees at the resilience diagnostic workshop





Figure 2: Illustration of Dakar’s key vulnerabilities



Sources: ¹ ANSD, RGPFAE, 2013 ; ² National Office of Statistics and Population Studies (ANSD), Economic and Social Landscape of Senegal in 2013; ³ ANSD, National Office of Statistics and Population Studies (ANSD), Economic and Social Landscape of Senegal in 2013; ⁴ World Bank, Infrastructure of Senegal: a continental perspective, 2011; ⁵ UCG (Solid Waste Coordination and Management Unit), Internal workshop report on waste management in the Department of Dakar, 2016 ; ⁶ ONAS (Senegal’s national sanitation office), Planning strategy for sewerage in Dakar 2025, 2013; ⁷ World Bank, Ministry of Environment and Nature Protection, economic and spatial study of coastal zones’ vulnerability and adaptation to climate change; ⁸ Refworld, findings on the worst forms of child labor, 2013

Primary and secondary objectives, as well as initiatives address the identified shocks and stresses at this stage. The selected 21 initiatives fleshed out in this strategy document have been built on top of existing projects and will strengthen the critical components of economic, social, environmental, and strategic resilience. The municipality of Dakar will play a catalyst role in kicking off and coordinating each of them. We will leverage the approach of putting stakeholders who care about the future of the city in conversation with each other. We will also strive to be surrounded with the best partners

for the implementation of this strategy. Each of the initiatives will be implemented by capitalizing on the 100 Resilient Cities broad network (similar initiatives, experience sharing, etc.), and by profiting from a platform of partners engaged in the strengthening of Dakar’s resilience.

Our resilience strategy is not a fixed document. In a spirit of constant improvement, the document will be reviewed periodically to account for economic, political, social, and environmental changes that the city will experience.



DAKAR CONTEXT

1



PRESENTATION OF SENEGAL

1.1. PRESENTATION OF SENEGAL

Senegal is a Sahelian country with two seasons: a dry season from November to May, and a wet season from June to October. Senegal is on a plateau with an altitude that is below 130 meters (with the exception of the South-East which can reach altitudes of over 580 meters). The country's geographic location and natural resources give rise to a diversity of ecosystems that constitute an important environmental asset. However, this natural capital is threatened by drought, soil and vegetation degradation, dire loss of biodiversity, as well as coastal erosion.

Senegal is one of Africa's most politically stable countries. The country has considerably strengthened its democratic institutions since its independence in 1960. Senegal is a secular and democratic republic. It strives to ensure equality for all its citizens under the rule of law, regardless of their origins, race, gender, or religion. It acknowledges and respects all faiths.

Senegal aspires to emerge out of poverty by 2035. The Emerging Senegal Plan (Plan Senegal Emergent – PSE) is an ambitious strategy devised by the government of Senegal to foster economic growth with a high impact on human development. Senegal's government is determined to consolidate its achievements, especially in terms of democratic governance, and to reprioritize economic, political, and social stability. The success of this plan is rooted in generating investments for profitable sectors of the economy such as agriculture, tourism, housing, social economy, mines, logistics, and industry to catalyze high and stable growth. One of the PSE's projects is to make Dakar a West African regional hub for companies and international institutions, for health and education services and tourism. To achieve these objectives and become a city of the 21st century, Dakar needs to develop strategies to increase its capacity to better respond and adapt to the burgeoning economic, social, and physical stresses.



1.2. PRESENTATION OF DAKAR



Figure 3: City of Dakar factsheet

CITY OF DAKAR FACTSHEET

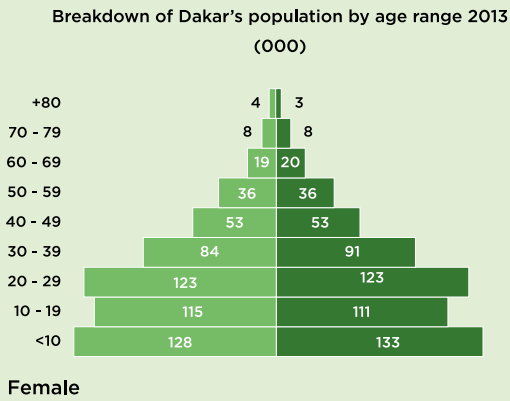
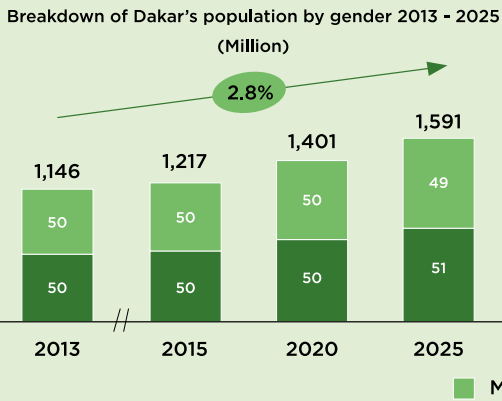


Country: Senegal
Departments: Dakar one of the four departments of the region of Dakar (other departments are: Guediawaye, Pikine and Rufisque)
Region: Dakar
Area of Dakar City: ~79 km² (~0.04% % of the national territory)
Communes of Dakar City: 19
Governance: Within the framework of Decentralization Act III enacted on December 28th, 2013, each of the 19 communes has become autonomous and is governed by an elected mayor. Thus, the city of Dakar has been reduced to an administrative district

DEMOGRAPHIC FACTS (19 COMMUNES)

Total population: 1.14 million in 2013, expected to grow by 2.8% on a year-to-year basis to reach 1.6 million in 2025
Population by gender: Dakar has a gender-balanced population

Youth population: Nearly 66% of Dakar's population is under 30
Density: 12,000 habitants/km²
Urbanization rate: 100%



Source: ANSD, RGPFAE 2013; ANSD, Situation Economique et Sociale région 2013; Dalberg estimates of population growth and breakdown by age range based on data for the region of Dakar

ECONOMY (REGION OF DAKAR)* CLIMATE/ENVIRONMENTAL FACTS

Economic influence:

- 95% of industrial and commercial plants
- 80% of the country's infrastructure and services
- 75% of domestic movements of goods are originating in or routed to Dakar
- 68% of the country's GDP is generated in the city

Employment: 87% of formal jobs

Average temperature:

- December – May: 24 – 27 °C (daytime); 17 – 20 °C (nights)
- May – November: 29 – 31 °C (daytime); 23 – 24 °C (nights)

Rainy season: June – September (wettest month)
Driest periods: January – February
Warmest month: August
Coollest month: February

*Economic data is only available for the region of Dakar which includes Dakar, Guediawaye, Pikine and Rufisque

Dakar is the western-most location in Senegal and Africa. It was established by Governor Protêt in 1857. Dakar (or Ndakarou in the Wolof language) is close to 170 years old and 79 km² wide (0.04% of the national territory)¹⁷, on what was coined as the Cape Verde peninsula during colonial times. It shares its eastern border with the Thies region, and is surrounded by the Atlantic Ocean otherwise. The city of Dakar is one of the four departments that make up the region of Dakar: Guediawaye, Pikine, and Rufisque are the other three. Its population was estimated at 1.2 million as of 2015.¹⁸

The city of Dakar has 19 communes: Biscuiterie, Cambérène, Dakar Plateau, Dieuppeul - Derklé - Castor, Fann - Point E - Amitié, Gorée, Grand-Dakar, Grand Yoff,

“It can be hard to provide the exact data about the city of Dakar because most people who come to Dakar don’t actually live in the city (hospital staff, workers, etc.) but depend on it considerably for their economic activities”
- Government official

Gueule Tapée - Fass - Colobane, HLM, Hann - Bel Air, Mermoz - Sacré Cœur, Médina, Ngor, Ouakam, Parcelles Assainies, Patte d’Oie, Sicap Liberté and Yoff.

DAKAR, A CITY WITH A CHANGING POLITICAL AND GOVERNANCE LANDSCAPE



Within the framework of Decentralization Act III enacted on December 28th, 2013 (Loi n° 2013-10), each of the 19 communes composing the city of Dakar has become autonomous and is governed by an elected mayor. Thus, the city of Dakar has been reduced to an administrative district. Coordination between the 19 communes and the department has become challenging. Another challenge is the lack of effective cooperation and dialogue between the central government and the municipalities, which hampers the city’s ability to provide quality public services to its citizens.

DAKAR, A CITY OF ECONOMIC OPPORTUNITIES



Dakar is home to 50% of Senegal’s urban population, 95% of industrial and commercial plants, 80% of the country’s infrastructure and services, and 87% of formal jobs.¹⁹ Despite several attempts to decentralize development opportunities, this situation persists. People from rural areas and other cities in Senegal are attracted to Dakar because of its strategic position, economic activity (68% of the country’s GDP is generated in the city), and health and education infrastructure. Seventy-five percent of domestic movements of goods are originating in or routed to Dakar. The main driver of growth is the tertiary sector, which is mainly concentrated in the capital, particularly in Dakar-Plateau.

The Leopold Sedar Senghor international airport is served by most major airlines with direct flights to the capitals of the Americas, Europe, Asia and the Middle East as well as to the rest of Africa. The largest port in the country, Port Autonome de Dakar (PAD), serves as a national entry point for imports and exports. The PAD also plays a key role in regional integration: for instance, 70% of imports by Mali from overseas transit through the PAD.²⁰

¹⁷ Agence Nationale de la Statistique et de la Démographie (ANSD)

¹⁸ ANSD, RGPHE 2013; ANSD, Regional Economic and Social Situation, 2013; Dalberg estimates of population growth and breakdown by age range based on data for the Region of Dakar

¹⁹ UN-Habitat, Senegal: urban profile of Dakar, 2008

²⁰ Dr Cheikh Kanté, Speech at the inauguration of PAD offices in Bamako, March 2014

DAKAR, A CITY OF CULTURE



From its independence, Senegal has positioned itself as a beacon of African cultural and artistic diversity as spearheaded by its first head of state, Late Leopold Sedar Senghor. As a result, Dakar has been the host of the first and third World Festival of Black Arts (FESMAN) in 1966 and 2010. The Festival celebrates African and diaspora talent under the theme of African renaissance, and claims to be the largest gathering of black arts and cultures. It is both an intellectual and festive event. In 2016, Dakar hosted the 12th edition of the Dak'Art Biennale, one of the most prominent visual arts exhibitions in Africa, held in Dakar every two years. Official exhibits and 'off' exhibits bring a few hundred artists from Africa and the world.

Dakar is also a cultural and intellectual hub as it is home to the Cheikh Anta Diop University and several regional educational institutions. In addition to being a member of the Organization of World Heritage cities with Gorée Island (world heritage site since 1978), Dakar is also one of the three creative African cities in the UNESCO creative cities network since 2014.

UNESCO Director Irina Bokova declared during the Istanbul Conference on the Alliance of Civilizations in 2011 that "culture is a source of resilience". Culture is indeed not limited to dancing and music, it is a source of wisdom and inspiration, two traits that strengthen bonds between members of a community and helps them build resilience in times of catastrophes.



Figure 4: Late Léopold Sédar Senghor



"Whereas politics are currently the priority in a time of seeking national independence, the primacy of culture will always remain over politics and even the economy. Cultural independence, defined as the will to think and act on one's volition is the sine qua non condition of all other forms of independence, including political independence. Culture is the end all be all of development."

Léopold Sédar Senghor

DAKAR, A CITY OF INFLUENCE



The capital also hosts most government entities, diplomatic representations and offices of international institutions. Many diplomatic events are hosted in the city of Dakar. The offices of many international institutions as well as major company headquarters, (such as Sonatel - a national telecom company) are located in Dakar.

DAKAR, A CITY OF YOUTH



Youth below 35 make up 72%²¹ of Dakar's population, representing one of the city's greatest assets but it poses, at the same time, significant challenges; especially in terms of education and employment provision. From its position as the economic capital of Senegal, the city is the destination of a massive migration (mainly youth) which spurs urban poverty. The unemployment rate is 15% in Dakar.²² Demographic boom has outpaced economic opportunities. This is a consequence, among others, of the slow growth of the private sector that is the main engine of job creation. Youth unemployment represents a stress to the city's growth and sustainability. Addressing challenges for youth economic opportunities will contribute to unleashing the city's potential.

²¹ ANSD (National statistics agency of Senegal), RGPHAE (General population and settlements census) 2013; ANSD, Regional Social and Economic Status 2013; Dalberg estimates of population growth and breakdown by age range based on data for the Region of Dakar

²² Municipality of Dakar, Paving the City of Dakar by Means of High Intensity Manpower Techniques, 2011



Lébou cultural celebration - Ndawrabine





CONTEXT AND OBJECTIVES OF 100 RESILIENT CITIES

2



CONTEXT AND OBJECTIVES OF 100 RESILIENT CITIES

2.1. CONTEXT OF 100 RESILIENT CITIES

Developing cities are young, dynamic, ambitious, and breeding grounds for innovation. However, they are often burdened by fast and erratic growth. In 2050, about two thirds of the world's population will be living in cities. Therefore, to face this global challenge and to celebrate its 100 years of operations, the Rockefeller Foundation decided in 2013 to address three major forces:

- 01** Urbanization. By 2050, three-fourths of the world's population will live in cities, putting new strains on limited resources.
- 02** Globalization. Cities are more interconnected than ever before – and a system failure in one city can cause collapse in economies across the globe.
- 03** Climate Change. For the many cities located in fragile ecosystems and along coasts, the impacts of climate change can be particularly catastrophic.

Urban resilience is generally understood to be the ability for individuals, communities, institutions, businesses, and urban systems to survive, adapt, and develop despite the number of acute shocks and stresses they may face. Strengthening resilience in cities is now imperative, seeing the growth in the number and size of cities

around the world. Given their importance in terms of economic growth, innovation, individual growth, social and cultural exchanges, cities ought to be treated with meticulous attention. The Foundation created an organization called 100 Resilient Cities, and has thus set for itself the objective to support 100 cities around the world in their efforts to strengthen their resilience strategy and operations.

« ... the ability for individuals, communities, institutions, businesses, and urban systems to thrive, adapt, and develop despite the number of acute shocks and stresses they may face... »
100 Resilient Cities

100 Resilient Cities - Pioneered by The Rockefeller Foundation thus looks forward to strengthening the operational capacity of 100 cities around the world, so they can fully attain their potential by preparing themselves against the shocks and stresses that come with urbanization, rapid population growth, urban mobility, climate change, etc. The first step of this process is the elaboration of resilience strategies specific to each city. Dakar and Durban are the first two African cities that have been selected in the first cohort of 100 Resilient Cities (100RC).



Figure 5: Address by M. Khalifa Ababacar Sall following the announcement of Dakar as a member of the 100 Resilient Cities network



Source: 100 Resilient Cities, announcement of Dakar as a member of the 100 Resilient Cities network



In line with the 100RC recommendations, three major phases characterize the drafting process of the resilience strategy, as illustrated in the figure below.



Figure 6: Process for elaborating the resilience strategy of Dakar



Source : 100 Resilient Cities

The stages of the drafting process place equal emphasis on the results as well as the process itself. Stakeholders' engagement from the beginning of the process is one of the key success factors of this approach.

Dakar's resilience strategy will be a dynamic and evolving tool that will be able to integrate new initiatives identified by relevant stakeholders in order to adapt

to the growth of the city. The strategy thus has the ambition to be the first step towards a common and ongoing reflection process to bring solutions to problems faced by the city of Dakar. The strategy will finally facilitate the continuous identification of intervention opportunities beyond those presented in the sections that follow.



2.2. ALIGNMENT OF THE RESILIENCE STRATEGY WITH THE EXISTING URBAN PLANNING STRATEGIES FOR THE CITY OF DAKAR

In 2011, the municipality of Dakar engaged in a strategic planning exercise and called on its socio-economic partners in order to achieve their common objectives considering the social, economic, and environmental challenges facing the city. The resulting Strategic Orientation Document (Document d’Orientation Stratégique - DOS) is a city planning document that clarifies the vision, values, engagements, roles, and responsibilities of the city council of Dakar. The document also suggests means to achieve results in the medium term (2012-2017) and long term (by 2030).

The municipality expressed the following vision: “Dakar is a driver of socio-economic and cultural performance, striving for good governance and sustainable growth, for the prosperity of its people.” This vision will be achieved through the following strategic areas:

- 01 Dakar, a city with planned development;
- 02 Dakar, a beautiful city with an improved living environment;

03 Dakar, a city focused on education, health, wellness, and creativity through culture;

04 Dakar, a city aspiring to socio-economic development

Similarly, the Environment Action Plan (PACTE), aligned with the Agenda 21 and the DOS, is another key feature of the Cultural and Economic Development Plan (Plan de Développement Economique et Culturel - PDEC) focused on Dakar’s social and environmental responsibility.

These planning documents are the plinth of the city’s resilience strategy that takes into account themes in the vision for the city and strategic intervention areas, while adding key elements of resilience. The resilience strategy has the ambition to become a reference document that all local and international partners could refer to, in order to provide their support in the implementation of actions to strengthen the city’s resilience.





Senegalese wrestling - Lamb



STRATEGIC AND SPECIFIC
RESILIENCE OBJECTIVES
FOR DAKAR

3

STRATEGIC AND SPECIFIC RESILIENCE OBJECTIVES FOR DAKAR

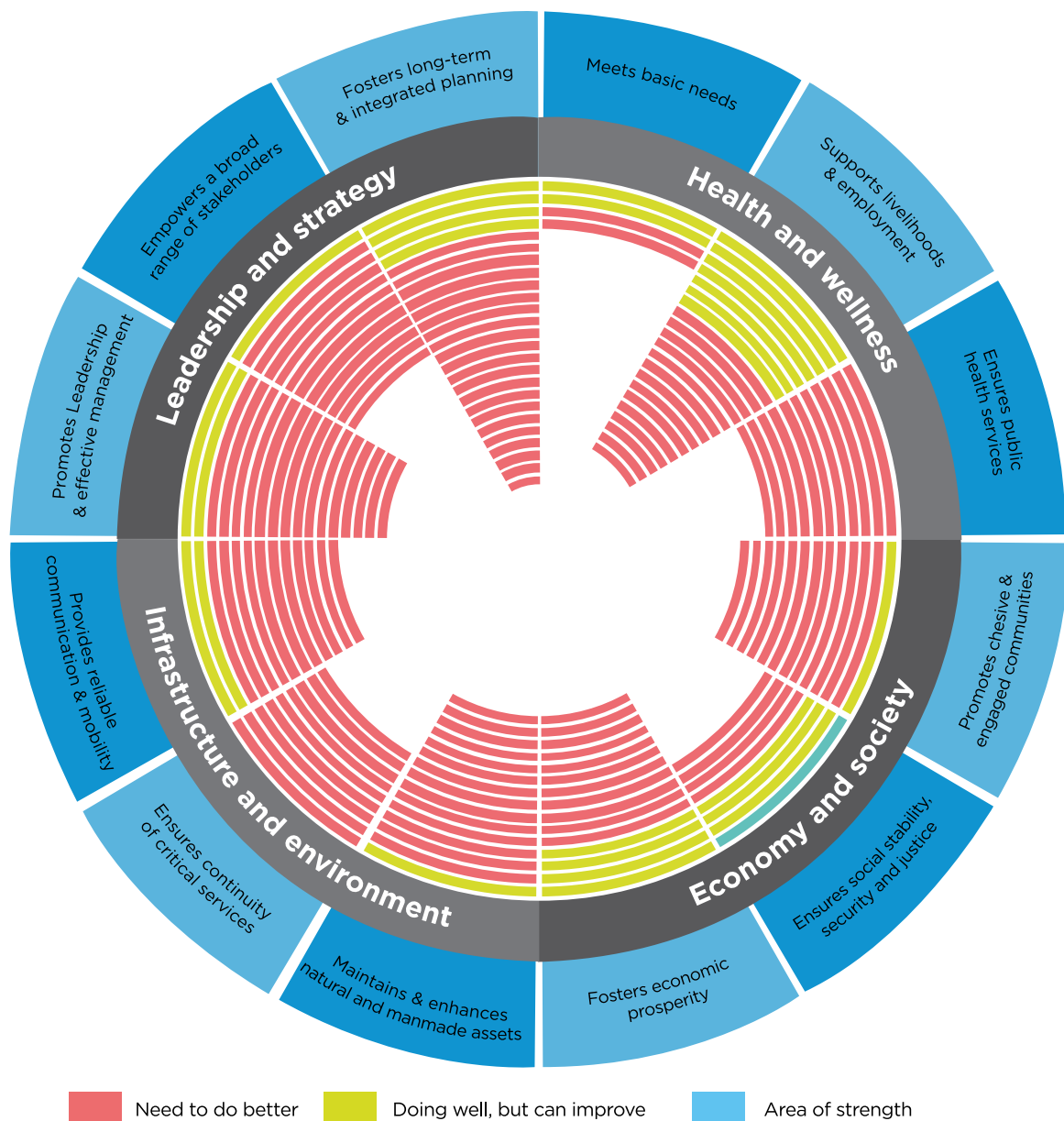
3.1. CONTEXT AND IDENTIFICATION PROCESS OF RESILIENCE OBJECTIVES FOR DAKAR

The first phase of the initiative consisted of a preliminary diagnostic of the city's current resilience situation by ranking its available resources, potential threats, constraints, risks it is exposed to, as well as stakeholders' perception of its resilience. This diagnostic phase resulted in a non-refuted conclusion: on all measures set

forth by the components of the Preliminary Resilience Assessment (PRA) – a tool proposed by 100RC – Dakar is not perceived as a resilient city. The only area in which the city showed some strengths was “stability and security”, as illustrated by the stakeholders' perception tool below.



Figure 7: Perception of stakeholders on the resilience of Dakar



Therefore, Dakar shows a weak economic, sanitary, infra-structural, and strategic resilience. In addition, the PRA

has allowed the identification of nine priority shocks, and a number of stresses represented in the below figures.

