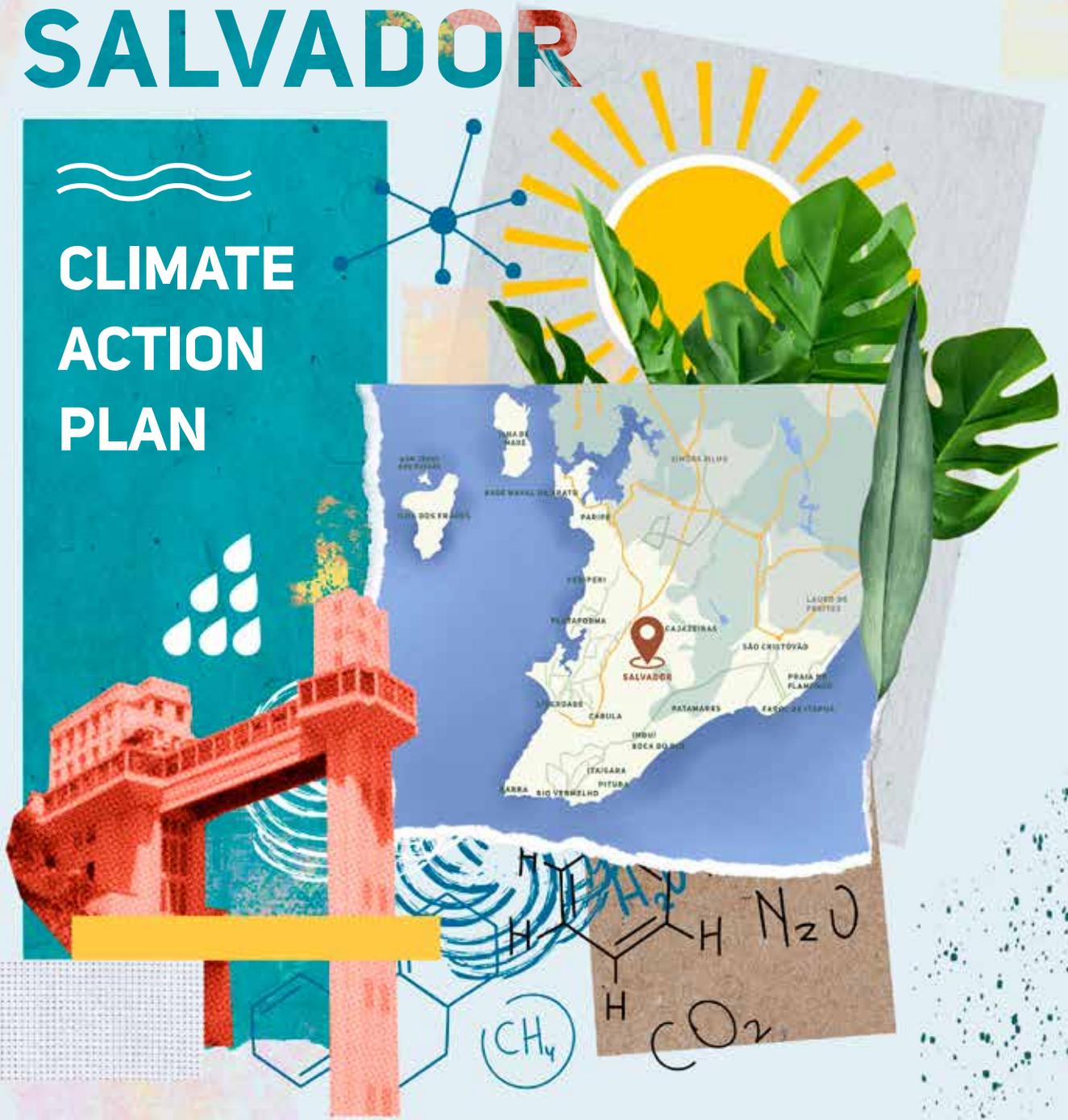


SALVADOR  
2020-2049

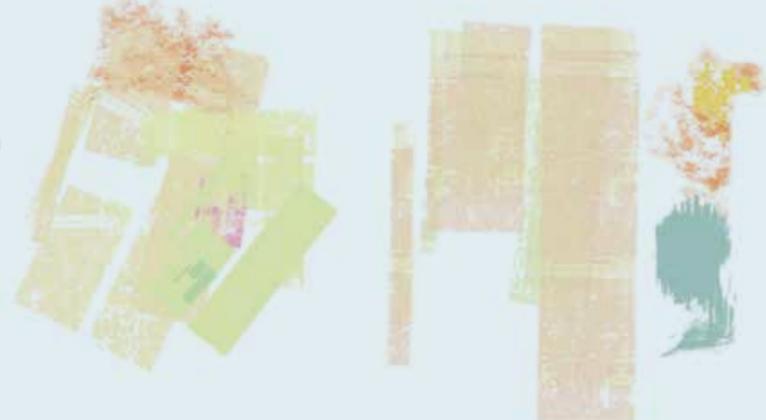


# SALVADOR

## CLIMATE ACTION PLAN



04 DECEMBER 2020



CONTACT  
contact@c40.org

SEE  
C40.org  
@c40cities  
#TheFutureWeWant

Dear Mayor Antônio Carlos Peixoto de Magalhães Neto  
**Re: Confirmation of Paris Agreement Compatible Climate Action Plan**

In 2016, nations of the world ratified a historic global agreement on climate change, the Paris Agreement, committing to keep global average temperatures within 2°C of pre-industrial levels, and to pursue efforts to limit temperature rise to 1.5°C. The Agreement also commits to strengthening the ability of countries to deal with the unavoidable impacts of climate change through adaptation.

C40's aim is that every C40 city will have developed and begun implementing a climate action plan by the end of 2020, which will deliver action consistent with the ambitions of the Paris Agreement, addressing both the need to reduce greenhouse gas emissions and adapt to the impacts of climate change. In this context, C40 has developed a climate action planning Framework, which outlines the essential components of a climate action plan that is compatible with the ambitions of the Paris Agreement.

It is with great pleasure that I can confirm C40 has reviewed the city's range of climate documents, including the PMAC Plano de Mitigação e Adaptação às Mudanças do Clima em Salvador, against our climate action planning Framework and found them to meet the requirements. The documents demonstrate that the city has thoroughly studied the sources of its greenhouse gas emissions, the effects of climate change on different sectors, communities and areas, and the opportunities for climate change mitigation and adaptation.

Congratulations to you and your team on this achievement, especially in a very challenging year, please extend our recognition to your team for their support and collaboration during the climate action plan development process. We look forward to continuing to support Salvador, as you move towards implementing the ambitious climate actions.

Yours sincerely

**Mark Watts**  
Executive Director  
C40 Cities

Approval letter by C40 stating that the Climate Action Plan of Salvador attends the Paris Agreement requirements. Thus, Salvador fulfills the Deadline 2020 commitment, signed by Mayor ACM Neto in 2017. Salvador is one of the first Latin American cities to have this approval from C40. This is a great milestone for the city, placing it as one of the pioneering and leading cities in the global climate agenda.

# CLIMATE ACTION PLAN



**PMAMC**  
CLIMATE CHANGE MITIGATION AND  
ADAPTATION PLAN OF THE CITY OF SALVADOR

*For an Inclusive,  
Blue-green, Resilient and  
Low-carbon Salvador*



# CLIMATE ACTION PLAN FOR SALVADOR

<b>FOREWORDS</b> .....	<b>9</b>
<b>INTRODUCTION</b> .....	<b>19</b>
<b>PART I - CONTEXT</b>	
1. HOW WE GOT HERE.....	27
1.1 WHY DOES SALVADOR NEED A MITIGATION AND ADAPTATION PLAN?.....	27
1.2 CLIMATE VISION: AN ONGOING PROCESS.....	28
1.3 THE PMAMC DEVELOPMENT PROCESS .....	35
1.4 LOCAL CONTEXT: THE CHALLENGE OF AN INCLUSIVE CLIMATE ACTION .....	46
1.5 PHYSICAL CONTEXT: SALVADOR'S GEOGRAPHY.....	52
2 SALVADOR'S CURRENT AND FUTURE CLIMATE .....	57
2.1 GHG EMISSIONS INVENTORY .....	57
2.2 FUTURE EMISSIONS SCENARIOS .....	61
2.3 CLIMATE RISK ASSESSMENT .....	69
<b>PART II - ACTION</b>	
3. WHERE WE ARE HEADING.....	87
3.1. VISION OF THE PMAMC .....	87
3.2. STRATEGIC PILLARS .....	88
3.3. KEY MILESTONES .....	90
3.4. MITIGATION AND ADAPTATION GOALS .....	93
3.5. SUSTAINABLE DEVELOPMENT GOALS (SDGS).....	96
3.6. SOCIO-ECONOMIC GOALS.....	98
4. HOW WE WILL DO IT.....	101
4.1. INCLUSIVE SALVADOR .....	111
4.2. BLUE-GREEN SALVADOR.....	141
4.3. RESILIENT SALVADOR.....	175
4.4. LOW-CARBON SALVADOR .....	219
<b>PART III - FUTURE: MONITORING AND OPPORTUNITIES</b>	
5. HOW WE WILL GET THERE.....	277
6. FINAL CONSIDERATIONS.....	281



Photo: Marcelo Gandra

## Antonio Carlos Peixoto de Magalhães Neto

MAYOR OF SALVADOR

Though the challenges presented by climate change are global, through local action, we can contribute to planetary sustainability. In 2013, when I was elected Mayor of Salvador, environmental management did not exist in the city. Since then, Salvador has developed financial structures to meet basic social demands and, at the same time, has designed strategies to address climate challenges. Recognising the need for sound data as a basis for effective policies and interventions, we carried out the first Greenhouse Gas Emissions Inventory, recently updated in the context of this Plan. In 2015, we implemented the Municipal Environmental Policy, a landmark policy for the implementation of Salvador's environmental legislation. For the first time, the rules that regulate the city's environmental affairs were organised into a single document. We launched a tax measure called Green IPTU, which grants a discount on property tax for those who adopt environmental measures and which was chosen in 2015 by the C40 Cities Climate Leadership Group as one of the 100 most innovative urban climate change initiatives in the world. As part of the Urban Development Master Plan (PDDU), we created the Green Concession, another innovative tool to support the Green IPTU programme.

As our local initiatives gained an international flavour and our sense of responsibility for global sustainability grew, Salvador became a member of global networks aiming to build urban resilience and address the climate emergency. In 2015, the city became part of C40, a network of the world's megacities committed to addressing climate change. In 2016, during the Global Covenant of Mayors for Climate and Energy,



the city made a commitment to tackle climate change and pursue renewable energy. We became a member of the 100 Resilient Cities network, launching our Resilience Strategy in 2019. We joined ICLEI - Local Governments for Sustainability. Along with GIZ, the German Agency for International Cooperation, we established a climate adaptation agenda through the ProAdapta programme. We brought the Latin American and Caribbean Climate Week to Salvador and the event attracted a record audience here.

Recognising the importance of the landmark Paris Agreement and the critical role played by cities in mitigating GHG emissions, in 2017, we signed C40's Deadline 2020, committing to develop a climate action plan by the end of 2020. I now proudly deliver this plan to the city. The Climate Change Mitigation and Adaptation Plan of the City of Salvador (PMAMC)—the first plan to address climate change mitigation and adaptation in the city's history—was developed with funding from the Inter-American Development Bank (IDB), C40 and GIZ. It presents guiding themes, ambitious goals and actions to achieve carbon-neutrality by 2049. The PMAMC places Salvador at the forefront of climate action by proposing initiatives to reduce emissions, accelerate sustainable development and advance climate justice.



## Bruno Reis

DEPUTY MAYOR OF SALVADOR  
ELECTED MAYOR 2021-2024

Salvador's ambitions to address sustainability, urban resilience, climate change adaptation and mitigation have grown more robust over the last four years. We have implemented policies such as Plan-Mob, Salvador's Sustainable Urban Mobility Plan, the Municipal Innovation Policy, and the Resilience Strategy, with the aim of planning and implementing climate adaptation and mitigation initiatives. The Climate Change Mitigation and Adaptation Plan of the City of Salvador (PMAMC) represents yet greater ambition. We have set guidelines and goals to achieve carbon neutrality by the year 2049. We have defined actions that will be implemented in the short term, by 2024, in the medium term, by 2032, and in the long term, by 2049.

The PMAMC is founded on a solid basis of scientific and technical knowledge and was developed with broad participation of our city's residents. Achieving carbon-neutrality requires the inclusion of the most vulnerable people, the development of a greener and more sustainable economy and the improvement of quality of life in our city. The need for action is made more urgent by the risks that the climate emergency poses to our planet and our city.

The actions proposed in the PMAMC are organised under four strategic pillars: Inclusive Salva-



dor, Blue-Green Salvador, Resilient Salvador and Low-Carbon Salvador. Each pillar includes guiding themes, objectives and actions designed to meet the goals established by the Plan. These actions are ambitious, and each of them must address specific climate risks and sources of GHG emissions. The actions are connected to the Sustainable Development Goals (SDGs) and include indicators for monitoring and evaluation.

As Salvador's first climate action plan, we want the PMAMC to remain dynamic during its period of implementation. Therefore, we plan to update it every five years. We also expect to monitor the effectiveness of its proposed actions in order to ensure they achieve the desired results. The PMAMC represents our commitment to the goals of the Paris Agreement and to building a more inclusive and resilient Salvador—a greener, bluer and low-carbon city.



Photo: Leana Matter



## João Resch

SECRETARY OF SUSTAINABILITY,  
INNOVATION AND RESILIENCE

The PMAMC is the result of a collaborative effort led by the Salvador Municipal Government. Beginning in 2017, it is the work of a multidisciplinary team comprised of several municipal secretariats and agencies and supported by international organisations such as C40 and GIZ. Most importantly, however, the Plan was developed with broad participation of the academic community, civil society and the private sector.

Among the cities that are developing a climate action plan as part of Deadline 2020, Salvador is considered to have followed one of the most inclusive processes. The city held 46 stakeholder engagement events, public consultations and workshops, attended by more than 1,000 people. We also organised three on-line forms through which people could directly contribute. Based on this input, we developed the Plan's guiding themes and defined selection criteria for actions to achieve our goals of reducing GHG emissions and climate risks. We are now proud to present a robust and ambitious plan to fight the climate emergency in our city!



## Pablo Barrozo

SECRETARY OF CULTURE  
AND TOURISM

Salvador has approximately 50 km of beaches hugged by our Bay of "Todos os Santos" (All Saint's Bay). 'Sun and sand' tourism is one of the most important sectors of the economy of Bahia's capital and the PMAMC provides guidance on how to grow and manage this industry in a responsible manner. Along with the PMAMC, the Prodetur Salvador programme, implemented by the Secretariat of Culture and Tourism, proposes cross-sectoral action to enhance environmental management and social inclusion with a focus on sustainable tourism.

Some of the Plan's proposed interventions will be challenging to implement, such as the integration of sectoral policies and programmes and the alignment of actions at the municipal, state, federal and international levels to achieve our ambitious and necessary goals. The Plan also requires the design of strategies to reach net-zero GHG emissions by 2049 and to encourage public and private investment in sustainable practices. Salvador has demonstrated its commitment to improving people's lives, and the PMAMC will be an extremely important tool to raise awareness of the need to care for the environment in order to create a sustainable, responsible and prosperous tourism sector.



## Adriana Campelo

CHIEF RESILIENCE OFFICER

Tackling the challenges arising due to the climate crisis at the local and global levels requires the right tools. This PMAMC represents an opportunity to advance the sustainability and resilience agenda in Salvador. Divided into four strategic pillars, the Plan outlines guiding themes and actions to mitigate GHG emissions and reduce climate risk. Furthermore, the Plan defines targets for climate justice and sustainable development related to the UN Sustainable Development Goals.

The way we plan for climate adaptation and mitigation must be as dynamic as our cities themselves. The Plan will be regularly revised and updated with the purpose of preserving the effectiveness of our climate actions and thus contributing to the goals of Brazil's NDC and the Paris Agreement.



## Mark Watts

EXECUTIVE DIRECTOR, C40

In 2017 Mayor Antonio Carlos Magalhães Neto committed to "Deadline 2020" - committing Salvador to do its part to meet the Paris Agreement and kickstarting the process of developing Salvador's climate plan. C40 has been proud to support Salvador every step of the way, from defining priority targets and actions to providing technical assistance in events such as the Adaptation Academy in Rotterdam, during which several Salvador city officials attended in-depth meetings and trainings for a week.

Now, Salvador takes a huge step forward with the launch of its first climate action plan. An enormous effort was made to update the city's GHG Inventory, project future emission scenarios, create a Climate Risk Assessment, conduct inclusivity studies, and involve several different stakeholders to ensure a participatory construction of the plan.

In a critical moment of the climate crisis, I congratulate Salvador for its leadership, in Brazil, in Latin America and internationally to help ensure a climate-safe future for its citizens and for the world. C40 is looking forward to walking hand in hand with Salvador in the next steps towards the implementation of this Climate Change Mitigation and Adaptation Plan.



## Ana Carolina Câmara

PROJECT DIRECTOR  
GIZ/ PROADAPTA

The hazards resulting from climate change are especially intense in cities. Specifically in Salvador, approximately half of the population lives in vulnerable areas due to the irregular topography and the particularities of its urban expansion process. In this context, the PMAMC presents itself as a bold initiative to protect not only the city's population and infrastructure from current and future climate challenges, but also the historical, cultural and natural heritage, as well as the local economic vocation. ProAdapta, a project built through a partnership between the Brazilian Ministry of the Environment and the German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety, and implemented by the German Agency for International Cooperation - Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), is happy to cooperate with Salvador Municipal Government since 2018 in strengthening the local agenda of adaptation to climate change climate change adaptation.

Together with the Municipal Secretariat of Sustainability, Innovation and Resilience (SECIS), we have developed initiatives focused on identifying and implementing measures to address climate change adaptation, which include Ecosystem-based adaptation (EbA) approaches to increase the resilience of vulnerable communities, urban infrastructures and buildings. Efforts were also made towards raising awareness about climate risks and adaptation in the tourism sector, as well as launching the Salvador Panel for Climate Change. The PMAMC aims to encourage the joint action of sectoral public policies, oriented by traditional and scientific knowledge, towards overcoming challenges imposed by the increase and intensification of extreme climate events. We are happy to see the development of this municipal plan and we believe the people of Salvador will benefit immensely from its implementation. The plan reflects the city's and its partners' commitment to planning and preparation measures carried out in an oriented and strategic way, with the purpose of reducing the impacts of climate change upon the city's infrastructures and services. We hope the results from this successful experience in Salvador can inspire and motivate other cities and actors engaged with the agenda of climate change adaptation and sustainable development.



