

Recommendations of Actions for Resilience and Sustainability

DAKAR

Executive Summary

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for Resilience and Sustainability**

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R A R S

The *Recommendations for Actions for Resilience and Sustainability* (RAR-S) proposed in this report, and the work undertaken to define them, are outputs of the "Making Cities Sustainable and Resilient Action: Implementing the Sendai Framework for DRR 2015-2030" (MCSR) at the local level. This MCSR action is a joint initiative of UNISDR and UN-Habitat and receives financial support from the European Commission (EC DEVCO). Its overall objective is to improve the understanding of, and capacity to, address disaster risks and build resilience at the local level, by supporting national and local disaster risk reduction (DRR) and climate change adaptation strategies, while focusing on building local capacities.

Since inception in April 2016, the MCSR action has supported over 25 local governments to confidently address the risk and resilience agenda in their cities, using adapted tools and methodologies while increasing capacities. This report details the findings and projected way forward for the city of Dakar, based on the resilience analysis and diagnosis channelled through the *City Resilience Profiling Tool* (CRPT). UN-Habitat and the City of Dakar have led the implementation of the CRPT in the city and have successfully overcome challenges related to data collection and revision. The project has secured commitment from key actors that play a role in current and future steps.

This report details the findings, analysis, diagnosis, and commitment building, as well as the *Recommendations for Actions for Resilience and Sustainability* for the city of Dakar.

We thank the City of Dakar and EC DEVCO for making this report possible and we encourage all participants to proactively follow the progress of the city towards resilience.

Introduction

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As a pilot city of the “Making Cities Sustainable and Resilient” (MCSR) project, UN-Habitat has been working closely with the City of Dakar over the past two years to create a comprehensive profile of the city and recommend actions to improve its resilience through the *City Resilience Profiling Programme* (CRPP) and its associated *City Resilience Profiling Tool* (CRPT). CRPP is grateful to the City of Dakar for its commitment to work as a pilot city of the MCSR project. While various initiatives focusing on different aspects of risk reduction and resilience have been previously conducted in Dakar, the city administration has positively accepted the implementation of the CRPT for its transversal approach that can lead to innovations in integrated resilience building among different sectors at the city level.

The CRPT provides a universal framework that utilises verifiable and contextualised data of the city to establish their *resilience profile* and form an analysis and diagnosis of its most pressing challenges. This profile and diagnosis provides a base for the creation of evidence-based and implementable *Recommended Actions for Resilience* (A4R) that are then incorporated into urban development strategies and existing management processes. This process is designed to support the local government to take an informed decision-making approach and in turn support long-term, resilient and sustainable urban development, in the city of Dakar.

The *Recommendations for Actions for Resilience and Sustainability* (RAR-S) presents a culmination of the work conducted as part of implementing the CRPT in each pilot city. To both orient the reader and provide a truncated overview of the analytical process by which Actions for Resilience are developed, this chapter briefly presents the CRPP methodology. Description of the methodology is by no means exhaustive, but rather serves as a primer for the analytical findings presented in subsequent chapters. In other words, while the RAR-S report seeks to summarise the multifaceted implementation process, analytical and diagnostic efforts, and development of concrete recommendations for actions for building resilience in the pilot cities, it does not seek to provide detail for neither the methodological basis from which the CRPP was developed, nor the analytical process in its entirety given its extensiveness.

Building upon this brief methodological overview, this chapter provides an explanation of the scope and depth of analysis that is explored herein.

CRPP: Main Concepts

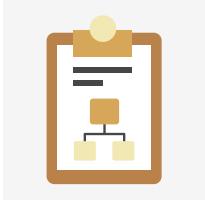
UN-Habitat’s flagship tool for urban resilience, the City Resilience Profiling Tool (CRPT), provides a cross-cutting diagnostic and action-oriented approach for resilience-based sustainable urban development. Its methodology is based on UN-Habitat’s definition of urban resilience, shown below, which encompasses a theoretical approach followed by a more practical description on what resilience-building efforts entail and target.

These definitions and understandings are important for cities implementing the CRPT and their collaborative partners as they outline the overall objective for the city. Without a shared understanding, catalysing engagement of stakeholders and garnering buy-in from partners is challenging.

In addition to these definitions, the following *Urban Resilience Principles* were developed to guide the process of achieving urban resilience in cities. Note that these principles are embedded within the structure, design, and implementation approach of the CRPT.

Urban resilience is the measurable ability of any urban system, with its inhabitants, to maintain continuity through all shocks and stresses, while positively adapting and transforming toward sustainability.

A resilient city assesses, plans and acts to prepare for and respond to hazards – natural and human-made, sudden and slow-onset, expected and unexpected – in order to protect and enhance people’s lives, secure development gains, foster an investable environment, and drive positive change.

**Principle 1****Dynamic nature of urban resilience**

Resilience is not a condition but a state that cannot be sustained unless the system evolves, transforms and adapts to current and future circumstances and changes. Therefore, building resilience requires the implementation of context-specific and flexible plans and actions that can be adjusted to the dynamic nature of risk and resilience;

**Principle 2****Systemic approach to cities**

Recognising that cities are comprised of systems interconnected through complex networks and that changes in one part have the potential to propagate through the whole network, building resilience requires a broad and holistic approach that takes into account these interdependencies when the urban system is exposed to disturbances;

**Principle 3****Promote participation in planning and governance**

A resilient system ensures the preservation of life, limitation of injury, and enhancement of the 'prosperity' of its inhabitants by promoting inclusiveness and fostering comprehensive and meaningful participation of all, particularly those in vulnerable situations, in planning and various governance processes. Such an approach can ensure sense of ownership, thus achieving successful implementation of plans and actions.

**Principle 4****Multi-stakeholder engagement**

A resilient system should ensure the continuity of governance, economy, commerce and other functions and flows upon which its inhabitants rely. This necessitates promoting open communication and facilitating integrative collaborations between a broad array of stakeholders ranging from public entities, private sector, civil society, and academia to all city's inhabitants.

**Principle 5****Strive towards development goals**

Resilience building should drive towards, safeguard and sustain development goals. Approaches to resilience should ensure that efforts to reduce risk and alleviate certain vulnerabilities does not generate or increase others. It must guarantee that human rights are fulfilled, respected and protected of under any circumstances.

CRPP: Methodology and Alignment with International Agenda 2030

The implementation of the CRPP is characterised by four overlapping steps: 1) data collection, 2) analysis, 3) diagnosis, and 4) recommendations for actions for resilience.

In order to better understand how the data collected leads to derived actions, clarity regarding how these key implementation processes are pursued and relate to one another is required. The implementation process is discussed briefly in the section below.

To facilitate the data collection and analysis steps, the CRPT is structured in four SETs. Each SET serves a specific focus, through which information covering the entire urban system are mapped, analysed and inter-related. Data analysed throughout these SETs, and subsequently presented in this report, are derived from existing databases, official documents, research and publications, among other verifiable sources. While much of these data provide quantitative information to conduct evidence-based analysis of the city, findings are complemented by qualitative sources gathered through workshops, expert readings, etc., in an attempt to capture the city's nuances and contextual realities. Together, quantitative and qualitative data collection and analysis lead to an in-depth diagnosis of the city, thereby providing a base for the development of Actions for Resilience.

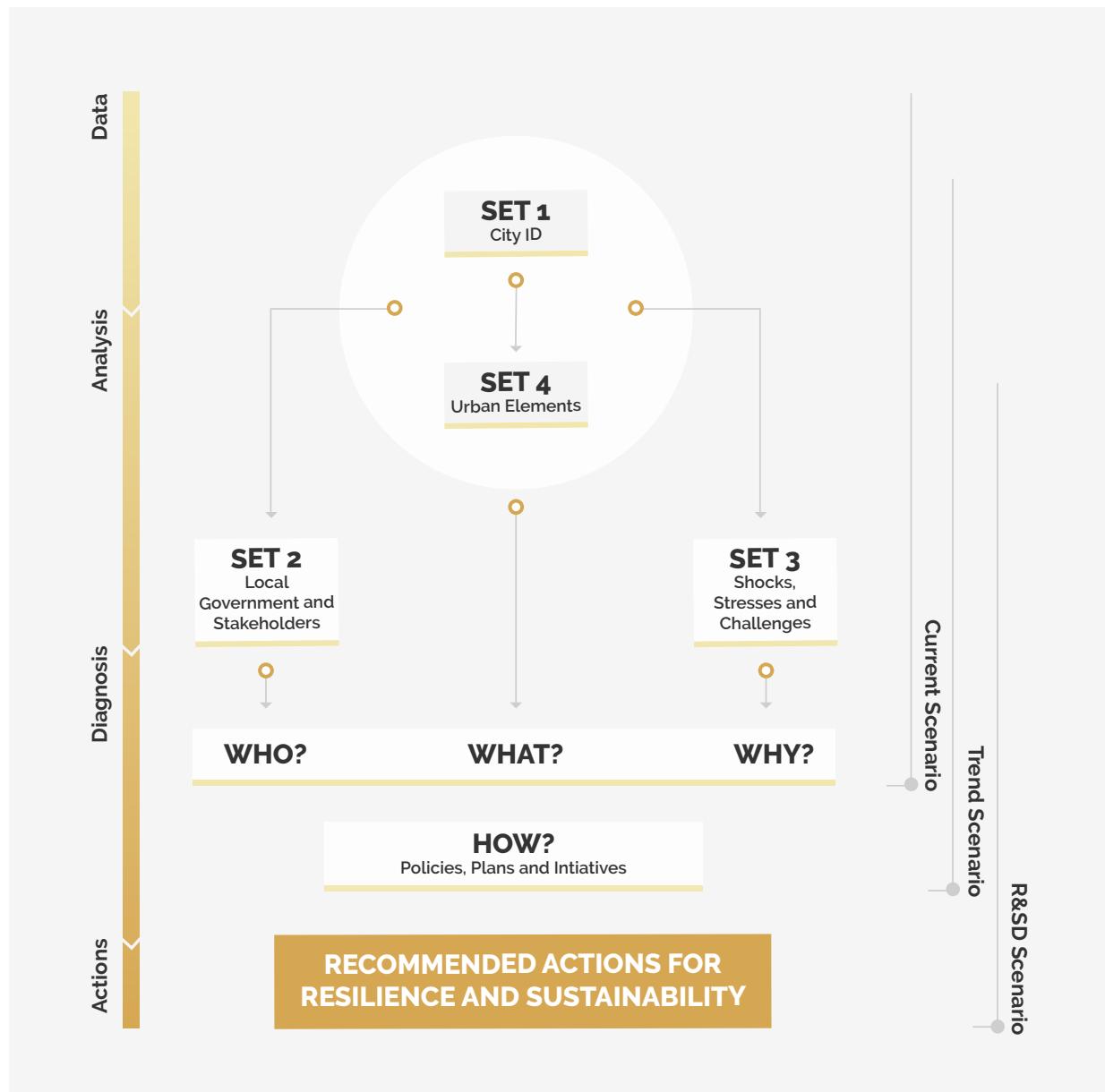


Figure: CRPP Implementation Process Diagram. Source: CRPP (2018).