 **Figure 8: List of identified shocks**

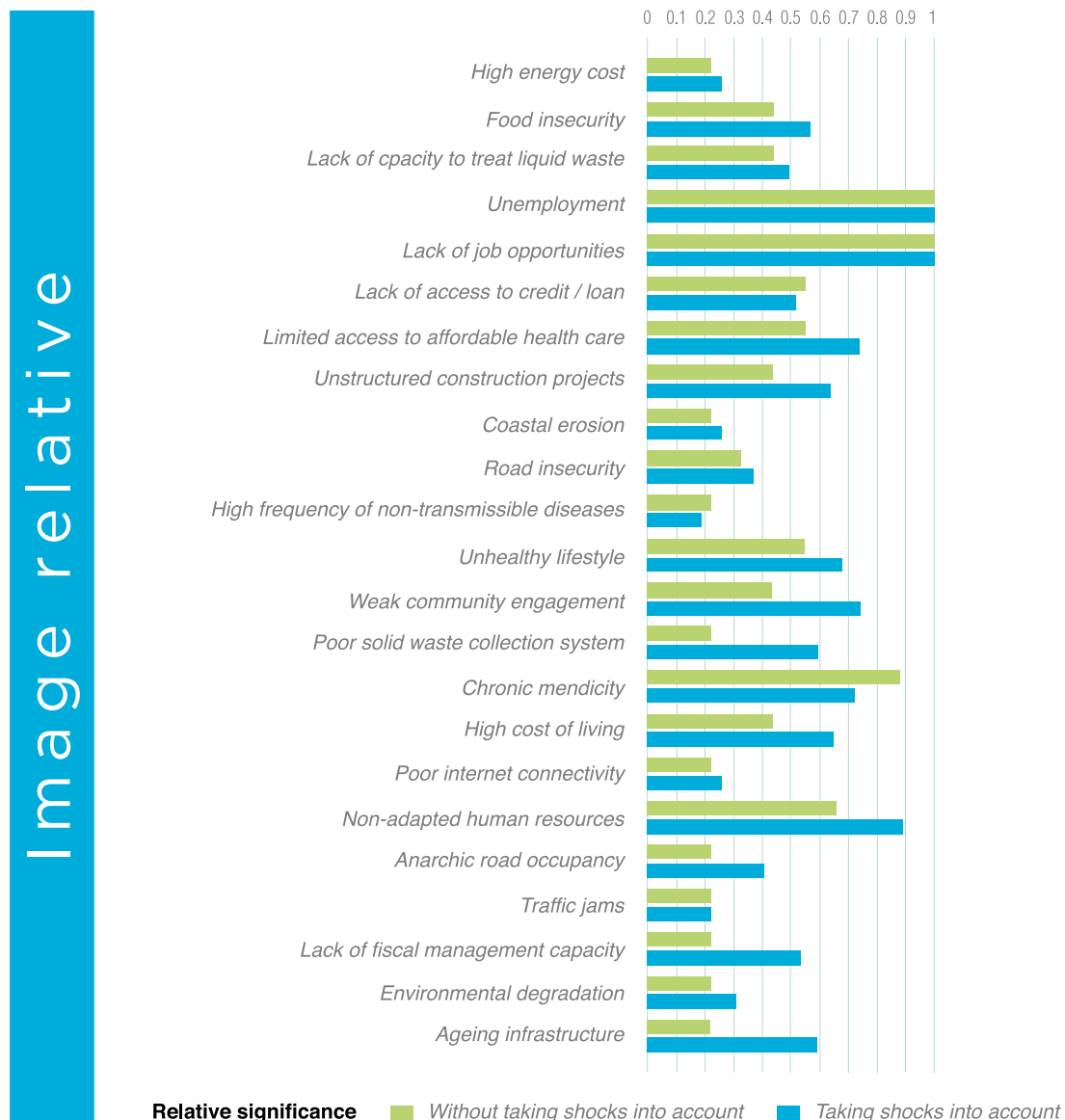
Shocks	Current tendencies		Foreseeable risks		
	Probability	Intensity	Probability	Maximum consequence	Risk to the city
Fires	→	↗	High	High	High
Epidemics	↗	↗	Medium	High	High
Transport of hazardous material	↗	→	Medium	Medium	Medium
Food security risks	↗	↗	High	Medium	High
Seismic activity	n/a	n/a	Low	High	Medium
Tornados	↗	↗	Low	High	Medium
Buildings and infrastructure disrepair	↗	→	High	High	High
Structural adjustments	n/a	n/a	Low	High	Medium
Prolonged water shortages	↗	↗	High	Medium	High
Prolonged power outages	↗	↗	High	Medium	High
Industrial explosions	↗	↗	High	High	High
Civil crises / violence	↗	↗	Low	High	Medium
Economic crises	↗	↗	High	High	High
Tsunamis	n/a	n/a	Low	Medium	Medium
Floods	↗	↗	High	High	High

Source: Dalberg, 100 Resilient Cities initiative, preliminary resilience assessment 2015; Dalberg analyses

“ Dakar’s sewage network is as old as Senegal’s independence. Its maintenance requires large investments and it needs to be renewed. ” – Private sector stakeholder



Figure 9: Comparison between the relative prominence of stresses with and without taking into account shocks (relative importance 0-1; shocks taken or not taken into account)²³



Source: Dalberg, 100 Resilient Cities initiative, preliminary resilience assessment 2015; Dalberg analyses

The city thus faces several stresses of which 23 were identified during the preliminary diagnostic. They are illustrated here above. Some the most urgent stresses identified include:

- Unemployment, and more specifically the low diversity of employment opportunities for youth
- Frequent power outages and poor access to technology (low bandwidth, etc.)
- Environmental degradation (pollution caused by lack of access to water and sanitation services) and the effects of climate change (coastal erosion, rise of sea levels, etc.)
- Weak community and civic engagement, and chronic mendacity

“Waste management costs the government, +10 billion (CFA francs) but yet several families do not have access to collective sanitation services. In addition, horse cart owners (informal actors for waste collection) dispose their loads in illegal dump sites, which increases the city’s cost of cleaning the streets.” – Research institute

This process resulted in the identification of six main intervention areas (illustrated below). Climate change has been added in addition to these intervention areas as a cross cutting intervention, affecting all the others.

²³ Stresses were evaluated using a risk assessment tool developed by 100RC. The tool uses stakeholder perceptions during the preliminary resilience assessment and allocates them probabilities from 0 (low likelihood) to 1 (high likelihood) based on their likelihood of occurrence. Stresses are then weighted against the likelihood of occurrence of shocks, which typically would show the amplitude of the stress itself.



Figure 10: Key themes identified during the preliminary resilience diagnosis



CIVIC ENGAGEMENT

How can Dakar citizens' civic engagement be promoted? Particularly in the interest of developing responsible practices when it comes to hygiene, security, and solidarity?



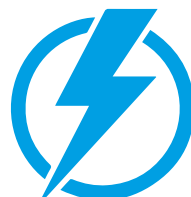
URBANIZATION

How can responsibilities be shared efficiently in urban planning? How should the urban plans be formulated along with the transportation plans while ensuring their implementation?



WATER AND SANITATION

How can waste water and rain water be appropriately processed, and how can clean water be distributed efficiently?



ENERGY

Which strategies can allow the supply of enough energy of good quality for the city, while optimizing for its costs and externalities?



HEALTH

How can the use of health infrastructure be maximized in order for the people of Dakar to benefit from reliable health services?






DIGITAL ECONOMY

How can quality digital services be disseminated to the city's inhabitants, as well as contribute to its growth?



CLIMATE CHANGE

How can the intervention areas mentioned above contribute to the lessening of climate change effects in the city?

-  Strategy's priority intervention area
-  Additional intervention area
-  Cross cutting intervention area

Five discovery areas have been shortlisted as critical levers to reinforcing Dakar's resilience following a review process with the city's stakeholders. The perceptions gathered from these stakeholders and the risks and assets analysis were the basis of the selection process for the top five discovery areas with high impact potential on the city's social and economic resilience: (i) civic engagement, (ii) climate change readiness, (iii) sanitation and, (iv) energy efficiency. Urban mobility, which is as critical, will be addressed later due to capacity.

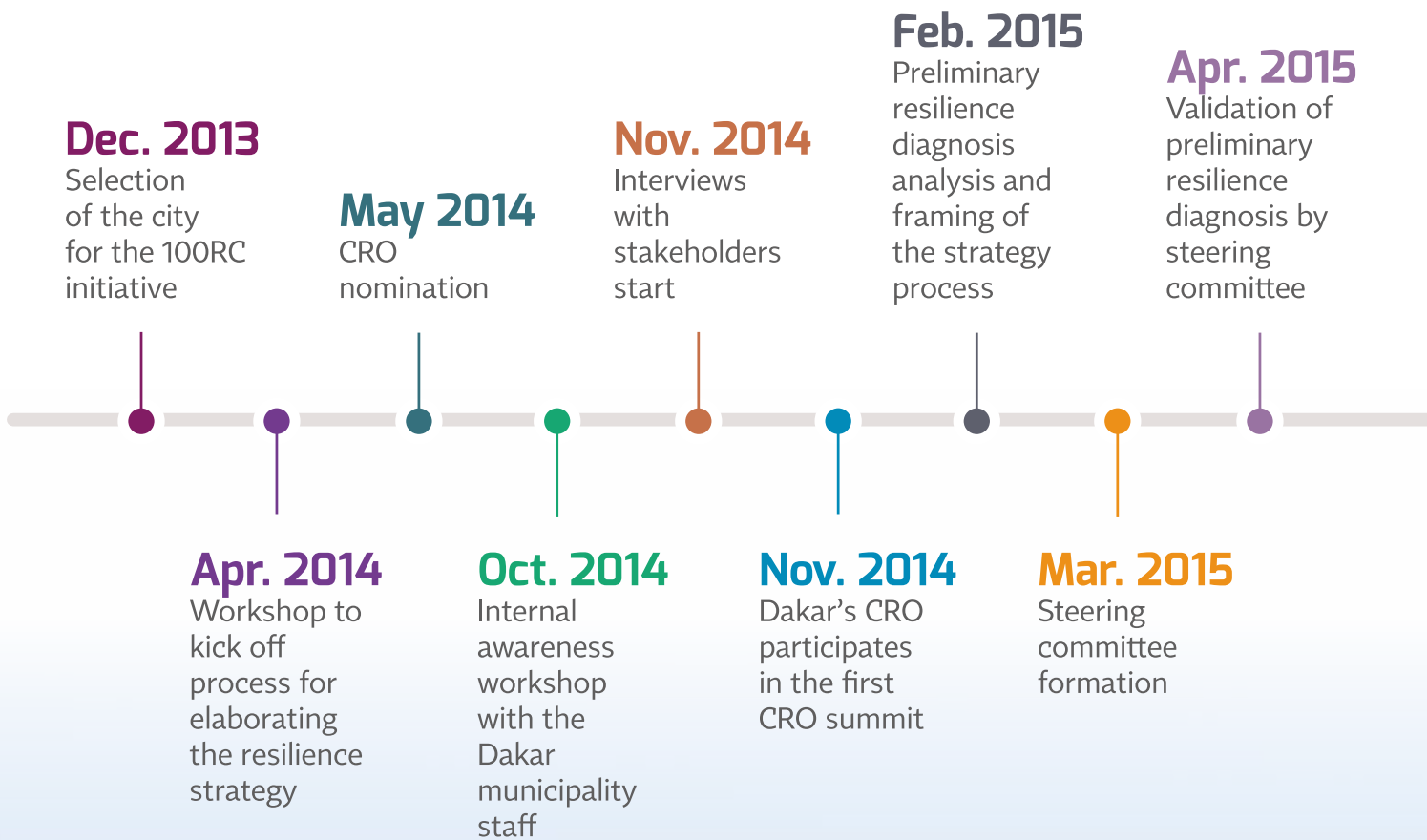
The second phase of the initiative consisted of developing a resilience strategy for the city focused on the priority intervention areas identified during the preliminary resilience diagnostic. The development of the resilience strategy thus resulted from an in-depth study of the shortlisted priority intervention areas in order to identify a large portfolio of high impact activities that address the city's challenges.

Urban mobility, civic engagement and climate change were not included in the detailed analyses of the focus areas, in the context of the resilience strategy. However, the various existing studies on these topics over the years, were leveraged. Sanitation and energy efficiency reports are accessible.

Since it has joined 100RC, Dakar, primarily through its Chief Resilience Officer has hosted several awareness and knowledge sharing campaigns with stakeholders in government, civil society, and the private sector, as illustrated below. This process was reinforced through a workshop to validate findings and intervention opportunities, as well as to formulate the city's vision for resilience and set the objectives to achieve it. Important stakeholders who took part in the workshop include the municipality, government representatives from key sectors (Waste management coordination unit - UCG), private sector actors (Federation of Electricity Enterprises in Senegal - FESELEC), and research institutions (African Institute for Urban Management - IAGU).



Figure 11: Process for elaborating the resilience strategy of Dakar



Oct. 2015

Meeting with steering committee, mayor, and 100RC Associate Director for analysis and selection approval

Jan. 2016

Agreement on analytical framework for the 5 priority intervention areas

Apr. 2016

Findings restitution and brainstorming workshop with stakeholders of the city

**Dec. 2016/
Jan. 2017**

Publication of the resilience strategy for the city of Dakar

Jul. 2015

Analysis of preliminary resilience diagnosis results, and 5 priority intervention areas selection process

Dec. 2015

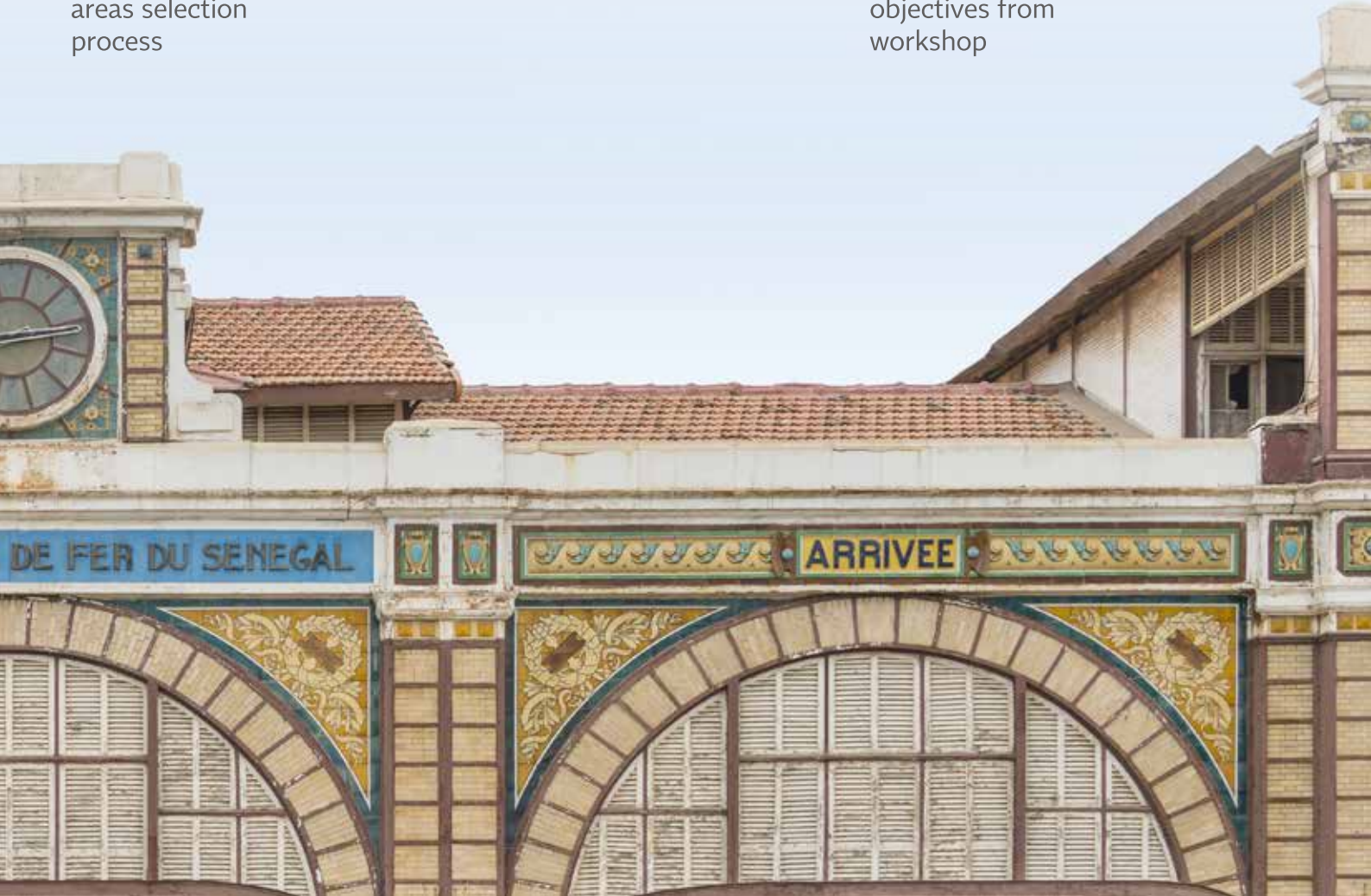
Dakar's CRO participates in the second CRO summit

Mar. 2016

Analyses of the 5 priority intervention areas

Apr. 2016

Meeting with the mayor to share opportunities identified, as well as strategic pillars and objectives from workshop



3.2. FIVE STRATEGIC OBJECTIVES FOR A RESILIENT DAKAR

The analysis of the priority intervention areas included (i) a literature review; (ii) interviews with national and municipal authorities, as well as stakeholders from

the formal and informal private sector; and (iii) the identification of a range of preliminary intervention opportunities for the resilience strategy.



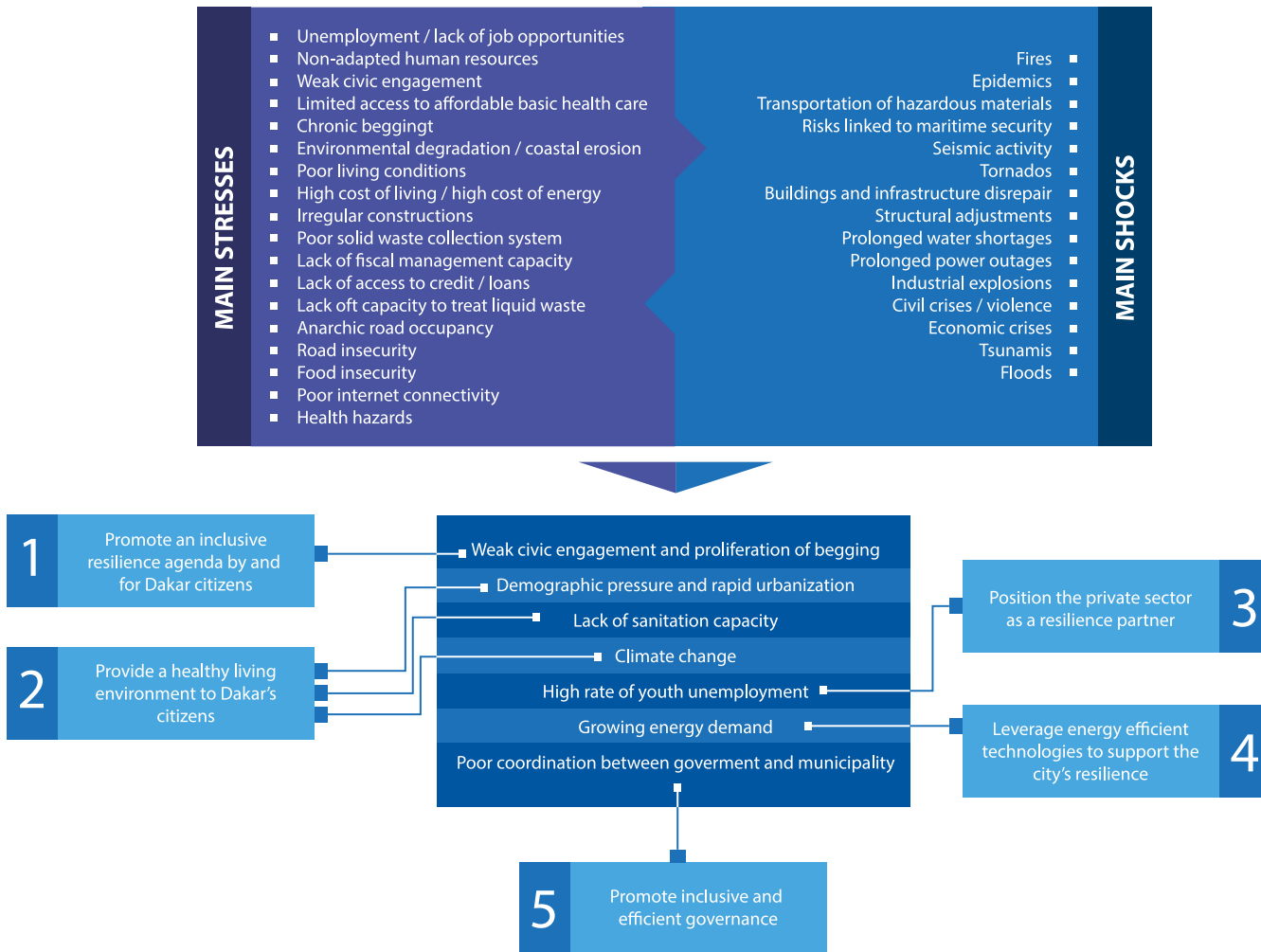
Figure 12: Process for elaborating the vision and objectives of Dakar's resilience strategy



The objectives of the resilience strategy thus take into account the shocks and stresses, as well as the analysis of the five priority intervention areas.



Figure 13: Links between resilience challenges and selection of strategic objectives



Source: Dalberg, 100 Resilient Cities initiative, preliminary resilience assessment 2015; Dalberg analyses

The strategic objectives are directly in support of the vision: to make Dakar a city **THAT IS CLEAN, SAFE, ENERGY EFFICIENT AND POISED**

FOR INCLUSIVE GROWTH. Each primary strategic objective includes secondary objectives, around which initiatives are developed.

a. Promote an inclusive resilience agenda by and for Dakar citizens

The recurrence and persistence of risks facing the city is strongly linked to the behaviors and attitudes of its citizens. Weak civic engagement, inconsistent construction practices, poor waste disposal behaviors, anarchic occupation of roads, unhealthy lifestyles, and environmental degradation are all stresses caused by citizens' behaviors. The inability to control and correct such behaviors and attitudes can have massive repercussions or can become important shocks for the city (fires, epidemics, infrastructure collapse, civil violence, etc.). A shared understanding and buy in from the population, as well as an inclusive approach will be building blocks to the generalization of resilience practices.

Awareness of the link between on one hand, natural and urban environments, and on the other, social and economic development, is essential on the journey to resilience. In this context, Dakar's resilience strategy should be a repository of multiple interventions by all its citizens.

Civic disengagement is at best a lack of understanding or failure to carry out one's civic duty, or at worse indifference about the city's affairs. This can be the result of a lack of investment in dialogue or social solidarity efforts, and the absence of a culture of shared responsibility about city preservation. Civic education is thus a crucial factor for the harmonious development of a city. In fact, citizens who understand and respect

common laws: are able to discipline themselves and adopt responsible behaviors towards their community; are knowledgeable of human and civic rights; and understand the importance of upholding the values of peace, solidarity, and environmental friendliness. These abilities are key assets to promoting harmony within their communities.

Citizens should be at the heart of the resilience strategy to bring out the strong link between human actions and their effects on the challenges the strategy seeks to solve. To do so, it will for instance be necessary to innovate methods of knowledge sharing, education, and city-wide communication channels to improve citizens' comprehension of the problems they face and promote the concept of resilience as a tool to solve those problems sustainably. In addition to this, awareness campaigns will be conducted with religious leaders, traditional chiefs, and influential figures who play a thought leadership role in their community, whose voices are heard and respected.