## Rodrigo Perpétuo

EXECUTIVE SECRETARY, ICLEI SOUTH AMERICA

As the host city for the UN's Latin America and Caribbean Climate Week in 2019, a member of ICLEI South America since 2017 and a signatory of the Global Covenant of Mayors for Climate and Energy, Salvador is moving quickly and ambitiously towards its goals of tackling the climate crisis. The city has demonstrated itself always willing to cooperate with other cities in our Network, as evidenced by its leadership of the National Coordination of the CB27 Forum – a gathering of the environment secretaries of Brazil's 26 capitals plus the national government – during the 2017-18 cycle.

The completion of the PMAMC consolidates the municipality's position as one of the benchmark cities for climate action in Brazil. This ambitious plan proposes integrated and cross-cutting actions that will support Salvador's transformation into a sustainable city. The plan also comprises the five development pathways proposed by ICLEI: low-carbon, nature-based, resilient, circular and people-focused.

ICLEI is proud to have been part of such a rewarding process. The development of the PMAMC has been a great learning experience for all parties involved and it will support Salvador in building a safer, more sustainable and fairer future for current generation and those still to come.



## Henrique de A. Pereira

CEO, WAYCARBON

The Climate Change Mitigation and Adaptation Plan (PMAMC) of the City of Salvador confirms the mandate of the city and its residents to build a thriving, resilient and low-carbon future. The plan was developed based on the latest technical and scientific information and proposes innovative interventions to address climate mitigation and adaptation. It is already considered a useful reference for others seeking to develop urban climate policies in Latin America. Salvador demonstrates, once again, vision and ambition, and remains at the forefront of global climate action.

This work is the result of a process that involved the participation and cooperation of a number of local and national organisations, skilfully led by professionals and researchers committed to creating resilient and low-carbon cities. WayCarbon is proud to have led this project and to have contributed to the evidence based on which structural, cross-cutting action, by 2049, will transform 500-year-old Salvador into a trailblazer and a key part of the solution to the climate crisis.



## Melina Amoni

CLIMATE RISK AND ADAPTATION MANAGER – WAYCARBON

Considering the climate crisis we are experiencing, transformative actions are necessary and urgent for developing essential capacities to promote benefits to the society, environment and economy. In this context, cities play a major role in developing opportunities to fight the effects of climate change. Therefore, the Climate Change Mitigation and Adaptation Plan of the City of Salvador (PMAMC) was designed to be an important technical instrument for the city's future planning. Its goal is to guide the city through a path of neutralizing GHG emissions, increasing its resilience to the impacts which are already perceived and that may increase in the future, in addition to promoting climate justice through social inclusion and actions that generate broad benefits in the short, medium and long-term. As a member of the PMAMC's development team, I highlight the outstanding engagement of the people of Salvador, represented by civil society organizations and the academic community, as well as the Salvador City Hall technical team. Their participation was critical for the plan, placing Salvador—the fourth most populated city in Brazil, with great cultural and touristic relevance for the country—at the forefront of the global climate agenda. I am grateful for the partnership built and the trust placed in our team's knowledge and innovation ability.



## Igor Albuquerque

PROJECT MANAGER ICLEI – SOUTH AMERICA

More than a simple climate action plan, the Climate Change Mitigation and Adaptation Plan of the City of Salvador presents a clear strategy for the sustainable development of the city, bringing the population, environment and the future of new generations to the center of urban planning discussion. The combination of political leadership, the high technical capacity of government employees and the strong engagement of civil society has resulted in the selection of guiding themes, goals and actions which will determine a more resilient future, with less emissions and more opportunities for the population, aside from supporting global movements to tackle climate change. To be part of the technical team in the elaboration of the Climate Change Mitigation and Adaptation Plan of the City of Salvador was a deeply challenging and rewarding experience. I feel honored to collaborate with this great achievement for the city.

# INTRODUCTION

Climate change is considered one of the greatest and most complex challenges of the 21st century. Its consequences, including global temperature rise, biodiversity loss, changes in rainfall patterns and sea level rise, are already visible around the world. Urban centres, home to an ever-growing number of people and the site of most of the world's built assets and economic activities, are highly vulnerable to the impacts of climate change and contribute significantly to the emission of greenhouse gases that cause climate upheaval.

Combating climate change and its adverse effects requires action on two fronts: (1) mitigation or reducing GHG emissions; and (2) adaptation or reducing vulnerability to the effects of climate change. **In 2015, the Paris Agreement established goals for GHG emission reductions, which all signatory countries have committed to pursuing. The agreement aims to limit global average temperature rise to 2 °C, and sets an additional, more ambitious**

**threshold of 1.5 °C by the end of the 21st century (UNFCCC, 2015).** In addition, the Paris Agreement calls for action to increase resilience in support of its global long-term adaptation goal (defined in both qualitative and quantitative terms). The Paris Agreement calls for mitigation and adaptation action with the same level of urgency.

Brazil ratified the Paris Agreement in September 2016 and has committed to a series of targets in its Nationally Determined Contribution (NDC). Brazil's NDC focuses on the sectors that generate the most emissions, in addition to setting general emission reduction goals: reducing emissions by 37% by 2025 and by 43% by 2030, compared to the base year of 2005 (Brazil, 2015). Also in 2015, Brazil adopted the United Nations' (UN's) 2030 Agenda and its 17 Sustainable Development Goals (SDGs). Many cities have integrated the SDGs into their development plans, with the purpose of improving quality of life in a sustainable manner.

**A study conducted by the UN Environment Programme (2020) revealed that more than 70% of global emissions are generated in cities.** National governments often have no direct control over municipal policy and therefore local governments are crucial players in global climate efforts. Cities can make commitments aligned with state and national policies but can also be more ambitious. Therefore, it is extremely important that municipalities take action to reduce GHG emissions and adapt to climate change.

The challenge is even more complex in cities like Salvador, which not only must reduce so-

cial inequalities and poverty to help more people prosper, but must also reduce emissions and prepare for the increased frequency of extreme weather events. The Climate Change Mitigation and Adaptation Plan (PMAMC) of the City of Salvador proposes a strategy to reduce GHG emissions, adapt to climate change and advance climate justice. The Plan provides short-, medium- and long-term actions to enhance Salvador's resilience and meet its commitment to achieving carbon-neutrality by the year 2049, in compliance with the Paris Agreement.

## GOALS OF THE PMAMC



CARBON NEUTRALITY

### MITIGATION

Develop a pathway to achieve a carbon-neutral city by 2049.



RESILIENCE TO CLIMATE RISK

### ADAPTATION

Demonstrate how the city will adapt and increase its resilience to climate risks that may have an impact now and in future climate change scenarios.



CLIMATE JUSTICE

### INCLUSION/ CO-BENEFITS

Highlight social, environmental and economic benefits expected to result from the Plan's implementation, reducing socio-economic disparities and improving the quality of life for the most vulnerable groups.

Source: Prepared by C40/SECIS

Photo: Andrew Beatson | PEXELS

*"Though the challenges presented by climate change are global, through local action, we can contribute to planetary sustainability"*