As is illustrated in the Figure above, data is primarily collected in SET 1 – City ID, for context-related information, and in SET 4 – Urban Elements, for performance-related information. These data provide a basis to analyse the current strengths and weakness of the Urban System and its performance – the WHAT.

Following this synthesis of data comprising the WHAT, information gathered regarding key stakeholders (including the local government) and shocks, stresses and challenges (to which the city is found to be more or less vulnerable) are incorporated into the analysis.

SET 2, the WHO, gathers information related to stakeholders which is used to analyse the role and relationships of the different institutions and organisations that act in the city and to identify the most influential actors. This WHO is captured in Local Government and Stakeholder Analysis, which provides a brief mapping on the local government's structure, roles, and responsibilities. In addition, an overview is provided of key stakeholders from outside the local government (e.g. regional, provincial, national government, private companies, community organisations, NGOs, etc.).

SET 3, the WHY, identifies and prioritise the shocks, stresses and challenges in the city.. This section assesses the various shocks, stresses, and challenges present in the city and summarises the analytical processes conducted through which an identification and prioritisation of shocks was determined, which includes whether or not, and to what degree, risk reduction measures have been established and the severity of impact or risk each shock category potentially poses.

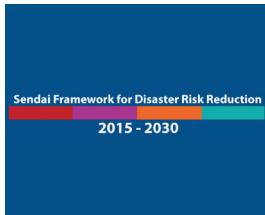
The HOW – the policies, plans, and initiatives – portion of the CRPT evaluates existing development efforts. It uses the data collected in the aforementioned four SETS. This information is organised in an inventory that coherently maps these in relation to WHAT the issues are, WHO are able to act, and WHY action should be done, to determine current areas of focus, gaps and overlaps – to formulate HOW to act to strengthen resilience.

The result of these analyses is prioritised and implementable Lines of Actions or thematic areas of prioritisation, which are identified and agreed upon with the local government. Following a consolidation of CRPT analytical and diagnostic findings and integration of key stakeholders input, the local government and experts from the CRPP team form a focused, consensus-derived path towards resilience. The Lines of Actions explore these resulting themes, presenting a culmination of collected data findings and preliminary analytical efforts, in combination with key stakeholder input derived from the several workshops conducted in conjunction with the local government. These Lines of Action can vary in scope but relate directly to both quantitative and qualitative information, representing a synthesis of each methodological step in the CRPT implementation.

From these Lines of Action, Recommendations for Actions for Resilience and Sustainability are developed and proposed in order to co-create a resilient and sustainable roadmap for the city. These Actions are intended to be both implementable and feasible, precise in targeting, and ambitious in their expected impact.

This methodology was developed in alignment with globally agreed inter-governmental frameworks, namely: Sustainable Development Goals, Sendai Framework for Disaster Risk Reduction, Paris Agreement on Climate Change, World Humanitarian Summit - Agenda for Humanity, and the New Urban Agenda. Aligning CRPT with these frameworks enables the local governments who have implemented CRPT to better understand, report, and deliver on specific targets.

Sendai Framework for Disaster Risk Reduction



The Sendai Framework calls for resilience on all levels, from local to regional and national. CRPT contributes to the Framework's overall objective to reduce vulnerability to disasters and increase preparedness for response and recovery, including contributions to the Four Priorities for Action:

- **Priority 1:** Building evidence-based knowledge on disaster risk reduction;
- **Priority 2:** Strengthening disaster risk governance through the adoption of plans;
- **Priority 3:** Investment in risk reduction for resilience;
- **Priority 4:** Scaling-up of preparedness and a 'build-back better' approach in recovery.

Sustainable Development Goals



Urban resilience relates to key elements of sustainable urban development and the goals of the post-2015 Sustainable Development Agenda, notably in Goals 1, 2, 3, 9, 11, 13 and 14 where resilience is referenced but also in other goals where it is implied. Resilience is also a strong component of many of the stated aims throughout the preamble and paragraphs 7, 9, 14, 23, 29 and 33 of the Declaration to the SDGs.

Paris Agreement on Climate Change



Article 7 calls for strengthening of resilience to climate change in the pursuit of sustainable development. By engaging local governments in these efforts, resilience in cities contributes to the following principles of the Paris Agreement:

- Adaptation (dealing with impacts of climate change);
- Loss and Damage (minimizing loss and damage linked to climate change);
- Role of cities (building resilience).



World Humanitarian Summit – Agenda for Humanity

The core responsibilities defined at the World Humanitarian Summit have strong foundations in resilience thinking and building. The approach adopted by UN-Habitat to build resilience contributes to Core Priority 1D, 4A, 4B, 4C, and 5A.

New Urban Agenda



Advancing the urban resilience agenda and working globally delivers on a number of key goals of the New Urban Agenda agreed by Member States during Habitat III, most prominently:

- a. New resilient planning paradigms in urban systems
- b. Legal and regulatory frameworks to enable and govern urban development
- c. Analysing risks inherent in urban areas
- d. Promoting good practice in local economic, development strategies through marketing safer, resilient cities.

CRPP: Actions for Building Resilience

Actions for Resilience (A4R) constitutes the final product of UN-Habitat – CRPP's urban resilience implementation process. The aim of this report is to better inform local governments, in this case the City of Dakar, of the state of the city with regards to resilience, based on conclusions derived from of the CRPP implementation process previously described in this document. This document urges local government stakeholders to prepare, correct or apply initiatives (programmes, projects and plans) in a governance context that should be efficient, organised and transparent (with the local government leading the process) and within a safe and effective legal framework.

Actions for Resilience aren't necessarily built from scratch. Existing initiatives, policies and plans are taken into consideration, whether or not they are in progress or not. A4R are not only focused specifically on the field of urban planning, but rather value sectoral initiatives related to each identified stress, in addition to those related to territorial development or planning.

The methodology for developing A4R is robust, but flexible and versatile enough to allow its adaptation and replication in different contexts. It constitutes a guide for designing new initiatives or modifying those already being implemented to promote resilience and sustainable development of local governments, focusing on the particularities of specific contexts.

In short, A4R builds evidence to modify and improve existing initiatives, as well as proposes new initiatives from a resilient and sustainable approach. The added value of A4R includes the development of a shared vision among actors, through a participation and consensus building process, and alignment with international agenda 2030 frameworks.

This document is divided into three chapters that describe the stages of developing A4R:

- **Current scenario:** Identification and elaboration of the profile of the city.
- **Trend scenario:** Potential impact of current plans, policies and initiatives.
- **Resilient and sustainable scenario:** Recommendations for Actions for Resilience.

Building the current scenario: Identification and elaboration of the profile of the city

The current scenario is characterised through data derived from quantitative and qualitative multidisciplinary indicators (SMART¹: specific, measurable, achievable, relevant and timely), field visits, and local knowledge. In parallel, an analysis should be conducted regarding how the current governance system functions in the city.

In this scenario, the indicators that reveal shortcomings in the urban system are grouped by themes, which, combined in a multidisciplinary way, form a composition of stresses and stressors specific to the context. The affected behaviour of the city from the challenges, the impacts of the most recurrent shocks, and prevention and response measures are also taken into consideration and analysed.

The compilation of these data serves as a snapshot of the situation of the city in terms of resilience. However, the urban system's vulnerability to shocks prevents the achievement of the resilient scenario and the internal weaknesses of the urban system prevent the achievement of the sustainable scenario.

¹ United Nations Development Programme (UNDP). (2009). Handbook on planning, monitoring and evaluating for development results. Pg – 63

Building the trend scenario: Potential impact of current plans, policies and initiatives

The trend scenario is built upon the current scenario. It considers the characteristics necessary for the city to strengthen its resilience and assesses the performance dynamics of the urban system. It emerges when analysing the relationships between shocks, stresses and challenges, existing capacities, current policies, plans and initiatives (whether approved or not), as well as examining current trends in the evolution of the urban system.. The value of this analysis lies in its ability to propose potential corrections to certain negative trends or to include previously ignored issues into forecasting efforts. The trend scenario is the trigger for the formulation of Recommendations for Actions for Resilience.

Likewise, the resilient and sustainable scenario is derived from applying the Actions for Resilience to the trend scenario and therefore presents a realistic transformation process of the urban system.

Building the resilient and sustainable scenario: Formulation of actions for resilience (A4R)

The Actions for Resilience are organised according to the stress(es) they seek to address, their ability to be implemented, and the territorial scope they to which they apply. Although the first two categorisations offer a multitude of realistic actions to achieve a resilient urban system, through identifying the territorial scope, actions can provide changes to the urban system that support the incorporation of long-term sustainability in the city.

Conceptual framework

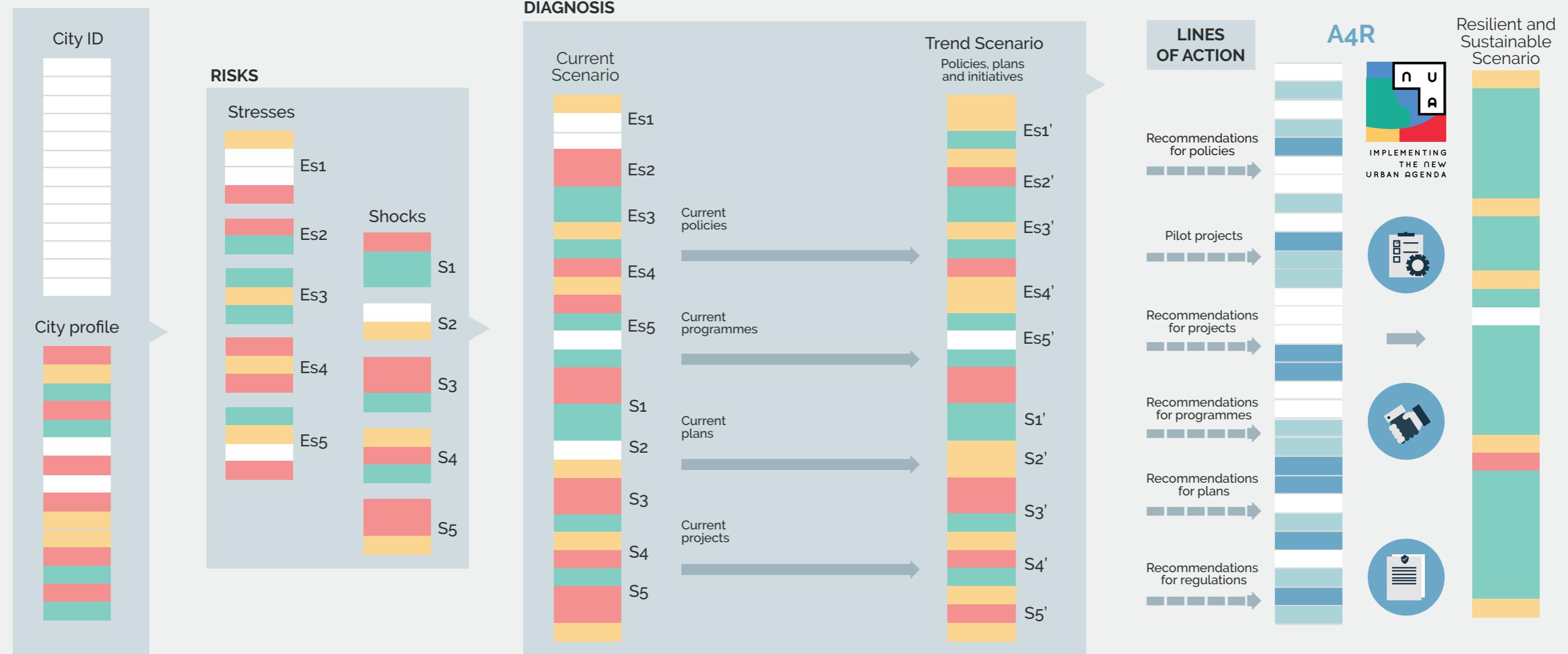
The concept of urban resilience and sustainability is complex and multidimensional. The approach to evaluating the resilience of an urban area is informed by the systemic relationships between different urban sectors and stakeholders and the different lenses through which urban issues can be understood.