“ Roads are constantly misused and run the risk of disintegrating quickly due to the high number of people. In addition, rain water canals have become dumps.”
– Municipal authority

b. Create a healthy living environment for Dakar's citizens

For citizens to be proud of their city, they need to feel that they are living in a safe and harmonious environment which can allow them to improve their living conditions. Dakar has witnessed the destruction of several of its green spaces, but also the lack of planning for housing, as well as rising pollution levels.²⁴ Dakar produces more than 850 tons of waste daily, but more than 400,000 (38.5%)²⁵ of its inhabitants do not have access to basic sanitation services. This leads to a proliferation of illegal dump sites all around the city. In addition, 30% of the population doesn't have access to sewage services; some call on manual emptiers who dispose of their liquid waste into the surroundings. Lastly, green spaces from the time of independence, which served as parks and could have contributed to the preservation of the environment, have increasingly been disappearing due to rapid urbanization and

irregular construction all over the city. These elements all contribute to the degradation of the city's environmental landscape.

Improving the living environment of its residents should be one of the essential services that the municipality offers. This would range from improving organization of sanitation services to raising awareness about activities that can be detrimental to the environment. The municipality of Dakar has expressed a strong interest in improving the living conditions through the launch of programs such as the Environmental Action Plan (Plan d'actions environnementales - P.ACT.E) - City of Dakar, and the program clean city "Dakar Set Wecc". These initiatives should be strengthened in the framework of the resilience strategy.

²⁴ Cities Alliance, Grand Dakar urban development strategy (By 2025), 2010

²⁵ UCG, Internal workshop report on waste management, 2016



Overview of the Environmental Action Plan (P.ACT.E.) – City of Dakar

In order to translate the shared vision of the municipality, “Dakar by 2025”, into concrete ecological and civic behaviors, the Direction of Planning for Sustainable Development (Direction de la Planification et du Développement Durable - DPDD) of the municipality of Dakar have developed in 2013, the Environmental Action Plan (PACTE). It is a decision making tool as well as a good governance tool to integrate an environmental dimension when designing projects and interventions for Dakar’s sustainable development and when implementing these projects. The P.ACT.E is part of the Agenda 21 of Dakar and serves as a harmonization document between the city’s environmental efforts and tools from the central government.

The P.ACT.E’s specific objectives are:

- To build an environmental plan and projects to ensure improved solid waste management, control pollution from domestic and industrial liquid waste, and develop an adapted sanitation system;
- To give priority to the urban renewal and high impact large planning projects;
- To reduce greenhouse gas emissions and reduce climate change effects by saving energy in buildings (energy efficiency tools and renewable energy integrated into buildings);
- To support a green economy that generates revenues and employment.

The PACTE is thus the engagement from the municipal authorities to undertake necessary changes for a sustainable development of the city.

Source: www.villededakar.com



Dakar Clean City « Dakar Set Wecc » initiative

The Dakar Clean City initiative was officially launched in 2012 with the aim to rid the city of trash and electronic waste that obstructs its roads and avenues. The Ministry of Decentralization and Land Planning, with the support of the municipality of Dakar, launched this initiative with bins placed in strategic locations around the city. In order to further incentivize the population to take part in their city’s sanitation, the municipality also supported the launch of a song about good sanitation practices entitled “Dakar set wecc, aqu dekk-bi” (A clean Dakar - the city’s right), as well as a song about urban development titled “Aqu dekk-bi” (The city’s rights). In the same vein, the municipality of Dakar was also engaged in a vast campaign consisting of removing hawkers from main roads and sidewalks.

Source: www.villededakar.com

“ Green spaces must be multiplied across the city in order to improve the living environment, with the very few unoccupied spaces that remain.” – Neighborhood council official

c. Position the private sector as a resilience partner

The lack of economic prosperity is another area of intervention identified for the city, based on the perceptions of the population. This perception is further confirmed by stresses identified in the preliminary risk assessments such as unemployment, lack of diversified employment opportunities, limited access to credit, causes or effects of low productivity of the private sector, and to an extent, lack of economic prosperity. The private sector has an important role to play in the resilience strategy of the city, not only by investing and forming partnerships for the delivery of the resilience initiatives, but also through the creation of employment opportunities for social stability. However, the private sector is not sufficiently empowered or associated to fully play its role, as expressed in the preliminary assessment.

Besides, the Senegalese economy rests predominantly on the informal sector which contributes 42% to the wealth of the country, and employs more than 48.8% of the working population.²⁶ The informal economy has thus been the main driver of the construction of the city and urban life. For instance, the company Dakar Dem Dikk (DDD), an urban transportation company, cannot fulfill the demand for all neighborhoods. Until recently, its 280 buses only covered 25% of the demand in transport.²⁷ The gaps of Dakar Dem Dikk

gave rise to an informal transportation sector. The “cars rapides” (refurbished buses), yellow-and-black taxis, and “clandos” (‘clandestine’ taxis) transport more than 875,000 passengers daily, and have become the common modes of transportation.²⁸ Similarly, in the sanitation sector, 38.5%²⁹ of households in Dakar use the services of informal waste collectors (horse cart owners and manual pit emptiers). The intervention of these informal players is thus essential to the city’s functioning, but can equally contribute to the city’s environmental pollution (illegal dump sites across the city), or create urban congestion, etc.

“ The informal sector needs to be organized and valued in order to adequately support and strengthen the city’s resilience. ” – Municipal authority

The municipality will thus have to give an important role to the private sector in acting as a resilience partner by promoting a climate favorable to investments and economic activity, by engaging and coordinating the informal sector, and by promoting local products and services as means to generate local wealth and employment.

d. Create a healthy living environment for Dakar’s citizens

Dakar incurs the costs of limited supply of energy and frequent power outages - 11.8 power outages occur every month on average. These lead to a loss of one percentage point in the city’s GDP every year.³⁰ Furthermore, Dakar consumes 56.9% of the national energy supply (about 1.3 TWh in 2013) and will need an additional supply of 50MW to meet its current demand.³¹

With an average annual growth rate of 4.4%,^{32, 33} the electricity consumption of Dakar is expected to double between 2013 and 2030.³⁴ At the same time, Senegal has committed to reduce its emissions of CO₂ from the energy sector by 17% by 2030. Focusing only on developing electricity supply has shown its limits given the amount of investments required, against limited public resources and competing priorities in education, health and basic infrastructure.

“ Senegal needs to make a technological leap forward by leveraging technology to distribute and manage electricity. ” – Private sector stakeholder, company specialized in electric technologies.

While it is important to note that electricity is managed at the central government level and thus not in the capacity of the city, local authorities have a crucial role to support government efforts to ensure that the energy needs of all citizens are met. However, ensuring energy sufficiency is complex and requires interventions across various areas including policy and regulation, technology, and behavior change. Encouraging the adoption of energy efficient technologies among citizens is a simple and cost-effective way local authorities can engage to reduce energy wastage.

²⁶ ANSD, National Survey on the Informal Sector in Senegal (ENSIS 2011), 2013

²⁷ UN Habitat, Global Report on Human Settlements, 2013

²⁸ Ibid.

²⁹ UCG, Internal workshop report on waste management, 2016

³⁰ World Bank, Infrastructure of Senegal: a continental perspective, 2011

³¹ ANSD, Regional economic and social situation, 2013

³² International Futures (IFs) modeling system, Version 7.15, Frederick S. Pardee Center for International Futures, Josef Korbel School of International Studies, University of Denver, Denver, CO; Dalberg Analyses

³³ Dalberg, Dakar Energy Efficiency Report, 2016

³⁴ Government of Senegal, Contribution Prévue Déterminée au Niveau National (CPDN), 2015

e. Promote inclusive and efficient governance

Governance institutions that are actively engaged and collaborate closely are essential to implement the resilience strategy, especially in the context of cities with a special status such as Dakar where the central government and municipality work in the same territory and share responsibilities on several aspects. For instance, sanitation, which was managed for a long time by the municipality, has now become the responsibility of a government institution, as well as the collection and allocation of taxes to finance the sector which is exclusively managed at the central government level. The procurement of housing permits or electricity licenses is equally controlled by the central government. Despite the decentralization act, Dakar is in a context where the central government and municipal authorities operate within the same jurisdiction with the common mandate to provide basic necessities and a safe living environment to residents. However, there are several overlaps between these two powers, which often hinder the progress of activities and initiatives to develop the city. Dakar has now become a stage for political stakes and negotiations between the central power and the municipality. This state of affairs negatively impacts the speed and transparency of procedures. An important cautionary step in the design of the resilience strategy was to acquire a clear comprehension of these relationships.

“ Different institutions should work in synergy more often (e.g. Direction of Urbanization to deliver construction permits with ONAS) for a better organization of vulnerable sectors and enforcement of the construction regulations.” – Association of private sector companies

To overcome the city's vulnerability and put in place an efficient resilience strategy, collaboration between the central power and municipality is paramount. This can go a long way in ensuring a shared understanding of the concept of resilience and its initiatives for the city, as well as the provision of quality services to citizens. The collective action spearheaded by the city's Mayor, technical advisors in the public sector, and the central government will be necessary to carry out the resilience strategy of Dakar. Citizens should benefit from institutions that work better than they do now, and that are capable of consistently providing services of better quality. Besides, the implementation of an inclusive and efficient governance strategy will contribute to a positive relationship between institutions and the citizens so as to provide them with a clean and safe living environment.



3.3. OVERVIEW OF STRATEGIC PRIMARY OBJECTIVES, SECONDARY OBJECTIVES, AND INITIATIVES

Kermerl market, viewed from the back



Primary objectives	Secondary objectives	Initiatives
<p>A. Promote an inclusive resilience agenda by and for Dakar citizens</p>	<p>A.1. Empower citizens to understand and express their thoughts and concerns about the city's resilience, as well as propose solutions</p>	<p>Initiative A.1.1.: Enhance citizen's comprehension of resilience for Dakar</p> <p>Initiative A.1.2.: Create a mechanism for ongoing collection of citizen's feedback on the challenges and resilience opportunities</p> <p>Initiative A.1.3.: Introduce the concept of resilience in basic education</p> <p>Initiative A.1.4.: Explore (early warning) tools and services to provide Dakar citizens with access to information in real time about imminent shocks</p>
<p>B. Provide a healthy living environment to Dakar's citizens</p>	<p>B.1. Promote initiatives to protect the environment</p>	<p>Initiative B.1.1.: Reinstate green spaces in the city</p> <p>Initiative B.1.2.: Implement systems for promoting eco/green lifestyle</p>
	<p>B.2. Improve the city's sanitation</p>	<p>Initiative B.2.1.: Install public recycling bins throughout the city for better waste management</p> <p>Initiative B.2.2.: Implement a program to curtail illegal and hazardous dumps through collaborations with horse cart owners and UCG dealers</p> <p>Initiative B.2.3.: Launch a digital platform to disseminate best practices and improve technical guidance for actors in sanitation</p> <p>Initiative B.2.4.: Create a competition to spur innovative solutions for drainage management</p> <p>Initiative B.2.5.: Organize horse cart owners in cooperatives to encourage sorting of trash according to recycling norms</p>
<p>C. Position the private sector as a resilience partner</p>	<p>C.1. Promote the efficient implementation of public-private partnerships for resilience at municipal level (create opportunities for private investments)</p>	<p>Initiative C.1.1.: Improve partnerships between public institutions (SENELEC, UCG, ONAS) and private actors for better sanitation and energy efficiency (enforcement of norms, installation of smart meters, etc.)</p> <p>Initiative C.1.2.: Provide support to small and medium enterprises (SMEs) active in resilience building</p>
	<p>C.2. Promote economic growth by leveraging both the formal and informal sectors</p>	<p>Initiative C.2.1.: Create a #MadeInDakar label to brand locally sourced and produced goods</p> <p>Initiative C.2.2.: Facilitate access to markets for recycled products</p> <p>Initiative C.2.3.: Enhance existing municipality-led incubator for informal economic actors</p>
<p>D. Leverage energy efficient technologies to support the city's resilience</p>	<p>D.1. Promote the adoption of energy conservation technologies</p>	<p>Initiative D.1.1.: Disseminate information and promote standards on electrical system installations</p> <p>Initiative D.1.2.: Promote end user awareness and adoption of energy-saving opportunities</p> <p>Initiative D.1.3.: Evaluate the use of more energy-efficient mechanical systems in commercial buildings across the city to reduce energy wastage from air conditioning</p> <p>Initiative D.1.4.: Evaluate the use of more energy-efficient mechanical systems in professional office buildings across the city to reduce energy wastage from lighting</p> <p>Initiative D.1.5.: Create a competition to spur innovative solutions to address the city's energy challenges</p>
<p>E. Promote inclusive and efficient governance</p>	<p>E.1. Foster institutional collaboration to improve service delivery</p>	<p>Initiative E.1.1.: Enhance dialogue between the central government and municipal administration towards resilience building collaborations</p> <p>Initiative E.1.2.: Increase the capacity of public service personnel to become agents of integration of resilience in the management of public affairs</p>



Dakar by night

ENVISIONING THE CITY OF DAKAR: A RESILIENT SYSTEM

4





ENVISIONING THE CITY OF DAKAR: A RESILIENT SYSTEM

Cities are systems; consisting of multiple composite parts, contributors and subsystems. Improving the individual systems that make up a city will increase the resilience of the city overall. Resilient systems withstand, respond to, and adapt more readily to shocks and stresses to emerge stronger after tough times, and last better in good times. We view the strategic

objectives and the associated initiatives outlined in this document as essential contributors to strengthening the city of Dakar's resilience. In developing each initiative, the following resilience qualities were taken into consideration, as these aid in enhancing each initiative as well as contributing to the overall resilience of the city.



Qualities of resilient systems



REFLECTIVE: Using past experience to inform future decisions



ROBUST: Well-conceived, constructed, and managed systems



RESOURCEFUL: Recognizing alternative ways to use resources



REDUNDANT: Spare capacity purposively created to accommodate disruption due to extreme pressures, surges in demand or an external event. It includes diversity where there are multiple ways to achieve a given need. For example, energy systems that incorporate redundancy provide multiple delivery pathways that can accommodate surges in demand or disruption to supply networks.



INCLUSIVE: Prioritizing broad consultation to create a sense of shared ownership in decision making. Inclusive processes emphasize the need for broad consultation and 'many seats at the table' to create a sense of shared ownership or a joint vision to build city resilience. For example, early warning reaching everyone at risk will enable people to protect themselves and minimize loss of life and property.



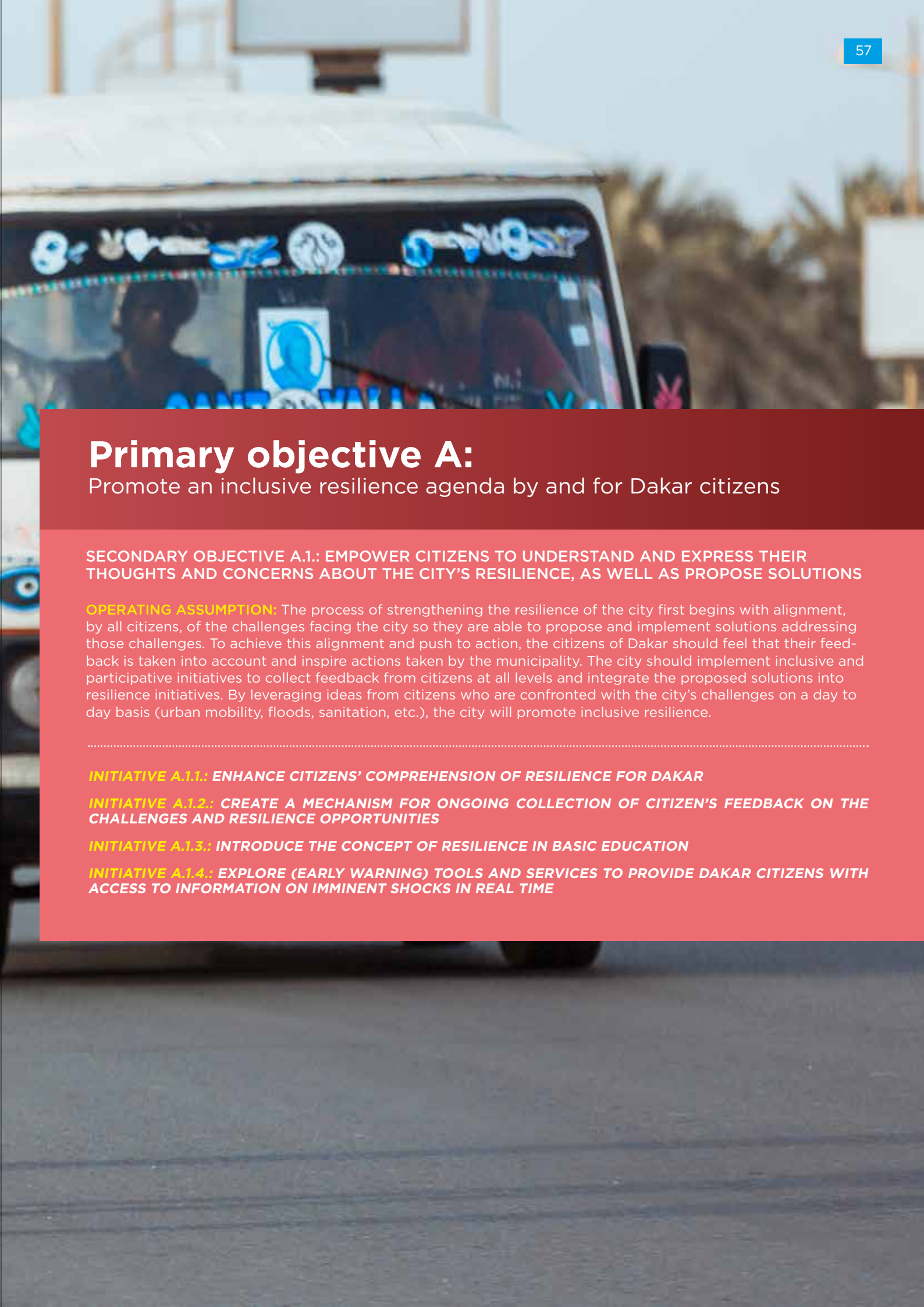
FLEXIBLE: Willingness and ability in adopting alternative strategies in response to changing circumstances. Systems can be made more flexible through introducing new technologies or knowledge, including recognizing traditional practices. For example, in times of crisis, cities may redeploy public buses for emergency evacuations.



INTEGRATED: Bringing together a range of distinct systems and institutions that ensure investments and actions are appropriate, addressing the needs of the most vulnerable and collectively creating a resilient city – for everyone.

Robustness, redundancy and flexibility are qualities that help conceive systems and assets that can withstand shocks and stresses as well as the willingness to use alternative strategies to facilitate rapid recovery.





Primary objective A:

Promote an inclusive resilience agenda by and for Dakar citizens

SECONDARY OBJECTIVE A.1.: EMPOWER CITIZENS TO UNDERSTAND AND EXPRESS THEIR THOUGHTS AND CONCERNS ABOUT THE CITY’S RESILIENCE, AS WELL AS PROPOSE SOLUTIONS

OPERATING ASSUMPTION: The process of strengthening the resilience of the city first begins with alignment, by all citizens, of the challenges facing the city so they are able to propose and implement solutions addressing those challenges. To achieve this alignment and push to action, the citizens of Dakar should feel that their feedback is taken into account and inspire actions taken by the municipality. The city should implement inclusive and participative initiatives to collect feedback from citizens at all levels and integrate the proposed solutions into resilience initiatives. By leveraging ideas from citizens who are confronted with the city’s challenges on a day to day basis (urban mobility, floods, sanitation, etc.), the city will promote inclusive resilience.

INITIATIVE A.1.1.: ENHANCE CITIZENS’ COMPREHENSION OF RESILIENCE FOR DAKAR

INITIATIVE A.1.2.: CREATE A MECHANISM FOR ONGOING COLLECTION OF CITIZEN’S FEEDBACK ON THE CHALLENGES AND RESILIENCE OPPORTUNITIES

INITIATIVE A.1.3.: INTRODUCE THE CONCEPT OF RESILIENCE IN BASIC EDUCATION

INITIATIVE A.1.4.: EXPLORE (EARLY WARNING) TOOLS AND SERVICES TO PROVIDE DAKAR CITIZENS WITH ACCESS TO INFORMATION ON IMMINENT SHOCKS IN REAL TIME



ENHANCE CITIZENS' COMPREHENSION OF RESILIENCE FOR DAKAR



OBJECTIVES:

- Ensure comprehension of the concept of resilience by all citizens of Dakar
- Spark the citizens' interest in, and contribution to resilience through active citizenship



OPERATING ASSUMPTION: Comprehension of resilience and active citizenship is weak among Dakar citizens. Civic acts such as crossing roads using pedestrian crossings or disposing of trash in bins are simple gestures that the city's citizens don't often perform. Public property is often stolen (e.g. electric posts, rails) or destroyed (e.g. during riots against public authorities). Some citizens are convinced that citizenship is the State's responsibility as some colloquial expression suggests: "mbedd mi, mdeddou bour leu" (literal translation: streets belongs to the State; meaning, we are allowed to do whatever we want in the streets since the State is in charge of fixing it). To change such attitudes, this initiative aims to spread the concept of resilience and foster active citizenship among Dakar citizens. This will propel the rise to:

- Autonomous citizens, who understand and respect the law, are capable of self-regulation, and adopt responsible behaviors for themselves and for those around them;
- Citizens capable of engaging in conversations about the city's affairs, debating with discernment, and taking initiative;
- Citizens who are conscious about the resilience challenges facing their country and communities, in order to develop a sense of belonging and choose to adopt more responsible behaviors, as well as citizens who transmit this awareness to those around them.



CONTRIBUTION TO RESILIENCE:

This initiative will spark the rise of new types of citizens who are conscious of their civic duty in the city's prosperity and who embrace resilience-promoting behaviors. It will also empower communities to have increased civic engagement, and will generate strong traction around the implementation of the resilience strategy.



INTERVENTION AREA:

Civic engagement



PRIMARY PARTNERS:

Ministry of urban renewal, housing, and living environment (MRHC); youth associations; women's associations; religious guides; Ministry of Youth and Sports.



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Medium term



PROJECT TYPE:

New



SOURCES OF FUNDING:

Donors (Not yet identified)



APPLYING THE RESILIENCE LENS



INCLUSIVE: ensures shared understanding and interest among citizens around the concept of resilience. Potential to reach some of the most vulnerable populations who are often excluded



RESOURCEFUL: leverages pre-existing community networks as amplifiers of resilience



REFLECTIVE: community networks played a crucial role in raising awareness for HIV/AIDS in Senegal. Lessons learnt from this experience will be leveraged in the deployment of community resilience champions to enhance community preparedness

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> ▪ Floods ▪ Civil crises/violence 	<ul style="list-style-type: none"> ▪ Weak civic engagement ▪ Anarchical road occupancy ▪ Poor solid waste management system

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: RAISE AWARENESS ABOUT RESILIENCE

Disseminate awareness messages around civic behaviors through media and key events in the city in order to generate interest and traction from Dakar citizens

- Train media professionals in speaking about resilience (both at individual and community level)
- Launch TV and radio programs about resilience in local languages
- Publish articles
- Promote resilience through songs, dance performances, visual arts, cultural events, etc.