*Antonio Carlos Peixoto de Magalhães Neto*

**PARTE I**  
*CONTEXT*  
~~~~~

# HOW WE GOT HERE 1.

## 1.1. Why does Salvador need a mitigation and adaptation plan?

Cities deserve special attention in global efforts to address climate change for two reasons: firstly, because they generate more than 70% of all GHG emissions, in particular in the sectors of transportation, energy and waste (UN Environment, 2017 & 2020); and secondly, because they are among the most vulnerable areas to climate change, as they are characterised by high concentrations of people, infrastructure, and economic activities susceptible to heat waves, floods, landslides and diseases, as well as threats to water, energy and food security. In addition, coastal cities are affected by sea level rise.

Salvador is no exception. The city's economy is focused on the commercial and service sectors. Its long stretch of coastline is crucial to its flourishing tourism industry but also increases its vulnerability to the adverse impacts of climate change. Furthermore, recent urban development in Salvador has been marked by the

accelerated and unplanned occupation of areas with little infrastructure that are vulnerable to the natural and social disasters (PBMC, 2016). Therefore, adaptation actions are urgently needed to protect the city's inhabitants and ecosystems, particularly from hazards such as rising sea levels, flooding, vector-borne diseases, heat waves, droughts and landslides, which are all projected to become more frequent and severe as a result of climate change.

Climate change disproportionately affects the most vulnerable populations and so the development of inclusive and fair climate policies is key. In addition to contributing to global efforts to tackle climate change, this mitigation and adaptation plan represents an important step towards achieving climate justice and social equality. It must guarantee that the burden of climate change does not weigh most heavily on vulnerable communities that contribute only minimally to GHG emissions.



Photo: Marcelo Gandra

## 1.2. Climate vision: an ongoing process

Salvador's commitment to addressing climate change did not begin with the development of this Plan. The city has been developing and implementing plans, policies and programmes related to its climate vision for a number of years. These previous efforts formed essential inputs for the PMAMC and ensured it is aligned with the processes and vision already in place in Salvador.

Milestones in the history of Salvador's climate efforts include its accession to the C40 Cities Climate Leadership Group (C40), a network that brings together representatives of the largest cities in the world to jointly tackle climate change and reduce its impacts; the signing of the Deadline 2020, through which the city committed to the development of a climate action plan by the end of 2020; and the

launch of the Salvador Resilience Strategy, in 2019, which calls for the creation of this Plan as one of its initiatives<sup>1</sup>.

In addition to the Resilience Strategy, which presents long-term planning goals, initiatives and public policies related to climate change, a series of other instruments developed and implemented by the city will provide impor-

tant tools to achieve the objectives proposed in the PMAMC. As a result, the mitigation and adaptation actions in this Plan aim not only to tackle climate change, but also to address environmental, social and economic issues in an integrated manner with other city plans. The table below presents a non-exhaustive list of instruments in place related to sustainable development and climate change.

<sup>1</sup> See Initiative 46, Action 46.1, p. 173. <http://salvadorresiliente.salvador.ba.gov.br/pdf/#p=175>

### PMAMC TIMELINE



*"To support the implementation of the Paris Agreement, I commit the city of Salvador to develop and begin implementing a Climate Action Plan (or series of plans) before the end of 2020 that will deliver action consistent with the ambitions of the Paris Agreement, and addresses both the need to reduce greenhouse gas (GHG) emissions and adapt to the impacts of climate change."*

**Antonio Carlos Peixoto de Magalhães Neto**

Source: Prepared by C40/SECIS

The Municipal Civil Defence (Codesal) has adopted important strategies and programmes for disaster risk reduction and risk management and does essential work to enhance Salvador's ability to cope with extreme weather events. Among its facilities is the Civil Defence Monitoring and Alert Centre (CEMADEC), which uses radar and satellite imagery to monitor the main meteorological systems that cause rain.

Other agencies that have an important role to play in addressing climate change include those responsible for the sectors that generate significant shares of the city's GHG emissions. The main entities responsible for the transportation sector and mobility management are SEMOB and Transalvador. SALTUR (Salvador Tourism Company), is also closely involved in climate action, for example through its leadership of the movement Salvador Vai de Bike (Salvador Goes by Bike); as is FMLF (Mario Leal Ferreira Foundation), which has mainstreamed climate

change into its urban projects and champions climate adaptation solutions.

The main agency responsible for the stationary energy sector is COELBA, which manages the commercialisation and distribution of energy in the municipality. Also important are SECIS, which implements programmes such as Green and Yellow IPTU; the Directorate of Public Lighting (DSIP) at SEMOP (Secretariat of Public Works); and BAHIA GÁS, which manages the distribution of natural gas for household use. Key actors in waste and sanitation include Limpurb, the municipal urban sanitation company, and EMBASA, a state-owned company responsible for the city's water supply and sewage systems. In addition, SEINFRA, the Municipal Infrastructure Secretariat, is responsible for planning and managing urban infrastructure and environmental sanitation in the municipality.



Photo: Marcelo Gandra

**INSTRUMENTS RELATED TO CLIMATE CHANGE IN SALVADOR**

|  | INSTRUMENT                                                                                                                                                                                       | TIME FRAME |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
|  | Municipal Health Surveillance Code (SALVADOR, 2020b);                                                                                                                                            |            |
|  | Construction code – 2017 (SALVADOR, 2017a)                                                                                                                                                       |            |
|  | Decree N° 28.299/2017 that establishes the Permanent Group for Preventive Actions of Civil Defence (SALVADOR, 2017c)                                                                             |            |
|  | Decreets n° 29.100/2017 (SALVADOR, 2018b) e n° 30.738/2018 (SALVADOR, 2018b) - Green and Yellow IPTU                                                                                             |            |
|  | Decree No. 32.102/2020 that creates the Task Force to prepare the Climate Change Mitigation and Adaptation Plan and the Municipal Climate Change Policy, among other measures (SALVADOR, 2020a). |            |
|  | Law for Land Use and Occupation in the Municipality (LOUOS)                                                                                                                                      |            |
|  | Strategic Plan 2017-2020                                                                                                                                                                         | 2017- 2020 |
|  | Contingency Plan for Rainfall                                                                                                                                                                    | Annual     |

|                                                                                     | INSTRUMENT                                                                   | TIME FRAME  |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-------------|
|    | Integrated Development Plan for Sustainable Tourism - PDITS (SETUR/BA, 2012) |             |
|    | Salvador's Hills Master Plan (PDE)                                           |             |
|    | Urban Development Master Plan (PDDU)                                         |             |
|    | Smart City Technologies Master Plan (PDTCI)                                  |             |
|  | Coastal Management Plan (PMS, 2015)                                          |             |
|  | Salvador's Sustainable Urban Mobility Plan (PlanMob)                         | 2049        |
|  | Municipal Plan for Conservation and Recovery of the Atlantic Forest (PMMA)   |             |
|  | Municipal Education Plan (SALVADOR, 2016a)                                   | 2016 – 2024 |
|  | Municipal Risk Reduction Plan (PMRR)                                         |             |

|                                                                                       | INSTRUMENT                                                                    | TIME FRAME |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|------------|
|    | Municipal Basic Sanitation Plan (PMSB)                                        |            |
|    | Salvador 500 Plan                                                             | 2049       |
|    | Municipal Policy for Environment and Sustainable Development (SALVADOR, 2015) |            |
|    | Salvador 360 Programme                                                        | 2020       |
|  | Resilient Salvador (PMS, 2019)                                                | 2049       |

Source: Prepared by WayCarbon/ICLEI



Also relevant is the Salvador Panel on Climate Change, inspired by the IPCC and launched in August 2019 during the UNFCCC Latin American and Caribbean Climate Week in Salvador. The Panel consists of academics and specialists who seek to gather and organise all information

on adaptation and mitigation options available to the municipality of Salvador, and publish this information in accessible communications materials. The Panel was created by the Municipality of Salvador, through SECIS, and in partnership with GIZ, through its ProAdapta programme.

### 1.3. The PMAMC development process

The process to develop the PMAMC consisted of three stages: (1) Internal commitment and alignment; (2) Climate change projection, risk assessment and stakeholder engagement; (3) Creation of the Plan's strategy and actions. The figure below presents the main steps in this process.

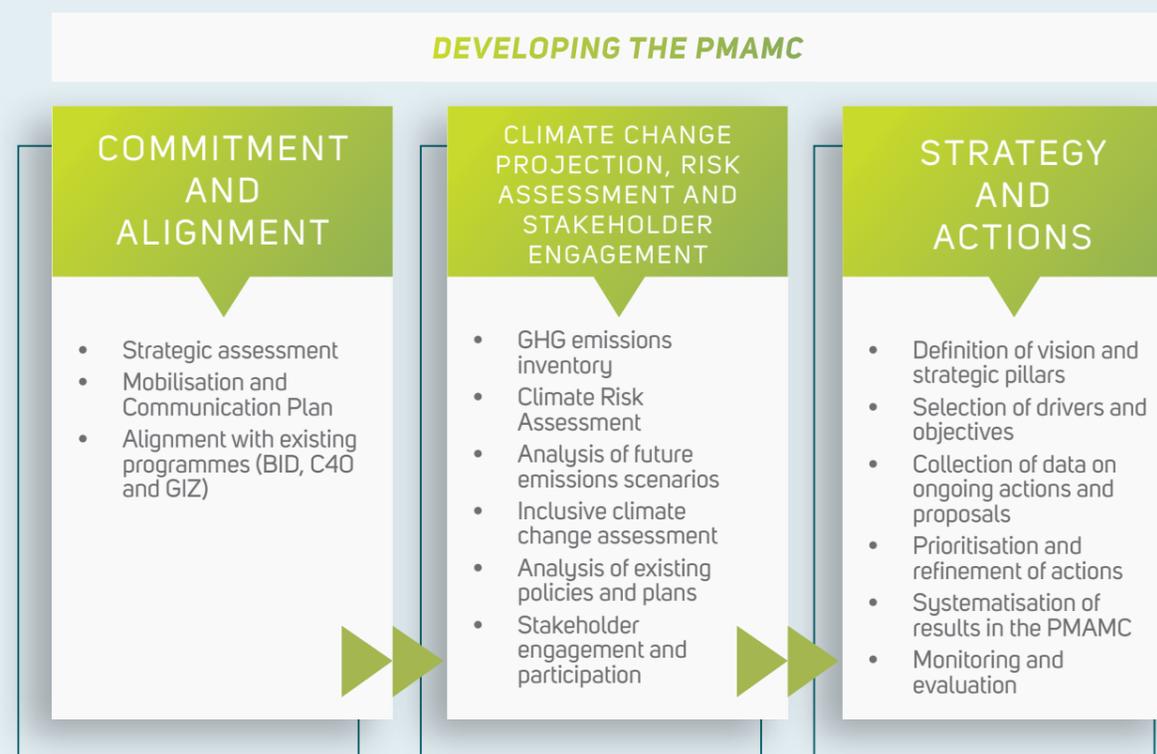
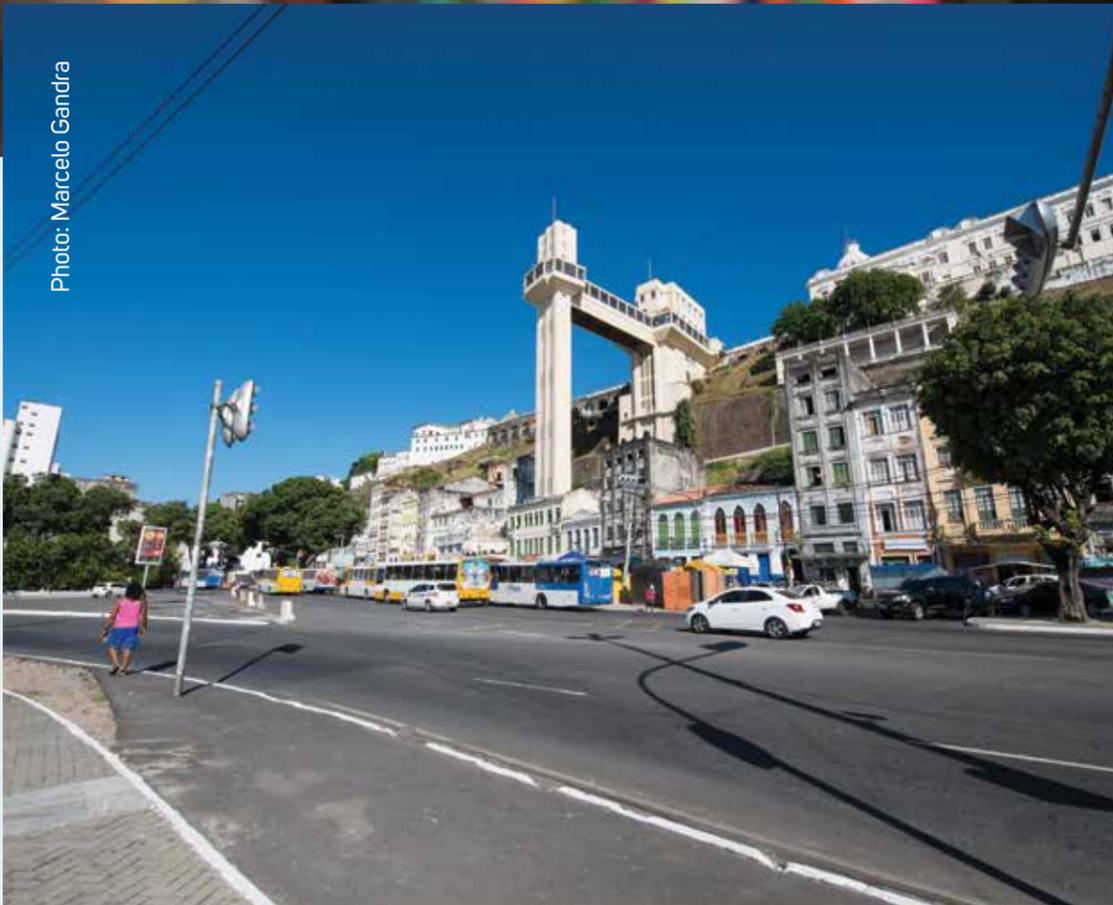




Photo: Marcelo Gandra



### 1.3.1. Commitment

The first step in the PMAMC development process was a strategic assessment of the city's climate efforts and governance structure. This assessment generated an analysis of the city's long-term commitments and vision, as well as its climate governance, including the division of powers and related capacities in the administration. The objectives of existing plans and the quality of existing environmental data were evaluated. The authors compiled an extensive bibliography to assess baseline emissions and climate risks and conducted a SWOT analysis to map Salvador's strengths, weaknesses, opportunities and threats relative to the climate agenda.

The authors also developed a Mobilisation and Communication Plan to establish engagement strategies for events, workshops, public consultations, activities, social media posts and reports/publications to be published during the PMAMC development process. Finally, an internal alignment exercise was conducted, to ensure the goals of the PMAMC would be aligned with those of the initiatives already under implementation by the Municipal Government, and those of the projects implemented by partners such as GIZ, C40 and the Resilient Cities Network.

### 1.3.2. Climate change projection, risk assessment and stakeholder engagement

The climate change projection, risk assessment and stakeholder engagement stage was subdivided into three major areas of work, which were carried out simultaneously and in conjunction to allow for the identification of synergies.



» Work area 1 – ‘local climate change and risk assessment’ produced four essential inputs for the Plan: (1) Salvador’s Greenhouse Gas Inventory for 2014-2018, using the GPC (Global Protocol for Community-Scale Greenhouse Gas Emission Inventories) methodology. This inventory was released in May 2020; (2) A study on future emissions scenarios, which used the Pathways tool developed by C40 to build four scenarios with short-, medium- and long-term projections; (3) The inclusive climate action assessment, which mapped the local context to identify actions and indicators which specifically benefit the communities most vulnerable to climate change; (4) The climate risk assessment, completed in July 2020, which identified and evaluated the main physical risks associated with extreme weather events to which the city is exposed.

» Work area 2 – ‘analysis of existing policies and plans’ consisted of a systematic bibliographic survey of the guidelines and objectives contained in the City of Salvador’s main sectoral plans and regulatory instruments and their relationship with climate change mitigation or adaptation. This process was crucial in determining which of these municipal instruments already consider climate change and to what extent, and allowed for the identification of synergies and potential opportunities for more effective climate action. In addition, climate plans already published by other cities in Brazil, such as Fortaleza, Grande ABC and Recife, and beyond, such as Barcelona, London and Los Angeles, were also evaluated.