The main concepts related to the achievement of resilient and sustainable cities are: the underlying economic system, poverty, social segregation, social inequality, environmental degradation, lack of coverage and access to basic services, and urban metabolism management. At the same time, from these concepts, related stresses are derived; for example, social segregation occurs due to: the lack of social networks at both the neighbourhood and urban scale, the lack of inter-institutional cooperation and between citizens and administrations, an inadequate legal or regulatory framework justice, real or perceived insecurity, the proliferation of precarious settlements, territorial imbalances, degraded peripheries, ...

Stresses are also characterised through the combination of different themes, a combination that defines the particularities of a specific city. The uniqueness of each city is established through a composition of transversal or cross-sectional elements and interconnected stresses, a dynamic that should be taken into consideration when implementing different initiatives.

Process towards the construction of a Resilient and Sustainable Scenario

Figure: Process of building a Resilient and Sustainable Scenario. Source: CRPP (2019).



CRPP: Implementation process in Dakar

The interest of the City of Dakar to implement the methodology of the City Resilience Profiling Programme (CRPP) and, therefore, to improve urban resilience in the city, began in May 2018. This interest was reconfirmed in November 2018 with the participation of a representative of the City of Dakar in the Barcelona Resilience Week. In January 2019, the first technical mission to Dakar allowed to present the CRPP framework and methodology to the local authorities, the city's technicians as well as to some of the key stakeholders who could be involved in setting up the project. In February 2019 the City's commitment became official with the signing of the Letter of Agreement. However, the official approval of this Letter between UN-Habitat and the City of Dakar occurred only in June 2019. Between July and December 2019, two workshops were organised in Dakar, to deepen the diagnosis, define the priority areas and ensure the co-creation of actions. Finally, in February 2020, representatives of the City of Dakar had the opportunity to present the first draft of the Recommendations of Actions for Resilience and Sustainability (RAR-S) Report during the tenth World Urban Forum (WUF10) organised by UN-Habitat in Abu Dhabi.

To set up the programme in Dakar, a Focal Point based in the city was recruited. He was able to access a training programme on urban resilience and the City Resilience Profiling Tool (CRPT), with a particular emphasis on data collection and analysis. It was agreed that data collection would be handled by the Focal Point, in direct coordination with the technical team of the CRPP and, subsequently, with the various city administration's Departments. This way, a permanent coordination channel and a fluid process of information exchange was defined, which also enabled the Focal Point to participate in various events and activities of the local administration related to resilience and sustainability.

The CRPP was implemented in Dakar according to a specific methodology developed for the programme, which adapt to the conditions of the city, and also acquire lessons learned from each of the stages and processes implemented previously. An important aspect to emphasise was the willingness to participate and cooperate actively from the various organisational departments of the City through technical meetings and exchange of information, so that in collaboration with the CRPP team, results were obtained

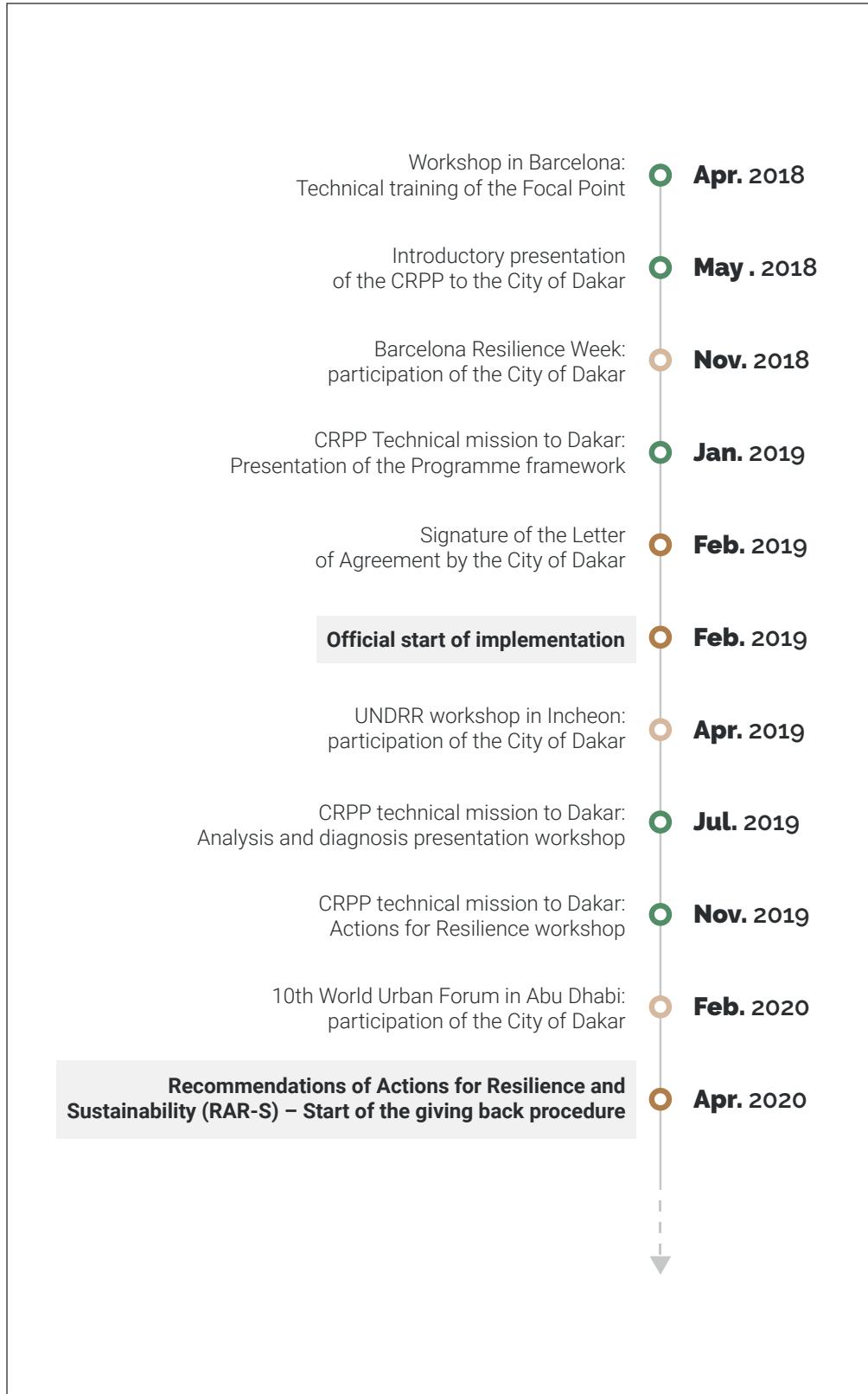
The result of this process, in accordance with the signed Letter and the interinstitutional agreements, was materialised in April 2020, with the provision of the City's Resilience Profile and Recommendations of Actions for the Resilience and Sustainability (RAR-D) report to the city authorities.

The giving back procedure between the CRPP and the City of Dakar includes:

1. The CRPT databases in the form of digital files, which include the main information collected and processed, the main documents of the legal framework analysed, and the spatial databases (GIS) processed.
2. The city's visual platform, with access to the website containing the Dakar resilience profile: analysis, diagnosis and main lines of action for resilience.
3. The final report of the Recommendations for Resilience and Sustainability (RAR-S) in Dakar, with the corresponding annexes and appendices.

Through the Recommendations of Actions for Resilience and Sustainability (RAR-S), we are convinced that we have contributed to supporting the development of an Agenda for the City of Dakar based on the concepts of urban resilience which, by its transversal and integral nature, allows resilient sustainable development.

Figure: Timeline of CRPP Implementation in Dakar. Source: CRPP (2019).



- Milestone events
- Major stages in implementation
- Dakar participation in events

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I. Logic of the current scenario: data collected and analysis

The performance of Dakar's urban system refers to the statistical profile developed on the basis of the compilation and analysis of the data collected over a period of approximately thirteen months. While the context in Dakar was challenging in terms of data collection, the resulting level of completion, as illustrated below, is considered to be robust and, above all, sufficient to carry out a more granular analysis by sector, thematic area, stress and others.

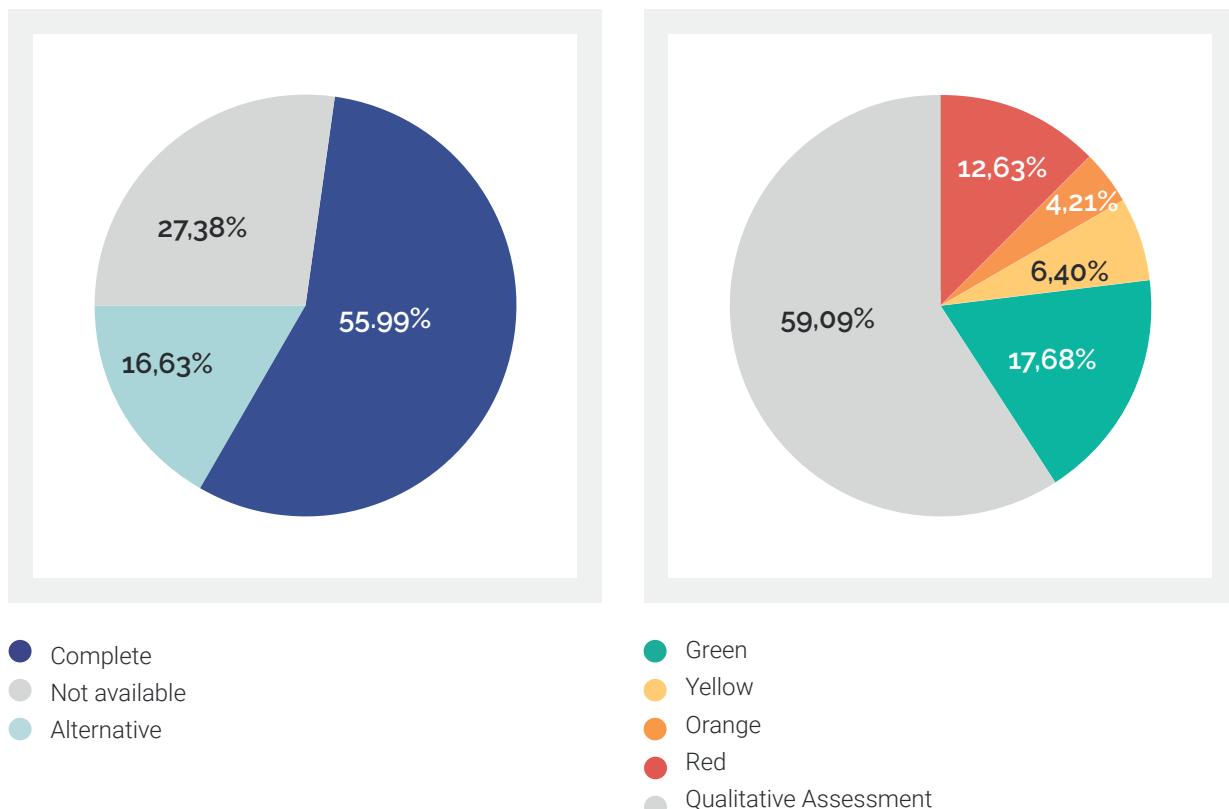


Figure: Visualisation of the final global evaluation of the data collection and results concerning resilience. Source: CRPP (2019).