ACTION 2: ESTABLISH A NETWORK OF COMMUNITY RESILIENCE CHAMPIONS

- Leverage community networks (women’s associations, groups with shared economic interests, youth organizations, religious associations, etc.) to help amplify awareness creation efforts within communities – these groups played a crucial role in awareness creation for HIV/AIDS reduction in Senegal
- Train existing sensitization groups to support/ relay awareness messages, and also to support in times of acute shocks such as floods

Initiative A.1.2.



CREATE A MECHANISM FOR ONGOING COLLECTION OF CITIZEN'S FEEDBACK ON THE CHALLENGES AND RESILIENCE OPPORTUNITIES



OBJECTIVES:

- Elicit a feeling of inclusion of citizens in the core of the city's actions, and incorporate their feedback in implementation of various initiatives
- Ensure citizen's ownership and buy-in towards the resilience strategy



OPERATING ASSUMPTION:

Citizens are both actors in and beneficiaries of efforts that strengthen the city's resilience against the risks it faces. As such, they need to be and feel at the core of resilience initiatives, and therefore necessitating awareness and expression of their perception of resilience within their communities. The intervention aims to address this need and to spark citizens' involvement and ownership of Dakar's resilience strategy.



CONTRIBUTION TO RESILIENCE:

The initiative will promote a common understanding and shared perspectives in the Dakar community of the city's resilience, as well as encourage citizens to act towards strengthening the city's resilience.



INTERVENTION AREA:

Civic engagement



PRIMARY PARTNERS:

Orange/Sonatel, Tigo, Expresso, Dakarlives



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Medium term



PROJECT TYPE:

New



SOURCES OF FUNDING:

Telecom companies; Donors (Not yet identified)



APPLYING THE RESILIENCE LENS



INCLUSIVE: ensures shared understanding and ownership of the concept of resilience among all citizens. Engages citizens as main actors of resilience through collection of their perceptions and feedback. The initiative also has the ability to include voices of the most vulnerable and often neglected populations



REFLECTIVE: intervention is based on an assessment of existing tools for effective communication with citizens

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS

- Floods
- Civil crises/violence

STRESSES

- Weak civic engagement
- Anarchical road occupancy
- Poor solid waste management system

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: EVALUATE DAKAR CITIZENS' PERCEPTIONS OF THE CITY'S RESILIENCE STATUS AS A FLAGSHIP INITIATIVE TO LAUNCH THE STRATEGY

- Poll citizens on their comprehension of the concept of resilience through photo competitions, text messages or phone calls, etc.
- Quiz citizens about their understanding of resilience, for instance by texting in local languages "what is resilience?" and have them respond
- Collect citizen's ideas on civic acts that could strengthen the city's resilience, using for instance, a photo competition

ACTION 2: EXPLORE/DEVELOP TOOLS FOR CONTINUOUS COLLECTION OF CITIZEN'S VIEWS AND CHALLENGES ON RESILIENCE

- Explore existing platforms such as the city's mobile application currently under development, NAVIGEM, as a tool for citizen's feedback collection
- Develop alternative tools to ensure broader reach



INTRODUCE THE CONCEPT OF RESILIENCE IN BASIC EDUCATION



OBJECTIVES:

- Ensure an understanding and ownership of the concept of resilience by Dakar citizens from an early age in order to generate spontaneous behaviors strengthening resilience
- Anchor civic values in the basic education of all Dakar citizens



OPERATING ASSUMPTION:

Formal education includes aspects of civic and moral education, but needs to be strengthened so that people understand at an early age (during elementary school) the concept of resilience. On the other hand, with a net school attendance rate of 61% (UNICEF, 2015), a significant proportion of Senegalese children of school age do not get enrolled in formal primary education. Some are enrolled in Koranic schools «Daaras» where they receive religious education. Education on resilience and active citizenship should be extended to all educational institutions. These modules would be delivered through all channels including education in public schools, private schools, as well as Koranic schools. Thus all children, regardless of the educational system in which they find themselves, will have the basic knowledge to be active actors of resilience and active citizens.



CONTRIBUTION TO RESILIENCE:

This initiative strengthens the commitment and collaboration among industry players for better accountability in educating marginalized populations. It promotes the emergence of communities sharing the concept of resilience. It also contributes to the empowerment of people by anchoring the concept of resilience at an early age, regardless of the form of education received.



INTERVENTION AREA:

Civic engagement



PRIMARY PARTNERS:

Ministry of National Education; other 100RC cities with similar initiatives (Melbourne), Koranic schools, parent-teacher associations



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Medium term



SOURCES OF FUNDING:

Central Government; Donors (Not yet identified)



APPLYING THE RESILIENCE LENS



INCLUSIVE: ensures shared understanding of the concept of resilience among all children, no matter the type of institution where they are educated



INTEGRATED: improves coordination amongst education and disaster management systems

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS

- Epidemics
- Floods
- Civil crises/violence

STRESSES

- Weak community engagement
- Anarchical road occupancy
- Poor solid waste management system

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: DEVELOP CURRICULA

- Assess gaps in the current education system, in regard to training on resilience and active citizenship
- Explore lessons learnt from other cities within the 10ORC network with similar interventions (e.g. Melbourne)
- Engage in conversation with the ministry in charge of education on avenues to strengthen existing curricula on civic and moral education and possibilities to introduce a resilience lens

ACTION 2: DISSEMINATE CURRICULA ACROSS VARIOUS BASIC EDUCATIONAL INSTITUTIONS

- Define mechanisms and timelines to ensure introduction of the curricula in the formal education channels
- Hold discussions with Koranic schools and other educational institutions



EXPLORE (EARLY WARNING) TOOLS AND SERVICES TO PROVIDE DAKAR CITIZENS WITH ACCESS TO INFORMATION ON IMMINENT SHOCKS IN REAL TIME



OBJECTIVES:

- Be informed of the shocks to which the city could be exposed in real time
- Prepare the city and its population to prevent and respond effectively in case of a major shock's occurrence through an effective response and communication system



OPERATING ASSUMPTION: In 2013, Dakar experienced floods that caused a loss of life and injuries to populations, and infrastructure to collapse. Citizens were not prepared for such events, given the lack of anticipation and communication about its potential impact. For example, a few months before the rainy season or time of high tides, the municipality could start communicating on disturbances observed to anticipate and reduce eventual damages caused by flooding or other major hazards. National and international observatories keep track of natural events preceding major shocks, but such information is not actively used to the best advantage of the city. This situation raises the need for the city (population and ecosystem stakeholders) to be prepared to respond in a timely way, in the event that such shocks occur, through an effective response and communication system.



CONTRIBUTION TO RESILIENCE:

Provides a reliable database on the state of vulnerability of the city. Builds a resilient city, informed of its key challenges, through early detection of and warning about imminent shocks. Ensures the protection of populations, and helps prevent shocks that can be anticipated such as floods, tornadoes, seismic movements, etc.



INTERVENTION AREA:

Cross-cutting



PRIMARY PARTNERS:

National Agency of the Civil Aviation and Meteorology (ANACIM), other international partners to be identified



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Continuous



PROJECT TYPE:

New



SOURCES OF FUNDING:

Municipality; Donors (Not yet identified)



APPLYING THE RESILIENCE LENS



INCLUSIVE: uses an integrated approach to capitalize national and international tools, and provides citizens with appropriate information to contribute to resilience. Ability to target most vulnerable populations' needs



INTEGRATED: enhances coordination across central and municipal early warning systems



ROBUST: mitigates catastrophic system failure by promoting planning which addresses natural disasters and climate change



REDUNDANT: better informed citizens are able to improve the city's response capacity

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> ▪ Risks related to maritime security ▪ Tornadoes ▪ Tsunamis ▪ Floods ▪ Seismic activity 	<ul style="list-style-type: none"> ▪ Poor preservation of the living environment ▪ Aging Infrastructure ▪ Infrastructure in disrepair ▪ Coastal erosion

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: ESTABLISH A DATABASE OF CURRENT DATA ON THE CITY'S VULNERABILITY STATE, AND EXPLORE NATIONAL AND INTERNATIONAL EARLY WARNING TOOLS

- Initiate consultations with stakeholders involved in meteorology, observation and monitoring of major shocks, as well as those evolving at the national level in Senegal, to:
 - Establish an up-to-date database of the city's vulnerability state
 - Set up a mechanism to receive and relay information on real-time major shocks ahead of time
- Explore existing international early warning systems that can provide data on Dakar's climate situation and other relevant information

ACTION 2: ESTABLISH A NETWORK OF COMMUNITY RESILIENCE CHAMPIONS

- Leverage the city's mobile application currently under development, NAVIGEM, to integrate real-time information, and advise people when imminent risks are detected
- Develop alternative tools to proactively communicate upstream periods of vulnerability, behaviors to avoid/counter damages, and procedures in case of major shocks (e.g. daily/weekly radio programs) to populations, irrespective of their education level



Primary objective B:

Provide a healthy living environment to Dakar’s citizens

SECONDARY OBJECTIVE B.1.: PROMOTE INITIATIVES TO PROTECT THE ENVIRONMENT

OPERATING ASSUMPTION: Environmental protection is an integral part of the preservation of living species. To achieve this, the municipality of Dakar will initiate projects to make the city greener, and to reduce emissions of greenhouse gases. Achieving environmental protection requires a collaborative effort of all stakeholders. Thus, in the short term, the municipality will implement initiatives that involve all stakeholders including the private sector and citizens to take resilience actions contributing to a harmonious life.

INITIATIVE B.1.1.: REINSTATE PUBLIC GREEN SPACES IN THE CITY

INITIATIVE B.1.2.: IMPLEMENT SYSTEMS FOR PROMOTING ECO/GREEN LIFESTYLE

SECONDARY OBJECTIVE B.2.: IMPROVE THE CITY’S SANITATION

OPERATING ASSUMPTION: Sanitation is a sector facing many challenges in the city of Dakar. The city generates 850 tons/day of waste, of which a non-negligible part end up in 40 arbitrary dumps (ecological bombs) in the city, due to uncontrolled disposal of waste. This situation presents public health hazards to the population, and alternative solutions must be sought to provide the population with organized sanitation services or to reduce the quantity of waste produced or dumped, especially through recycling. The municipality will take several actions including:

- The installation of public recycling bins throughout the city for better waste management
- Implementing a program to curtail arbitrary and hazardous dumps through collaborations with horse cart owners and UCG dealers
- Launching a digital platform to disseminate best practices and increase technical expertise of actors in sanitation
- Creating a competition to spur innovative solutions for drainage management
- Reorganizing horse cart owners to encourage sorting of trash according to recycling norms

INITIATIVE B.2.1.: INSTALL PUBLIC RECYCLING BINS THROUGHOUT THE CITY FOR A BETTER WASTE MANAGEMENT

INITIATIVE B.2.2.: IMPLEMENT A PROGRAM TO CURTAIL ILLEGAL AND HAZARDOUS DUMPS THROUGH COLLABORATION WITH HORSE CART OWNERS AND UCG DEALERS

INITIATIVE B.2.3.: LAUNCH A DIGITAL PLATFORM TO DISSEMINATE BEST PRACTICES AND IMPROVE TECHNICAL GUIDANCE FOR ACTORS IN SANITATION

INITIATIVE B.2.4.: CREATE A COMPETITION TO SPUR INNOVATIVE SOLUTIONS FOR DRAINAGE MANAGEMENT IN DAKAR

INITIATIVE B.2.5.: ORGANIZE HORSE CART OWNERS IN COOPERATIVES TO ENCOURAGE SORTING OF TRASH ACCORDING TO RECYCLING NORMS





REINSTATE PUBLIC GREEN SPACES IN THE CITY



OBJECTIVES:

- Conservation of biodiversity
- Preservation of green spaces for leisure and relaxation
- Enforcement of land use policy



OPERATING ASSUMPTION:

Since the independence era, the green areas of Dakar have considerably decreased. The Hann National Park remains the only green place left in the city. Rehabilitating green spaces across the city thus represents a means to fight against climate change. The initiative will consist of collaborating with the private sector to develop public gardens and playgrounds in different areas of the city - neighborhoods, empty spaces between motorways, along main roads of the city, etc.



CONTRIBUTION TO RESILIENCE:

This initiative will create a greener, well-kept, and people friendly city. It will also ensure an inclusive management of resilience initiatives through effective framework for partnership between the public sector and the private sector.



INTERVENTION AREA:

Climate change



PRIMARY PARTNERS:

Large Private Companies; National Patronage Council (CNP); other cities in the 10ORC network with experience in similar initiatives (e.g. Melbourne, Boulder)



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Continuous



INITIATIVE TYPE:

New



SOURCES OF FUNDING:

Private sector



APPLYING THE RESILIENCE LENS



INCLUSIVE: ensures shared understanding of the concept of resilience among all children, no matter the type of institution where they are educated



RESOURCEFUL: affords for multiple/different uses of green spaces



REFLECTIVE: Capitalizes on lessons learnt from other cities among the 100RC network preparedness



INTEGRATED: improves coordination amongst education and disaster management systems

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> ▪ Epidemics 	<ul style="list-style-type: none"> ▪ Poor preservation of the environment ▪ Weak community engagement ▪ Environmental degradation

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: COLLABORATE WITH PRIVATE SECTOR ORGANIZATIONS TO REINSTATE AND MAINTAIN PUBLIC GREEN SPACES

- Explore examples of best practices in other cities within the 100RC network that have effectively implemented similar initiatives in order to capitalize on lessons learnt
- Explore sustainability mechanisms for funding of public green spaces: e.g. private sector is provided with a marketing opportunity (dedicated billboards, or painting in the main colors of their business, etc.) in exchange of funding and maintaining public green spaces
- Initiate conversations with private sector organizations to explore options for collaboration

ACTION 2: MOBILIZE PRIVATE SECTOR AND CITIZEN'S INTEREST TO PLANT TREES AND CREATE NEW GREEN SPACES

- Identify public spaces in the city to be rehabilitated and install advertisement posters in such spaces to advertise and promote the initiative
- Incentivize targeted companies to sign collaboration agreements with the municipality to carry on reforestation of public spaces
- Raise interest among citizens to contribute to the city's reforestation, especially through the education system

IMPLEMENT SYSTEMS FOR PROMOTING ECO/GREEN LIFESTYLE



OBJECTIVES:

- Create a healthy living environment for the residents of Dakar
- Ensure active contributions by all stakeholders towards protecting the environment



OPERATING ASSUMPTION:

Pollution and environmental degradation are both stresses identified in the city during the preliminary resilience assessment. The region of Dakar produces about 15,786 million tons of CO₂ annually, mainly from industrial activities and energy production, transportation of people, and household activities.³⁵ The current initiative aims to ensure resilience building by all stakeholders, using the private sector as a driver of change. It will encourage the adoption of «green» behaviors for environmental protection (e.g. reduced waste generation; reforestation of public spaces; use of less polluting vehicles, etc.) through a taxation incentive scheme. Companies complying with the defined standards will enjoy benefits such as tax reduction, and on the flipside, those not complying will incur tax penalties. The municipality will explore ways to collaborate with the private sector to create a healthy living environment for people.



CONTRIBUTION TO RESILIENCE:

The initiative encourages users to respect and protect the environment in their daily activities. Moreover, it will reduce pollution in the city to further prevent climate change related damages through coordinated action of all stakeholders.



INTERVENTION AREA:

Climate change



PRIMARY PARTNERS:

Commerce ministry, Informal sector, Ministry of consumer goods, local products promotion, and small and medium enterprises (MCSICPPLPME); National council of Patronage (CNP)



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Continuous



INITIATIVE TYPE:

New



SOURCES OF FUNDING :

Private sector; Climate change financing mechanisms

³⁵ Technical report, PCTI Dakar Region, 2013



APPLYING THE RESILIENCE LENS



INTEGRATED:
facilitates public/private partnership

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> ▪ Risks related to maritime security ▪ Industrial explosions ▪ Epidemics ▪ Floods 	<ul style="list-style-type: none"> ▪ Weak community engagement ▪ Anarchical road occupancy ▪ Poor solid waste management system

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: DESIGN THE APPROACH OF THE INITIATIVE

- Explore «green» behaviors for environmental protection (e.g. reduced waste generation; reforestation of public spaces; use of less polluting vehicles, etc.) to inform the design of the initiative
- Analyze appropriate taxation systems to encourage the private sector’s interest in complying with set regulations

ACTION 2: RAISE AWARENESS AMONG POPULATIONS AND PRIVATE SECTOR ACTORS

- Create awareness-raising campaigns
- Leverage private sector dialogue platforms and associations to promote the initiative and its potential benefits

SECONDARY OBJECTIVE B.2.: IMPROVE THE CITY'S SANITATION

OPERATING ASSUMPTION: Sanitation is a sector facing many challenges in the city of Dakar. The city generates 850 tons/day of waste,³⁶ of which a non-negligible part end up in 40 arbitrary dumps³⁷ (ecological bombs) in the city, due to uncontrolled disposal of waste. This situation presents public health hazards to the population, and alternative solutions must be sought to provide the population with organized sanitation services or to reduce the quantity of waste produced or dumped, especially through recycling. The municipality will take several actions including :

- The installation of public recycling bins throughout the city for better waste management
- Implementing a program to curtail arbitrary and hazardous dumps through collaborations with horse cart owners and UCG dealers
- Launching a digital platform to disseminate best practices and increase technical expertise of actors in sanitation
- Creating a competition to spur innovative solutions for drainage management
- Reorganizing horse cart owners to encourage sorting of trash according to recycling norms

INSTALL PUBLIC RECYCLING BINS THROUGHOUT THE CITY FOR A BETTER WASTE MANAGEMENT



OBJECTIVES:

- Encourage Dakar citizens to adopt systemic sorting of waste before disposal
- Educate Dakar citizens on better sanitation management
- Provide a healthy living environment for Dakar citizens



OPERATING ASSUMPTION:

Almost all of the 850 tons of solid waste³⁸ generated in Dakar every day are sent to the Mbeubeuss landfill where they do not undergo further processing, other than the informal circular economy on site,³⁹ and pose a risk to the environment. In order to limit the consequences of the city's poor waste management, households have to get accustomed to sorting their trash in specific bins. The sorted waste can then be recycled and this provides a way to reduce waste and create economic opportunities through recycling.⁴⁰



CONTRIBUTION TO RESILIENCE:

This initiative ensures the provision of basic sanitation services. It will also reduce the amount of waste normally sent to landfills, and provide economic opportunities through waste recycling for the private sector. The initiative has the power to spark a gradual change of population habits in sorting waste both in public places and also in homes. This intervention can lastly engage communities to be more responsible in the management of waste.



INTERVENTION AREA:
Sanitation



PRIMARY PARTNERS:
City councils; UCG; district councils



ACTION LEAD:
Municipality of Dakar



IMPLEMENTATION TIMELINE:
Continuous



INITIATIVE TYPE:
Building on existing initiative



SOURCES OF FUNDING:
Municipality / Donors (Not yet identified)

³⁶ Ibid.

³⁷ UCG, Internal workshop report on waste management, 2016

³⁸ Ibid.

³⁹ About 3000 collectors are also active at the Mbeubeuss dump site. They usually pick re-usable or recyclable materials for sale to recycling companies

⁴⁰ This initiative is complementary to the #MadeInDakar initiative



APPLYING THE RESILIENCE LENS



INCLUSIVE:
The initiative approaches vulnerabilities by engaging a broad range of stakeholders including citizens, community leaders, and municipal leaders to work together for a better waste management and sanitation of the city



ROBUST:
strengthen city's ability to manage sanitation



RESOURCEFUL:
uses waste for income generation and provides a mechanism for incentivizing private sector to partner in addressing waste management challenge

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS

- Epidemics

STRESSES

- Lack of capacity to treat liquid waste
- Poor preservation of the living environment
- Weak community engagement
- Poor solid waste collection system
- Environmental degradation

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: INSTALL REFUSE COLLECTION BINS IN HIGH DENSITY AREAS OF THE CITY

- Install separate bins, for different categories of trash, in the main streets of the city in order to encourage people to systematically sort trash
- Ensure that bins are accompanied by images and clear messages to encourage and educate users to recycle

ACTION 2: RAISE AWARENESS AND EDUCATE POPULATION ABOUT RECYCLING

- Educate and train citizens to sort trash so as to ensure effectiveness of the initiative, through panels, awareness posters, and promotional videos in public spaces (airports, public places, etc.)



IMPLEMENT A PROGRAM TO CURTAIL ILLEGAL AND HAZARDOUS DUMPS THROUGH COLLABORATION WITH HORSE CART OWNERS AND UCG DEALERS



OBJECTIVES:

- Reduce the proliferation of illegal dumps in the city
- Coordinate with horse cart owners to structure their intervention into the value chain
- Empower residents to manage household waste



OPERATING ASSUMPTION:

The landscape of Dakar is characterized partly by heaps of rubbish and plastic bags disposed haphazardly throughout the city. More than 400,000 people (38.5% of the population of the city of Dakar) that are not covered by collective sanitation services, are served mainly by horse cart owners who are informal collectors of solid waste.⁴¹ These horse cart owners unload the collected trash in nature, creating dumps which become ecological ticking time bombs (there are 40 in the city currently).⁴² Trash collection and treatment in Dakar is largely managed by the national waste management agency (Unité de Coordination et de Gestion des déchets - UCG), which provides neighborhoods with bins and trucks for daily garbage collection. Collaboration between horse cart owners and dealers of UCG is thus needed to phase out illegal dumping, by allowing horse cart owners to dump their daily toll of trash in UCG's trucks, saving them time when compared to their current approach.



CONTRIBUTION TO RESILIENCE:

This initiative will strengthen the commitment of stakeholders in waste management, and ensure the consistency of waste collection services. This will encourage cooperation between the public sector and the informal private sector to provide solutions together with resilience and above all, to ensure health and environmental protection.



INTERVENTION AREA:
Sanitation



PRIMARY PARTNERS:
Horse cart owners



ACTION LEAD:
Municipality of Dakar, UCG



IMPLEMENTATION TIMELINE:
Continuous



INITIATIVE TYPE:
Builds on existing initiative



SOURCES OF FUNDING:
Government / UCG

⁴¹ UCG, Internal workshop report on trash management in the department of Dakar, 2016

⁴² Ibid.