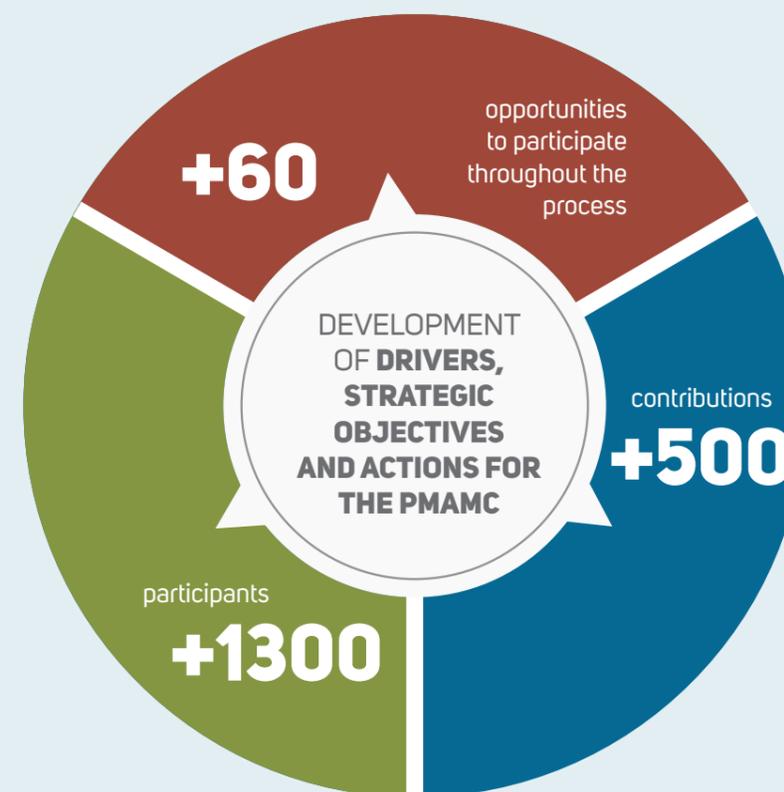
» Work area 3 – stakeholder engagement and participation facilitated the engagement with stakeholders from various sectors, through virtual and telephone consultations. Participating stakeholders included representatives of the secretariats of the Municipal Government and state agencies, the Salvador Panel on Climate Change, academia, the private sector and civil society (both individuals and representatives of associations and NGOs).

**The beginning of PMAMC’s development process happened in January and February 2020 with face-to-face launch, technical engagement and data gathering events for the GHG emissions inventory and the climate risk assessment, in which over 200 people participated. In March 2020, however, the schedule had to be adjusted due to the outbreak of the COVID-19 pandemic. To comply with social distancing guidelines, stakeholder engagement continued using virtual participation tools, which enabled the execution of an even greater number of activities throughout the process of developing the PMAMC. As a result, more than a thousand people from different sectors of society were able to participate.**



Photo: Mauro Mora | UNSPLASH

GENERAL DATA ON PARTICIPATION IN THE DESIGN OF THE PMAMC



Source: Prepared by WayCarbon/ICLEI

A selection of some of the results of the participatory process for the development of the PMAMC is presented below:



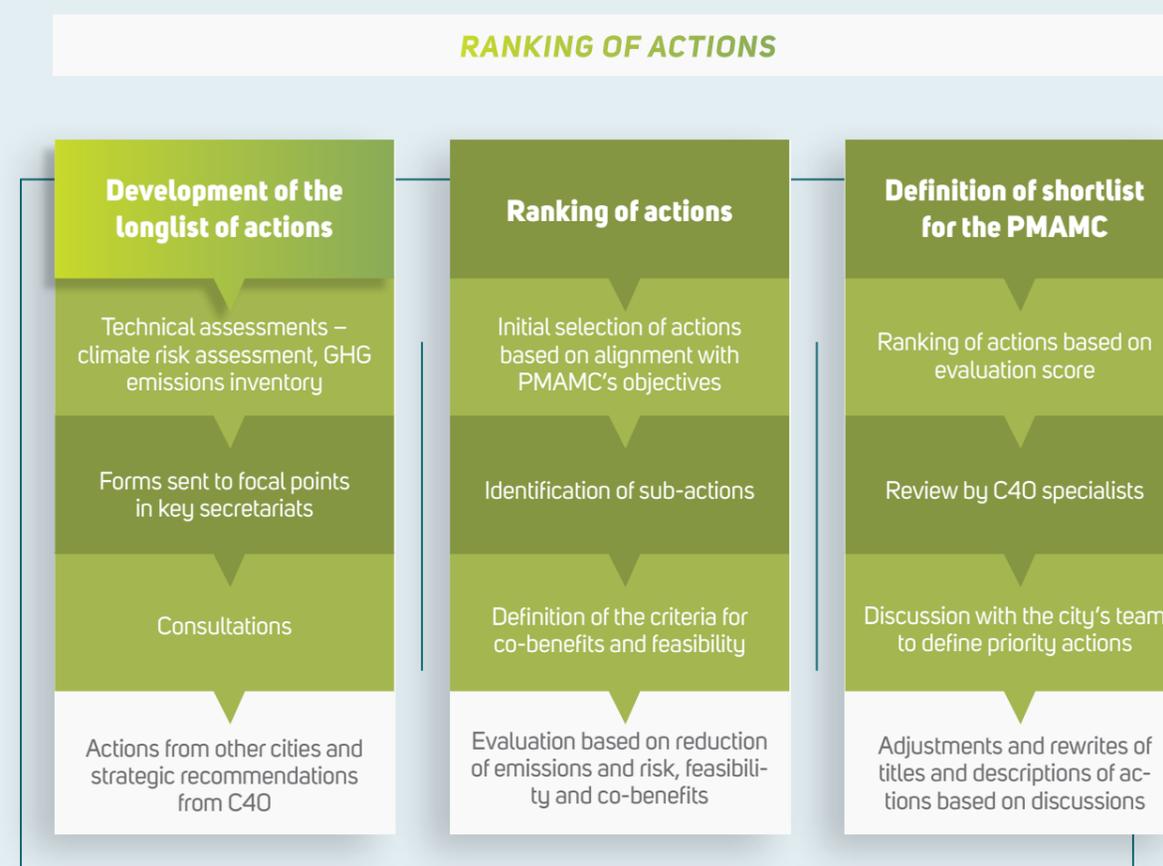
- » **11 open consultation** and training events, with **736 participants**;
- » **22 specific sessions** for consultation with civil society, with **35 participants** sharing **93 contributions**;
- » **13 interviews** with community leaders, resulting in more than **100 contributions**;
- » **Six meetings** with the private sector, with **41 participants**;
- » **16 municipal entities** and secretariats consulted for the development of the GHG emissions inventory, in face-to-face technical meetings between January and March 2020;
- » **Two specific** consultations with the Salvador Panel on Climate Change with **60 participants**, resulting in **104 contributions**;
- » Establishment of the PMAMC Task Force by Decree 32.102 of 2020, with members representing **18 secretariats and boards** ;
- » **Six online consultations** using an electronic form;
- » **122 participants** in online consultations;
- » **26 detailed inputs** provided by city secretariats through electronic forms and spreadsheets.

### 1.3.3. Strategy

The concepts used in the systematisation of the collected information were defined as follows:

- **Vision:** what the City of Salvador wishes to accomplish by 2049, through integrated and cross-cutting actions that promote mitigation, adaptation and inclusion;
- **Strategic Pillars:** pillars that support the Plan’s guiding themes;
- **Guiding Themes:** themes that guide climate action in strategic sectors;
- **Objectives:** expected strategic results for each guiding theme;
- **Actions:** measures that must be implemented to achieve the overall objectives of mitigating emissions and reducing climate risks.

After completion of the climate change assessments, analyses of existing initiatives and stakeholder consultations for the definition of pillars, guiding themes and objectives, the PMAMC Task Force identified appropriate actions to deliver the objectives of the Plan. More than 150 actions underwent an evaluation process and were narrowed down to 57 actions distributed over four pillars. The following diagram contains the steps followed to create the final list of actions:



Source: Prepared by WayCarbon/ICLEI



Two methodologies were employed to select actions for inclusion in the PMAMC: the ASAP tool (Action Selection and Prioritisation Tool) and the evaluation of co-benefits selected through public consultation. The ASAP tool, developed by C40, allows the collection of information about longlisted actions and provides visual analytics comparing benefits and challenges associated with each action, to support the decision-making process (C40, 2020b).

Each action was assessed based on three main criteria (C40, 2020b): (1) Primary benefits - potential to mitigate GHG emissions and reduce climate risks; (2) Co-benefits - potential to deliver positive change in areas such as health, job creation and protection of the environment; (3) Feasibility - the difficulty of implementing the action considering issues related to financing and governance. Decisions on the criteria and their weighting were made based on input gathered through the open consultation forms.



Photo: Mjonathan Borba | UNSPLASH

**CRITERIA FOR CO-BENEFITS AND FEASIBILITY USED TO ASSESS THE ACTIONS**

| CO-BENEFITS                                                                                                                                                                                                                  | WEIGHTING | VIABILIDADE                                                                                                                                                                                                                      | WEIGHTING |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Health and Wellbeing                                                                                                                                                                                                         | 2         | Authority / Jurisdiction of the City                                                                                                                                                                                             | 3         |
| Does the action increase life expectancy and/or quality of life by reducing pollution-related illnesses and deaths, mitigating the impacts of extreme weather events or addressing the lack of access to essential services? |           | Does the city have the legal authority/ jurisdiction to implement this action or would it need to be implemented by another entity, such as the national government, an external public agency or entity, or the private sector? |           |
| Green Areas                                                                                                                                                                                                                  | 1         | Alignment with city policies                                                                                                                                                                                                     | 2         |
| Does the action increase the share of green space in the city, increase tree cover or improve access to parks? Does it create, conserve or restore natural ecosystems?                                                       |           | Is the action aligned with existing municipal policy or does it have potential to promote new, beneficial policies?                                                                                                              |           |
| Climate Justice                                                                                                                                                                                                              | 3         | Alignment with social/cultural norms                                                                                                                                                                                             | 1         |
| Does the action help to reduce socioeconomic disparities, reduce the poverty rate or enhance the provision of essential services to vulnerable communities?                                                                  |           | Does this action favour or impede behaviour change according to local cultural/social norms?                                                                                                                                     |           |
|                                                                                                                                                                                                                              |           | Financing sources                                                                                                                                                                                                                | 1         |
|                                                                                                                                                                                                                              |           | Has total or partial funding for this action been secured, or has a possible source of funding been identified?                                                                                                                  |           |

Source: WayCarbon/ICLEI from C40 (2020)

The actions selected through the process described above are presented in Chapter 4 of this Plan.

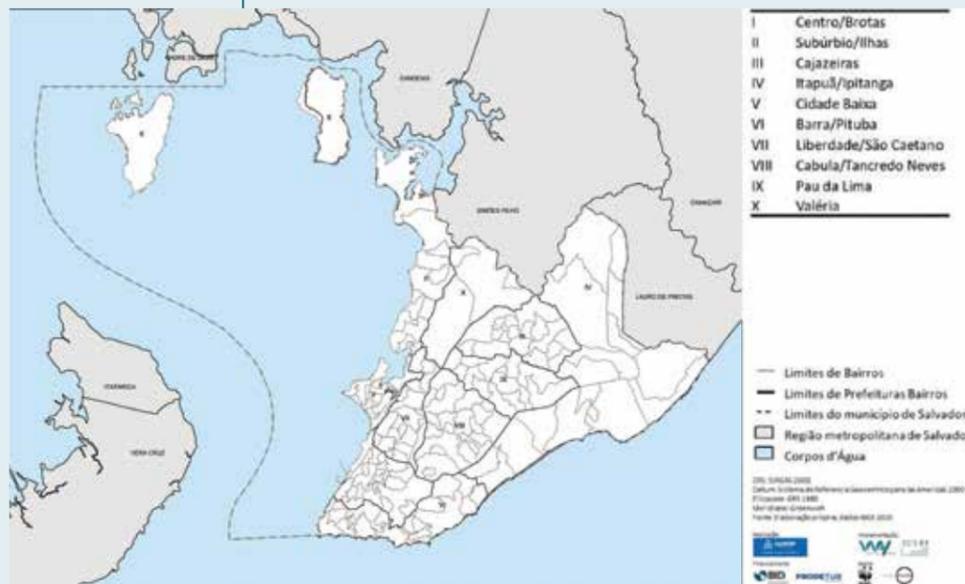
## 1.4. Local context: the challenge of an inclusive climate action

### SALVADOR IN NUMBERS

- » **Area: 693,276 km<sup>2</sup>**  
(IBGE, 2010a)
- » **53.3% women and 46.7% men**  
(IBGE, 2010)
- » **Population: 2.857.329**  
(IBGE, 2018)
- » **Population density: 3.859,44 people/km<sup>2</sup>**  
(IBGE, 2010a)
- » **50,8% Black**  
(IBGE, 2015)
- » **Fourth most populous municipality in the country**  
(IBGE, 2010c)

- » **170 neighbourhoods, 10 subprefectures, three islands.**
- » **9th city by GDP in Brazil**  
(IBGE, 2017a)
- » **5.3 Basic Education Development Index (IDEB) for early years**  
(INEP, 2017)
- » **GDP per capita of R\$ 21,231.48, 2,106th municipality in Brazil**  
(IBGE, 2017b)

### SUBPREFECTURES OF SALVADOR



Source: Developed by the authors



Photo: Marcelo Gandra



» **79.42%** of the population have an income of up to twice the minimum wage  
(IBGE, 2010a)

» **242** informal settlements  
(IBGE, 2010d)

» **882,000** people living in informal settlements  
(IBGE, 2010d)

» **1.3 million people (45.5% of the population)** living in areas at risk of flooding and landslides  
(IBGE, 2018)

» **High inequality: Gini index of 0.63**  
(FJP; IPEA; UNDP, 2020)

» **54.7%** of the population living in informality  
(Continuous PNAD)

» **17.5%** unemployment rate  
(Continuous PNAD)

» **Annual homicide rate of 63.5 per 100,000 population**  
(Atlas of Violence, 2019)

» **93%** of children ages 5-6 enrolled in school  
(IBGE, 2010)

» **50%** of young people aged 15-17 have completed primary education  
(IBGE, 2010)

» **High rate of hospitalisations for Diarrhea: 0.2 per 1000 inhabitants**  
(IBGE estimate for 2016)

» **82.3%** of households have access to adequate sanitation  
(Trata Brasil, 2018)

» **Housing deficit of approximately 139,000 homes**  
(FJP, 2018)

**MAIN GROUPS VULNERABLE TO CLIMATE RISKS IN SALVADOR**



Source: Prepared by WayCarbon/ICLEI from PBMC, 2016

**IDENTIFIED SOCIOECONOMIC ISSUES REQUIRING INTERVENTION**

**EDUCATION, JOBS AND INCOME**

- » Young people tend to have low levels of education
- » The largely unskilled labour force is unable to meet market demands
- » The number of self-employed or informal workers is significant

**MOBILITY**

- » Inefficient public transport to urban centres
- » There is no integrated transport system that could facilitate the decentralisation of jobs
- » Commuting distances are long, which combined with inefficient transport leads to long commute times

**DECENT HOUSING**

- » Large populations live in informal settlements
- » These settlements are vulnerable to geological risks, such as landslides, and climate risks, such as flooding

Source: Prepared by WayCarbon/ICLEI



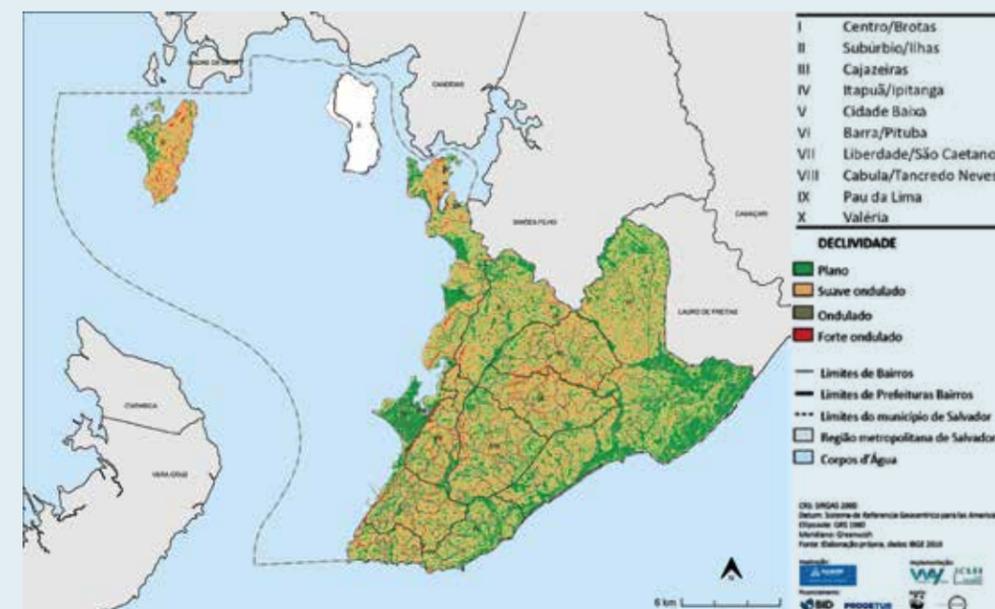
## 1.5. Physical context: Salvador's geography

It is crucial to understand Salvador's geography and the socioeconomic conditions and geographical distribution of its population to assess which communities are most at risk from climate change impacts. According to the Climate Observatory (2020), the predominant land cover within Salvador's municipal boundaries is urban infrastructure (35.9%), followed by forest (30.6%), the latter being the principal land cover type on the islands of the municipality.

An important feature in the geology of the city is the Salvador Geological Fault, responsible for the gap between the Cidade Baixa (Lower

City) and Cidade Alta (Upper City). It is most prominently visible at the edge of the Recôncavo Basin. Salvador's terrain, with alternating steep slopes and flat areas, makes the city particularly vulnerable to the impacts of extreme rainfall events, such as riverine and inland flooding. The city's terrain provides favourable conditions for surface runoff because, depending on the soil type, steep hillsides can prevent infiltration of rainwater in the soil. Unplanned urbanisation and the historic tendency to settle in high-risk areas puts many at risk of landslides.

### SLOPE MAP OF THE MUNICIPALITY OF SALVADOR

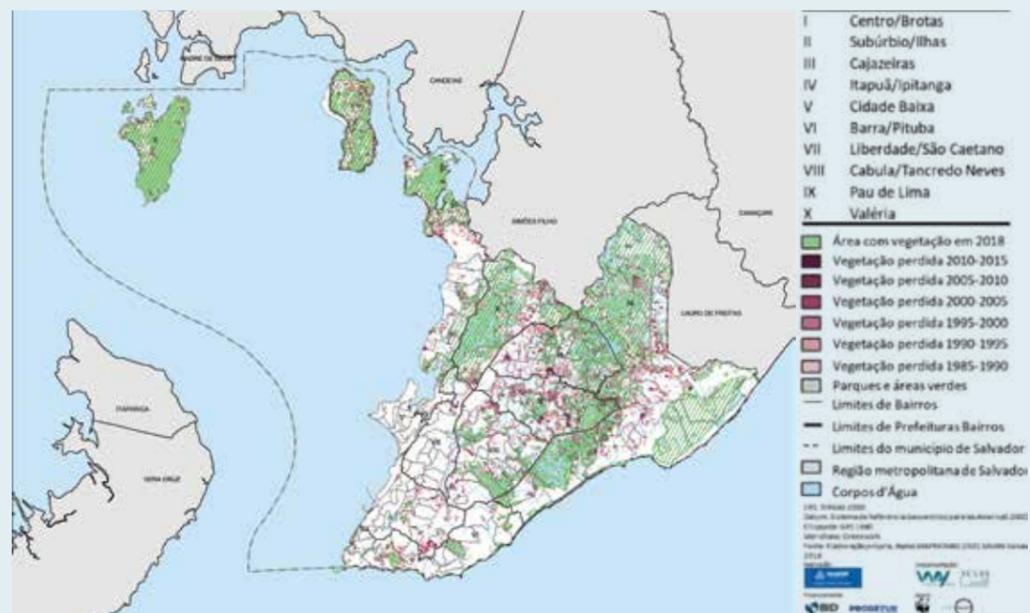


Source: Prepared by WayCarbon / ICLEI from SRTM / USGS (2000)