According to the initial analysis, more than 70% of the indicators applicable to the context in Dakar were collected and slightly less than 3.5% were considered not applicable. These percentages are consistent with the context, knowing that this is the first time such a data collection process has been carried out on this scale. However, it is important to note the need for local authorities to collect data for their different sectors in a systematic way, and to update them regularly, as available and up-to-date data help decision-making and prioritisation of actions.

The methodology developed in this analysis presents the results visually, using colours to reflect the measurable performance for the supporting indicators: "red" represents the most critical indicators, "orange" and "yellow" indicate intermediary situations and "green" suggests a satisfactory situation. Regarding the assessment of resilience, slightly less than 25% of the results indicate that the city functions well or reasonably well. However, since almost 60% of all the information was analysed in qualitative way and 27% of the information was not available at the time of this analysis, the actual performance of the city is potentially better, or worse, than the available evidence is suggesting.

The main data collection unit within the CRPT is called "supporting indicator" and consists of a question or group of questions requiring a quantitative and / or qualitative answer. Most of the data generated by the supporting indicators are comparable or quantitatively measurable to a series of benchmarks developed for each indicator. In the analysis, the indicators are classified into several thematic elements or groups, addressing thematic information: built environment,

supply chain and logistics, basic infrastructure, mobility, municipal public services, social inclusion and protection, economy and ecology. The final assessment of data collection showed higher rates for the supply chain and logistics, basic infrastructure, mobility, and social inclusion and protection.

1. Urban elements analysis

The analysis highlighted these main findings for each of the urban elements:

Built Environment

- Land tenure and management issues marked by a lack of affordable housing, irregular or inadequate occupations and buildings;
- Exposure to multiple risks (industrial, erosion, floods). 90% of housing would be located in hazardous areas.

Supply Chain and logistics

- Lack of sufficient water resources in the Dakar region, in terms of quality and quantity. Energy demands are not yet fully met;
- Land speculation considerably reducing agricultural activity inside the city and throughout the region.

Basic Infrastructure

- Aging and unreliable electricity, water supply, and wastewater and sanitation networks;
- Lack of a sufficient solid waste collection and inappropriate treatment directly disposed of in an open dump, leading to major environmental problems;
- Significant environmental pollution (air, soil, water), loss of biodiversity and deterioration of ecosystems through contaminant releases.

Mobility

- 70% of trips are made on foot but there is no pedestrian network and unsuitable sidewalks (informal occupation, parking, dilapidated, etc.);
- Inadequate public transport offer;
- High level of urban congestion linked to various factors.

Municipal Public Services

- Land speculation reduces the possibility of finding new cemeteries;
- Lack of access to municipal tax services;
- Regular and inclusive cultural activities. Potential of cultural heritage and tourist activities not exploited.

Social Inclusion and Protection

- Conseils de quartiers are considered consultation bodies at city level;
- Formal employment is the fundamental criterion for accessing benefits from the social protection system;
- Quite great accessibility of the populations of Dakar to hospital care, but existence of financial barriers;
- Existence of initiatives implemented by the City of Dakar for more social protection and inclusion.

Economy

- High level of unemployment. High level of informal employment in precarious conditions;
- Lack of access to financial services;
- Efficient and participatory budget preparation process.

Ecology

- Continuous degradation of land cover, loss of biodiversity, weakening of ecosystems and high environmental pollution of the air, soil and water, which is constantly increasing.

2. Local government and stakeholder analysis

The local government and stakeholder analysis establishes the full picture of local government, from decision-making, implementation and planning processes, to stakeholder mapping that attempts to capture the factual interactions between the actors concerned. This analysis allows us to make the following main observations:

- Analysis by element shows that Act III of decentralisation has reinforced the dependence of local government on national government and on municipalities;
- The ability of the City of Dakar to mobilize resources independently of the current funding framework is minimal compared to the infrastructure deficit shown in the indicators analysed on the basis of urban elements;
- Local government has the challenge of extending and improving coordination processes both vertically (central government) and horizontally (territorial organisations, metropolitan municipalities, civil society, etc.) based on its status as a "department" to allow articulated and concerted interventions;
- There is a strong influence and an increasing participation of the main international cooperation institutions which develop various programs having an impact on urban development;
- Regarding the civil society actors, there is a diversified and broad participation, but which is not necessarily articulated with public initiatives;
- In several areas, the City's coordination efforts should be better articulated with the national government, but the City must also engage in horizontal coordination through intermunicipal cooperation;
- All the processes for putting the municipality in touch with essential and complementary actors are not formalised and / or institutionalised.

3. Shocks analysis

There are also exogenous or external causes which clearly affect the city. They are called shocks, defined as uncertain, sudden or long-onset events that have potential to impact upon the purpose or the objective of an urban system.

Dakar is exposed to multiple shocks, whether natural, technological or biological, which can have a significant impact on the city. Given the range of shocks to which the city is exposed, a prioritisation process was carried out in order to focus analysis efforts on the most serious shocks. To do this, the following criteria have been taken into account:

- a. Assessment of the impact generated by each shock on the population, assets and processes.
- b. Frequency of events and their impact on different districts of the city and its population.
- c. Analysis of how the different shocks act on the different elements and components of the urban system, considering the interdependencies between these constituent elements of the urban system.
- d. Climate change projections trends in Dakar and how these trends may worsen the impacts of the shocks identified.

Based on the previous analysis, four types of shocks can be prioritised in Dakar:

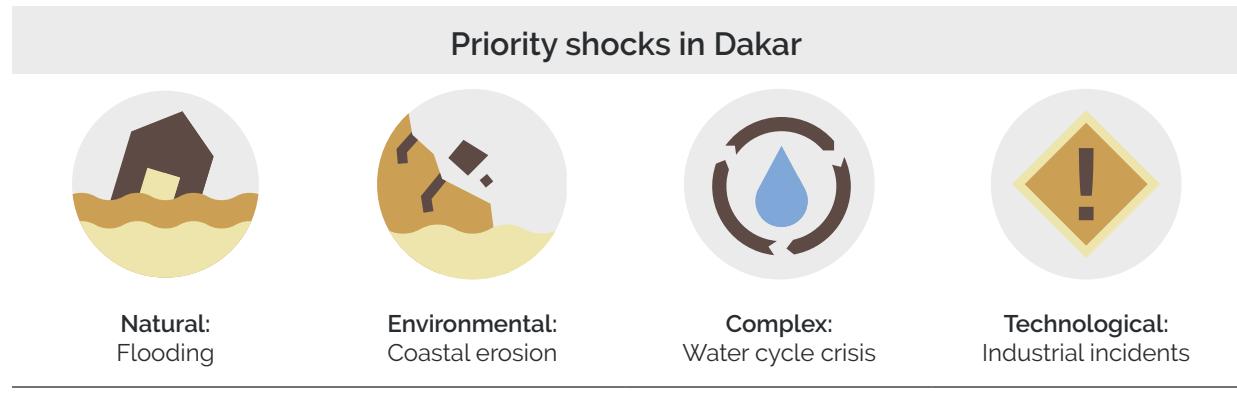


Figure : Priority shocks in Dakar. Source: CRPT (2020).

The most important findings from this part of the analysis are:

- Dakar is exposed to the risk of multiple shocks, and therefore requires priority actions aimed at mitigating the consequences of such events;
- Intersectoral coordination exists to a limited extent around common mechanisms for assessing, planning, implementing and monitoring disaster risks;
- Unplanned urbanisation leads to constructions development located in risk areas, endangering the population, but also threatening the natural ecosystem and degrading biodiversity;
- The limited financial and technical capacities at the local level do not allow the implementation of strategic infrastructure projects making it possible to prevent and mitigate disaster risks;
- The extent of the informal sector makes it difficult to apply building codes and regulations;
- Climate change poses new challenges and increases Dakar's vulnerability to the risks of floods, cyclones and heat waves;
- The consequences of shocks further increase the level of vulnerability of the poorest inhabitants.

4. Climate trends analysis

This targeted approach allowed a more in-depth analysis of how certain shocks can exacerbate existing systemic vulnerabilities (i.e. stresses) both under current and future conditions, taking into account the impacts generated by climate change and other contextual dynamics. The main findings of a satellite data analysis (delivered by 'Lobelia by IsartSAT') report are presented below:

- Dakar will be increasingly vulnerable to sea level rise and coastal erosion according to the trends examined;
- The projected increasing frequency of heavy precipitation are likely to trigger an augmented exposure to floods for citizen living in vulnerable neighbourhoods;
- The increasing temperature are expected to intensify the effects of drought in the area of Dakar;
- Projected temperature increase in the City of Dakar is likely to exacerbate health risks associated to heat stress and with water- and vector-borne diseases.