APPLYING THE RESILIENCE LENS



INCLUSIVE: takes in consideration the broader ecosystem of informal waste management actors. It also promotes social cohesion and the livelihood and employment of horse cart owners



INTEGRATED: addresses multiple stresses and creates avenues for collaboration between the public sector and the informal private sector



REFLECTIVE: uses past experience with horse cart owners and UCG dealers to inform future decisions



REDUNDANT: Leverages spare capacity of horse cart owners to supplement service provision during disruptions in public services' ability to cover the city's waste collection needs

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> ▪ Epidemics ▪ Floods 	<ul style="list-style-type: none"> ▪ Lack of capacity to treat liquid waste ▪ Living environment ▪ Weak community engagement ▪ Poor solid waste collection system ▪ Environmental degradation

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: COLLABORATE WITH UCG AND HORSE CART OWNERS TO DEFINE INITIATIVE'S APPROACH

- Close consultations with UCG, to find a suitable model of cooperation with the horse cart owners

ACTION 2: ORGANIZE AND RAISE AWARENESS OF TRASH COLLECTION HORSE CART OWNERS AND RESIDENTS

- Awareness creation and mobilization of trash collecting horse cart owners to enable a shared understanding of the challenges and the approach of the program
- Consultations with horse cart owners to organize them as cooperatives

LAUNCH A DIGITAL PLATFORM TO DISSEMINATE BEST PRACTICES AND IMPROVE TECHNICAL GUIDANCE FOR ACTORS IN SANITATION



OBJECTIVES:

- Promote actors' involvement in all aspects of the sanitation sector in Dakar and create channels of access to their products
- Facilitate communication and coordination between industry actors
- Strengthen stakeholders' capacity using an online library with tutorials on technical sanitation and recycling
- Demonstrate waste management value chain
- Shift cultural perception on stakeholders in the sanitation value chain



OPERATING ASSUMPTION:

According to the preliminary resilience assessment, Dakar faces challenges such as inadequate sewage treatment, poor solid waste collection system, and low capacity of human resources. The sanitation sector is not popular in Dakar and actors in the sector are victims of poor public perception for dealing with a sector that for instance, produces recycled or recovered goods. Moreover, when highly appreciated objects (arts and decorative objects, bags, furniture, etc.) are produced in the recycling industry, communication efforts are often insufficient to inform users of supply channels, and investors about investment opportunities. Finally, there are limited formal training programs for actors across the sanitation value chain.



CONTRIBUTION TO RESILIENCE:

This initiative strengthens the public-private partnership to support economic prosperity while also providing for basic services. It provides users a reliable information base on the sanitation sector and facilitates private sector involvement in sanitation management.



INTERVENTION AREA:

Sanitation



PRIMARY PARTNERS:

National Patronage Council (CNP); National Agency for Investment and Large Projects Promotion (APIX)



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Continuous



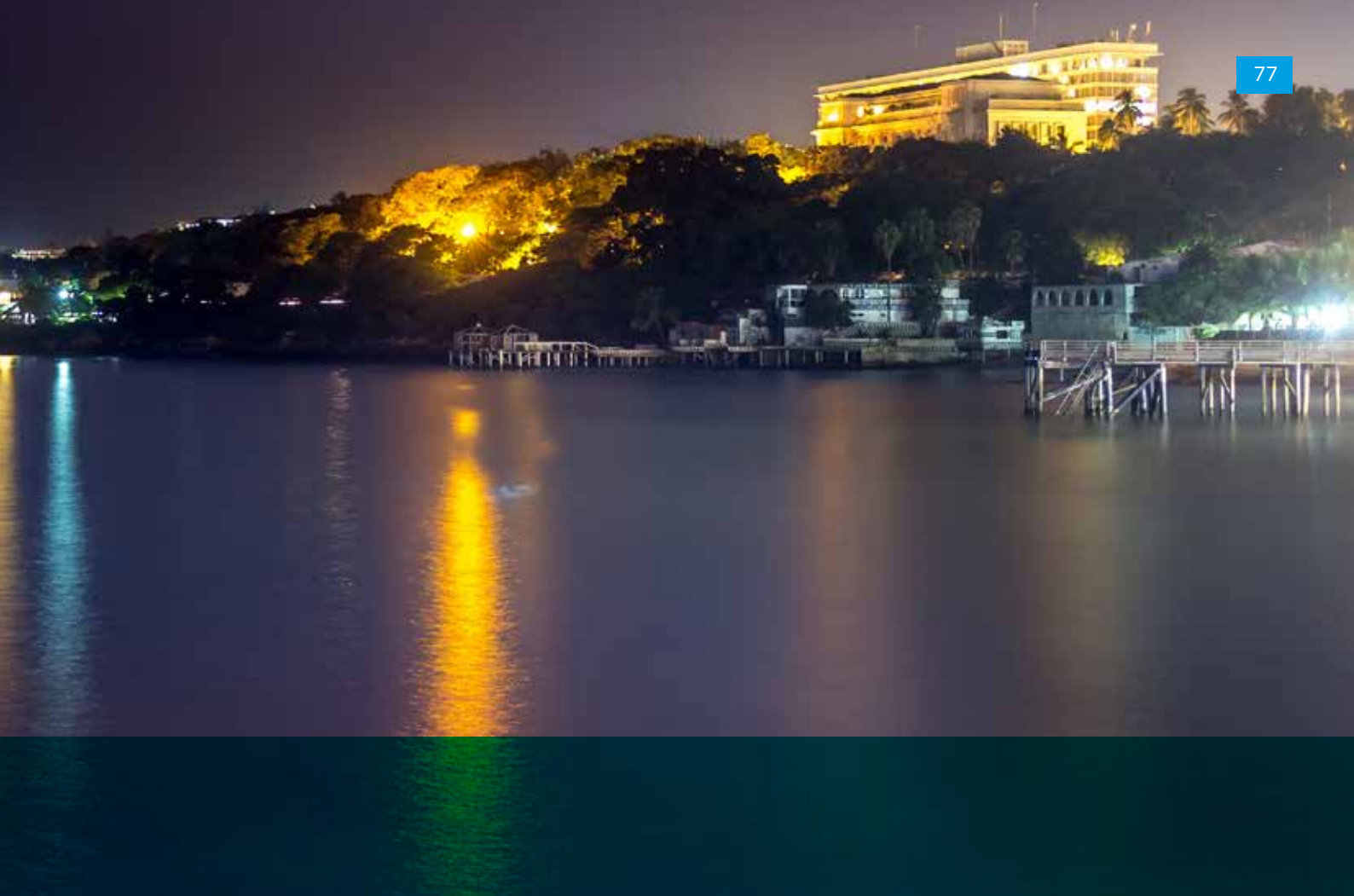
INITIATIVE TYPE:

Builds on existing initiative



SOURCES OF FUNDING:

Private sector (Membership dues); Donors (Not yet identified)



APPLYING THE RESILIENCE LENS



INCLUSIVE:
Engages the private sector as a resilience partner to provide services to some of the city's most poor and vulnerable residents



INTEGRATED:
Strengthens the public-private partnership to support economic prosperity while also providing basic services

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> Economic crises 	<ul style="list-style-type: none"> Organization: economy and society Poor solid waste collection system Human resources with low capacity Lack of capacity to treat liquid and solid waste

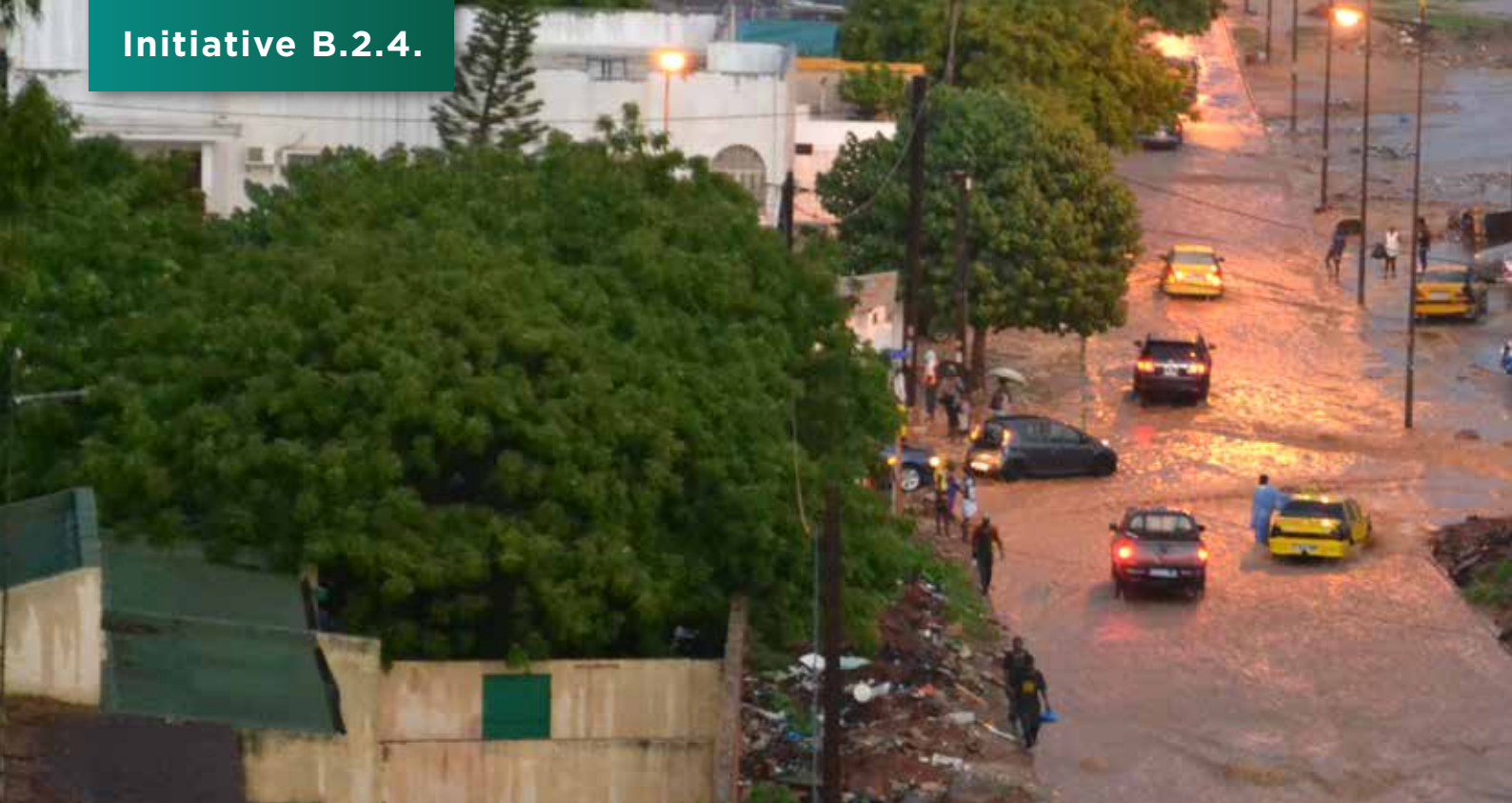
ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: COLLABORATE WITH UCG AND HORSE CART OWNERS TO DEFINE INITIATIVE'S APPROACH

- Create a platform, using the municipality's IT services
- Promote the platform across sanitation actors (UGB, trash collectors, city workers, city administration)
- Encourage subscription to the platform

ACTION 2: ORGANIZE AND RAISE AWARENESS OF TRASH COLLECTION HORSE CART OWNERS AND RESIDENTS

- Identify mechanisms for platform sustainability (explore fundraising through membership dues)



CREATE A COMPETITION TO SPUR INNOVATIVE SOLUTIONS FOR DRAINAGE MANAGEMENT IN DAKAR



OBJECTIVES:

- Challenge local actors to generate innovative ideas for a more effective drainage management system in Dakar
- Implement most feasible and cost effective solutions to reduce floods in Dakar during the rainy seasons
- Provide a healthy environment for residents by reducing occurrence of epidemics related to flooding



OPERATING ASSUMPTION:

30% of Dakar households are not covered by collective liquid sanitation services, thus the use of manual draining methods, or illegal connections to the drainage networks which lead to overload of the drainage networks. In addition, drainage systems are not cleaned frequently and sometimes are turned into dump sites for solid waste. Such situations lead to major floods during the wet season. While the flood situation particularly affects the city of Dakar, the drainage networks are managed at the central government level, through the National Sanitation Organization (Office National de l'Assainissement du Sénégal – ONAS). The municipality of Dakar does not have direct authority over the drainage systems and resources for its management. The initiative thus consists of creating a competition to spur innovative ideas among citizens, the private sector, the academia, etc. in response to the water drainage management system (e.g. drainage cleaning, expanding coverage capacity, behavioral change interventions, recycling, etc.). Most feasible and cost effective solutions could be implemented through PPPs between the National Sanitation Organization (ONAS) and private players, in an effort to combine science and technology with policies and systems.



CONTRIBUTION TO RESILIENCE:

The initiative empowers local actors to think through their city's challenges and contribute to solving them. Improving water drainage management systems also helps reduce public health hazards risks and makes the city an enjoyable environment for its residents.



INTERVENTION AREA:

Sanitation



PRIMARY PARTNERS:

Private investors, youth associations, research institution such as Institut Africain de Gestion Urbaine (IAGU)



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Continuous



INITIATIVE TYPE:

New



SOURCES OF FUNDING:

Government, Donors (Not yet identified)



APPLYING THE RESILIENCE LENS



INCLUSIVE:
Engages the private sector as a resilience partner to provide services to some of the city's most poor and vulnerable residents



INTEGRATED:
Strengthens the public-private partnership to support economic prosperity while also providing basic services

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> ▪ Epidemics 	<ul style="list-style-type: none"> ▪ Organization: economy and society ▪ Weak community engagement ▪ Lack of capacity to treat liquid and solid waste

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: DESIGN AND PROMOTE THE COMPETITION

- Partner with a local organization (e.g. existing incubators, public support agencies, etc.) to design the competition
- Advertise and raise interest for applications through various channels (youth associations, business associations, incubators, academic networks, etc.)

ACTION 2: PRE-SELECT BEST IDEAS AND CREATE AN ENABLING ENVIRONMENT FOR THEIR IMPLEMENTATION

- Set up a selection committee composed of government-led liquid waste management organizations, and business leaders to decide on winning projects
- Invest in selected projects with an eye towards ensuring sustainability
- Provide a support ecosystem to maximize impact of the intervention: improvement of policy regulations, business development support, access to funding for implementation, etc.



ORGANIZE HORSE CART OWNERS IN COOPERATIVES TO ENCOURAGE SORTING OF TRASH ACCORDING TO RECYCLING NORMS



OBJECTIVES:

- Coordinate the intervention of horse cart owners in the trash sanitation value chain
- Educate households in sorting trash according to recycling norms
- Improve the performance of the value chain



OPERATING ASSUMPTION:

Approximately 38% of the population of the city of Dakar, estimated at 400,000 inhabitants, is not covered in the collective sanitation system⁴³. The waste produced by these populations is collected by independent horse cart owners who do not have proper equipment and dump waste in nature, creating environmental hazards. Furthermore, the delivery system of sorted waste for recycling industry needs is highly disjointed and waste sorting is done in several steps along the chain. This redundancy of activities leads to investing additional resources that increase the cost of waste sorted for recycling. The following statistics characterize the sanitation sector in the city of Dakar:

- 850 tons/day⁴⁴ of trash generated in the city, and routed to Mbeubeuss;
- 38% sand (unnecessary burden in most public bins)⁴⁵;
- 3% of putrescible (reusable compost and fertilizer)⁴⁶;
- 9% plastic (recyclable or recoverable brick, pavers, public toilets, etc.)⁴⁷;
- ~13,000 horse cart owners carrying trash to in illegal dumps because of the distance to the Mbeubeuss central waste dump⁴⁸;
- 40 arbitrary dumps (ecological bombs) in the city, presenting public health hazards.

The trash value chain can be made more efficient by reorganizing the intervention of horse cart owners and performing a systematic sorting of waste prior to collection. Organizing the horse cart owners as cooperatives also provides formality for unorganized informal actors, and opportunity to connect them to the sanitation platform⁴⁹.



CONTRIBUTION TO RESILIENCE:

The initiative helps empower households to be actors of resilience, and improve their social conditions. It capitalizes on the strength of the informal sector for improved resilience, and ensures the protection of the environment through the reduction of illegal dumping as well as the reduction of the amount of waste sent to landfills.



INTERVENTION AREA:

Sanitation



PRIMARY PARTNERS:

Horse cart owners, UCG, private investors, district councils, Association sportive et civique (ASC)



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Continuous

⁴³ UCG, Internal workshop report about the trash management program in Dakar, 2016

⁴⁴ Ibid.

⁴⁵ IAGU-APROSEN, Report on the characteristics of the Mbeubeuss dump in the suburb of Dakar, 2008

^{46, 47, 48} Ibid.

⁴⁹ Linkage with initiative B.2.3



INITIATIVE TYPE:
New



SOURCES OF FUNDING:
Existing funding mechanisms of youth groups, from the municipality; Private sector; Donors (Not yet identified)

APPLYING THE RESILIENCE LENS



INCLUSIVE:
takes in consideration the broader ecosystem of informal waste management actors, and promotes social cohesion and the livelihood and employment of horse cart owners



RESOURCEFUL:
recycling creates alternatives for trash management in addition to fostering opportunities that generate revenue in the value chain



REFLECTIVE:
relies on past contributions of youth civic groups



REDUNDANT:
Leverages spare capacity of horse cart owners to mitigate disruptions in public services' ability to cover the city's waste collection needs, and for waste sorting

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> ▪ Epidemics 	<ul style="list-style-type: none"> ▪ Weak community engagement ▪ Anarchic road occupancy ▪ Poor solid waste collection system

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: REORGANIZE HORSE CART OWNERS

- Educate and train horse cart owners in creating and working together as a cooperative to benefit from advantages of economic groups (trainings on waste management, access to funding opportunities, social contributions, etc.)
- Encourage their accountability with respect to terms of collaboration, and also motivate other horse cart owners hesitant to join the initiative in order to ensure a wide coverage

ACTION 2: RAISE AWARENESS AMONG HOUSEHOLDS

- Enlist Horse cart owners to educate households during passages for garbage collection: they make households aware of benefits of sorting and educate them about sorting methods
- Distribution of specialized bins for sorting and garbage bags at each passage, by horse cart owners

ACTION 3: MOBILIZE YOUTH CIVIC ASSOCIATIONS AND ENHANCE THEIR CURRENT PROGRAMS

- Leverage existing youth civic groups as contributors to sorting of waste in communities and neighborhoods
- Use current youth group funding mechanisms to incentivize involvement



Primary objective C:

Position the private sector as a resilience partner

SECONDARY OBJECTIVE C.1.: PROMOTE THE EFFICIENT IMPLEMENTATION OF PUBLIC-PRIVATE PARTNERSHIPS FOR RESILIENCE AT MUNICIPAL LEVEL (CREATE OPPORTUNITIES FOR PRIVATE INVESTMENTS)

OPERATING ASSUMPTION: There are several investment opportunities for the private sector in Dakar. Some of these may be the responsibility of the central government to structure, but others are definitely promoted by the Municipality. These include better management of sanitation, energy efficiency, and protection of the living environment. On the one hand, the private sector requires substantial support (technical, regulatory, and financial) to play their role more effectively as economic growth and resilience drivers to address the key challenges of the city. On the other, they must be made aware of investment opportunities, or their role could also be stimulated through corporate social responsibility (CSR) activities and streamlining recognition mechanisms by the municipality. The municipality will aim to leverage collaboration opportunities with private actors for enhanced resilience.

INITIATIVE C.1.1.: IMPROVE PARTNERSHIPS BETWEEN PUBLIC INSTITUTIONS (SENELEC, UCG, ONAS) AND PRIVATE ACTORS FOR BETTER SANITATION AND ENERGY EFFICIENCY (ENFORCEMENT OF NORMS, INSTALLATION OF SMART METERS, ETC.)

INITIATIVE C.1.2.: PROVIDE SUPPORT TO SMALL AND MEDIUM ENTERPRISES (SMES) ACTIVE IN RESILIENCE BUILDING

SECONDARY OBJECTIVE C.2. : PROMOTE ECONOMIC GROWTH BY LEVERAGING BOTH THE FORMAL AND INFORMAL SECTOR

OPERATING ASSUMPTION: Many entrepreneurs, artisans and designers operate in the city of Dakar but struggle to find markets for their products and services. Initiatives are already being implemented at national level to encourage the consumption of local agricultural products, but few are implemented at the city level. In May 2016, Orange/Sonatel, Senegal CITYDIA, and the CSR Senegal Initiative organized a round table on CSR and "Consuming Local". The roundtable focused on the economic potential of local consumption in Senegal, and the means for a better consideration of development issues for SMEs operating in the sector of agricultural transformation. Dakar, being the first center of consumption in the country, wants to insert and magnify these dynamics by leveraging both the formal and informal economy. Consumers need to be educated, to overcome the complex of the imported product and think more highly of local products when shopping. At the same time, local businesses will ensure the supply and availability of quality products that are diversified and affordable (#MadelnDakar). The waste recycling sector is particularly an area of interest for the promotion of local products given the low current draw for consumers despite its double objective of reducing pollution and creating wealth.

INITIATIVE C.2.1.: CREATE A #MADEINDAKAR LABEL TO BRAND LOCALLY SOURCED AND PRODUCED GOODS

INITIATIVE C.2.2.: FACILITATE ACCESS TO MARKETS FOR RECYCLED PRODUCTS

INITIATIVE C.2.3.: ENHANCE EXISTING MUNICIPAL LED INCUBATOR FOR INFORMAL ECONOMIC ACTORS



IMPROVE PARTNERSHIPS BETWEEN PUBLIC INSTITUTIONS (SENELEC, UCG, ONAS) AND PRIVATE ACTORS FOR BETTER SANITATION AND ENERGY EFFICIENCY (ENFORCEMENT OF NORMS, INSTALLATION OF SMART METERS, ETC.)



OBJECTIVES:

- Enhance collaboration between public sector actors and the private sector
- Establish a mechanism to ensure compliance with sanitation and energy efficiency standards



OPERATING ASSUMPTION:

Resilience building activities require collaboration between the public sector (who develops and ensures enforcement of regulations) and the private sector (who facilitates the provision of basic services to populations). However, there is little collaboration between these two sets of actors in regards to compliance with the standards and management of resilience related activities (e.g. weak collaboration between UCG and horse cart owners for waste disposal; lack of coordination between ASN, SENELEC, PROQUELEC, and FESELEC for electrical installation standards, etc.). There is a public-private partnership framework at the national level but it is not applied at the level of the city. This framework could be improved in Dakar to better integrate resilience solutions (effective energy management, waste, etc.). This initiative aims at strengthening the public-private partnership framework by introducing simpler and streamlined processes (simple and less cumbersome procedures) to facilitate collaboration between the two sets of stakeholders.



CONTRIBUTION TO RESILIENCE:

This initiative advances long term planning and broad stakeholder inclusion. It strengthens the position of the private sector as a driver of resilience.