Urban green spaces are crucial for enhancing the wellbeing of the population, as they play a key role in cooling surrounding built-up areas, maintaining the balance of microclimates, through the regulation of water cycle, and reducing noise. In addition, green spaces serve as leisure and recreation areas for the entire population. It is also important to note that, as a municipality completely surrounded by the Atlantic Forest and its associated ecosystems (Restinga, sandbanks and mangroves), Salvador has an important role to play in the conservation of this currently fragmented biome. The "Salvador Capital da Mata Atlântica" programme, which aims to promote development compatible with the preservation of the Atlantic Forest, is a good example of the ways in which the city fulfils this role.

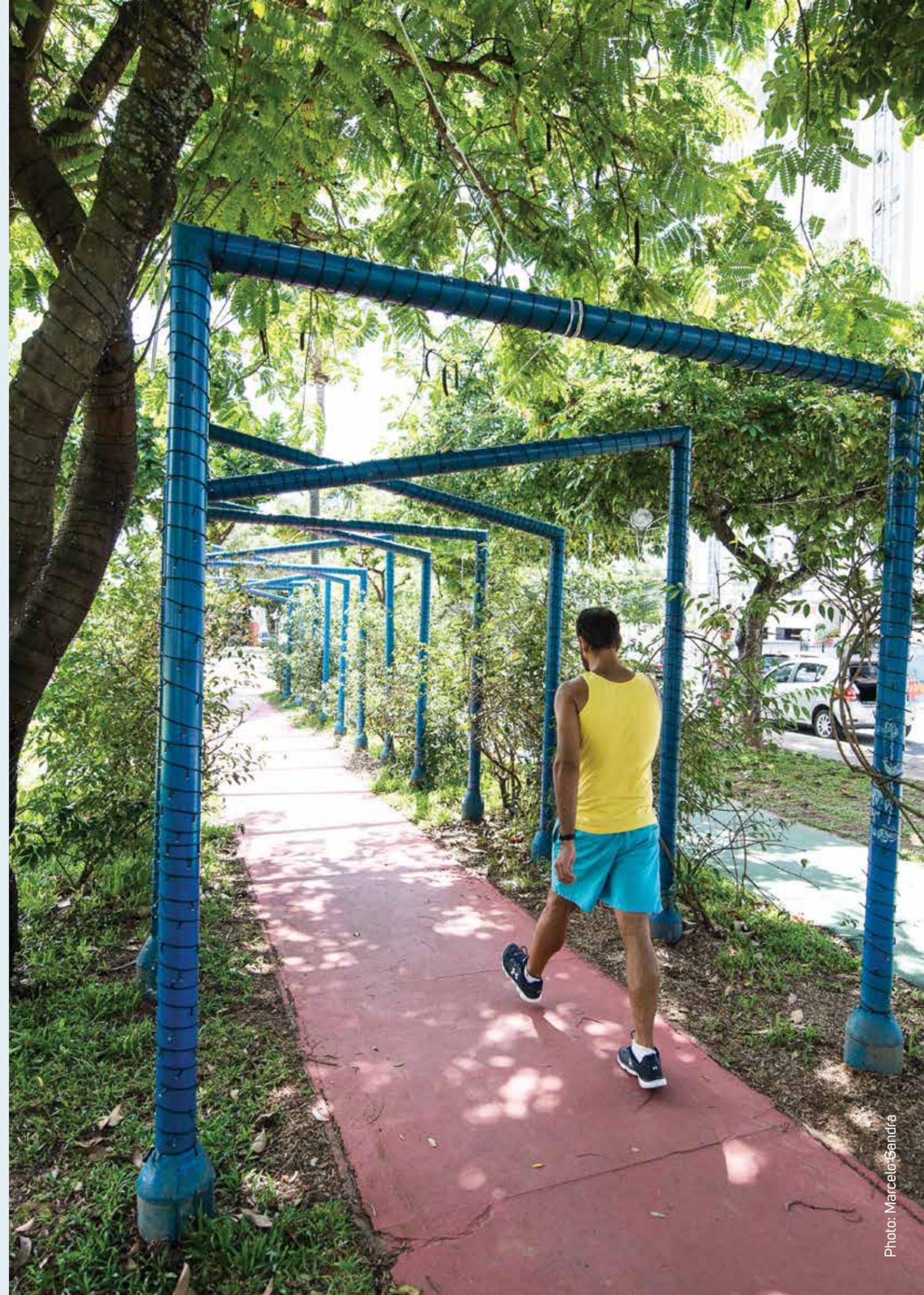
## EVOLUTION OF VEGETATION COVER AND BOUNDARIES OF PARKS AND CONSERVATION AREAS



Source: Prepared by WayCarbon / ICLEI based on MapBiomass (OBSERVATÓRIO DO CLIMA, 2020)

The municipality of Salvador has a dense hydrographic network extending over two different watersheds: the slope of the Bay of Todos os Santos, which covers the areas of the Vitória cliffs, Comércio and the Itapagipe Peninsula as well as the basins of the Cobre River and Paraguari, stretching all the way to the watershed of Aratu Bay; and the Atlantic slope, including the basins of the Lucaia, Camarajipe, Pituaçu, Jaguaribe and Ipitanga rivers, in addition to the areas of Barra, Ondina, Rio Vermelho, Amaralina and Pituba. The main rivers flowing through the city are the Jaguaribe, Camarajipe, Paraguari and Cobre.

The plateau on one side of the Salvador Geological Fault forms a clear drainage divide, creating a number of small watersheds with water courses running eastwards towards the Atlantic Ocean (PMS / SINDEC, 2015). This configuration influences the drainage system in the city as a whole, as the same volume of precipitation is more likely to lead to flooding in shorter rivers with a smaller gradient than in longer rivers with a larger gradient.



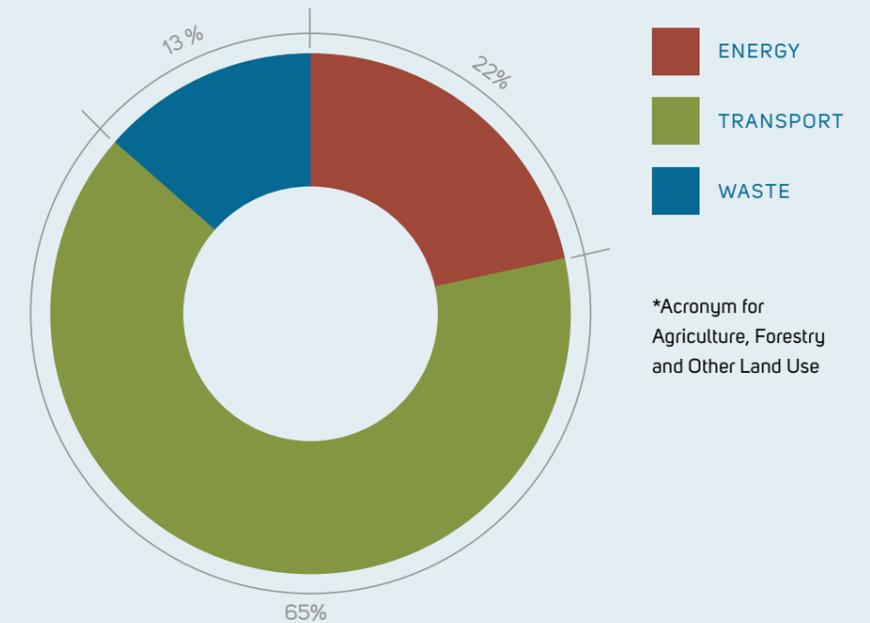
# SALVADOR'S CURRENT AND FUTURE CLIMATE 2.



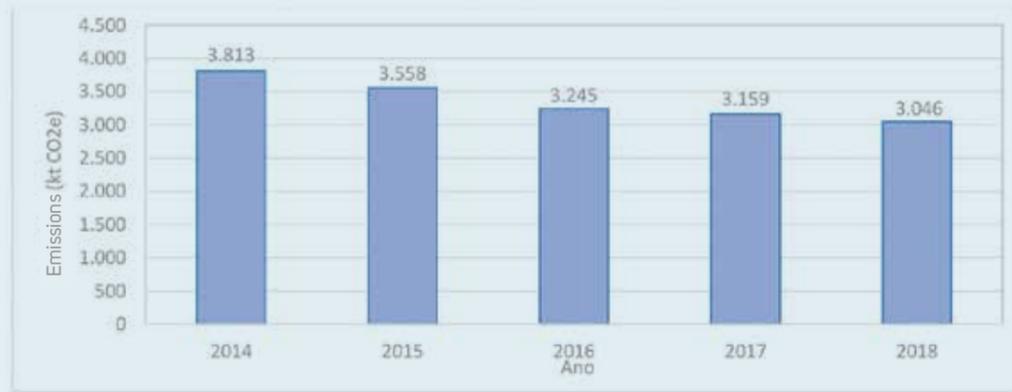
Photo: Leana Mattei

## 2.1. GHG emissions inventory

A GHG emissions inventory for the City of Salvador for the years 2014-2018 was prepared using the CLIMAS software, developed by WayCarbon, following the GPC methodology. **In 2018, the City of Salvador emitted more than 3 million tons of CO2 equivalent (MtCO2e). The sector that contributed most to these emissions was transport, which accounted for 65.1% of the total. The remaining emissions were generated by the stationary energy (21.7%), waste (12.6%) and agriculture, forestry and other land use (AFOLU\*; 0.6%) sectors.**



**SALVADOR'S TOTAL GHG EMISSIONS (2014 TO 2018)**

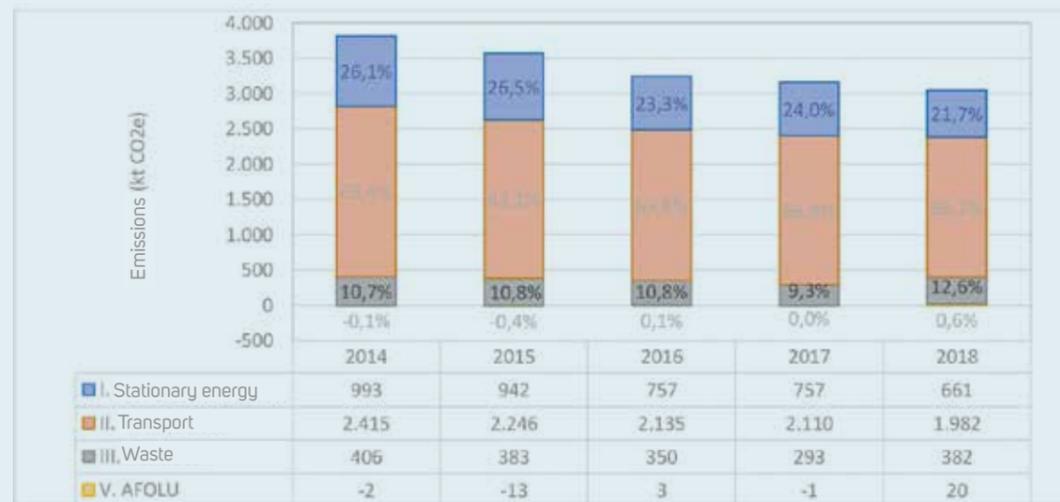


Source: Developed by the authors based on the results of the Climas software

Between 2014 and 2018, Salvador's GHG emissions declined by 20%. Several factors may have contributed to this decline, such as efficiency gains in private and public transport vehicles or the partial shift from gasoline to ethanol consumption, the latter of which has a lower emissions factor. However, the decline in emissions was also closely correlated with the 8.6% drop in the city's GDP between 2014 and 2017, which was the result of a national economic crisis.

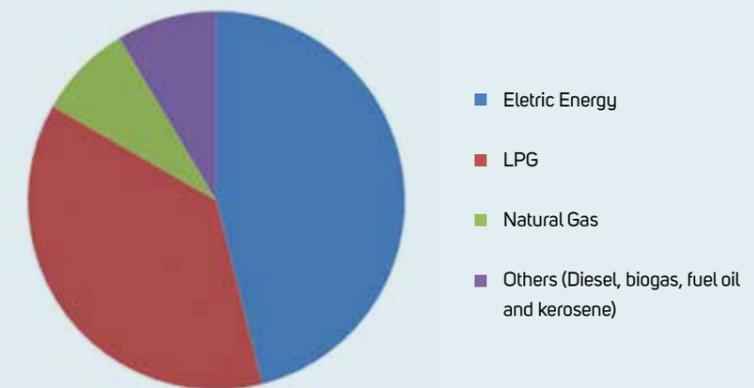
The stationary energy sector generates emissions through the burning of fuels primarily for the production of steam or electricity; electricity consumption; and technical losses in the transmission and distribution systems. In 2018, stationary energy emissions were generated primarily through the consumption of electricity (46%), followed by LPG (37%), diesel, biogas, fuel oil and kerosene (9%) and natural gas (8%).

**SALVADOR'S GHG EMISSIONS BY SECTOR (2014 TO 2018)**



Source: Prepared by WayCarbon/ICLEI based on the results of the Climas software

**Emissions from the Energy Sector in 2018**



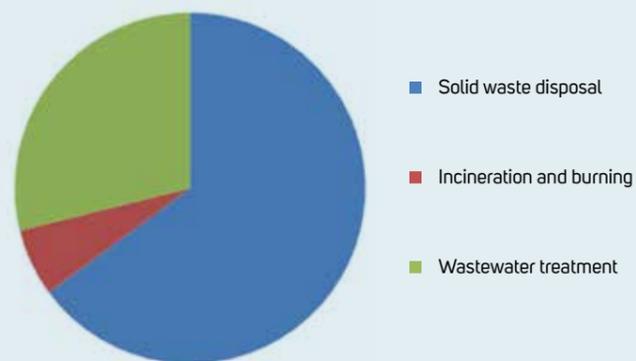
Transport sector emissions were calculated based on fuel sales in Salvador and data on the electricity consumption of metropolitan trains and subways. In 2018, non-rail land transport was responsible for the majority of transport emissions (69%), followed by air (29.7%), water (1%) and rail (0.3%) transport. Salvador's waste sector generates emissions through the disposal of solid urban waste in landfills (65%), waste incineration (29%) and wastewater treatment (6%).

**Emissions from the Transport Sector in 2018**



Emissions in the AFOLU sector are the result of the enteric fermentation that occurs in the digestive system of ruminant animals; the management, or lack thereof, of manure; land use change; and the use of fertiliser in agriculture. In 2018, AFOLU represented only 0.6% of the municipality's total emissions, despite the loss of 11 hectares of forest in 2016 and 37 hectares of forest in 2018. This is partly due to the offsetting of emissions through the planting of seedlings in the city.

**Emissions from the Waste Sector in 2018**



## 2.2. Future emissions scenarios

After the completion of the GHG inventory, the authors of the PMAMC developed a number of future emissions scenarios using the Pathways model developed by C40, adapted for its application to Salvador. The authors chose 2018 as the base year, as it was the most recent year included in the emissions inventory, and picked the years 2024, 2032 and 2049 as key milestones (see Section 3.3.). The sectors considered were stationary energy, transport and waste, which includes solid waste and wastewater treatment.

The scenarios were developed through a consultative process using surveys and bilateral meetings, in addition to two technical workshops held on May 13 and 20, 2020, with actors directly involved in high-emission sectors. The aims of the consultation were to collect data for the analysis, generate assumptions and validate the methodologies for the development of future emissions trajectories. The process followed to build the future emissions scenarios is summarised in the figure below.

### DEVELOPMENT PROCESS FOR SALVADOR'S GHG EMISSION SCENARIOS

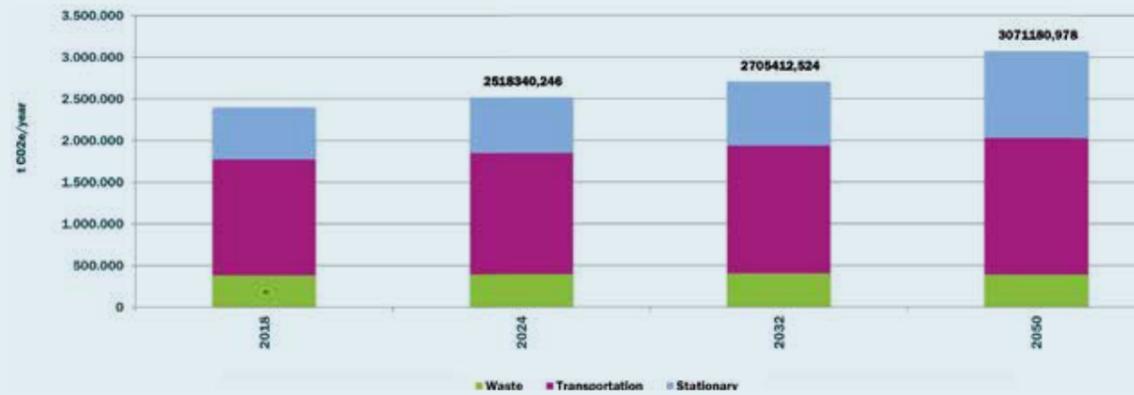


Source: Prepared by Pathways C40

The Pathways tool was used to build four scenarios:

» **[1] Business-as-usual (BAU) Scenario:** This scenario establishes the baseline, considering only population and economic growth as drivers of emissions. This 'no-action scenario' assumes that no additional mitigation efforts will be implemented by the city or other entities and serves as a reference against which the impact of the emission reduction scenarios can be measured. Under this scenario, despite Salvador's negative population growth from 2032, emissions continue to grow due to economic growth in the sectors considered. Under the BAU Scenario, **GHG emissions are projected to increase by 28% between 2018 and 2049.**

PROJECTION OF SALVADOR'S GHG EMISSIONS UNDER THE BAU SCENARIO

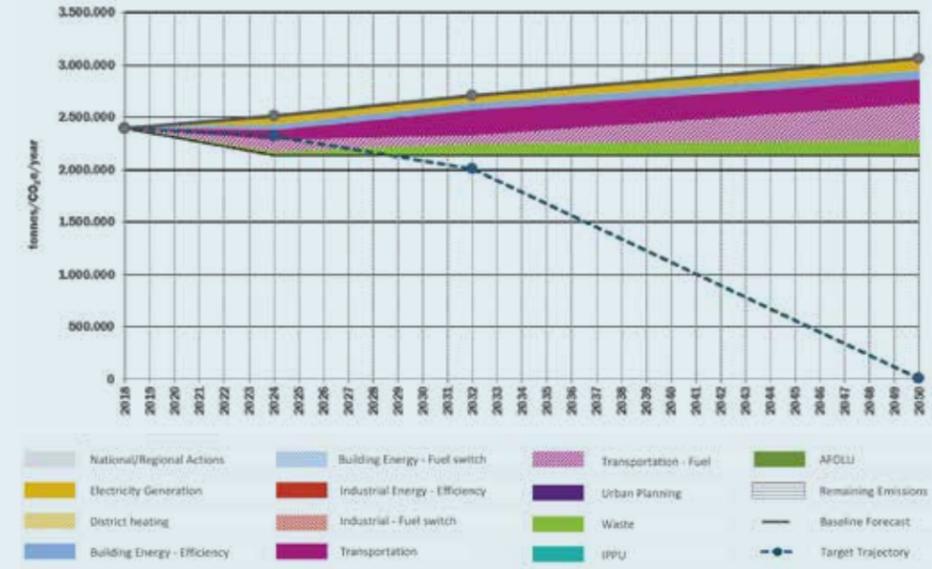


Source: Pathways C40

» **[2] Existing and Planned Actions Scenario:** This scenario considers existing or planned municipal, regional and national GHG mitigation actions (policies, projects, etc.), in addition to market and consumption trends. In this scenario, trends in technology and fuel switching, combined with the actions promoted and implemented by the city, result in a **10.3% reduction in emissions by 2049** compared to the base year of 2018.



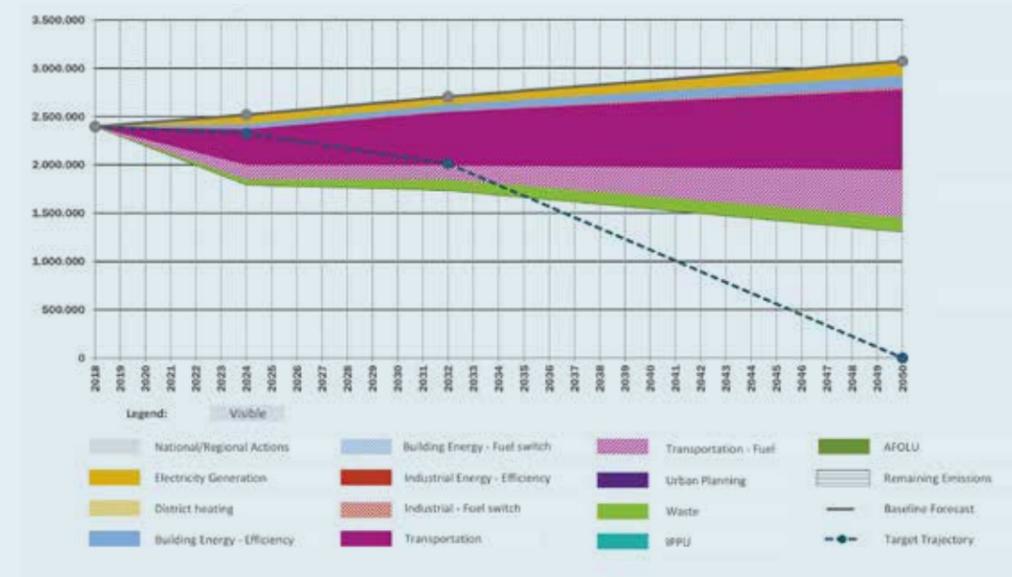
PROJECTION OF SALVADOR'S GHG EMISSIONS UNDER THE EXISTING AND PLANNED ACTIONS SCENARIO



Source: Pathways C40

» **[3] Maximum Emission Reduction Scenario:** This scenario projects greater emission reductions that can be achieved through a set of ambitious yet achievable strategies and actions. It would require scaling up existing and planned actions and identifying new strategies and actions that address additional sources of GHG emissions. The expected GHG emission reductions under this scenario are **25.5% by 2024, 27.8% by 2032 and 45.8% by 2049**, compared to the 2018 baseline.

PROJECTION OF SALVADOR'S GHG EMISSIONS UNDER THE MAXIMUM EMISSION REDUCTION SCENARIO

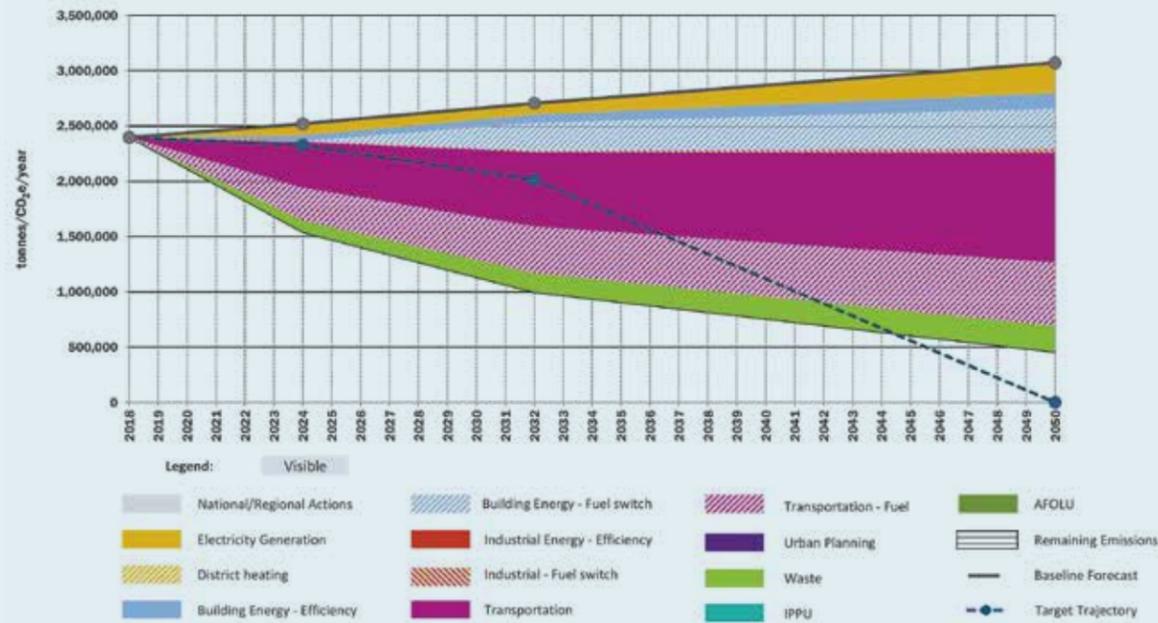


Source: Prepared by Pathways C40

The strategies and actions contained in this Plan are aligned with the assumptions on which the Maximum Emission Reduction Scenario is based, as well as with the barriers and proposals discussed in the workshops with local technical experts. These barriers will result in residual emissions and must be revisited and addressed in future reviews of the PMAMC. As new technologies and best practices for climate mitigation become available, the City of Salvador will be able to develop new, more ambitious and effective actions to achieve its 2049 carbon-neutrality goal.

» **[4] Extended Scenario:** Given the challenges and barriers that are expected to hamper Salvador’s efforts to achieve carbon-neutrality by 2049, an Extended Scenario was developed based on a set of assumptions and conditions that would allow for a greater reduction in emissions than that projected by the previous scenario. If the city implements the proposed strategies and meets the scenario’s conditions, the Extended Scenario projects a reduction in emissions **of 81.2% by 2049** compared to the base year of 2018.

**PROJECTION OF SALVADOR’S GHG EMISSIONS UNDER THE EXTENDED SCENARIO**



Source: Prepared by WayCarbon / ICLEI based on the Pathways model

**2.2.1. Residual emissions**

Though the Extended Scenario includes actions that were deemed unfeasible in the development of the Maximum Emission Reduction Scenario, even under this scenario the goal of carbon-neutrality by 2049 will not be reached. Residual emissions are projected to remain due to existing limitations and are considered impossible or too challenging to eliminate. The table below summarises the main barriers identified during the development of the extended scenario.

**BARRIERS TO THE IMPLEMENTATION OF MORE AMBITIOUS GHG MITIGATION ACTIONS IN SALVADOR**

| TYPE OF BARRIER         | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Legal and institutional | The Brazilian Energy Matrix is composed of a national interconnected electricity grid (SIN) that represents 99% of the country’s power generation capacity. Expansion planning for SIN is carried out at the federal level and cities have little influence over government decision making. The Energy Research Company projects an increase in the consumption of natural gas, driven by the approval of the legal framework for this fuel and an increase in domestic production. The development of metropolitan public transport networks is the responsibility of the state, which constitutes a barrier to direct action by the city in relation to, for example, the expansion of the subway network or the pursuit of intermodal integration. The state also controls wastewater treatment. |

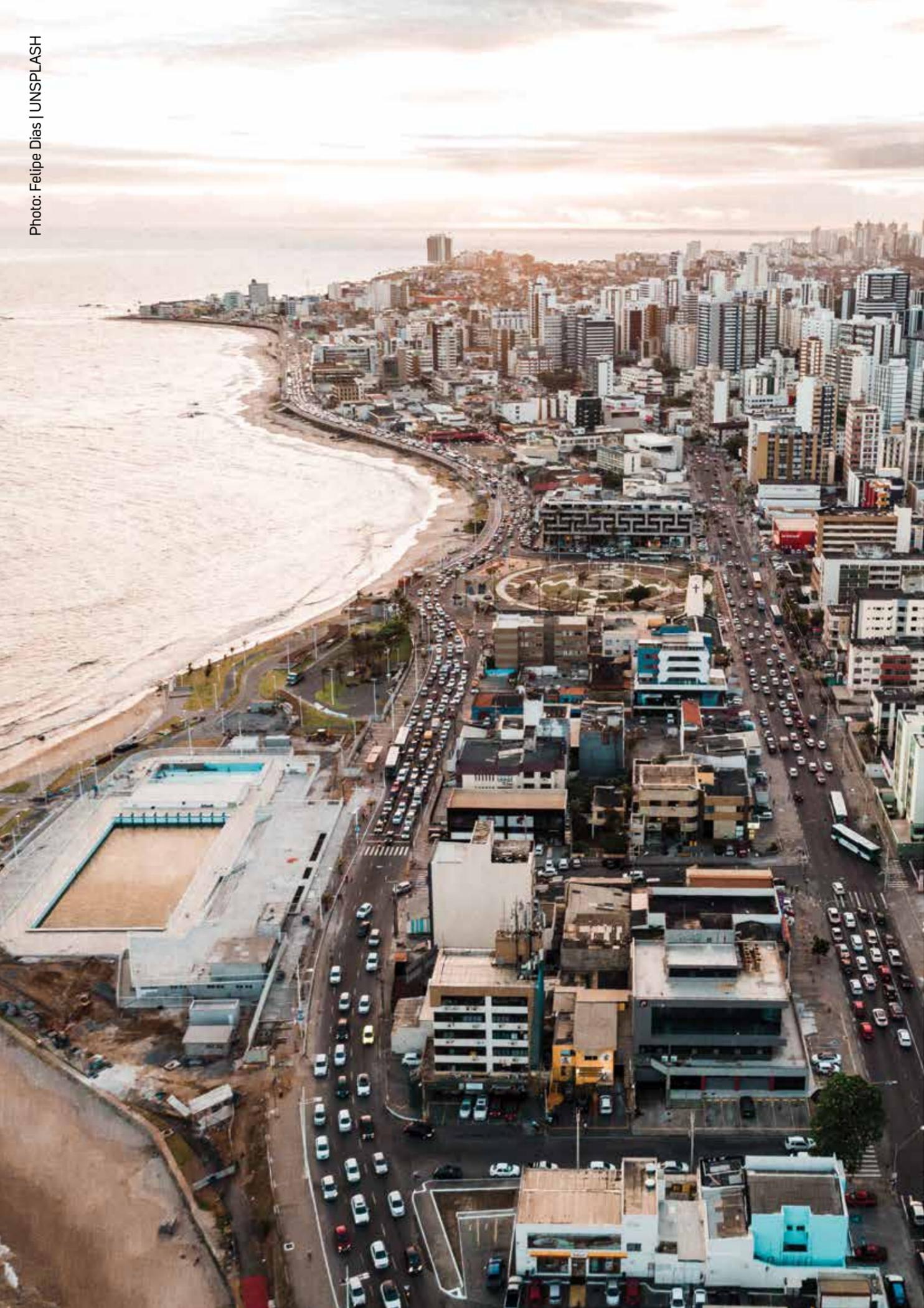


| TYPE OF BARRIER            | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Financial and economic     | <p>Renewable energy technologies are relatively new and therefore still costly to implement. This constitutes an economic barrier, as not everyone will be able to afford technology such as distributed energy generation systems, solar water heaters, etc. Similarly, the high acquisition cost of electric vehicles forms a significant barrier to the electrification of both public and private transport fleets. The costs of implementing and operating biogas projects to mitigate emissions from waste are also still high and it is difficult to predict these projects' commercial viability, as the market for electricity from biogas and its by-products such as biomethane remains in its infancy (Brazil, 2016).</p>                                                                                                                                                                                                                                                                                                                                                                                                |
| Political and social       | <p>Actions can also be rendered less effective by cultural barriers, such as the view of private vehicles as status symbols or resistance to the expansion of green spaces due to fears of falling trees or maintenance requirements. In the solid waste sector, environmental education is essential, since waste management in Brazil is based on the logic of removing the collected waste and disposing of it away from large urban centres. For this reason, city residents lack awareness of the volume of waste they generate. Though the National Solid Waste Policy (PNRS) mandates extended producer responsibility, this policy is not strictly enforced. As a result, the business sector is not effectively held responsible and no significant schemes have been implemented (Antenor and Szigeth, 2020). A significant barrier to climate change mitigation in the wastewater treatment sector is the low level of awareness of the potential of biogas energy use in wastewater treatment plants, due especially to the limited exchange of information and experiences among the people involved in the sector.</p> |
| Physical and technological | <p>Limited space forms another significant barrier, especially in densely populated areas. For example, urban roofs will have to accommodate solar PV systems, solar water heaters and green roofs, among other solutions. Electric vehicles require a network of charging facilities. The steep inclines in some parts of the city and the high temperatures are likely to limit the expansion of the use of bicycles. In the waste sector, large plots will need to be found within the city for recycling and composting facilities, which may prevent more rapid expansion of these activities. The skills gap in Salvador's workforce related to climate mitigation technologies also constitutes a limitation.</p>                                                                                                                                                                                                                                                                                                                                                                                                             |