5. Stresses analysis

The stresses² identification is a multidimensional process which incorporates the findings from Dakar's urban performance, its identified shocks and challenges, and the analysis of local government and the main actors operating in the city. Preliminary analysis of the data derived from the resilience indicators identified five main stresses:

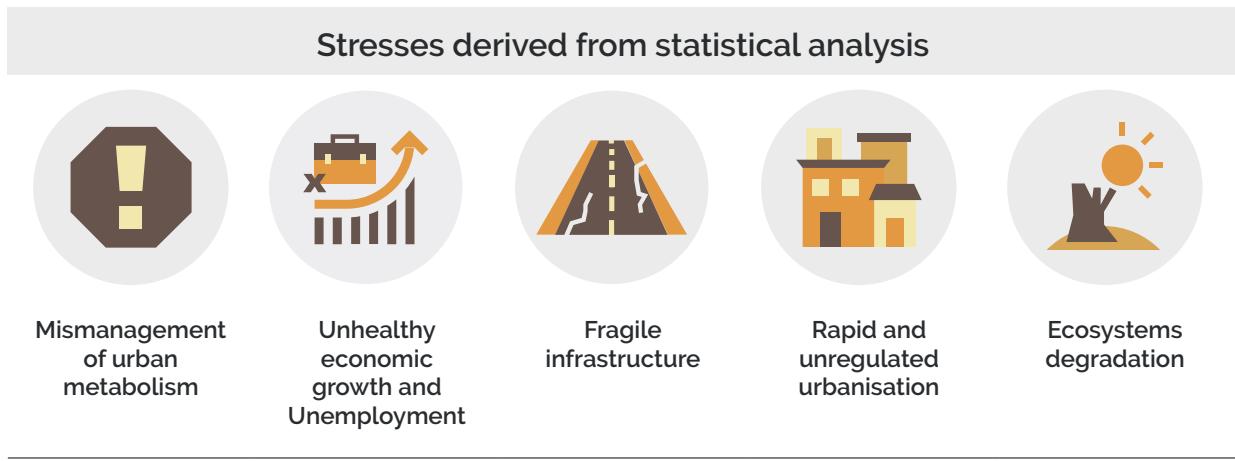


Figure: Current stresses in Dakar. Source: CRPT (2020).

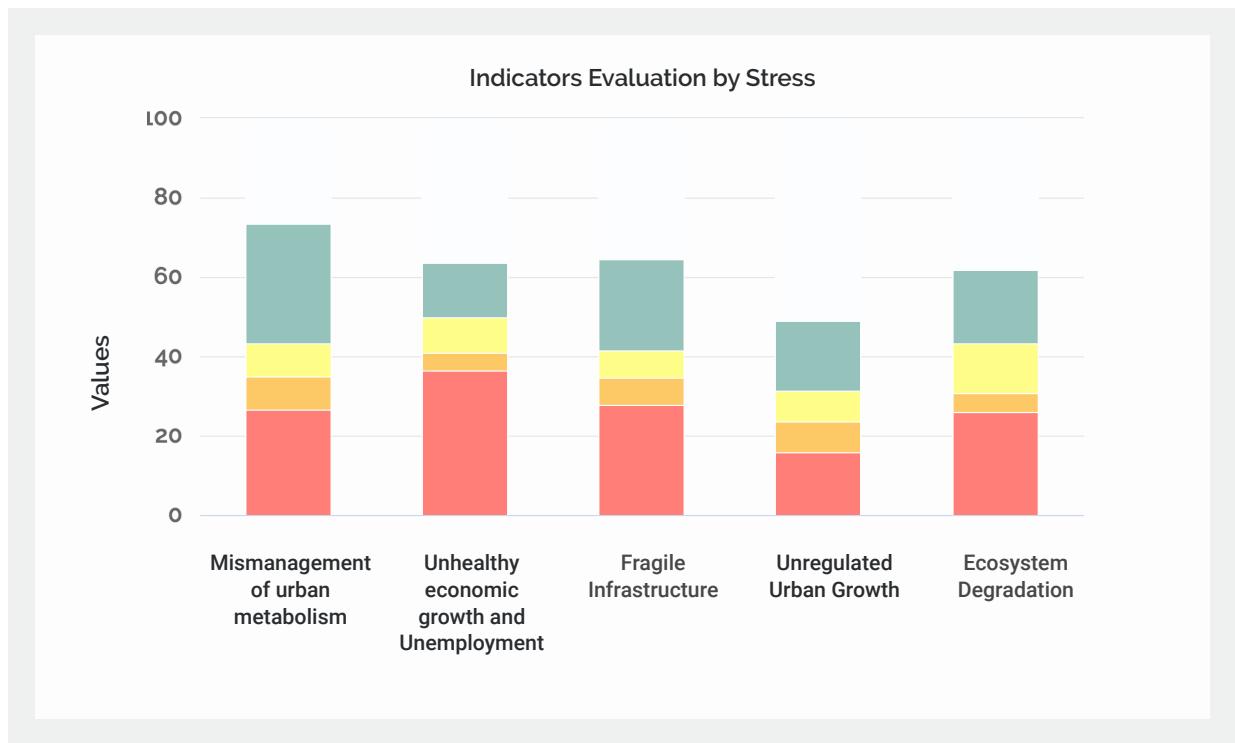


Figure: Visualisation of the final indicators' evaluation by stresses. Source: CRPP (2020).

² Chronic and ongoing dynamic pressures originated within an urban system with potential for cumulative impacts on the ability and capacity of the system to achieve its objectives.

In a parallel process, complementary activities to collect local knowledge during workshops, interviews with key stakeholders and field visits, have allowed us to add or confirm four stresses which hinder or hamper the proper development of the city. These new stresses have been subjected to a statistical analysis filter to confirm their objectivity on a scientific basis, or if they simply reflect bias present in the local discourse; while those also identified by the tool have been corroborated:

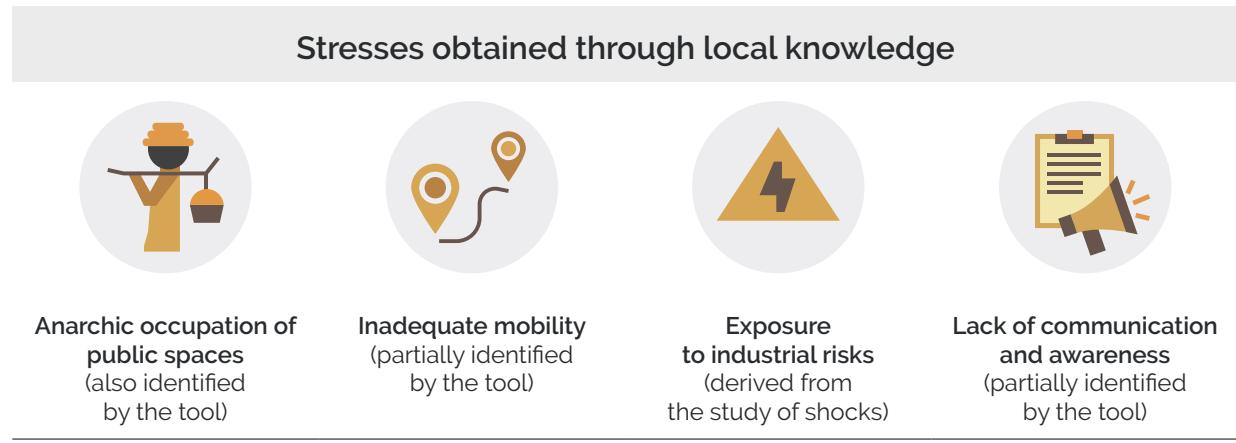


Figure: Stress obtained through local knowledge. Source: CRPT (2020).

6. Challenges analysis

Challenges are defined here as long-term contextual changes and pressures originated outside the urban system that also undermine the city's capacity for sustainability and resilience. Several challenges have been identified on the basis of statistical analysis and contextual knowledge of Dakar. Others, previously identified as stresses, were reclassified as challenges after refining the analysis. Four challenges have been highlighted as a part of this analysis:



Figure: Challenges highlighted during the analysis. Source: CRPP (2020).



Image: Dakar, Senegal. Source: CRPP (2019).

7. Integration of shocks, stress and challenges in the analysis

Although the challenges represent forces or conditions largely independent of the possibilities for action by local government, taking them into account is necessary to understand current and future political initiatives, prioritise shocks, identify priority stresses and, ultimately design Recommendations of Actions for Resilience and Sustainability (RAR-S).

Thus, in a complementary way, the relationships between shocks, stress and challenges have been included in the logic of analysis of the current scenario—also considering capacities and vulnerabilities—and the competences of the City of Dakar and the main stakeholders were reviewed to integrate their different roles. Finally, other trends and contextual factors, which may not have been adequately captured by the analysis of quantitative data, were taken into account in the scenario.

This analysis allowed to produce a relational diagram integrating the stresses, shocks and challenges encountered by the city of Dakar:

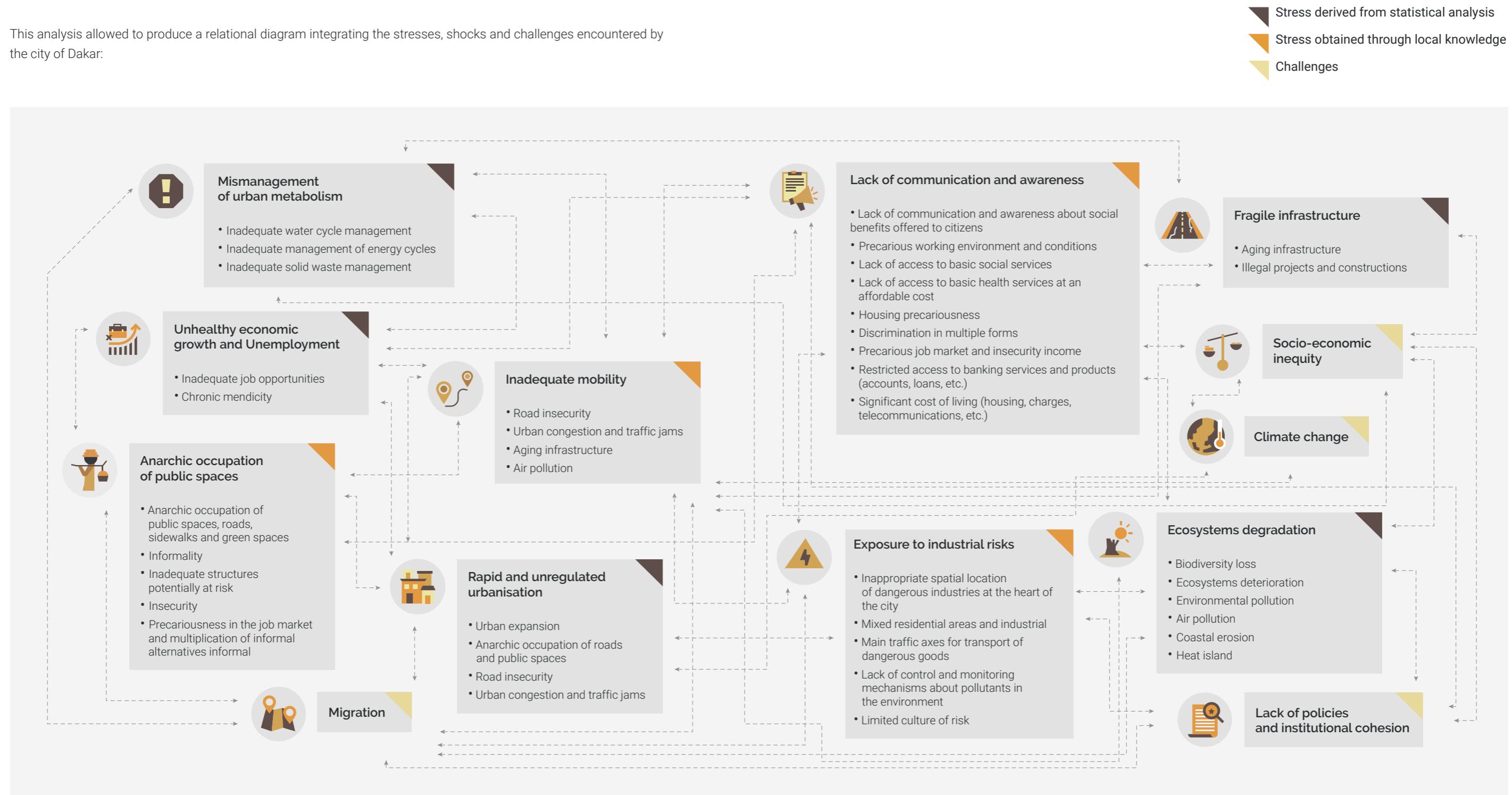


Figure: Relational diagram associating the shocks, stresses and challenges of Dakar. Source: CRPP (2019).