INTERVENTION AREA:

Transversal



PRIMARY PARTNERS:

SENELEC, UCG, ONAS



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Continuous



INITIATIVE TYPE:

New



SOURCES OF FUNDING:

Municipality



APPLYING THE RESILIENCE LENS



INTEGRATED:
Includes the views of both the public and private sector actors in the management of the city's affairs



ROBUST:
standardization promotes better management of the city's resources (e.g. electricity) and strengthens overall resilience



REFLECTIVE:
incorporates lessons learned from existing partnerships at the national level, and adapts to the city's context



REDUNDANT:
private sector may act as spare capacity where public services would require support for improved effectiveness

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> ▪ Epidemics ▪ Floods ▪ Civil crises/violence 	<ul style="list-style-type: none"> ▪ Weak community engagement ▪ Anarchic road occupancy ▪ Poor solid waste management system

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: ADAPT EXISTING PARTNERSHIP FRAMEWORK

- Organize conversations between private and public institutions to explore effective procedures for implementing the national public-private partnership framework at the city's level
- Municipality and utility service providers to define common procedures for better management and coordination around Dakar's challenges in regards to sanitation and energy efficiency (e.g. hiring of qualified electricians for electrical installations prior to obtaining construction permit; mandatory presentation of an approval of electrical installations before issuance of electrical grid connection by SENELEC; etc.)

ACTION 2: DISSEMINATE STREAMLINED PROCESSES TO ENCOURAGE IMPLEMENTATION

- Circulate procedures within the municipality and utility service providers' organizations
- Update procedures on the municipality's website in order to effectively guide private companies as well as users of the specific services offered

PROVIDE SUPPORT TO SMALL AND MEDIUM ENTERPRISES (SMEs) ACTIVE IN RESILIENCE BUILDING



OBJECTIVES:

- Promote potential benefits that come with integrating resilience in SMEs' activities
- Ensure targeted support and enable access to financing mechanisms tailored to SMEs dedicated to sectors that support the city's primary resilience focus areas (sanitation, energy efficiency, protection, and preservation of the environment, etc.)



OPERATING ASSUMPTION:

Few companies take into account resilience in their initiatives (e.g. reduced quantities of waste produced, efficient energy management, environmental conservation), or engage in resilience related initiatives (e.g. waste recycling, production of renewable energy, etc.) The main obstacles to private sector investment, in particular SMEs, in activities related to resilience include: (i) lack of information on the potential benefits of such endeavors, (ii) lack of targeted support for SMEs involved in such activities, and (iii) lack of appropriate financial mechanisms. To meet these challenges, business development support institutions (such as Bureau for SME development, ADEPME, etc.) and incubators in the ICT sector like CTIC will be leveraged to initiate programs that support the development of SMEs in activities related to resilience through (i) establishment of an incubator or resilience lab and (ii) creation of a green financing grant mechanism.



CONTRIBUTION TO RESILIENCE:

This initiative encourages the private sector to participate in resilience related interventions. It provides a unique funding mechanism that maximizes the investment of SMEs operating in sectors that strengthen resilience.



INTERVENTION AREA:

Transversal



PRIMARY PARTNERS:

European Union (EU); French Development Agency (AFD); United Nations Development Program (UNDP); World Bank; IFC



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Medium term



INITIATIVE TYPE:

New



SOURCES OF FUNDING:

Donors (Not yet identified)



APPLYING THE RESILIENCE LENS



INCLUSIVE: involves a considerable number of small businesses who are disproportionately excluded



ROBUST: contributes to sparking private sector's interest in resilience, thereby strengthens overarching economic forecast



REFLECTIVE: capitalizes on lessons learnt from existing incubators and SME promotion/development agencies

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS

- Epidemics
- Floods
- Civil crises/violence
- Economic crisis

STRESSES

- Weak community engagement
- Anarchic road occupancy
- Poor solid waste collection system

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: IDENTIFY START-UPS AND SMES DEDICATED TO RESILIENCE-RELATED ACTIVITIES IN ORDER TO DEVELOP, WITHIN EXISTING INCUBATORS AND ENTREPRENEUR FORUMS, A RESILIENCE LAB OR INCUBATOR ADAPTED TO THEIR NEEDS

- Leverage existing incubators and entrepreneur forums to host and support identified start-ups and SMEs
- Select ideas through a business plan competition to ensure the best initiatives are supported
- Provide support services to incubated start-ups and SMEs depending on their need and maturity (e.g. workspace, technology systems, access to sector experts, business development, managerial skills training, access to network and financing opportunities, access to markets)

ACTION 2: LAUNCH A GREEN INVESTMENT FUND

- Design most appropriate financing mechanism. E.g. the fund may take the form of a credit line with reduced interest rates provided through banks, or of a private equity fund where companies have a long-term loan (3 to 5 years), associated with technical, operational, and managerial support to maximize the use of received funds
- Facilitate access to credit for all incubated SMEs and those involved in focus areas related to the city's resilience priorities, to enable them to develop their initiatives

SECONDARY OBJECTIVE C.2: PROMOTE ECONOMIC GROWTH BY LEVERAGING BOTH THE FORMAL AND INFORMAL SECTOR

OPERATING ASSUMPTION: Many entrepreneurs, artisans and designers operate in the city of Dakar but struggle to find markets for their products and services. Initiatives are already being implemented at national level to encourage the consumption of local agricultural products, but few are implemented at the city level. In May 2016, Orange/Sonatel, Senegal CITYDIA, and the CSR Senegal Initiative organized a round table on CSR and “Consuming Local”. The roundtable focused on the economic potential of local consumption in Senegal, and the means for a better consideration of development issues for SMEs operating in the sector of agricultural transformation. Dakar, being the first center of consumption in the country, wants to insert and magnify these dynamics by leveraging both the formal and informal economy. Consumers need to be educated, to overcome the complex of the imported product and think more highly of local products when shopping. At the same time, local businesses will ensure the supply and availability of quality products that are diversified and affordable (#MadelnDakar). The waste recycling sector is particularly an area of interest for the promotion of local products given the low current draw for consumers despite its double objective of reducing pollution and creating wealth

CREATE A #MADEINDAKAR LABEL TO BRAND LOCALLY SOURCED AND PRODUCED GOODS



OBJECTIVES:

- Encourage the increased production and consumption of local products
- Promote economic prosperity and job creation through stronger engagement of the private sector



OPERATING ASSUMPTION:

Local products are not sufficiently promoted and often face high competition (in terms of price and quality) with imported ones. Therefore, Dakar citizens consume less local products and have a preference for imported products. Boosting the local economy and local private sector development appear as sustainable means of job creation and strengthening economic resilience, therefore there is a need to encourage and promote the consumption of local products. The intervention consists of creating a label #MadelnDakar, combining both quality assurance, cultural grounding, and community resilience and is an effective way to spur consumption of local products.



CONTRIBUTION TO RESILIENCE:

The initiative empowers communities to contribute to economic resilience through increased production and consumption of local products, reducing imports and promoting economic growth. It also helps to empower the private sector to provide good quality products and strengthens protection of citizens through assurance of distribution of quality products. Finally, it provides opportunities for creating cooperatives as a channel to formalize informal actors and recycling activities.



INTERVENTION AREA:

Transversal



PRIMARY PARTNERS:

National Council of Employers (CNP); Other associations and federations of private companies; town halls; MCSICP-PLPME; Senegalese Agency for Standardization (ASN); Chamber of Commerce and Industry



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Medium term



INITIATIVE TYPE:

New



SOURCES OF FUNDING:

Municipality of Dakar, private sector associations



APPLYING THE RESILIENCE LENS



INCLUSIVE:
fosters economic opportunities and inclusion of often overlooked creative industry



RESOURCEFUL:
Creates resource generation opportunities for the city, through increased private sector activities. Promotes repurposing of waste, and also helps to address the solid waste management challenge



REFLECTIVE:
leverages the expertise of existing national certification agencies

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS

- Economic crises

STRESSES

- Unemployment of youth
- High cost of living

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: CREATION OF #MADEINDAKAR LABEL

- Release a survey on citizen's expectations of quality and factors that would encourage them to consume local products
- Engage with the private sector to design the #MadeInDakar label
- Define the types of products and the conditions to qualify for this certification
- Address the negative consequences of encouraged recycling (vandalism of public properties)

ACTION 2: ESTABLISH A CERTIFICATION AND QUALITY CONTROL SYSTEM

- Examine existing standards from the Senegalese Agency for Standardization (ASN) to suit the national context
- Introduce measures to control product quality through a certification system before provision of the #MadeInDakar

ACTION 3: PROMOTE THE CONSUMPTION OF LOCAL PRODUCTS

- Create a #MadeInDakar awareness campaign among citizens



FACILITATE ACCESS TO MARKETS FOR RECYCLED PRODUCTS



OBJECTIVES:

- Promote consumption of local products and provide economic opportunities for recycled products
- Encourage private sector participation in waste recycling as a means for environmental protection and improved management of the sanitation sector



OPERATING ASSUMPTION:

About 23% of waste generated in the city of Dakar is composed of putrescible waste (appropriate for making compost and fertilizers); 12% is paper and cardboard (used for manufacturing of office materials, crates for eggs distribution, etc.); and 9% is recyclable plastic (re-usable to create new plastic materials such as pavers, road signs, etc.). Liquid waste can be equally used to process compost or irrigation water used for agricultural production. However, access to markets is a challenge for the expansion of recycling activities, due to negative social perception on recycled products and limited support provided to companies for the promotion of local products (Made in Dakar). The initiative aims at promoting consumption and access to market for recycled products through a quota for recycled products in the administration's procurement system. Products that may be covered include: the provision of office equipment (made from recycled paper); the construction of public assets (streets pavement, traffic lights installation, etc. using recycled plastics); and the maintenance of public spaces (with compost and fertilizer from putrescible waste).



CONTRIBUTION TO RESILIENCE:

The initiative promotes local products and import substitution through the #MadeInDakar label and job creation. It empowers a large number of private and institutional stakeholders in waste management and environmental protection.



INTERVENTION AREA:

Sanitation



PRIMARY PARTNERS:

City councils of 19 towns; ARMP; recycling companies; National Council of Employers (CNP); MCSICPPLME; Association of Sanitation Actors



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Medium term



INITIATIVE TYPE:

New



SOURCES OF FUNDING:

Municipality of Dakar



APPLYING THE RESILIENCE LENS



INCLUSIVE:
creates opportunities for often marginalized unemployed youths, artisans, creatives



RESOURCEFUL:
fosters sustainable economic growth, reduction of the proliferation of dump sites by promoting recycling, and improvement of public health

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> ▪ Epidemics ▪ Floods ▪ Economic crises 	<ul style="list-style-type: none"> ▪ Environmental degradation ▪ Poor waste management

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: GIVE PREFERENCE TO RECYCLED PRODUCTS IN PUBLIC PROCUREMENT

- Allocate a quota of the city administration's procurement requests to recycled products (for instance, 30 to 50% of office materials, or inputs used for the construction / maintenance of public infrastructure)
- Encourage procurement through suppliers using recycled materials

ACTION 2: EXPAND MARKET ACCESS THROUGH THE PRIVATE SECTOR

- Explore incentive mechanisms for procurement of recycled products by the private sector (e.g. significant reductions in taxes for these companies)
- Gradually introduce incentives to encourage the largest distributors of paper products, plastic, or other materials to source recycled products

ENHANCE EXISTING MUNICIPAL LED INCUBATOR FOR INFORMAL ECONOMIC ACTORS⁵⁰



OBJECTIVES:

- Develop more sustainable businesses to support economic growth
- Leverage the informal sector as a contributor to the city's resilience
- Promote more job opportunities to youth



OPERATING ASSUMPTION:

The municipality of Dakar has recently created an incubator to support youth-led initiatives in the IT sector. The initiative aims to enhance the existing incubator to provide services to the under-represented informal economic sector. In fact, the informal sector contributes to 42% of the economy and employs 48.8% of the active population.⁵¹ However, informal businesses lack adequate support to use their full potential to expand and further contribute to economic development and job creation. Many actions have been undertaken to formalize informal firms through sanctions, but have not always been successful. This initiative will bridge gaps in assisting these firms so as to increase their contributions to employment and income while they remain informal.



CONTRIBUTION TO RESILIENCE:

The initiative promotes local products and import substitution through the #MadeInDakar label and job creation. It empowers a large number of private and institutional stakeholders in waste management and environmental protection.



INTERVENTION AREA:

Transversal



PRIMARY PARTNERS:

ADEPME and Trade association (UNACOIS)



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Continuous



INITIATIVE TYPE:

Builds on existing initiative



SOURCES OF FUNDING:

Municipality of Dakar

⁵⁰ Initiative will be implemented in conjunction with initiative C.2.1 (#MadeInDakar)

⁵¹ ANSD, Enquête Nationale sur le Secteur Informel au Sénégal (ENSIS 2011), 2013



APPLYING THE RESILIENCE LENS



INCLUSIVE:
Benefits a large number of informal businesses and includes their views in the design of the incubator



REFLECTIVE:
Capitalizes on the existing municipal-led incubator to expand its services to informal enterprises

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> Unemployment/lack of job opportunities 	<ul style="list-style-type: none"> Economic crises

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: REVIEW INCUBATOR DESIGN, LEVERAGING RESILIENCE PRINCIPLES

- Identify additional sectors of focus for the incubator (e.g. mapping of informal sector economic activities)
- Engage existing incubators, business development support services and SMEs' associations
- Review the incubator's theory of change and a roadmap to implementation
- Explore financing mechanisms and sustainability

ACTION 2: EXPAND MARKET ACCESS THROUGH THE PRIVATE SECTOR

- Raise awareness about the incubator among informal economic actors to encourage expression of interest
- Select a pool of incubatees on a rolling basis to receive support on:
 - Business development
 - Managerial skills training (coaching, mentoring)
 - Access to network and financing opportunities
 - Access to market (e.g. participation in public procurements)
 - And other relevant services



Primary objective D:

Leverage energy efficient technologies to support the city’s resilience

SECONDARY OBJECTIVE D.1.: PROMOTE THE ADOPTION OF ENERGY CONSERVATION TECHNOLOGIES

OPERATING ASSUMPTION: The increase in urban population causes congestion, increasing pressure on scarce resources, such as energy, and increases the exposure to shocks such as extended power outages, fires (sometimes due to anarchic installations of electrical systems), and stresses such as high cost of electricity and high cost of living. Ensuring energy sufficiency is complex and requires interventions across various areas including policy and regulatory, technology, and behavior modification. Given the limited authority of the municipality of Dakar over energy production and distribution, the city will use energy efficiency as an entry point to addressing the city’s energy challenges over the long term, and to meet the growing pressure of resource needs. Energy efficiency does not address the full range of complex energy-related issues, but helps solve an important part within the jurisdiction of the municipality.

INITIATIVE D.1.1.: DISSEMINATE INFORMATION AND PROMOTE STANDARDS ON ELECTRICAL SYSTEM INSTALLATIONS

INITIATIVE D.1.2.: PROMOTE END USER AWARENESS AND ADOPTION OF ENERGY-SAVING OPPORTUNITIES

INITIATIVE D.1.3.: EVALUATE THE USE OF MORE ENERGY-EFFICIENT MECHANICAL SYSTEMS IN COMMERCIAL BUILDINGS ACROSS THE CITY TO REDUCE ENERGY WASTAGE FROM AIR CONDITIONING

INITIATIVE D.1.4.: EVALUATE THE USE OF MORE ENERGY-EFFICIENT MECHANICAL SYSTEMS IN PROFESSIONAL OFFICE BUILDINGS ACROSS THE CITY TO REDUCE ENERGY WASTAGE FROM LIGHTING





DISSEMINATE INFORMATION AND PROMOTE STANDARDS ON ELECTRICAL SYSTEM INSTALLATIONS



OBJECTIVES:

- Ensure citizens are well-informed about energy efficiency policies, regulations and standards
- Ensure electrical installations meet the standards of the Senegalese Standards Association (ASN) in order to reduce energy wastage and avoid accident



OPERATING ASSUMPTION:

In Dakar, 93% of electrical installations do not meet the standards set by the Senegalese Standards Association (ASN).⁵² Failure to comply with these standards lead to many dangers including fires. For instance, of the 2036 fires registered in 2013, over 50% came from an electrical fault.⁵³ This is due in part to the lack of a systematic compliance monitoring facilities and the limited capacities of the Association for the Promotion of Internal Electrical Installations Quality of Senegal (PROQUELEC).



CONTRIBUTION TO RESILIENCE:

The initiative aims to minimize the risks of electricity-related accidents by promoting ownership of standards by users.



INTERVENTION AREA:
Energy efficiency



PRIMARY PARTNERS:
PROQUELEC; Municipality of Dakar; AEME; ASCOSEN; ASN



ACTION LEAD:
Ministry of Energy



IMPLEMENTATION TIMELINE:
Medium term



PROJECT TYPE:
New



SOURCES OF FUNDING:
Government; donors (not yet identified)

⁵² EnquêtePlus, « Mauvaises Installations Electriques », 21 mai 2014
⁵³ Ibid.



APPLYING THE RESILIENCE LENS



REFLECTIVE:

Builds on existing initiatives by government to enforce standards compliance

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> ▪ Fires ▪ Prolonged power outages 	<ul style="list-style-type: none"> ▪ High cost of energy

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: PARTNER WITH THE MINISTRY OF ENERGY TO ADVANCE THE DEVELOPMENT OF THE COMPLIANCE POLICY

- Get the municipality involved in the preparation of the draft decree for electrical compliance
- Convene stakeholders to determine an implementation path for the standards

ACTION 2: LAUNCH A GREEN INVESTMENT FUND

- Help set up the compliance control mechanisms (e.g. set up clear standards for electrical wiring and installation in accordance with ISO or international best practice)
- Build a list of approved organizations to outsource compliance checks (list of electricians who are accredited and registered with a professional body)
 - Create municipality-backed energy compliance certification
 - Offer 1-2 years' grace period to non-compliant buildings

PROMOTE END USER AWARENESS AND ADOPTION OF ENERGY-SAVING OPPORTUNITIES



OBJECTIVES:

- Enable citizens to understand that their actions matter and empower them to contribute to energy conservation
- Provide energy conservation guidance to citizens



OPERATING ASSUMPTION:

Frequent occurrence of power outages result in economic losses for Dakar: 11.8 power outages occur every month on average.⁵⁴ These lead to a loss of one percentage point in the city's GDP every year.⁵⁵ In addition, Demand for electricity will double between 2013 and 2030⁵⁶ due to projected population growth. However, inefficient consumer practices such as the use of incandescent lamps accounting for about 70%⁵⁷ of Dakar's lighting contribute to energy wastage, and most citizens are unaware of their ability to contribute to energy-saving.



CONTRIBUTION TO RESILIENCE:

The initiative will sensitize citizens to energy efficiency and influence behavior change in order to curb the current trends of energy consumption and wastage



INTERVENTION AREA:

Energy efficiency



PRIMARY PARTNERS:

Ministry of Energy, AEME, and SENELEC



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Short term



PROJECT TYPE:

New



SOURCES OF FUNDING:

Government (through energy efficiency budget) and donors (not yet identified)

⁵⁴ World Bank, Infrastructure of Senegal: a continental perspective, 2011

⁵⁵ Ibid.

⁵⁶ Dalberg estimates, Dakar Energy Efficiency report, 2016

⁵⁷ AEME (Agency for the savings and management of energy), 2013



APPLYING THE RESILIENCE LENS



INCLUSIVE :
requires close collaboration between the Dakar Municipality, Ministry of Energy, AEME, SENELEC and other relevant stakeholders to create shared ownership



REFLECTIVE :
leverages existing awareness campaign by AEME

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> Power outages 	<ul style="list-style-type: none"> Energy wastage Unsustainable energy consumption trends

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1 : LAUNCH AN ENERGY-AWARENESS CAMPAIGN

- Institute a Dakar energy-efficiency day/week/month to increase attention on this matter and use it as an opportunity to promote best practices in energy conservation
- Amplify existing public messaging by AEME to promote energy efficiency

ACTION 2 : DEMONSTRATE VALUE PROPOSITION OF ENERGY EFFICIENCY

- Develop and disseminate specific energy-efficiency guidelines for different types of buildings/consumers (see related initiatives: D.1.1; D.1.3; and D.1.4)
- Showcase successful energy efficiency models in Dakar and beyond during the “Dakar energy-efficiency day/week/month”

EVALUATE THE USE OF MORE ENERGY-EFFICIENT MECHANICAL SYSTEMS IN COMMERCIAL BUILDINGS ACROSS THE CITY TO REDUCE ENERGY WASTAGE FROM AIR CONDITIONING



OBJECTIVES:

- Demonstrate adoption of innovative technologies towards substantial energy savings
- Demonstrate projected increase in access from energy savings



OPERATING ASSUMPTION:

Most commercial buildings in Dakar use 5-6 air conditioning units on average. Most of these lack thermostat vis-à-vis external factors, resulting in energy wastage. Gradually installing thermostats in air conditioning units by 2021 could generate energy savings of 51 million kWh between 2017 and 2021, equivalent to 28% of consumption in cooling these buildings in 2013 (or the equivalent of the annual consumption of about 232,000 kWh in Senegal in 2013).⁵⁸



CONTRIBUTION TO RESILIENCE:

This initiative further explores the potential to use energy-efficient technologies to help reduce energy wastage and improve sustainability, through the reduction of greenhouse gases. Generated energy savings will help businesses to grow and create more job opportunities



INTERVENTION AREA:

Energy efficiency



PRIMARY PARTNERS:

AEME, SENELEC



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Medium term



PROJECT TYPE:

New



SOURCES OF FUNDING:

Government (through energy efficiency budget) and donors (not yet identified)

⁵⁸ World Bank, Infrastructure of Senegal: a continental perspective, 2013



APPLYING THE RESILIENCE LENS



RESOURCEFUL:
Promotes energy saving, allowing businesses to grow and offer more job opportunities

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> Power outages 	<ul style="list-style-type: none"> Energy wastage Unsustainable energy consumption trends

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: BUILD THE CASE FOR THERMOSTAT

- Conduct feasibility studies to assess ways in which thermostats could be used in professional office buildings
- Pilot the use of thermostats in administrative buildings for evidence



EVALUATE THE USE OF MORE ENERGY-EFFICIENT MECHANICAL SYSTEMS IN PROFESSIONAL OFFICE BUILDINGS ACROSS THE CITY TO REDUCE ENERGY WASTAGE FROM LIGHTING



CAVEAT:

Ensuring energy sufficiency is complex and requires interventions across various areas including policy and regulatory, technology, and behavior modification. This initiative uses energy efficiency as an entry point. However, it does not address the full range of complex energy-related issues.