Source: Prepared by WayCarbon/ICLEI

Under the Extended Scenario, **the residual emissions Salvador will need to eliminate to achieve carbon neutrality by 2049 are projected to be 18.8% of the 2018 baseline.** Through every revision of the Plan, the city must integrate any newly available technologies and solutions and update its projection of residual emissions (see also Chapter 5 on monitoring and updating).





## 2.3. Climate risk assessment

Salvador has already proven to be vulnerable to the impacts of extreme weather events and this vulnerability could be exacerbated if the city does not adequately prepare for future climate change. The City Risk Assessment, a tool developed by Lloyds, projects the annual economic losses that a city may suffer if it fails to prepare for future risks, including climate risks. For the City of Salvador, the tool projects annual losses between \$4.8 and \$24.8 million US dollars (under a moderate and an extreme scenario, respectively) caused by natural and climate-related disasters (Lloyds; University of Cambridge, 2018).

As a result of its geography, its urban sprawl, the large share of its low-income population living in high-risk areas and weather systems that cause intense and persistent rains, the municipality of Salvador suffers frequent natural disasters. These disasters occur primarily in the rainy season, from March to July. Due

to these characteristics, Salvador is among the north-eastern capitals with the greatest potential for disasters related to intense rain events (Sousa et al., 2016).

The special report 'Impact, vulnerability and adaptation of coastal cities to climate change', published by the Brazilian Panel on Climate Change (PBMC) in 2016, presents a specific case study for Salvador, which analyses potential changes in precipitation, temperature and wind. The study projects a reduction in precipitation levels across all seasons. At the same time, however, it projects increasingly frequent extreme daily rainfall events, which will make the hilly areas of Salvador more vulnerable to landslides. Furthermore, climate projections project a temperature increase of 1 °C by 2040, 2 °C by 2070 and 4.5 °C by 2100. In addition, an increase in the duration of heat waves and in the frequency of hot nights and hot days is expected (PBMC, 2016).

**SUMMARY OF CLIMATE PROJECTIONS FOR SALVADOR**



Source: PBMC (2016)

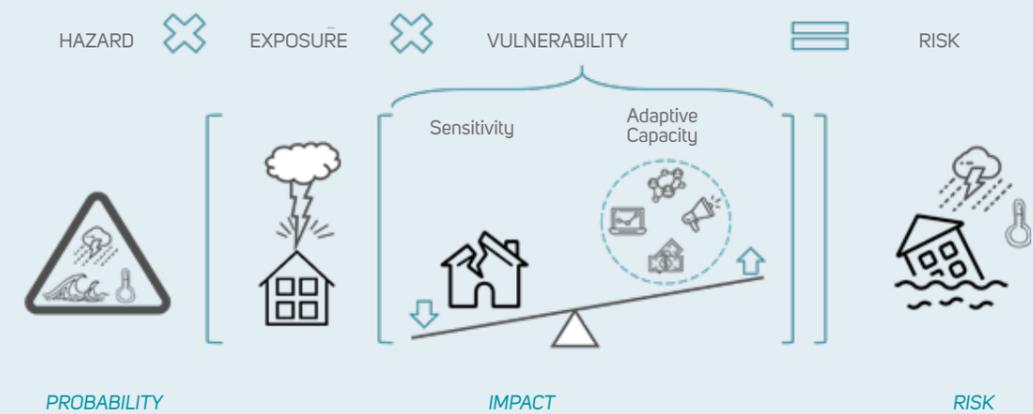


**2.3.1. Methodology**

The climate risk assessment included a climate modelling exercise over different time periods to analyse Salvador’s historical climate between 1976 and 2005 and project its climate for 2030, 2050 and 2100. The analysis was carried out on the scale of neighbourhoods and census sectors, in order to allow for the identification of critical risk areas for each of the climate hazards to which the municipality of Salvador is exposed.

The climate risk analysis is based on the concepts presented in the risk assessment of the Fifth Assessment Report of the IPCC (AR5; IPCC, 2014). Risk is the result of the interaction between a threat, exposure and vulnerability. The threat refers to the probability of a climate-related extreme weather event occurring, and exposure and vulnerability address the severity of the consequences if such an event were to occur. The figure below shows an example of the risk equation.

**VISUALISATION OF THE INTERACTION BETWEEN THREATS, EXPOSURE AND VULNERABILITY IN CITIES.**



Source: Prepared by WayCarbon / ICLEI from IPCC (2014)

Climate risk analysis is a complex exercise that requires a range of local data. For this climate risk assessment, only the vulnerability of the population was considered. In other words, analyses of climate risks to economic and environmental systems or critical infrastructure (mobility, the health system, etc.) were not included.

Furthermore, it was decided to use only one climate model and one future GHG concentration scenario. The regional climate model selected was the Brazilian Eta-HadGEM2-ES, with a spatial resolution (pixel) of 20 km x 20 km, and the chosen GHG concentration scenario was the IPCC's RCP 8.5 (Chou et al., 2014). This 'pessimistic' climate change scenario was chosen because it would lead to a conservative, worst-case risk analysis. RCP 8.5 is considered business-as-usual, as it projects the future climate presuming no additional mitigation efforts are made, so that more extensive adaptation measures will be required to decrease risk and build resilience.

Climate threats by type (floods, landslides, heat waves, vector-borne disease and droughts) were modelled using the Model of Vulnerability Evaluation® (MOVE), a tool developed by WayCarbon. Sea level rise was projected using secondary data made available by Climate Central. Local environmental variables, such as topography, vegetation

and soil type were also considered in the development of the indices for each threat.

All required socioeconomic and demographic data was extracted from the 2010 demographic census (IBGE, 2010a). Other data used to design the indicators is publicly accessible, such as maps showing land-use classes - MAPBIOMAS (Observatório do Clima, 2020) and green spaces - SAVAM system - PDDU (Salvador, 2016c). Further data was provided by the Municipal Government (for example, the Special Areas of Social Interest - ZEIS; and location of health units). Though it is ten years old, the census data used is official data and was deemed to offer an adequate scale for the development of the climate risk assessment.

In the results of the risk assessment, each indicator has received a score of (1) Very low, (2) Low, (3) Medium, (4) High or (5) Very high. These five categories have been defined as quantiles, dividing the data into subsets of the same size and providing an approximation of the probability of occurrence of the risk. The analysis was carried out at the scale of census sectors, which are smaller than the neighbourhood divisions. This was decided because parts of the same neighbourhood can be more or less severely affected by a given climatic risk. The main results and risk maps for each hazard are presented below.

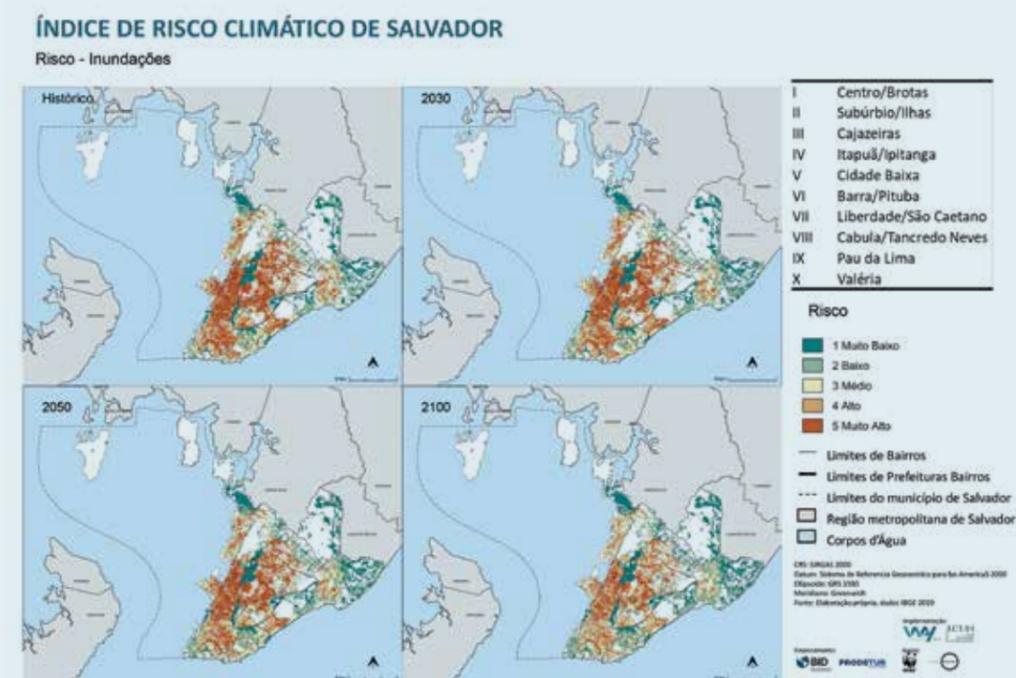


## 2.3.2. Floods

Even though total rainfall volume is projected to decline in the coming decades, intense rainfall events will become more frequent. These events, in combination with certain infrastructure issues, may cause flooding. The residents of the subprefectures of Subúrbio/Ilhas, Cajazeiras, Cabula/Tancredo Neves and Pau da Lima are very highly vulnerable to flooding. This indicates that these communities have a low capacity to prepare for and cope with the occurrence of flood events that can cause loss of lives, economic and psychological damage.

The flood risk assessment map below shows that a significant part of Salvador's territory, and consequently of its population, may suffer from increased risk of flooding by the years 2030, 2050 and 2100. The analysis of critical areas shows that almost all subprefectures include critical risk areas, except for (II) Subúrbio/Ilhas and (VI) Barra/Pituba. Between 2050 and 2100, the risk of flooding is projected to decrease in certain areas, though it will remain significant. This may be the result of a downward trend in precipitation.

### FLOOD RISK IN SALVADOR



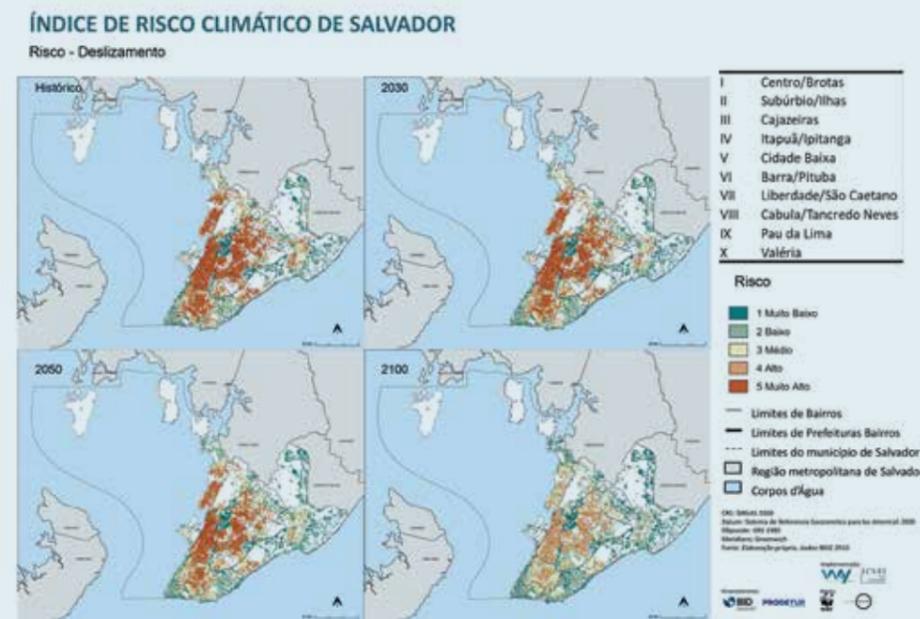
Source: Prepared by WayCarbon / ICLEI

### 2.3.3. Landslides

Records of loss of lives and material damage caused by landslides in the municipality of Salvador exist from as far back as the 17th century. Landslides frequently occur in the city as a result of several factors, including increased migration in the 1950s due to the city's economic growth and the subsequent increase in the value of urban land; unstable soils such as massapé (a highly fertile, dark soil, found in the coastal region of north-eastern Brazil); geological-geotechnical constraints and the use and occupation of high-risk areas (De Oliveira & Giudice, 2019). In addition to these factors, deforestation and other environmental degradation causes erosion and the weight of waste dumped on hillsides can cause the soil's structure to collapse.

Other factors determining the risk of landslides include the morphometric index, the extent of vegetation cover and interactions between geological factors and the exposure and vulnerability of the population. In Salvador, the housing deficit and the impermeability of the soil, combined with high population densities, are the most important factors determining an area's risk of catastrophic landslides. It should be noted in addition that the unplanned occupation of steep slopes exacerbates the vulnerability of communities that already lack access to materials and construction techniques to build appropriate, resilient dwellings on such slopes.

#### RISK OF LANDSLIDES IN SALVADOR



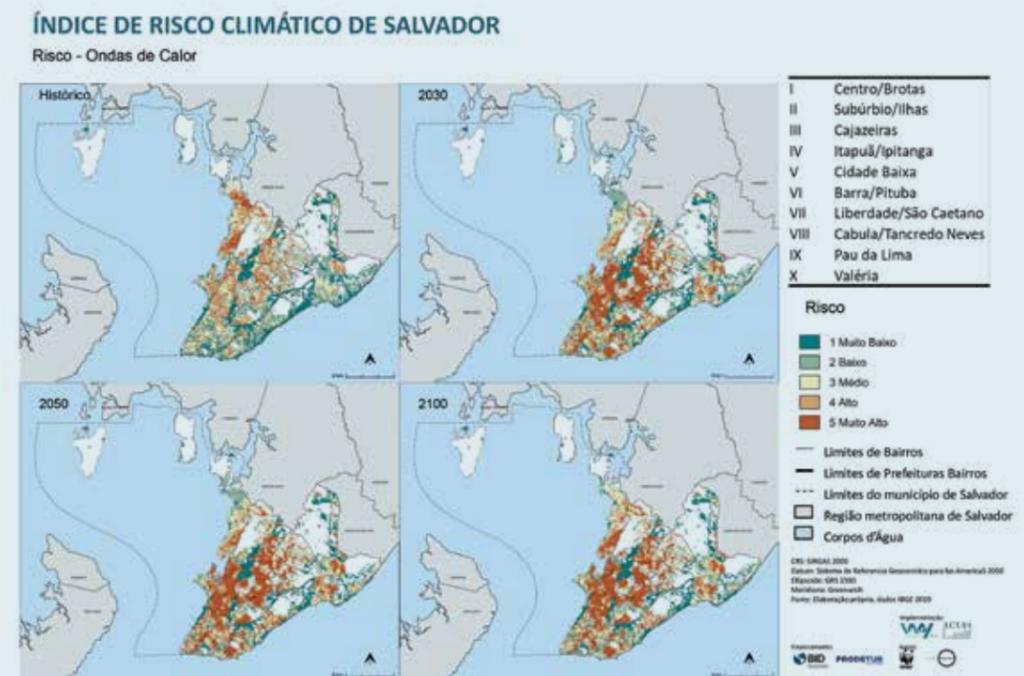
Source: Prepared by WayCarbon / ICLEI

### 2.3.4. Heat waves

The heat wave risk assessment map indicates that a significant part of Salvador's territory, and consequently of its population, may be vulnerable to the adverse effects of temperature increases by the end of the century. The climate modelling exercise for 1976-2100 projected that **by 2100, the temperature will exceed 30 °C on approximately 294 days a year (an increase of 88%).**

Communities in all subprefectures are at high risk from heat-related impacts, except the following: (II) Subúrbio/Ilhas and (VI) Barra/Pituba. A detailed analysis of the at-risk subprefectures of Salvador shows that Sena River is the neighbourhood with the highest risk score historically, but that Calabar, followed by Saramandaia, will have the highest risk scores in 2030, 2050 and 2100.

#### RISK OF HEAT WAVES IN SALVADOR



Source: Prepared by WayCarbon / ICLEI.

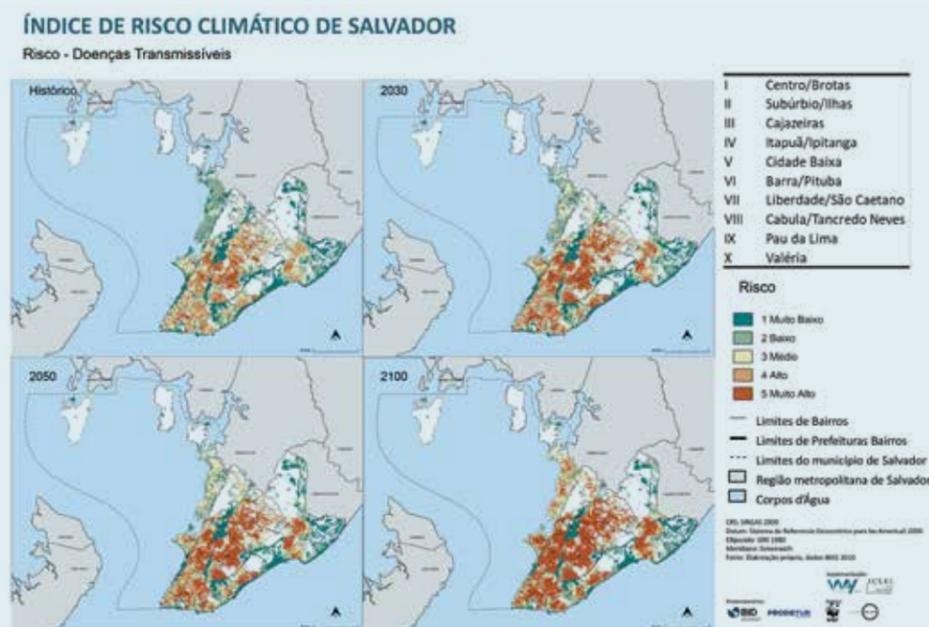
### 2.3.5. Vector-borne disease (vector *Aedes aegypti*)

The entire population of the city of Salvador is subject, to varying degrees, to the threat of contracting diseases transmitted by the mosquito *Aedes aegypti*, given the dispersion capacity of this mosquito and the frequency of outbreaks of vector-borne diseases. The results of the assessment of the risk of disease outbreaks, presented in the maps below, indicate a growing risk across the entire territory of Salvador until 2100.

The main factors that determine the risk of disease outbreaks are the population's exposure and vulne-

rability. High-risk areas include those areas with large housing deficits, areas with high concentrations of vulnerable people (children and the elderly), areas which lack access to running water, areas with less frequent waste collection and areas located close to empty lands. Adaptive capacity is determined, among other factors, by income, the literacy rate in women over 15 years of age and the rate of access to health services. The assessment identified Arenoso as the highest-risk neighbourhood across all periods analysed, followed by Novo Horizonte.

#### RISK OF VECTOR-BORNE DISEASE OUTBREAKS (VECTOR Aedes aegypti) IN SALVADOR



Source: Prepared by WayCarbon/ICLEI

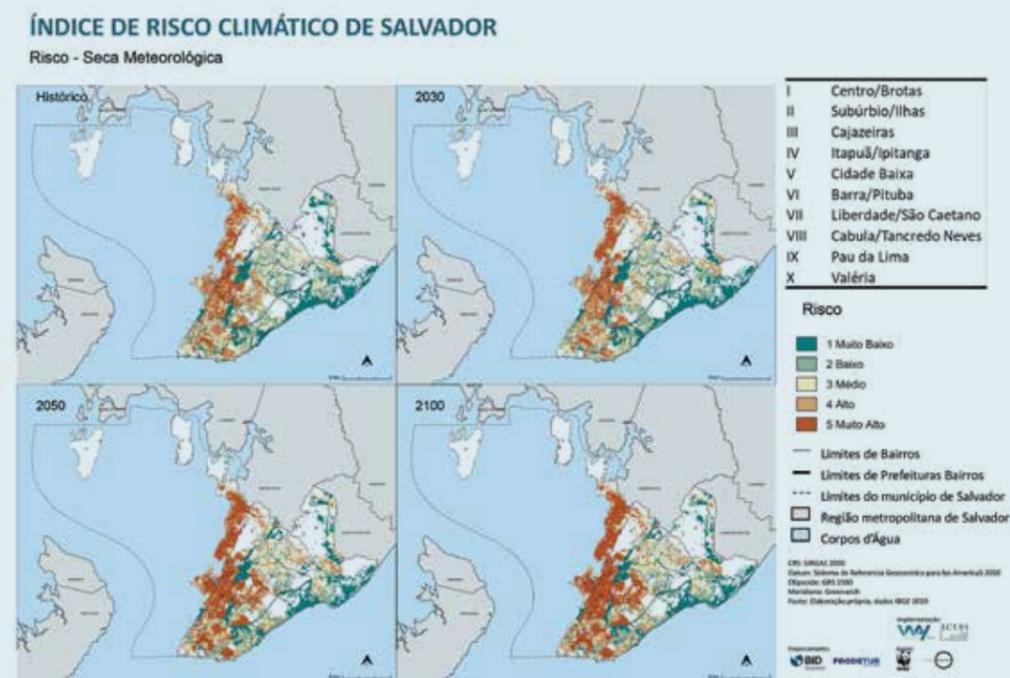
### 2.3.6. Droughts

Droughts can directly and indirectly affect the population and the water supply system of Salvador. The analysis indicates that the risk of drought is likely to grow in the coming decades, possibly as a result of declining precipitation levels. The area around the Pedra do Cavalo Dam is projected to experience high or very high drought risk in 2030, 2050 and 2100.

It should be noted that the scope of this analysis only considers drought risk to the City of Sal-

vador. However, the watersheds on which the city's water supply depends extend beyond the geographical limits of the municipality and in turn, some river basins within the city boundaries supply water to areas outside the city. For this reason, the analysis only assessed the risk of drought for the basins that have a direct influence on Salvador's water supply: Ipitanga Basin, the Joanes River, the Jacuípe River and part of the Pojuca River basin.

#### RISK OF METEOROLOGICAL DROUGHT IN SALVADOR



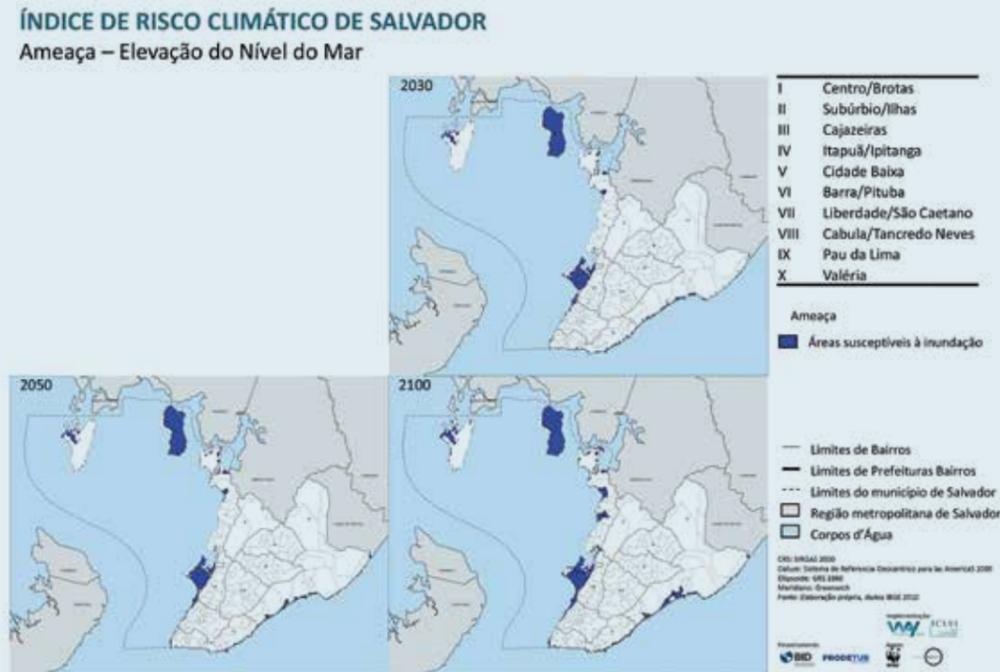
Source: Prepared by WayCarbon/ICLEI

### 2.3.7. Sea level rise

Climate models project a global average sea level rise of 50 to 120 cm between 2000 and 2100 (Kopp et al., 2014). **Projections for Salvador estimate sea level rise of 14 cm for 2030, 29 cm for 2050 and 80 cm for 2100.** The map below shows the areas most susceptible to flooding due to the rising sea level. Four large areas are particu-

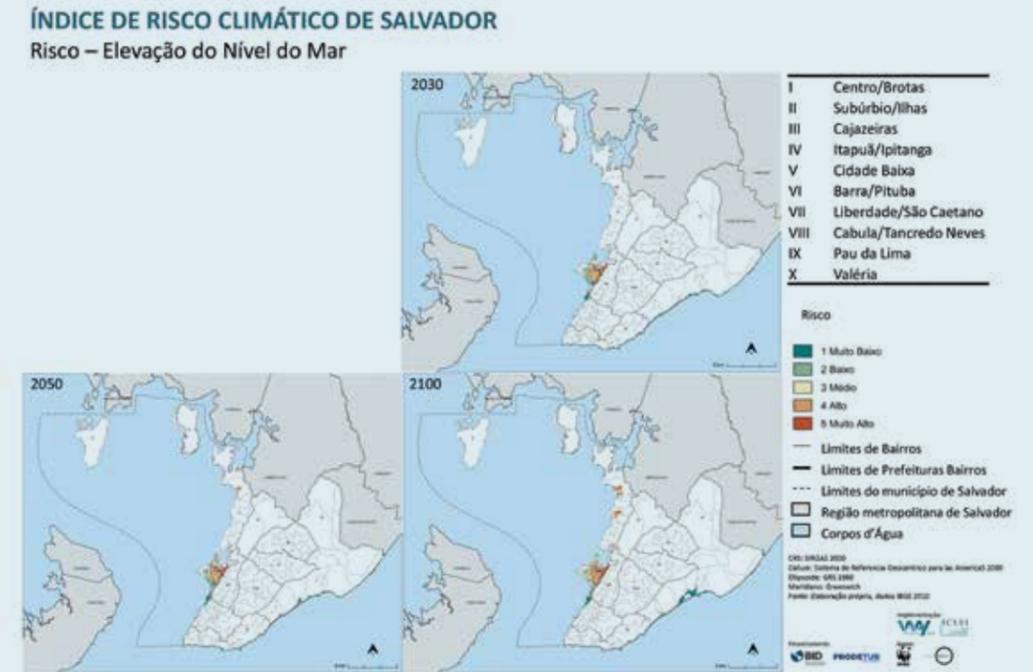
larly at risk: (1) parts of Ilha dos Frades and the entirety of Ilha de Maré, (2) the Paripe region, (3) a strip that extends from the Itapagipana peninsula (with the exception of its higher-altitude areas) to Comércio and (4) a series of smaller areas along the coast from Porto da Barra to the north-eastern border of the municipality.

#### HAZARD OF SEA LEVEL RISE IN SALVADOR



Source: Prepared by WayCarbon/ICLEI

#### RISK OF SEA LEVEL RISE IN SALVADOR



Source: Prepared by WayCarbon/ICLEI





*"if we continue on this path, in 2100, the tropical world will no longer exist for humans. Adaptation is for the present; changes are happening every day"*

*Carlos Nobre*

**PARTE II**  
*ACTION*  
~~~~~