8. Formulation of priority matters

Once this analysis was complete, it was possible to identify priority matters. In Dakar, the main result of the November 2019 workshop was the validation of the four priority matters, which combine the four shocks, nine stresses and four challenges, while taking into consideration the stressors and the political, social and economic contextual aspects for the potential implementation of suggested recommendations of actions. The four priority matters, presented below, serve as the basis from which the recommended actions for resilience were developed:



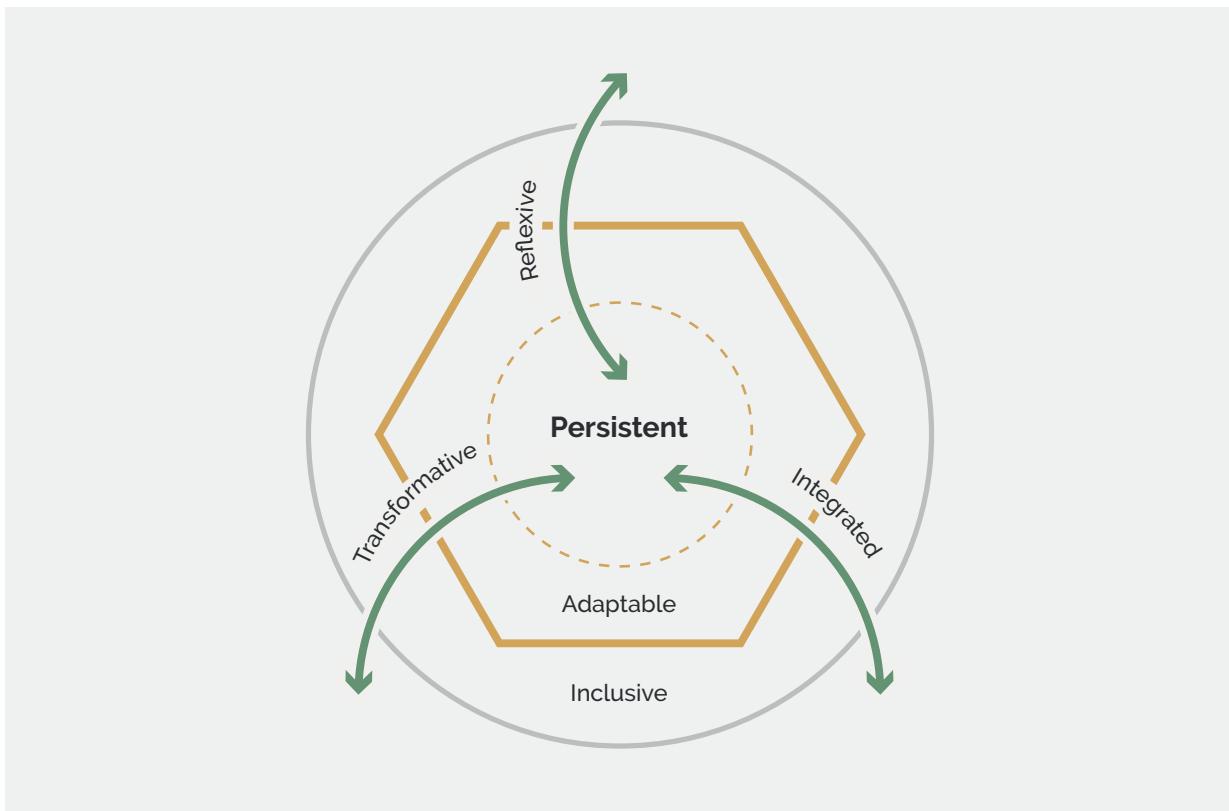
Figure: Formulation of priority matters. Source: CRPT (2020).

II. Logic of the trend scenario: legal and regulatory framework

The trend scenario emerges when analysing the relationships between shocks, stress and challenges, existing capacities, current policies, plans and initiatives as well as examining the current scenario of the evolution of Dakar's urban system. This scenario, which aims to be dynamic, starts from the current scenario and assesses to what extent stress situations would be affected—Improved, worsened or remain the same—considering existing capacities at local level and the implementation of policies, programs, initiatives and / or projects, at all administrative levels. These global and specific trends can be positive or negative, and should be analysed as they "indicate" the perspectives towards which the city is heading.

The CRPP methodology conducts a thorough review of important documents—policies, strategies, laws and regulations—relating to each of the urban elements analysed during the data collection phase. After this evaluation, it clearly appears that the current situation of the city of Dakar is certainly not due to the absence of planning documents, policies or strategies. Senegal has very advanced legislation in various areas and Dakar is a city in which many studies, research, plans and strategies have been carried out.

To obtain a more resilient and sustainable Dakar, with regard to the logic of the CRPP methodology, we must look at the city from the point of view of resilience and carry out a prospective exercise considering the characteristics necessary for the city to strengthen its resilience. These are illustrated by the following diagram:



What	Persistent Adaptable Inclusive
How	Integrated Reflexive Transformative

Figure: Characteristics of a resilient city. Source: CRPP (2017).

These characteristics can be linked to the four priority matters already identified in the city through the analysis and the relational diagram defined in the Current Scenario (Management and use of public space; Environmental risk linked to current urban development; Mechanisms for prevention and social protection; Communication, awareness-raising actions and knowledge sharing on good practices) in order to see what the next steps could be to support the city of Dakar in strengthening some of these characteristics.

Based on the analysis of the characteristics at the city-level and an understanding of the importance of the sustainability of any intervention, Actions for Resilience (A4R) are proposed in the resilient and sustainable scenario. These are actions that involve the shared responsibility of various key actors and are not intended to improve the resilience of the city overnight, but which can help build resilience in a structuring and sustainable way.

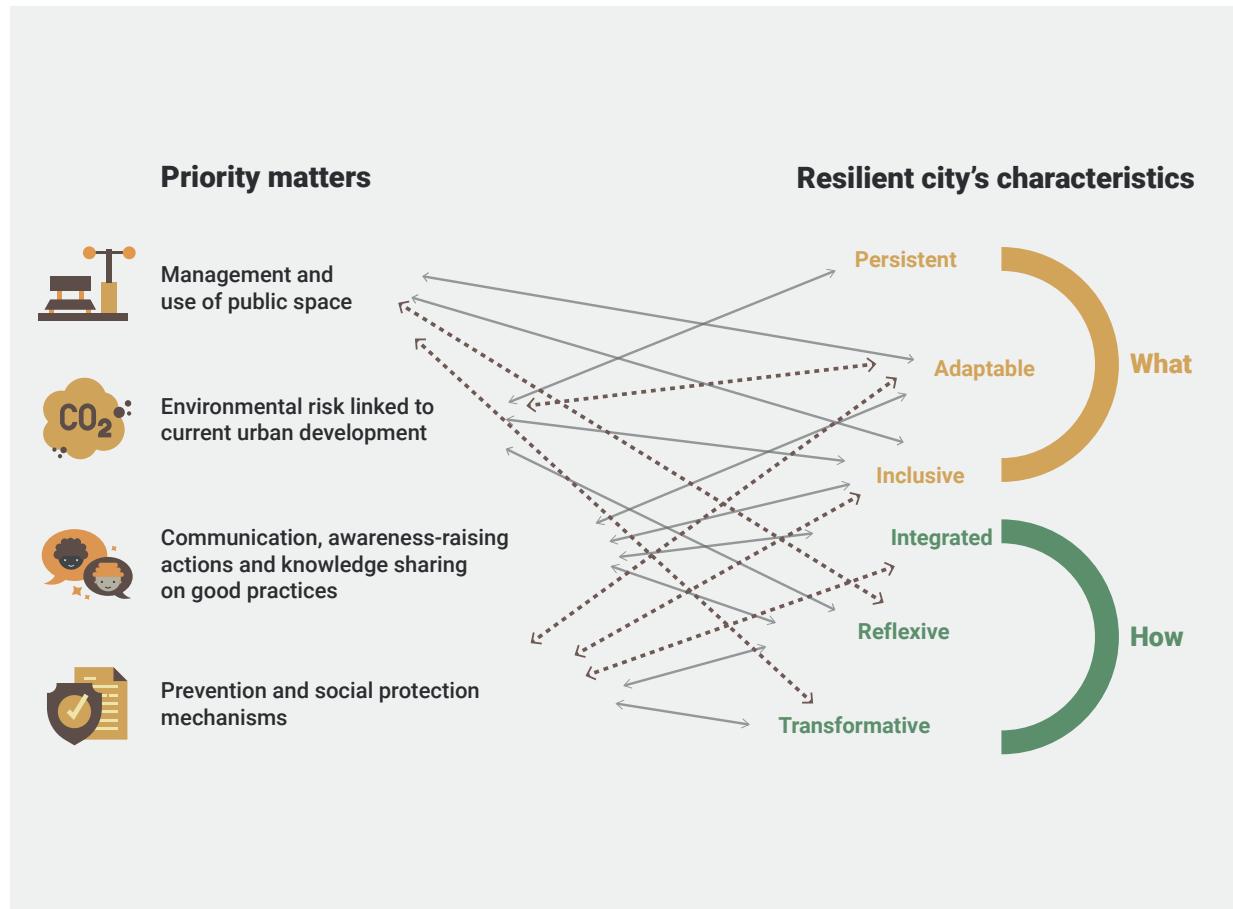


Figure: Link between priority matters and a city's resilience objectives. Source: CRPP (2020).

The report also attempted to estimate "costs of inaction". This exercise allows political decision-makers to better understand the nature and scope of urban issues, and therefore helps them to decide when (and how) to intervene.

In the case of the city of Dakar, the available local data do not allow a precise estimate of the costs of inaction. However, we can note the strong will of local actors to drive change and a direction towards initiatives that promote resilience and sustainability. If the city does not succeed in capitalizing on this positive movement, the cost of this inaction will be very detrimental to the quality of life of the inhabitants of Dakar and of the city itself. Inaction will thus have a negative impact on the economy, the environment, ecology and urban governance while undermining the efforts already undertaken to make the city more resilient.