OBJECTIVES:

- Demonstrate adoption of innovative technologies towards substantial energy savings
- Demonstrate projected increase in access to electricity from energy savings



OPERATING ASSUMPTION:

While lighting accounts for 23%⁵⁹ of household electricity consumption at the national level, this proportion increases to nearly 50%⁶⁰ in buildings for professional use. At the national level and in the capital, incandescent lamps represent 70% of the lighting park even though they offer much lower performance than new-generation lamps such as LBC or LED lamps, consume up to five times more energy than LED lamp, and have a life span of 15 to 25 times less. An increase in LED lamp usage to 90% by 2030 in commercial buildings could generate energy savings of 1.4 billion kWh between 2017 and 2030, equivalent to more than 11 times the 2013 lighting consumption (or the equivalent of the annual consumption of nearly 11 million Senegalese in 2013).⁶¹ The central government ban “Decree No 2011-160 on January 28th 2011” prohibits import and sale of incandescent lamps but this is yet to be implemented.



CONTRIBUTION TO RESILIENCE:

This initiative further explores the potential to use energy-efficient technologies to help reduce energy wastage and improve sustainability, through the reduction of greenhouse gases. Generated energy savings will help businesses to grow and create more job opportunities.



INTERVENTION AREA:

Energy efficiency



PRIMARY PARTNERS:

Ministry of Energy, AEME, and SENELEC



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Medium term



PROJECT TYPE:

New



SOURCES OF FUNDING:

Government; donors (not yet identified)

⁵⁹ SENELEC, 2013 Statistics

⁶⁰ Interviews conducted with professionals in the field

⁶¹ Dalberg estimates, energy efficiency report, 2013



APPLYING THE RESILIENCE LENS



RESOURCEFUL:
Generates energy saving, allowing businesses to grow and offer more job opportunities

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: IDENTIFY BARRIERS TO THE ADOPTION OF LED AND PROPOSE SOLUTIONS TO INCREASE UPTAKE

- Explore barriers to policy enforcement and implementation and identify interventions to increase LED uptake (e.g. incentives, affordability, etc.)

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> ▪ Power outages 	<ul style="list-style-type: none"> ▪ Energy wastage ▪ Unsustainable energy consumption trends



CREATE A COMPETITION TO SPUR INNOVATIVE SOLUTIONS TO ADDRESS THE CITY'S ENERGY CHALLENGES



OBJECTIVES:

- Challenge local actors to generate innovative ideas for a more effective energy management system in Dakar
- Provide alternative solutions to the city's energy challenges, beyond consumption (e.g. alternative energy sources and distribution mechanisms)



OPERATING ASSUMPTION:

Frequent power outages result in economic losses for Dakar: 11.8 power outages occur every month on average, and these lead to a loss of one percentage point in the city's GDP every year. Demand for electricity will double between 2013 and 2030⁶² due to projected growth. Since, electricity production and management is managed at the central government level, through the SENELEC, ensuring energy sufficiency becomes complex as the city has limited control over energy production, distribution, and management. Such a situation requires exploring innovative approaches to address the city's energy challenges, by putting ideas of all stakeholders to contribution.



CONTRIBUTION TO RESILIENCE:

The initiative empowers local actors to think through their city's challenges in regards to energy and contribute to solving them. Improving access to, and management and use of energy has the potential to enhance private sector's productivity and resource management.



INTERVENTION AREA:
Energy efficiency



PRIMARY PARTNERS:
AEME, SENELEC



ACTION LEAD:
Municipality of Dakar



IMPLEMENTATION TIMELINE:
Continuous



PROJECT TYPE:
New



SOURCES OF FUNDING:
Government, donors (not yet identified)

⁶² Dalberg estimates



APPLYING THE RESILIENCE LENS



INCLUSIVE:
Empowers a broad range of actors as drivers of energy resilience



REFLECTIVE:
Leverages lessons learned from existing incubators and public initiatives



RESOURCEFUL:
Generates energy saving, allowing businesses to grow and offer more job opportunities

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> Power outages 	<ul style="list-style-type: none"> Energy wastage Unsustainable energy consumption trends

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: DESIGN AND PROMOTE THE COMPETITION

- Partner with a local organization (e.g. existing incubators, public support agencies, etc.) to design the competition
- Advertise and raise interest for applications through various channels (youth associations, business associations, incubators, academic networks, etc.)

ACTION 2: PRE-SELECT BEST IDEAS AND CREATE AN ENABLING ENVIRONMENT FOR THEIR DEVELOPMENT

- Set up a selection committee composed of government-led energy management organizations, and business leaders to decide on winning projects
- Invest in selected projects with an eye towards ensuring sustainability
- Provide a support ecosystem to maximize impact of the intervention: improvement of policy regulations, business development support, access to funding for implementation, etc.





Primary objective E:

Promote inclusive and efficient governance

SECONDARY OBJECTIVE E.1.: FOSTER INSTITUTIONAL COLLABORATION TO IMPROVE SERVICE DELIVERY

DESCRIPTION.: The current political context of integrated communalization commands that the approach pursued in the search for resilience improves and ensures sustainability of the larger urban ecosystem components. This requires a systemic collaboration among relevant public stakeholders driven by a common will to implement a robust and achievable urban resilience strategy. However, decentralization (“Act III”, law 2013-10) has led to political misunderstandings and lengthy negotiations between the central government, the municipalities, and local officials, resulting in limited coordination and siloed planning. This objective addresses a concern of making Dakar an inclusive city with the participation of all key stakeholders (central authorities, administrative officers and municipality workers).

INITIATIVE E.1.1.: ENHANCE DIALOGUE BETWEEN THE CENTRAL GOVERNMENT AND MUNICIPAL ADMINISTRATION TOWARDS RESILIENCE BUILDING COLLABORATIONS

INITIATIVE E.1.2.: INCREASE THE CAPACITY OF PUBLIC SERVICE PERSONNEL TO BECOME AGENTS OF INTEGRATION OF RESILIENCE IN THE MANAGEMENT OF PUBLIC AFFAIRS





ENHANCE DIALOGUE BETWEEN THE CENTRAL GOVERNMENT AND MUNICIPAL ADMINISTRATION TOWARDS RESILIENCE BUILDING COLLABORATIONS



OBJECTIVES:

- Foster common understanding between central and municipal authorities for effective implementation of Dakar's resilience strategy initiatives
- Build upon existing collaboration frameworks between the city and the central government and explore further opportunities



OPERATING ASSUMPTION:

The close collaboration between the actors of the central government and municipal level is essential for a successful implementation of Dakar's resilience strategy. There are regional development agencies (Agences Régionales de Développement – ARD) tasked with ensuring harmonization of national and local interventions within the geographical limits of each municipality. However, for budgetary reasons or planning, monitoring of consultation frameworks and harmonization of national and municipal interventions is not always effective. For example, the Intended nationally determined contribution on climate change (Contribution Prévue Déterminée au niveau National – CPDN) provides several initiatives to be implemented in the city of Dakar (e.g. establishment of a Bus Rapid Transit - BRT driver) and also at national level. This could facilitate the vertical and horizontal collaboration that are required to undertake most initiatives as they seek to strengthen existing collaboration frameworks and explore further opportunities.



CONTRIBUTION TO RESILIENCE:

The initiative fosters cross jurisdictional collaboration and empowers a broad range of regional, municipal, and community actors. It strengthens cooperation with various municipalities and the central government for the smooth implementation of national initiatives, with clearly defined implementation timelines. The initiative equally fosters cross jurisdictional collaboration.



INTERVENTION AREA:

Transversal



PRIMARY PARTNERS:

Regional Development Agency (ARD) Dakar; Mayors of the 19 towns; Ministry of Energy and Renewable Energy Development (MEDER)



ACTION LEAD:

Municipality of Dakar



IMPLEMENTATION TIMELINE:

Medium term



INITIATIVE TYPE:

Builds on existing initiative



SOURCES OF FUNDING:

Central Government, donors (not yet identified)



APPLYING THE RESILIENCE LENS



INCLUSIVE:
Empowers a broad range of public stakeholders to collaborate towards the city's resilience



REFLECTIVE:
Takes into account best practices/ lessons learned from existing collaboration frameworks between the central government and the municipality (ARD). Enhancing or innovating to make existing collaborations more resilient



RESOURCEFUL:
Leverages resources at the government and the municipality in new ways towards the implementation of targeted interventions

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS

- Civil crises/violence

STRESSES

- Lack of capacity for fiscal management

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: STRENGTHEN EXISTING VERTICAL AND HORIZONTAL OPERATIONAL COLLABORATION FRAMEWORKS WITHIN GOVERNMENT INSTITUTIONS AND MUNICIPAL ADMINISTRATION TO MAKE IT MORE RESILIENT

- Initiate discussions between the municipality and the ministries directly involved in key areas of urban resilience (Ministries of Environment, Education, Commerce, etc.) and the Regional Development Agency (Agence Régionale de Développement - ARD)
- Explore options and modalities for strengthening existing cooperation frameworks. Organize more regular meetings among the ministries and the municipality and have resilience on discussion agendas

ACTION 2: DEFINE NODES FOR COLLABORATION TOWARDS THE IMPLEMENTATION OF THE CPDN'S ACTIONS AS PERTAINS TO THE CITY OF DAKAR

- Conduct a cross- mapping of CPDN activities and Dakar resilience strategy to understand areas of overlap and build upon these synergies and identify planned initiatives for the city of Dakar within the CPDN (e.g. establishment of a Rapid Transit Bus)
- Explore collaboration mechanisms: period of implementation, government contributions, and the city's contributions for timely implementation



INCREASE THE CAPACITY OF PUBLIC SERVICE PERSONNEL TO BECOME AGENTS OF INTEGRATION OF RESILIENCE IN THE MANAGEMENT OF PUBLIC AFFAIRS



OBJECTIVES:

- Promote a shared vision of resilience among public service officers
- Develop public servants' knowledge and understanding of Dakar's resilience building priorities
- Integrate a resilience lens in public affairs' management



OPERATING ASSUMPTION:

For effective implementation of Dakar's resilience strategy, it is essential to ensure a shared vision of the concept of resilience among institutions; the public and private sectors, as well as among their staff. The technical staff of public services is often the primary implementer of government initiatives and must be in line with Dakar's resilience agenda. This initiative aims to improve the level of knowledge of the technical staff of public services (municipality of Dakar, and in the 19 communes composing the city of Dakar) about the concept of resilience, and to ensure their capacity to apply a resilience lens in the implementation of public services and initiatives. Some technical services to target in the municipality of Dakar include the Directorate of Planning and Sustainable Development (PDSD), the Urban Development Department (DDU), the Directorate of Technical Services (DST), the Directorate of Health and Action Services to individuals (DASS), the Department of Education and Assistance for Insertion (DEI), etc.



CONTRIBUTION TO RESILIENCE:

Municipal staff with technical expertise hold primary responsibility for implementation of Dakar's resilience strategy. This initiative empowers public institutions employees to implement initiatives effectively using a resilience lens to fulfill their mandates in this regard. Capacity building will progressively empower staff to mainstream and institutionalize resilience in the implementation of all public initiatives.



INTERVENTION AREA:
Transversal



PRIMARY PARTNERS:
City councils of 19 towns; key sector experts



ACTION LEAD:
Municipality of Dakar



IMPLEMENTATION TIMELINE:
Short term



INITIATIVE TYPE:
Builds on existing initiative



SOURCES OF FUNDING:
Donor (Not yet identified)



APPLYING THE RESILIENCE LENS



INCLUSIVE:

Engages a broad range of public sector actors to create a shared understanding of resilience



REFLECTIVE:

Curricula development to be iterative, based on initial assessment of civil staffs' knowledge. Potential to leverage on the city's existing programs to train administrative staff

MAIN SHOCKS AND STRESSES ADDRESSED

SHOCKS	STRESSES
<ul style="list-style-type: none"> ▪ Epidemics ▪ Floods ▪ Civil crises/violence ▪ Fires ▪ Buildings and infrastructure disrepair ▪ Prolonged water shortages ▪ Prolonged power outages ▪ Industrial explosions 	<ul style="list-style-type: none"> ▪ Weak community engagement ▪ Anarchic road occupancy ▪ Poor solid waste management system

ACTIONS IN SUPPORT OF THE INITIATIVE

ACTION 1: DEVELOP TRAINING CURRICULA

- Assess the level of knowledge of public servants in regards to resilience
- Collaborate with sector experts to develop appropriate training curricula and delivery methods

ACTION 2: RAISE AWARENESS AMONG PUBLIC SERVANTS

- Promote training initiative among public servants to encourage registrations to the training program



Omari mosque

MONITORING AND EVALUATION MECHANISM

5



MONITORING AND EVALUATION MECHANISM

5.1. INSTITUTIONAL IMPLEMENTATION SYSTEM



With the advent of decentralization in 1996, the territorial organization of the country has become more complex due to the layering of several levels of decentralized authorities (region, departments, municipalities, county boroughs, and rural communities). At the same time, decentralized local authorities (regions, departments, districts) that represent the territorial command have remained topical.

Actors had nourished the hope that Act 3 of decentralization, in 2013, would reduce this complexity by abolishing the region and rural communities from an administrative point of view. However, when applied to the Dakar Region, Act 3 resulted in the erection of 19 self-sufficient towns under the city of Dakar. At the same time, the city of Dakar remains a territorial administration though it cannot make decisions in the name of the 19 towns without prior agreement. This has reinforced the hierarchical frustration locally and conflicts of causes, competence and power prevail. In addition, the rise of multiple projects, as well as the proliferation of structures for their implementation (typically known as agencies) has caused malfunctions and conflicts given the lack of coordination between central and local authorities.

The implementation of the resilience strategy must take into account this institutional context and encourage the municipality to find new channels of cooperation with the other players at the communal, regional, and national level for concerted action and cooperation. To do this, the Municipality will use various means some of which are listed below:

THE SIGNING OF FRAMEWORK AGREEMENTS WITH KEY TECHNICAL PARTNERS

The municipality will identify, for each initiative, the main partners in the city, region or country. It will thus establish with these organizations (technical services, companies or state agencies, public institutions and implementing agencies) framework agreements allowing it to solicit updates on the progress of the implementation of initiatives.

THE SOLICITATION OF PARTNER PLATFORMS

Aside from public partnerships, the municipality will build on partner platforms developed under the definition of resilience strategy to accelerate the implementation of some initiatives. In particular, the platform of the initiative "100 Resilient Cities" which facilitates partnering with service providers and investors for the implementation of resilience initiatives will be leveraged. On the other hand, other thematic platforms can also be explored (eg. governance of decentralized cooperation, European Union, International Council for Local Ecological Initiatives - ICLEI).

The City will also use external consultants, non-governmental organizations (NGOs), associations, private companies or mixed economy, and technical and financial partners (TFP) foreign to accompany the implementation of the action plan.

" We must focus on strengthening stakeholder capacities of technical services for an effective implementation of the resilience strategy " - Governmental Authority

THE CREATION OF AD-HOC COMMITTEES

The Municipality will form, during its first annual session, commissions to study subjects within its jurisdiction. Thematic commissions, including stakeholders from various backgrounds, will be put in place to initiate reflections about the best ways and options to implement specific interventions. For example, a commission, bringing the National Office for Sanitation of Senegal (ONAS), the Ministry of Water and Sanitation, the Coordination Unit of the Solid Waste Management (UCG), representatives of district associations / municipalities and the informal sector could be set up for initiatives related to improved sanitation and waste management in the city.

5.2. MONITORING AND EVALUATION MECHANISM

The resilience strategy is not a static document. It is called to be reviewed periodically to take into account the economic, social and environmental developments in the city, but always in the spirit of building resilience. In this context, the CRO must ensure that the steering committee, the representative of all stakeholders, continues to exist, to monitor the implementation of actions, and recommend adjustments to the strategic plan.

Moreover, the capacity of the municipality administration in monitoring and evaluation must be reinforced. The CRO and the Directorate of Planning and Sustainable

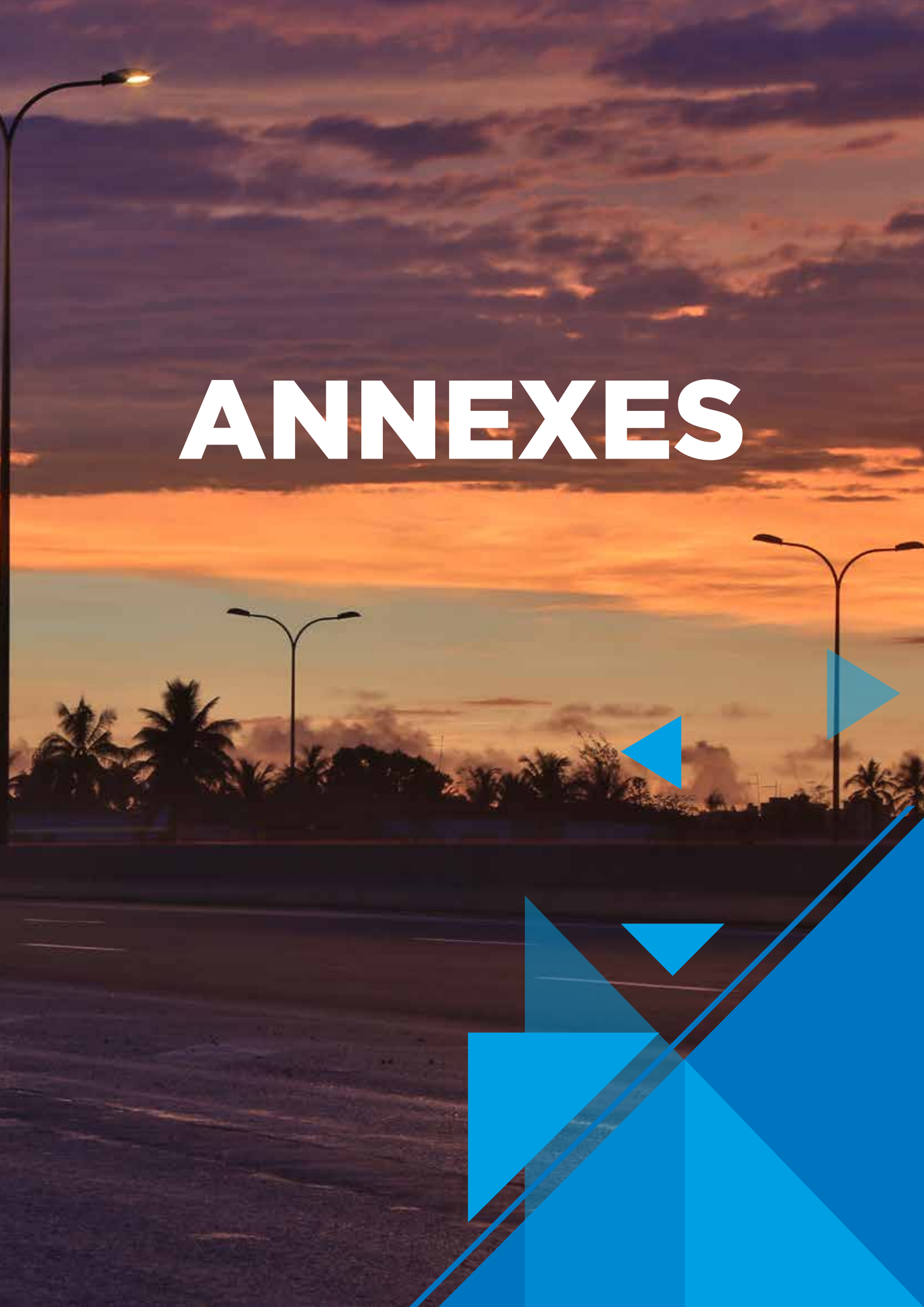
Development can together ensure regular monitoring of the implementation of action plans from the resilience strategy.

They will be provided with the human and financial resources and the tools to support these tasks (steering dashboards, IT platform, etc.). The IT platform, when created and is functional, will also be an impact assessment tool for the overall implementation of the strategic plan. This dashboard will be accessible to all townships in the city, taking into account the areas and levels of responsibility. A summary will also be communicated to all those involved in achieving the objectives of the strategy, including Dakar citizens themselves.





ANNEXES



ANNEXES

ACKNOWLEDGEMENTS

The drafting process of the resilience strategy was only possible thanks to the financial support and guidance from 100RC, and to the contributions of several stakeholders including the municipality of Dakar, the private sector, development institutions, the team of the Chief Resilience Officer, as well as Dalberg – the technical partner for the elaboration of the strategy.

The city would like to extend a very special thanks to the members of the steering committee, listed below, for their availability throughout the process that resulted in the release of the strategy and for their continuous support.