# WHERE WE ARE HEADING 3.



Photo: Marcelo Gandra

The vision defines what Salvador's citizens and stakeholders want the city to look like in 2049 and how to implement climate actions in a manner that aligns with the commitments the city has made under the **Global Covenant of Mayors for Climate and Energy** and the **Paris Agreement**. In a consultative process, stakeholders considered Salvador's geographic and geological characteristics, its history, society and culture, as well as the results of the GHG emissions inventory and the climate risk assessment, and defined the following vision: An Inclusive, Blue-Green, Resilient and Low-Carbon Salvador by 2049.

## VISION

**An Inclusive,  
Blue-Green,  
Resilient and  
Low-Carbon Salvador**



## 3.2. Strategic pillars

### INCLUSIVE SALVADOR:

The Inclusive Salvador pillar places climate justice at the heart of the Plan's objectives. Climate justice means reducing risks for the most vulnerable groups and ensuring they enjoy the full benefits of sustainable development. In addition, it reinforces the city's commitment to ensuring broad participation of the population, especially the most vulnerable groups, in the design, implementation and monitoring of climate actions.

### BLUE-GREEN SALVADOR:

Salvador must invest in environmental conservation to ensure a higher quality of life for its citizens and sustainable economic growth. Future activities across all sectors must include provisions for the expansion of green spaces, the reclassification of aquatic and terrestrial natural areas and the efficient management of natural resources, such as rivers and streams. Nature conservation can both mitigate GHG emissions and enhance an area's resilience to climate change.

### RESILIENT SALVADOR:

The PMAMC's concept of resilience focuses on climate adaptation, but also goes further, calling for sustainable and innovative urban and economic development that reduces existing social and spatial inequalities. To adapt to climate change, the city must restore and maintain local ecosystems and minimise negative impacts on its population and services.

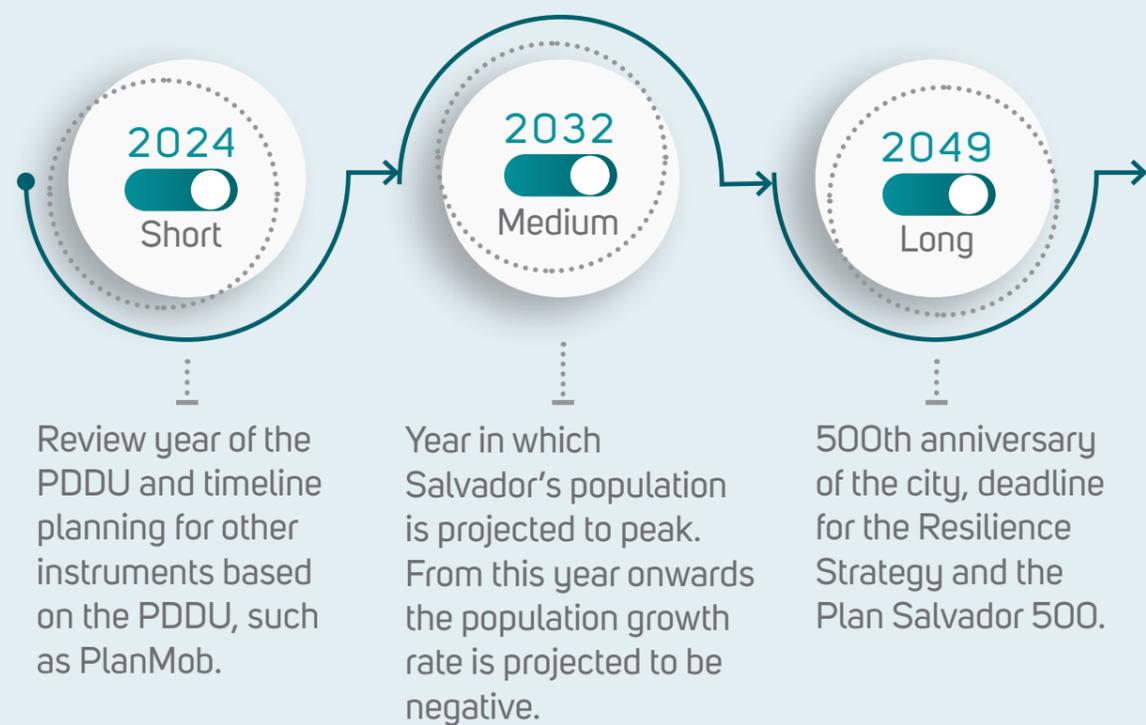
### LOW-CARBON SALVADOR:

Low-Carbon Salvador aims to maintain and promote innovation in its productive sectors while steering towards a low-emission economy until the city achieves carbon neutrality. The city should incorporate this perspective in its future plans and actions to guarantee the end of the carbon-based economy, ensure the efficient use of resources and promote renewable energy solutions and technological innovation.

### 3.3. Key milestones

In line with the timeframe used in the main planning instruments of the city, the PMAMC includes three key milestones for its short-, medium- and long-term targets: 2024, 2032 and 2049.

#### KEY MILESTONES ADOPTED IN THE PMAMC



Source: Prepared by WayCarbon / ICLEI

### 3.4. Mitigation and adaptation goals

The Plan's goals were defined based on the GHG emissions scenarios and climate risk assessment presented above. For each key milestone (2024, 2032, 2049), the authors defined emission mitigation targets and specific activities related to the most carbon-intensive sectors. For adaptation, the authors

defined goals to address the most severe current and future threats to Salvador's residents. The goals presented below were discussed in several meetings and later aligned with the most relevant stakeholder entities, such as SECIS, SEMOB, Transalvador, Codesal, SEINFRA and FMLF.



## MITIGATION AND ADAPTATION GOALS FOR SALVADOR

SECTOR/ RISK	2024	2032	2049
<b>Mitigation goals</b>			
General	Reduce GHG emissions by 15% compared to 2018.	Reduce GHG emissions by 25% compared to 2018.	Achieve emissions neutrality.
Transport	Reduce privately-owned vehicle travel by 25%.	Reduce privately-owned vehicle travel by 45%.	
	Increase journeys by bicycle to 5% of the total.	Increase journeys by bicycle to 10% of the total.	Increase journeys by bicycle to 15% of the total.
		40% of the public transport fleet consists of cleaner and more efficient vehicles.	100% of the public transport fleet consists of cleaner and more efficient vehicles.
Energy / Buildings		Equip 5% of residential buildings and 10% of commercial buildings in Salvador with distributed energy generation systems.	Equip 20% of residential buildings and 30% of commercial buildings in Salvador with distributed energy generation systems.
Waste		Recycle 45% of recyclables in household solid waste and treat 10% of household organic waste.	Recycle 80% of recyclables in household solid waste and treat 36% of household organic waste.

Source: Prepared by WayCarbon / ICLEI

SECTOR/ RISK	2024	2032	2049
<b>Adaptation goals</b>			
General	Conduct community trainings on climate change adaptation in 50% of high-risk areas served by Civil Protection and Defence Centres (NUPDECs) in 2018.	Reach 36 m <sup>2</sup> of green space per capita for the whole city (2020 baseline: 30 m <sup>2</sup> )	Initiate wastewater treatment and reuse;  Ensure universal access to water and sewage services.
Landslides/ Flooding	Increase by 50% the capacity of extreme weather event monitoring and early warning systems compared to 2018.	Promote the implementation of structural measures to reduce landslide risk by 30% in high-risk areas mapped by Codesal.	Reduce the share of the population living in high-risk areas from 45% to 30%.
Flooding/ Heat waves		Create and implement a strategy for river renaturalisation in Salvador.	Expand river renaturalisation based on the strategy created.
Sea level rise		Publish a strategy to address sea level rise by 2049.	
Vector-borne diseases		Reduce outbreaks of vector-borne diseases ( <i>Aedes aegypti</i> ) by 30% compared to 2018 rates.	Reduce outbreaks of vector-borne diseases ( <i>Aedes aegypti</i> ) by 70% compared to 2018 rates.