III. Logic of the resilient and sustainable scenario: actions for resilience

The qualitative processes described above have established the need for three types of action: governance actions, strategic actions and integrative actions.

1. Governance actions

The actions relating to governance constitute the necessary impetus for the strategic actions to materialize, since they integrate, in addition to the analysis of the data, a qualitative reading of the framework of action and the challenges encountered by the City of Dakar in relation to existing resources, the legal framework and the exercise of the skills of the actors identified throughout the process. The main governance actions refer to the need for greater coordination between the parties, better mastery of the legal framework and skills, better management of information, including knowledge of best practices which could be reproduced at the city level, and an improvement in general communication accompanied by the implementation of actions to raise awareness of good practices for the entire population and local stakeholders.

As already mentioned in the contextualisation of stresses, certain forces or conditions present in the city must be considered as challenges. Correctly oriented or framed, these conditions can serve as areas of opportunity to strengthen the resilience of the city. In the case of the city of Dakar, these areas of opportunity are:

- Coordination between stakeholders and accountability of actors;
- Implementation of the legal framework and application of the law;
- Information management (general data and GIS) and reproduction and dissemination of best practices (for example, Dakar as a leader in urban resilience to influence a possible national policy);
- General communication and awareness-raising actions for all.



Figure: Governance Actions. Source: CRPP (2018).

2. Strategic Actions

The proposals related to strategic actions are oriented towards specific critical problems found in the analysis (both spatial, physical, functional or organisational), through which the greatest impact on people, assets and urban processes is sought, reducing stress and minimizing the consequences of the identified shocks, while taking into account the main aspects of concern to municipal authorities.

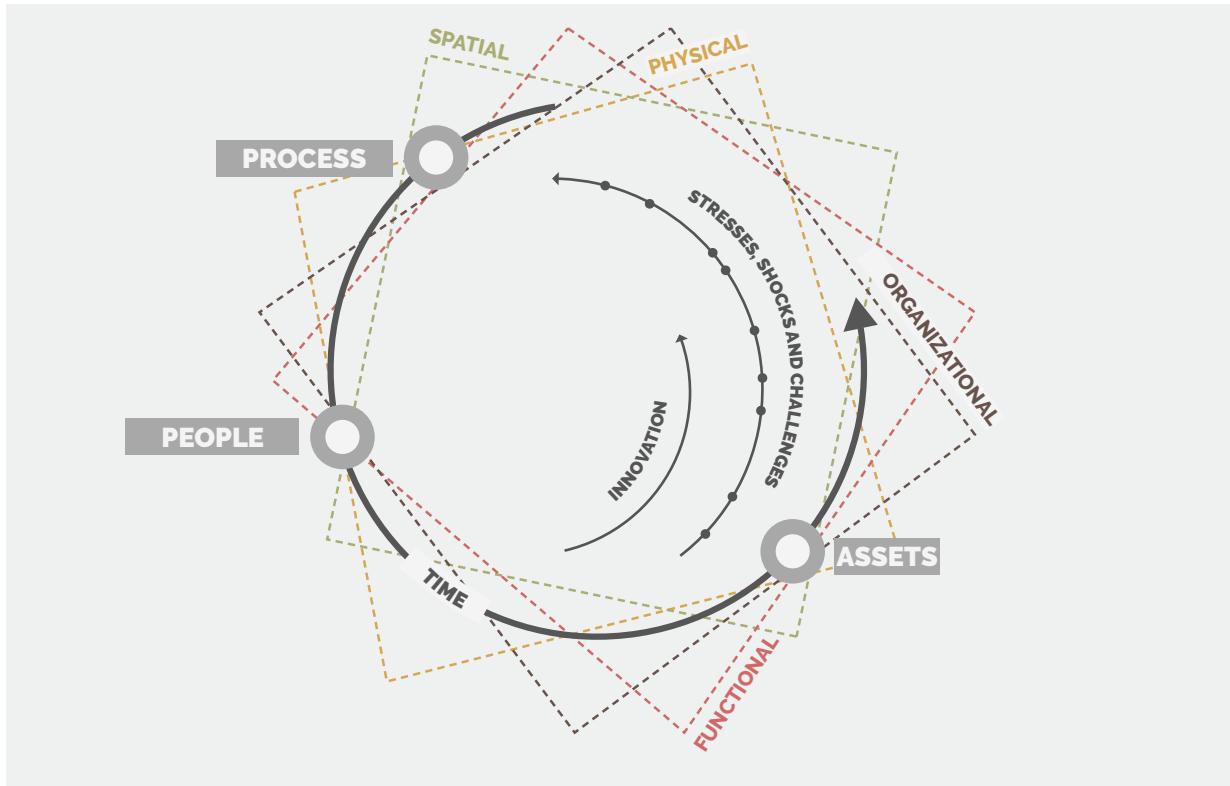


Figure: Dimensions of the urban system. Source: CRPP (2018).

These critical problems are based on the four priority matters defined in the current scenario, but do not arise directly from them, thus implying an intentional strategy. The priority matters thus represent the themes that must be supported when proposing recommendations of actions for resilience and sustainability.

These strategic actions were developed from an external point of view; which provides a certain objectivity. Their development is also the result of a consultation process with the City of Dakar and that of Barcelona. Within these critical areas, two strategic actions, both integrating complementary social measures, are identified:

- Creation of a network of public spaces accessible on foot: "Dakar à pied" (i.e. Dakar on foot).
- Act on the issues of the coastline, starting with the reconciliation of Dakar and its port, through the promotion of a green industry and the accessibility of the banks: "Dakar et son littoral : focus sur le port" (i.e. Dakar and its coastline: focus on the port).

Strategic Actions



Dakar à pied



Dakar et son littoral : focus sur le port

Figure: Strategic Actions. Source: CRPP (2020).

The following figure presents a cartographic contextualisation of strategic actions in situ in the city of Dakar:

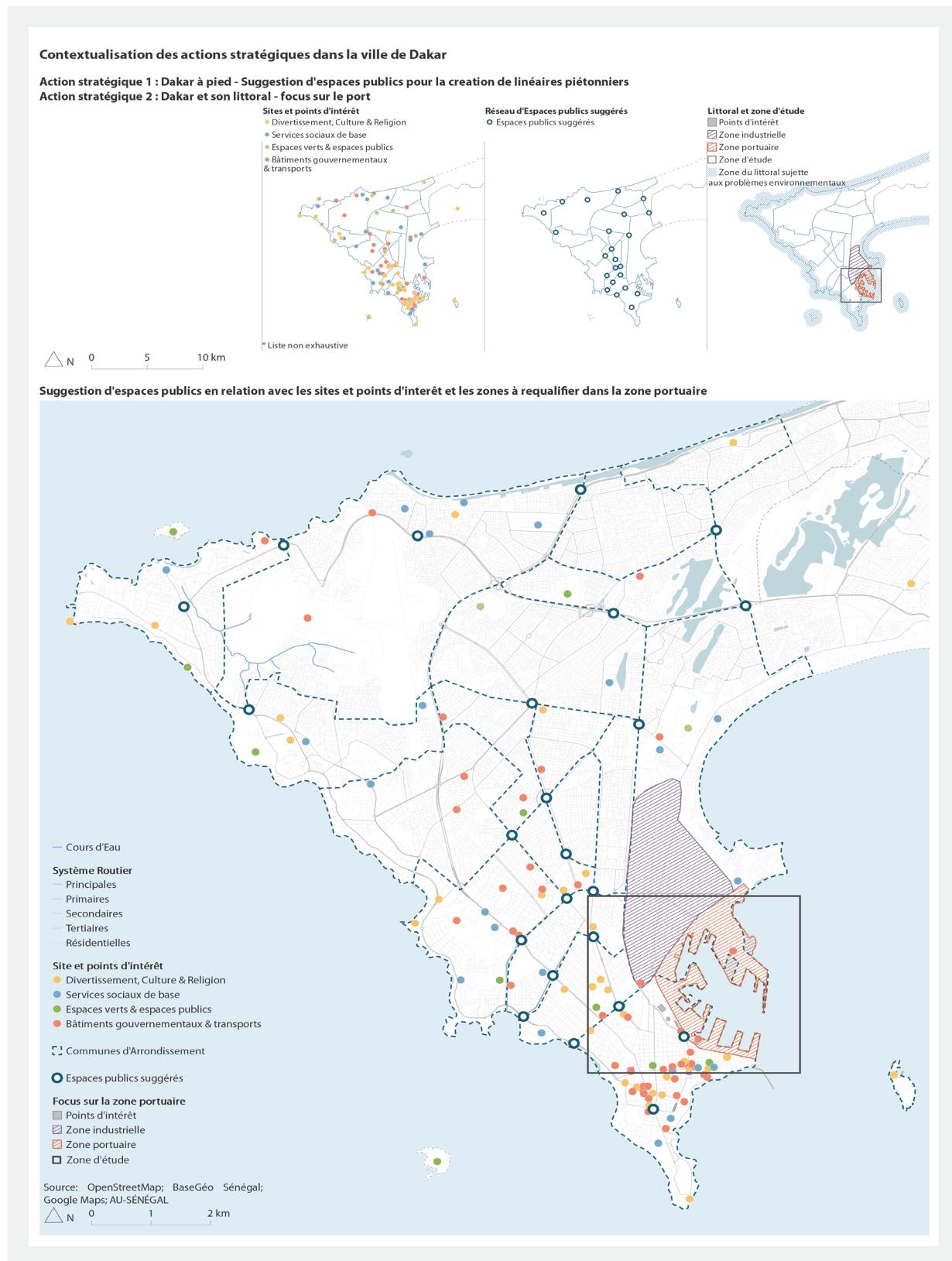


Figure: Contextualisation of strategic actions in the city of Dakar. Source: CRPP (2020).



A. Creation of a network of public spaces accessible on foot: "Dakar à pied"

The "Dakar à pied" project places the pedestrian at the heart of and renews the way of living the city on foot. It aims to improve travel on foot, the quality of public spaces, but also the accessibility of public services and points of interest. The 2015-2020 *Lettre de politique des déplacements urbains* recommends the "construction of an integrated efficient public transport network, preferential over the automobile, combining modern and artisanal sectors and encouraging active modes (walking, bicycle use...) »³.

The "Dakar à pied" project is rethinking public space for the benefit of pedestrians and is based on the following five orientations: urbanity, identity, active mobility, environment, social inclusion and new economic opportunities.

The object of this recommendation for action is not to build the project itself, but to propose on the one hand a guideline or "Manual of instructions and good practices for building public streets and related spaces", - by including a checklist with the definition of technical criteria to be achieved by the network - and, on the other hand, the roadmap of the governance context necessary for this network to become real, within the framework of the decentralised scenario and constraints already analysed.

UN-Habitat facilitated this work by proposing a map with the potential physical connections already existing in the city and GIS information, a list containing the main environmental and socio-economic aspects to be taken into account, and a detailed list of indicators to follow as well as an inventory of policies, plans and initiatives relating to this urban project.