MEMBERS OF THE STEERING COMMITTEE		
NAME	ORGANIZATION	ROLE / POSITION
Leroux Dramé	Cheikh Anta Diop University (UCAD)	General Secretary
Bara Gueye	Innovation Environment Development (IED) Africa	Director
Abdoulaye Sylla	Municipality of Dakar	Chief of Division, Urban study and programming
Alassane Saïdou Sow	National Program for Local Development (PNDL)	Operations Manager
Cheikh Tidiane Dieye	African Centre for Trade, Integration and Development (ENDA CACID)	Director
Marie Ndaw	Municipal Development Agency (ADM)	Technical Director
Babacar Thioye Ba	Municipality of Dakar	Deputy Chief of Staff
Mansour Cama Mama F. Diop (Assistant)	National Confederation of Employers of Senegal (CNES)	President
Beydi Agne Aristide Tino Adediran (Assistant)	Conseil National du Patronat (CNP)	President
Dr. Oumar Sarr	Medical Region of Dakar	Regional Chief Doctor
Ngari Faye	Academy inspection of Dakar	Academy Inspector
Serigne Mboup	Comptoir Commercial Bara Mboup (CCBM)	Director
Dr. Omar Cisse	African Institute for Urban Management (IAGU)	Director



FROM LEFT TO RIGHT : (1) Antoine Faye, CRO, City of Dakar; (2) Bara Gueye, Director, IED; (3) Cyril Seck, Consultant, Dalberg; (4) Babacar T. Ba, Deputy Cabinet Director, City of Dakar; (5) Liz Agbor-Tabi, Associate Director, 100RC; (6) Daly Sene, UCAD Representative; (7) Aristide Tino Adediran, CNP Representative; (8) Abdoulaye Sylla, Director Studies Division, City of Dakar; (9) Marie Ndaw, Technical Director, ADM; (10) Cheikhou Balde, ADM

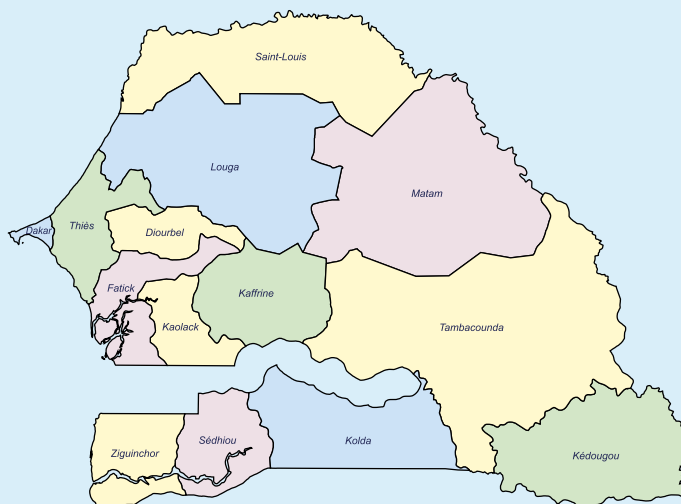
LIST OF ACRONYMS AND ABBREVIATIONS

ACRONYMS	DEFINITION
100RC	100 Resilient Cities
ADM	Agence de Développement Municipale
AEME	Agence Sénégalaise pour l'Economie et la Maitrise de l'Energie
AFD	Agence Française de Développement
ANSD	Agence Nationale de la Statistique et de la Démographie
APIX	Agence Nationale Chargée de la Promotion de l'Investissement et des Grands Travaux
ANSD	Agence Nationale de la Statistique et de la Démographie
APIX	Agence Nationale Chargée de la Promotion de l'Investissement et des Grands Travaux
ARD	Agence Régionale de Développement
ARMP	Autorité de Régulation des Marchés Publics
ASCOSEN	Association des Consommateurs du Sénégal
ASN	Association Sénégalaise de Normalisation
CACID	Centre Africain pour le Commerce, l'Intégration et le Développement
CCBM	Comptoir Commercial Bara Mboup
CNES	Confédération Nationale des Employeurs du Sénégal
CNP	Conseil National du Patronat
CONGAD	Conseil des Organisations Non Gouvernementales d'appui au Développement
CPDN	Contribution Prévue Déterminée au niveau National
CRF	City Resilience Framework
CRO	Chief Resilience Officer
DASS	Direction de l'Action Sanitaire et des Services aux personnes
DDD	Dakar Dem Dikk
DDU	Direction du Développement Urbain
DEI	Direction de l'Education et de l'Aide à l'Insertion
DKL	Derklé-Khar Yallah-Liberté
DOS	Document d'Orientation Stratégique
DPDD	Direction de la Planification et du Développement Durable
DST	Direction des Services Techniques
EU	European Union
FESELEC	Fédération des entreprises d'Electricité au Sénégal

FESMAN	Festival Mondial des Arts Nègres
IAGU	Institut Africain de Gestion Urbaine
ICLEI	Conseil international pour les initiatives écologiques locales
MCSICPPLPME	Ministère du Commerce, Secteur informel, de la Consommation, de la Promotion des Produits locaux et des PME
MEFP	Ministère de l'Economie, des Finances et du Plan
MRHC	Ministère du Renouveau urbain, de l'Habitat et du Cadre de vie
ONAS	Office National de l'Assainissement du Sénégal
PACTE	Plan d'Actions Environnementales
PDEC	Plan de Développement Economique et Culturel
PDU	Plan de Développement Urbain
PIC-GD	Plan d'Investissement communal du Grand Dakar
PLD	Plan Local de Développement
PNDL	Programme National de Développement Local
PRA	Preliminary Resilience Assessment
PROQUELEC	Association pour la Promotion de la Qualité des Installations Electriques Intérieures au Sénégal
PSE	Plan Sénégal Emergent
RGPHAE	Recensement général de la population de l'habitat et de l'élevage
SENELEC	Société Nationale d'Electricité
SME	Small and Medium Entreprises
UCAD	Université Cheikh Anta Diop
UCG	Unité de Coordination de la Gestion des déchets solides
UN DESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
WDI	World Development Indicators

KEY CHARACTERISTICS OF SENEGAL⁶³

COUNTRY FACTSHEET



ADMINISTRATIVE FACTS

Official name: Republic of Senegal
Area: 196,722 km²
Political regime: Republic
Capital city: Dakar
Other main cities: Thiès, Kaolack, Ziguinchor, Saint-Louis, Touba
Official language: French
Most common languages: Wolof, Diola, Pular, Sérère and Soninké

DEMOGRAPHIC FACTS

Population: 13,508,715
Population (< 25 years old): 62%
Population (> 60 years old): 5.2%
Population growth rate: 2.5%
Density: 69 habitants / km²
Urbanization rate: 44%
Poverty prevalence rate: 46.7% (2011)
HDI: 163/187 countries (UNDP, 2013)

ENVIRONMENTAL FACTS

Coastline length: 700 km
Climate: Sahel
Hydrographic network: Senegal river (1,770 km), Gambia river (1,150 km), Guiers lake (600 million m³)
Greenhouse gas emissions (2000): 7,525 Gg ECO₂
Greenhouse gas emissions (2005): 11,825 Gg ECO₂

ECONOMIC FACTS

Currency: CFA franc
GDP: 27.72 billion USD (2013)
GDP growth rate in 2015: 4.6%
GDP/capita: 2,100 USD

FLAGSHIP SECTORS

AGRICULTURE

- Income source for 60% of the population
- Vision: achieve rice sufficiency by 2017
- Contribution to GDP in 2012: 7.2%

LIVESTOCK

- Contribution to GDP in 2012: 4.2%
- Size of cattle: 15 million

FISHING

- Number of jobs created: 600,000
- Contribution to GDP in 2012: 2.2%
- Proportion of artisanal fishing in sector: 95%

FORESTRY

- Contributes to meeting domestic combustible demand, and for food, health, and shelter
- Annual deforestation rate: 40,000 ha/year

⁶³ National Agency for Statistics and Demographic Data (ANSD), Population, housing, agriculture, and livestock survey (RGPHAE), 2013



EXHAUSTIVE LIST OF INITIATIVES

Primary objectives	Secondary objectives	Initiatives	Actions in support of the initiative
A. Promote an inclusive resilience agenda by and for Dakar citizens	A.1 Empower citizens to understand and express their thoughts and concerns about the city's resilience, as well as propose solutions	A.1.1: Enhance citizen's comprehension of resilience for Dakar	<ul style="list-style-type: none"> - Action 1: Raise awareness about resilience - Action 2: Establish a network of community resilience champions
		A.1.2: Create a mechanism for ongoing collection of citizen's feedback on the challenges and resilience opportunities	<ul style="list-style-type: none"> - Action 1: Evaluate Dakar citizens' perceptions of the city's resilience status as a flagship initiative to launch the strategy - Action 2: Explore / develop tools for continuous collection of citizen's views and challenges on resilience
		A.1.3: Introduce the concept of resilience in basic education	<ul style="list-style-type: none"> - Action 1: Develop curricula - Action 2: Disseminate curricula across various basic educational institutions
		A.1.4: Explore (early warning) tools and services to provide Dakar citizens with access to information on imminent shocks in real time	<ul style="list-style-type: none"> - Action 1: Establish a database of current data about on the city's vulnerability state, and explore national and international early warning tools - Action 2: Real-time communication to reduce risks/ exposures



Focus area	Shocks	Stresses	Resilience lens	Timeline	Type of initiative	Funding sources
Civic engagement	<ul style="list-style-type: none"> - Floods - Civil crises / violence 	<ul style="list-style-type: none"> - Weak civic engagement - Anarchical road occupancy - Poor solid waste management system 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Resourceful - Redundant - Flexible - Reflective 	Medium term	New	Not yet identified
Civic engagement	<ul style="list-style-type: none"> - Floods - Civil crises / violence 	<ul style="list-style-type: none"> - Weak civic engagement - Anarchical road occupancy - Poor solid waste management system 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Resourceful - Redundant - Flexible 	Medium term	New	Not yet identified
Civic engagement	<ul style="list-style-type: none"> - Epidemics - Floods - Civil crises/ violence 	<ul style="list-style-type: none"> - Weak community engagement - Anarchical road occupancy - Poor solid waste management system 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Resourceful - Redundant - Flexible 	Medium term	New	Central Government ; Donors (Not yet identified)
Transversal	<ul style="list-style-type: none"> - Risks related to maritime security - Tornados - Tsunamis - Floods - Seismic activity 	<ul style="list-style-type: none"> - Poor preservation of the living environment - Aging Infrastructure - Infrastructure in disrepair - Coastal erosion 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Redundant - Flexible - Reflective 	Continuous	New	Not yet identified



Primary objectives	Secondary objectives	Initiatives	Actions in support of the initiative
B. Provide a healthy living environment to Dakar's citizens	B.1 Promote initiatives to protect the environment	B.1.1: Reinstate green spaces in the city	<ul style="list-style-type: none"> - Action 1: Collaborate with private sector organizations to reinstate and maintain public green spaces - Action 2: Mobilize private sector and citizen's interest to plant trees and create new green spaces
		B.1.2: Implement systems for promoting the eco/green lifestyle	<ul style="list-style-type: none"> - Action 1: Design the approach of the initiative - Action 2: Raise awareness among populations and private sector actors
	B.2 Improve the city's sanitation	B.2.1: Install public recycling bins throughout the city for a better waste management	<ul style="list-style-type: none"> - Action 1: Install refuse collection bins in high density areas of the city - Action 2: Raise awareness and educate population about recycling
		B.2.2: Implement a program to curtail arbitrary and hazardous dumps through collaboration with horse cart owners and UCG dealers	<ul style="list-style-type: none"> - Action 1: Collaborate with UCG and horse cart owners to define initiative's approach - Action 2: Organize and raise awareness of trash collection horse cart owners and residents
		B.2.3: Launch a digital platform to disseminate best practices and increase technical expertise of actors in sanitation	<ul style="list-style-type: none"> - Action 1: Create a sanitation platform - Action 2: Ensure sustainability of the platform
		B.2.4: Create a competition to spur innovative solutions for drainage management	<ul style="list-style-type: none"> - Action 1: Design and promote the competition - Action 2: Pre-select best ideas and create an enabling environment for their implementation
		B.2.5: Organize horse cart owners in cooperatives to encourage sorting of trash according to recycling norms	<ul style="list-style-type: none"> - Action 1: Reorganize horse cart owners - Action 2: Raise awareness among households - Action 3: Mobilize youth civic associations and enhance their current programs

Focus area	Shocks	Stresses	Resilience lens	Timeline	Type of initiative	Funding sources
Climate change	- Epidemics	<ul style="list-style-type: none"> - Poor preservation of the living environment - Weak community engagement - Environmental degradation 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Resourceful - Redundant - Reflective 	Continuous	New	Private sector
Climate change	<ul style="list-style-type: none"> - Risks related to maritime security - Industrial explosions - Epidemics - Floods 	<ul style="list-style-type: none"> - Weak community engagement - Anarchic road occupancy - Poor solid waste collection system 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Flexible 	Continuous	New	Private sector; Climate change financing mechanisms
Sanitation	- Epidemics	<ul style="list-style-type: none"> - Lack of capacity to treat liquid waste - Poor preservation of the living environment - Weak community engagement - Poor solid waste collection system - Environmental degradation 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Resourceful - Flexible 	Continuous	Building on existing initiative	(Not yet identified)
Sanitation	<ul style="list-style-type: none"> - Epidemics - Floods 	<ul style="list-style-type: none"> - Lack of capacity to treat liquid waste - Living environment - Weak community engagement - Poor solid waste collection system - Environmental degradation 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Resourceful - Redundant - Flexible - Reflective 	Continuous	Existing	Government / UCG
Sanitation	- Economic crises	<ul style="list-style-type: none"> - Organization: economy and society - Poor solid waste collection system - Human resources with low capacity - Lack of capacity to treat liquid and solid waste 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Resourceful - Flexible 	Continuous	New	Private sector (Membership dues); Donors (Not yet identified)
Sanitation	- Epidemics	<ul style="list-style-type: none"> - Organization: economy and society - Weak community engagement - Lack of capacity to treat liquid and solid waste 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Redundant - Flexible - Reflective 	Continuous	New	(Not yet identified)
Sanitation	- Epidemics	<ul style="list-style-type: none"> - Weak community engagement - Anarchic road occupancy - Poor solid waste collection system 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Resourceful - Redundant - Flexible - Reflective 	Continuous	New	Existing funding mechanisms of youth groups, from the municipality; Private sector; Donors (Not yet identified)

Primary objectives	Secondary objectives	Initiatives	Actions in support of the initiative
C. Position the private sector as a resilience partner	C.1 Promote the efficient implementation of public-private partnerships for resilience at a city level (create opportunities for private investments)	C.1.1: Improve partnerships between public institutions (SENELEC, UCG, ONAS) and private actors for better sanitation and energy efficiency (enforcement of norms, installation of smart meters, etc.)	<ul style="list-style-type: none"> - Action 1: Adapt existing partnership framework - Action 2: Disseminate streamlined processes to encourage implementation
		C.1.2: Provide support to small and medium enterprises (SMEs) active in resilience building	<ul style="list-style-type: none"> - Action 1: Identify start-ups and SMEs dedicated to resilience-related activities in order to develop, within existing incubators and entrepreneur forums, a resilience lab or incubator adapted to their needs - Action 2: Launch a green investment fund
	C.2 Promote economic growth by leveraging both the formal and informal sectors	C.2.1: Create a #MadelnDakar label to brand locally sourced and produced goods	<ul style="list-style-type: none"> - Action 1: Creation of #MadelnDakar label - Action 2: Establish a certification and quality control system - Action 3: promote the consumption of local products
		C.2.2: Facilitate access to markets for recycled products	<ul style="list-style-type: none"> - Action 1: Give preference to recycled products in public procurement - Action 2: Expand market access through the private sector
		C.2.3: Enhance existing municipal led incubator for informal economic actors	<ul style="list-style-type: none"> - Action 1: Review incubator design, leveraging resilience principles - Action 2: Select and provide support services to incubatees



Focus area	Shocks	Stresses	Resilience lens	Timeline	Type of initiative	Funding sources
Transversal	<ul style="list-style-type: none"> - Epidemics - Floods - Civil crises/ violence 	<ul style="list-style-type: none"> - Weak community engagement - Anarchic road occupancy - Poor solid waste management system 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Redundant - Reflective 	Continuous	New	Municipality
Transversal	<ul style="list-style-type: none"> - Epidemics - Floods - Civil crises/ violence - Economic crisis 	<ul style="list-style-type: none"> - Weak community engagement - Anarchic road occupancy - Poor solid waste collection system 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Redundant - Reflective 	Medium term	New	Not yet identified
Transversal	<ul style="list-style-type: none"> - Economic crises 	<ul style="list-style-type: none"> - Unemployment of youth - High cost of living 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Resourceful - Flexible - Reflective 	Medium term	new	Municipality of Dakar, private sector associations
Sanitation	<ul style="list-style-type: none"> - Epidemics - Floods - Economic crises 	<ul style="list-style-type: none"> - Environmental degradation - Poor waste management 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Resourceful - Redundant - Flexible 	Medium term	New	Municipality of Dakar
Transversal	<ul style="list-style-type: none"> - Unemployment / lack of job opportunities 	<ul style="list-style-type: none"> - Economic crises 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Redundant - Reflective 	Continuous	Builds on existing initiative	Municipality of Dakar



Primary objectives	Secondary objectives	Initiatives	Actions in support of the initiative
D. Leverage energy efficient technologies to support the city's resilience	D.1. Promote the adoption of energy conservation technologies	D.1.1: Disseminate information and promote standards on electrical system installations	<ul style="list-style-type: none"> - Action 1: Partner with the Ministry of Energy to advance the development of the compliance policy - Action 2: Launch compliance monitoring on electrical installations:
		D.1.2: Promote end user awareness and adoption of energy-saving opportunities	<ul style="list-style-type: none"> - Action 1: Launch an energy-awareness campaign - Action 2: Demonstrate value proposition of energy efficiency
		D.1.3: Evaluate the use of more energy-efficient mechanical systems in commercial buildings across the city to reduce energy wastage from air conditioning	<ul style="list-style-type: none"> - Action 1: build the case for thermostat
		D.1.4: Evaluate the use of more energy-efficient mechanical systems in professional office buildings across the city to reduce energy wastage from lighting	<ul style="list-style-type: none"> - Action 1: Identify barriers to the adoption of LED and propose solutions to increase uptake
		D.1.5: Create a competition to spur innovative solutions to address the city's energy challenges	<ul style="list-style-type: none"> - Action 1: Design and promote the competition - Action 2: Pre-select best ideas and create an enabling environment for their development



Focus area	Shocks	Stresses	Resilience lens	Timeline	Type of initiative	Funding sources
Energy efficiency	<ul style="list-style-type: none"> - Fires - Prolonged power outages 	<ul style="list-style-type: none"> - High cost of energy 	<ul style="list-style-type: none"> - Inclusive - Integrated - Redundant - Reflective 	Medium term	New	(Not yet identified)
Energy efficiency	<ul style="list-style-type: none"> - Power outages 	<ul style="list-style-type: none"> - Energy wastage - Unsustainable energy consumption trends 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Resourceful - Redundant - Flexible - Reflective 	Short term	New	Government (through energy efficiency budget) and donors (not yet identified)
Energy efficiency	<ul style="list-style-type: none"> - Power outages 	<ul style="list-style-type: none"> - Energy wastage - Unsustainable energy consumption trends 	<ul style="list-style-type: none"> - Inclusive - Integrated - Resourceful - Flexible - Reflective 	Medium term	New	Government (through energy efficiency budget) and donors (not yet identified)
Energy efficiency	<ul style="list-style-type: none"> - Power outages 	<ul style="list-style-type: none"> - Energy wastage - Unsustainable energy consumption trends 	<ul style="list-style-type: none"> - Inclusive - Integrated - Resourceful - Flexible - Reflective 	Medium term	New	(Not yet identified)
Energy efficiency	<ul style="list-style-type: none"> - Power outages 	<ul style="list-style-type: none"> - Energy wastage - Unsustainable energy consumption trends 	<ul style="list-style-type: none"> - Inclusive - Integrated - Resourceful - Redundant - Flexible - Reflective 	Continuous	New	(Not yet identified)



Primary objectives	Secondary objectives	Initiatives	Actions in support of the initiative
E. Promote inclusive and efficient governance	E.1 Foster institutional collaboration to improve service delivery	E.1.1: Enhance dialogue between the central government and municipal administration towards resilience building collaborations	<ul style="list-style-type: none"> - Action 1: Strengthen existing vertical and horizontal operational collaboration frameworks within government institutions and municipal administration to make it more resilient - Action 2: Define nodes for collaboration towards the implementation of the CPDN's actions as pertains to the city of Dakar
		E.1.2: Increase the capacity of public service personnel to become agents of integration of resilience in the management of public affairs	<ul style="list-style-type: none"> - Action 1: Develop training curricula - Action 2: Raise awareness among public servants



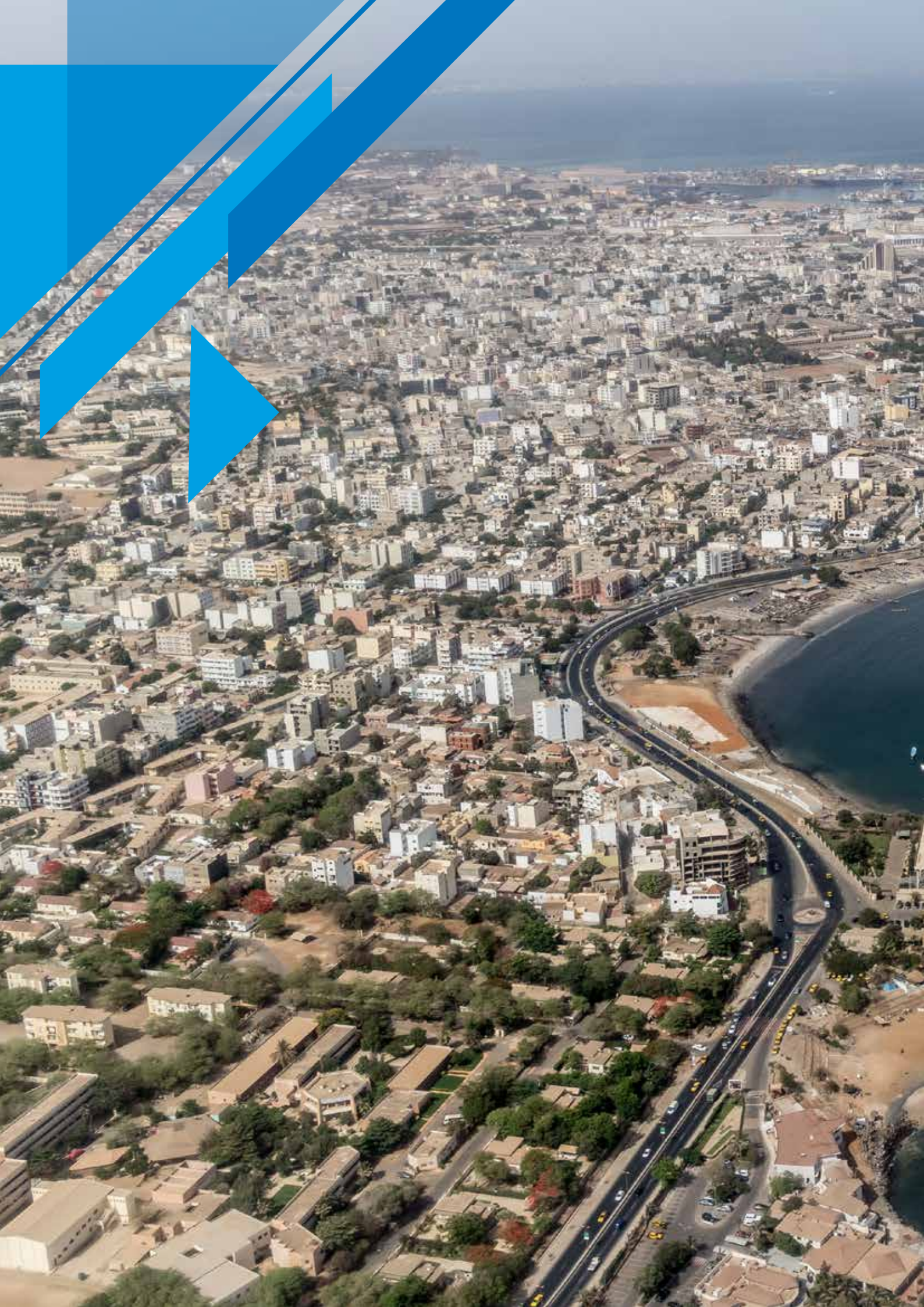
Focus area	Shocks	Stresses	Resilience lens	Timeline	Type of initiative	Funding sources
Transversal	<ul style="list-style-type: none"> - Civil crises/ violence 	<ul style="list-style-type: none"> - Lack of capacity for fiscal management 	<ul style="list-style-type: none"> - Inclusive - Robust - Resourceful - Flexible - Reflective 	Builds on existing initiative	New	Not yet identified
Transversal	<ul style="list-style-type: none"> - Epidemics - Floods - Civil crises/ violence - Fires - Buildings and infrastructure disrepair - Prolonged water shortages - Prolonged power outages - Industrial explosions 	<ul style="list-style-type: none"> - Weak community engagement - Anarchic road occupancy - Poor solid waste management system 	<ul style="list-style-type: none"> - Inclusive - Integrated - Robust - Redundant - Flexible - Reflective 	Short term	Builds on existing initiative	Not yet identified



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