This network of spaces will be mainly linear with a few nodes (located in public places) along the network, and will be structured around the following points:

- Rethink public space to encourage pedestrian movement, regardless of the infrastructure considered: roadway, sidewalk, intersection, etc.
- Ensure the continuity of movements, by integrating / creating street segments, public squares, pedestrian streets, pedestrian paths, cycle lanes, etc.
- Make accessible points of interest, but also public services along the pedestrian axes: heritage features and landmarks, cultural centres, markets, business centre, etc.
- Favour intervention arrangements that require a high labour intensity;
- Return to the tradition of the "arbre à palabres" by establishing public spaces with multiple uses, which can be used both for neighbourhood councils and women's associations, and providing spaces for economic activities or places for public information;
- Contribute to greening the urban space and increasing biodiversity.

³ Conseil Exécutif des Transports Urbains de Dakar (CETUD). (n.d). The *Plan de déplacements urbains de l'agglomération Dakaroise horizon 2025* and the *Lettre de politique des déplacements urbains 2015-2020* are two attempts to articulate mobility and urban planning policies and strategies.



B. Act on the issues of the coastline, starting with the reconciliation of Dakar and its port, through the promotion of a green industry and the accessibility of the banks: "Dakar et son littoral : focus sur le port"

The impacts linked to climate change and to natural and anthropogenic disturbances on coastal ecosystems affect human activities, natural resources and infrastructure along the Dakar coast. Studies on the dynamics of the Senegalese coastline allow the identification of certain sectors that are highly vulnerable to coastal erosion such as the Hann Bay, Gorée Island, etc.⁴

The proposed intervention cannot cover the entire coastlines of Dakar. The project "Dakar et son littoral : focus sur le port" acts on environmental issues and rethinks the port according to its two dimensions (the "Port" as an urban actor and the "port" as an urban space at the heart of the city), for both the inhabitants and the city based on these three orientations:

- Active urban role: Reclassification / Rehabilitation of brownfield sites
- Environment and well-being: Functional and recreational access to the banks
- Leverage: The Port as a benchmark player for other industrial companies

But this strategic action must also affect and is affected by the action of the Port of Dakar (as a key actor). The proposal entails identifying the Port as a reference for the other industrial actors in the city and one that could support in the process of relocating industries to the Port of Ndayane.

The main final achievement of this strategic action will be the signing of an "environmental protocol" following a series of activities and workshops led by the Port of Dakar so that the other industrial actors of the city can exchange experiences, good practices and work together towards a new industrial model for the city. This action will work alongside a citizens' awareness campaign to clean up the banks and eliminate waste.

The maritime space of the port could then constitute a first stage of analysis as an urban space. The spaces that the Port will offer to the city once the relocation project has been completed are already an Action for Resilience in itself. The project must reorient the whole logic of territorial and urban planning of the city in both its urban fabric and its relationship with the water which is thus considered as the backbone of the development of the city. This principle must also be considered when defining future plans or projects affecting the coast.

A final planning document with recommendations will be prepared for the redevelopment of the vacated land in the port, which will be returned to the inhabitants. The collaboration of the Port of Dakar and the City of Dakar around the creation of this document will lead to a coherent master plan for the redevelopment of the area.

⁴ Bakhoun P. W., et collègues. (2018). Une presqu'île en érosion côtière ? Dakar, la capitale sénégalaise face à l'avancée de la mer dans le contexte du changement climatique.

C. Roadmaps for the implementation of the strategic actions

For each of the strategic actions, a summary of the actions in the form of a roadmap aligned with the governance actions described above is presented below:

 <p>Strategic action: Dakar à pied (Summary)</p>		
Coordination  	Action 1: Establishment of a steering committee	<p>Proposed calendar - Meeting: Second quarter 2020</p> <hr/> <p>Invited stakeholders: To be identified by the City of Dakar and the steering committee</p> <hr/> <p>Topics: Strategic Recommendation of Action for Resilience and Sustainability (RAR-S): "Dakar à pied" and actors involved</p> <hr/> <p>Expected result: Final list of stakeholders constituting the steering committee and creation of said committee</p>
Legal framework  	Action 2: Legal framework, mapping of competences and ownership of initiatives	<p>Proposed calendar - Workshop 1: Third quarter 2020</p> <hr/> <p>Invited stakeholders: Number and references to be deducted from action 1.</p> <hr/> <p>Topics: Legal framework and mapping of competences for the "Dakar à pied" project</p> <hr/> <p>Expected result: List of potential obstacles, gaps or overlaps in the legal framework and the competences map which could adversely affect and / or slow down the progress of the action.</p> <hr/> <p>Proposed calendar - Workshop 2: Third quarter 2020</p> <hr/> <p>Invited stakeholders: Number and references to be derived from action 1 and action 2-workshop 1.</p> <hr/> <p>Topics: Legal framework and mapping of competences for the "Dakar à pied" project</p> <hr/> <p>Expected result: Roadmap to overcome the obstacles detected during the first workshop.</p>
Information  	Action 3: Exchange of information, experiences and good practices	<p>Proposed calendar - Workshop: Third quarter 2020 - in Barcelona</p> <hr/> <p>Invited stakeholders: List to be agreed between the City of Dakar and the Department of Global Justice and International Cooperation of the City of Barcelona, among the participants of the first two workshops</p> <hr/> <p>Topics: The use of public space for the "Dakar à pied" project</p> <hr/> <p>Expected result: Exchange of experiences between the two cities</p>

<p>Governance actions: roadmap</p>   	Technical work	Action 4: Technical work, criteria and indicators	<p>Proposed calendar - Workshop 1: Fourth Quarter 2020</p> <hr/> <p>Invited stakeholders: List to be agreed between the City of Dakar and its communes</p> <hr/> <p>Topics: Programming of technical work and design of indicators for actions</p> <hr/> <p>Expected result: Analysis of Environmental Aspects and Key Performance Indicators (KPIs) proposed by the CRPP for the "Dakar à pied" project, as well as the Barcelona guidelines for the construction of public spaces, as an example.</p>
	Awareness	Action 5: Communication / awareness campaign	<p>Proposed calendar - Workshop 2: Fourth Quarter 2020</p> <hr/> <p>Invited stakeholders: List to be agreed between the City of Dakar and its communes</p> <hr/> <p>Topics: Programming of technical work and design of indicators for actions</p> <hr/> <p>Expected result: List of main indicators to consider in the design, construction and implementation of the "Dakar à pied" project.</p>
	Final output	Action 6: Technical guidelines for the construction of public spaces in Dakar	<p>Proposed calendar - Campaign: First quarter 2021</p> <hr/> <p>Responsible department: Service du Dialogue citoyen of the City of Dakar</p> <hr/> <p>Expected result: "Dakar à pied" awareness campaign</p>

 <p>Strategic action: Dakar et son littoral : focus sur le port (Summary)</p>		
<p>Governance actions: roadmap</p>  <p>Coordination</p>  <p>Information</p>	<p>Action 1: Establishment of a steering committee</p> <hr/> <p>Proposed calendar - Meeting: Second quarter 2020</p> <p>Invited stakeholders: To be identified by the City of Dakar and the steering committee</p> <hr/> <p>Topics: Strategic Recommendation of Action for Resilience and Sustainability (RAR-S): "Dakar et son littoral : focus sur le port" and actors involved</p> <hr/> <p>Expected Result: Final list of stakeholders constituting the steering committee and creation of said committee</p> <hr/> <p>Action 2: Exchange of information, experiences and good practices</p> <hr/> <p>Proposed calendar - Workshop 1: Third quarter 2020</p> <p>Invited stakeholders: Number and references to be deducted from action 1.</p> <hr/> <p>Topics: Case studies of other cities that have successfully completed their industrial transformation (e.g. Malmö, Bilbao, Barcelona)</p> <hr/> <p>Expected Result: Lessons learned and knowledge of best practices</p> <hr/> <p>Proposed calendar - Workshop 2: Third quarter 2020</p> <p>Invited stakeholders: Number and references to be derived from action 1 and action 2-workshop 1.</p> <hr/> <p>Topics: Compilation of best innovative urban industrial practices for the environment</p> <hr/> <p>Expected Result: Lessons learned and knowledge of best practices</p> <hr/> <p>Proposed calendar - Workshop 3: Third quarter 2020</p> <p>Invited stakeholders: Mainly Port autonome de Dakar</p> <hr/> <p>Topics: Environmental declarations, communication and dissemination to the different industrial actors in the city</p> <hr/> <p>Expected Result: Monitoring by the Port and other industrial actors of environmental directives and declarations</p>	

Governance actions: roadmap	Information Final output "Port" urban actor 	Action 2: Exchange of information, experiences and good practices	Proposed calendar - Workshop 4: Third quarter 2020 - in Barcelona <hr/> Invited stakeholders: List to be agreed between the City of Dakar and the Department of Global Justice and International Cooperation of the City of Barcelona <hr/> Topics: The relationship of the City of Barcelona with its coastline <hr/> Expected Result: Monitoring by the Port and other industrial actors of environmental directives and declarations
	Awareness 	Action 3: Communication / awareness campaign	Proposed calendar - Campaign: Fourth quarter 2020 <hr/> Responsible department: Service du Dialogue citoyen of the City of Dakar <hr/> Expected result: Citizen campaign "Dakar et son littoral"
	Technical work Final output "port" urban space 	Action 4: Recommendations for the redevelopment of the vacant land in the Port	Proposed calendar - Deliverable: Second quarter 2021 <hr/> Stakeholders involved: Port of Dakar and City of Dakar <hr/> Expected Result: Master plan



3. Integrative Actions

In addition to the governance and strategic actions presented, there is another type of action proposed—integrative actions. These are actions that have the potential to integrate others with direct responsibility for ensuring their implementation, thus representing mechanisms for building resilience.

For governance and strategic actions to be implemented, it is necessary to institutionalise the concept of resilience in a broad perspective and framework for action. An Observatory of urban resilience in Dakar is therefore proposed. The main functions would include fostering the vision of a resilient Dakar, raising awareness of issues that are critical to improving resilience in the face of unforeseen events (climatic and other), and coordinating the implementation of the roadmap for the actions proposed in this report.

The Observatory of Urban Resilience of Dakar (ORUD) and its inter-communities (Dakar Region) is a technical steering tool intended more specifically for elected officials, managers and technicians in charge of urban development in Dakar. ORUD thus aims to be an essential tool both for local decision-makers and for services concerning all questions relating to urban functions and the response capacity of the city of Dakar and its inhabitants.

The general objective of the ORUD is to contribute to greater synergy and efficiency in the design, implementation, control, monitoring and evaluation of urban development policies in Dakar with the aim of strengthening resilience capacities of the city and its inhabitants.

Find out more about the **City Resilience Profiling Programme**
and **UN-Habitat's partnerships** with other cities at:

www.unhabitat.org/urbanresilience

info@cityresilience.org

    /uresiliencehub





Recommendations of Actions for Resilience and Sustainability

DAKAR

This report details the findings, analysis, diagnosis, and commitment building, as well as the Recommendations of Actions for Resilience and Sustainability for the city of **Dakar**.