Source: Prepared by WayCarbon / ICLEI

### 3.5. Sustainable Development Goals (SDGs)

In addition to climate change mitigation and adaptation, the actions in this Plan will also generate co-benefits aligned with the UN 2030 Agenda for Sustainable Development. The 2030 Agenda was adopted in 2015, the same year as the Paris Agreement, and encompasses a set of 17 Sustainable Development Goals (SDGs) that aim to address global problems, such as poverty, insufficient access

to health and education, inequality, environmental degradation and the climate crisis. Since 2015, governments around the world have used the SDGs as a reference for the design and implementation of public policy.

**Through its planned climate actions, Salvador will make a significant contribution to global SDG efforts. The SDGs that are most closely aligned to the goals of the PMAMC are:**



**7. Affordable and Clean Energy**



**12. Sustainable Cities and Communities**



**11. Responsible Consumption and Production**



**13. Climate Action**

The actions contained in this Plan will contribute to several other SDGs, too. Actions that mitigate emissions, improve the quality and accessibility of public transport systems and encourage active mobility, for example, are expected to improve the prosperity, health and wellbeing of the population, and are thus aligned with SDG 3 - Good Health and Wellbeing. Similarly, actions to reduce emissions from the waste sector will improve access to sanitation and thereby reduce the risk of waterborne diseases, as mandated in SDG 6 - Drinking Water and Sanitation. Adaptation actions, such as those that aim to reduce the risk of floods and landslides, will mainly benefit the poorest communities, contributing to resilience building and the reduction of ine-

qualities, in line with SDG 1 - Eradicate Poverty and SDG 10 - Reduce Inequalities. In addition, some actions in this Plan address specific environmental issues, such as the protection of the coastal environment, related to SDG 14 (Protect Life below Water), and the creation of ecological corridors and green spaces, aligned with SDG 15 (Protect Life on Land).

Each action in this Plan will generate various co-benefits that contribute to the SDGs, as presented in the action cards in Chapter 4. However, beyond these co-benefits, the Plan also includes specific socio-economic goals, which are listed in the following section.

### 3.6. Socio-economic goals

The climate crisis will most severely affect the groups that are already the most vulnerable today, such as low-income communities, informal workers, ethnic and racial minorities, women, the elderly and children, and can exacerbate existing inequalities. Therefore, climate action must enhance inclusivity and equality. The development process of the

PMAMC included consultations with vulnerable communities (see full version of the PMAMC) and the actions included in the final Plan will generate significant socio-economic co-benefits in addition to reducing GHG emissions and/or climate risks.

The participatory development process yielded three main socio-economic goals: (1) im-

proved health and wellbeing, (2) expanded, improved green spaces and (3) climate justice. Each action has been assessed based on its potential contribution to these goals. In addition, poverty reduction is a key precondition for achieving many of the goals in this Plan, and several of the included actions aim to reduce poverty and advance sustainable development. Therefore, some social and economic targets mandated by the SDGs have been selected to guide this Plan.

The following SDG targets are considered a priority for the achievement of PMAMC's social and economic objectives by 2032. These should be revised in future versions of the PMAMC in alignment with updates to the goals of the Salvador 500 plan and any other related plans. It should be noted that though the deadline set for the SDGs is 2030, in this Plan the deadline 2032 has been used, in accordance with the temporary reviews and timeframes established for the PMAMC.

#### SOCIO-ECONOMIC GOALS

##### Health and Wellbeing



**Target 1: Reduce health risks and improve air quality.** By 2032, strengthen Salvador's capacity for early warning, risk reduction and management of national and global health risks (3.d), paying special attention to air quality (11.6).

##### Green Spaces



**Target 2: Universal access to green spaces.** By 2032, provide universal access to safe, inclusive, accessible and green public spaces, particularly for women and children, the elderly and the disabled (11.7).

##### Climate Justice



**Target 3: Build resilience and reduce vulnerability.** By 2032, build the resilience of those in vulnerable situations, and reduce their exposure and vulnerability to extreme events related to climate change and other economic, social and environmental shocks and disasters (1.5).

##### Economic Benefits



**Target 4: Double income for small food producers.** By 2032, double agricultural productivity and income for small food producers (2.3).



**Target 5: Promote sustainable tourism.** By 2032, design and implement policies to promote sustainable tourism, which creates jobs and promotes local culture and products (8.9).

Source: Prepared by SECIS/WayCarbon/ICLEI

# HOW WE WILL DO IT 4.

Once the vision, strategic pillars and goals had been defined, the authors of the PMAMC proposed guiding themes and invited feedback from interested stakeholders during meetings or through online forms. The guiding themes were then adjusted based on the input from these stakeholders. The guiding themes have been grouped under the four strategic pillars of the Plan and serve to guide strategic sectors in their efforts to advance the climate agenda in the municipality.

The actions are presented in action cards, each containing the elements shown in the figure below. In the 'financing' section of each card, identified signifies that some programme or activity related to the action is already under development by the Municipal Government and resources have been allocated, or that financing for the action is available on the market. Not identified signifies that no budget or financing source for the action has been identified. The financing section also shows the source of financing, which can be either public - internal financing provided by the Municipal Government, the state or the federal governments - or international - financing provided by multilateral banks, international cooperation or development agencies, NGOs, philanthropic funds or international organisations. In addition, some actions are expected to be funded through local partnerships with the private sector, research and teaching institutions, foundations and Brazilian philanthropic organisations. If the card states that financing has been secured, that signifies that the action is already in execution and the budget has been confirmed.

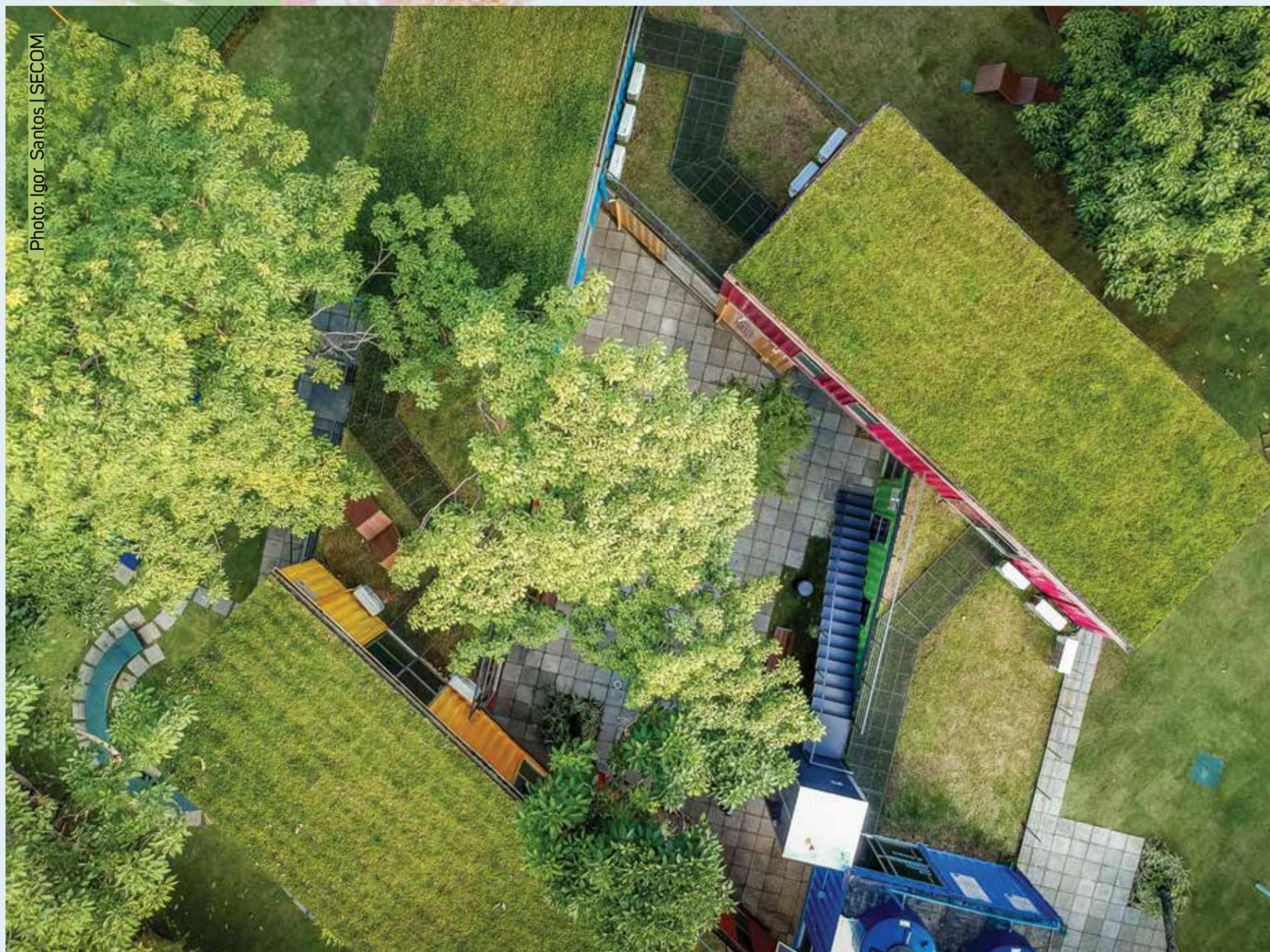
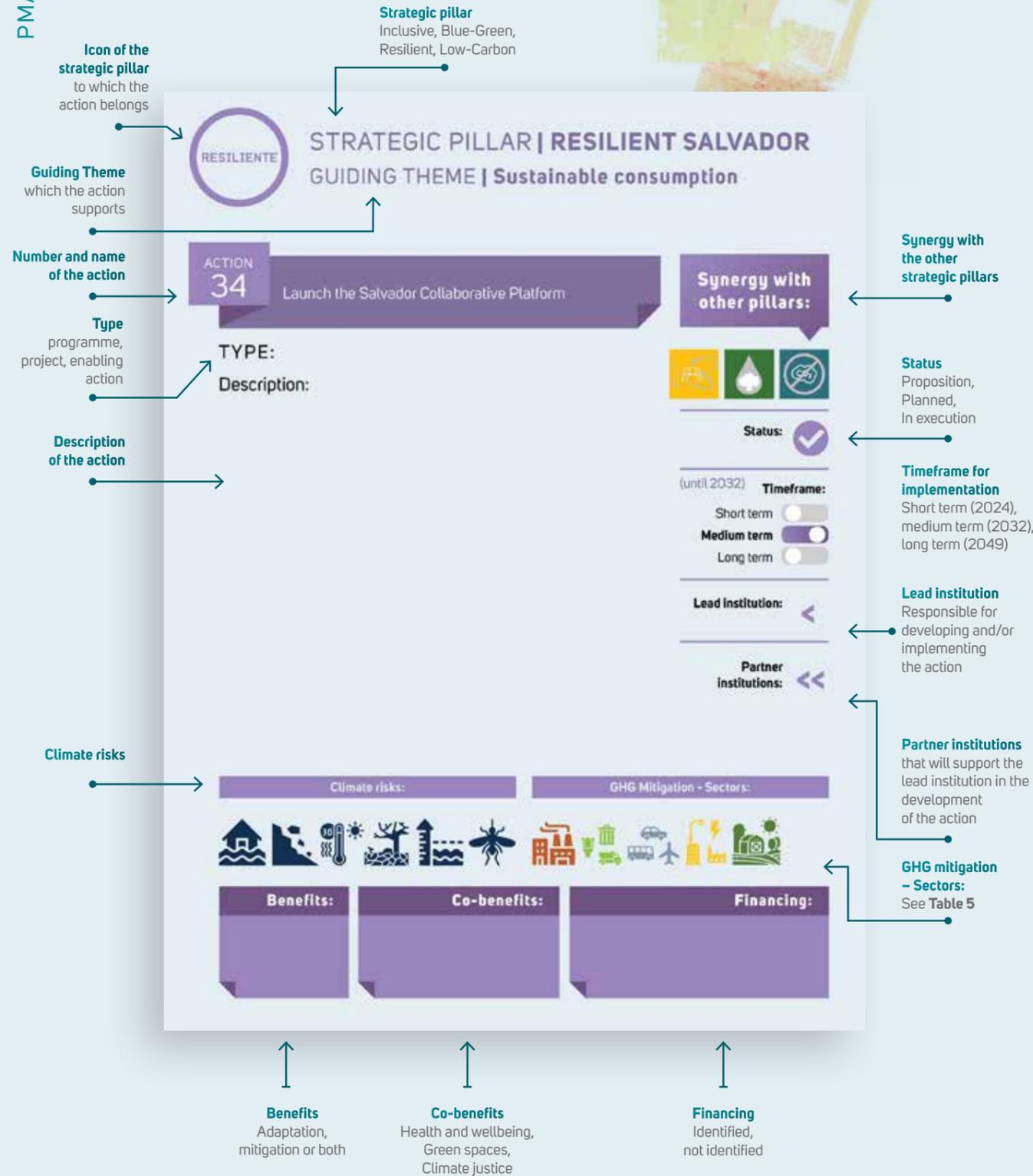
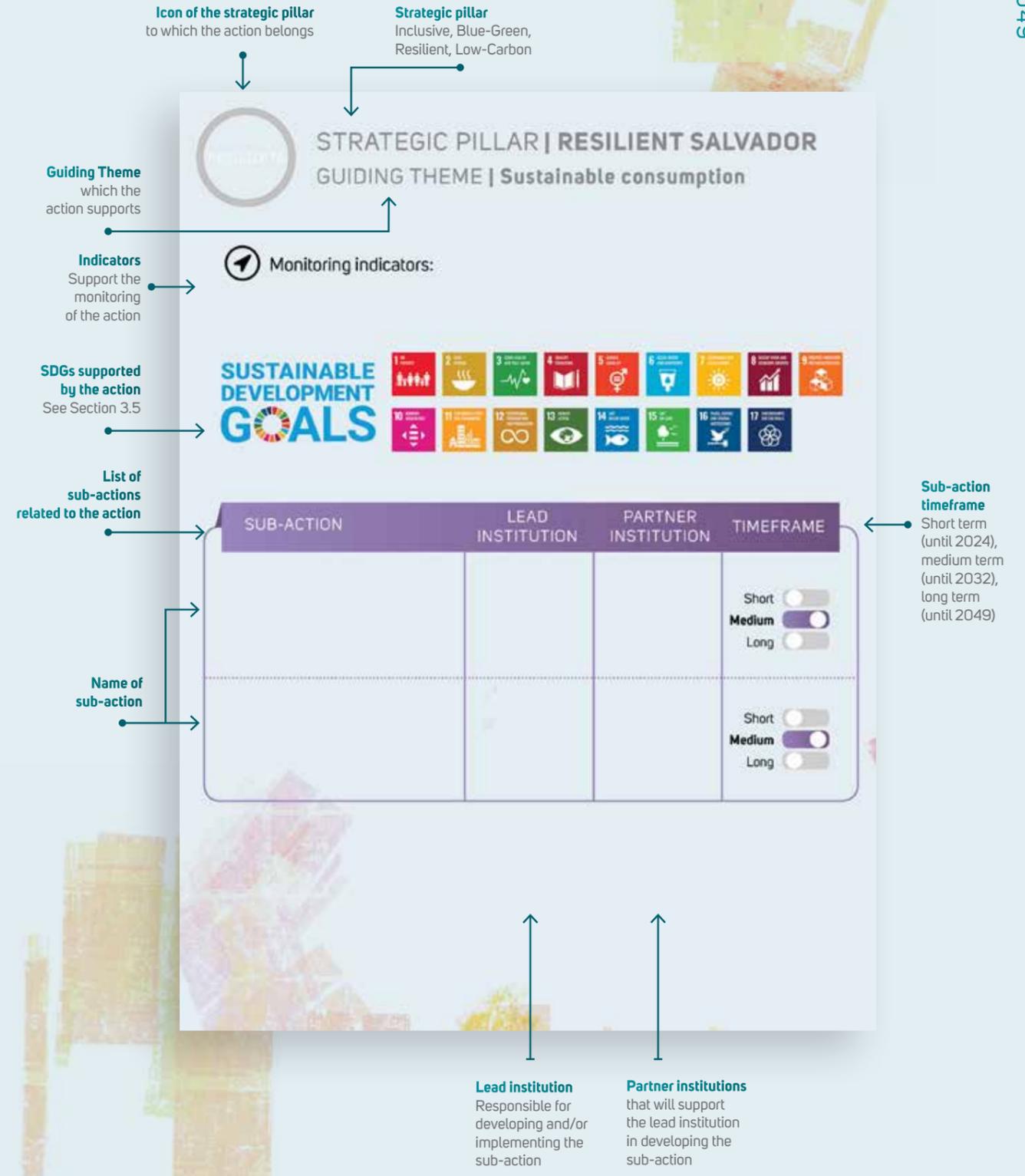


Photo: Igor Santos | SECOM

### HOW TO READ THE ACTION CARDS



Source: Prepared by WayCarbon/ICLEI



Source: Prepared by WayCarbon/ICLEI

**SYMBOLS USED IN THE ACTIONS CARDS FOR THE SECTORS AND CLIMATE RISKS**

**Climate risk**



Landslides



Heat waves



Floods



Droughts



Vector-borne diseases



Sea level rise

**Emissions Sector**



Waste



Transport



Stationary energy



Industrial processes and product use (IPPU)



Agriculture, forestry and other land use (AFOLU)

Source: Prepared by WayCarbon/ICLEI

**SYMBOLS USED FOR THE STRATEGIC PILLARS OF THE PMAMC**

**Pillar**



Inclusive Salvador



Blue-Green Salvador



Resilient Salvador



Low-Carbon Salvador

Source: prepared by WayCarbon/ICLEI

Pillar	Guiding Theme	No.	Action	Short term (until 2024)	Medium term (until 2032)	Long term (until 2049)
Inclusive Salvador	Climate change mainstreaming	1	Mainstream climate change into city programmes, plans and projects			
		2	Create food security programme			
	Governance and participation	3	Create and implement a PMAMC Support Seal			
		4	Expand and enhance the effectiveness of Community Civil Protection and Defence Centres (NUPDECs)			
		5	Support the Salvador Panel on Climate Change			
	Indigenous peoples and vulnerable communities	6	Train the most vulnerable populations to grow subsistence crops			
	Environmental education	7	Create and implement an environmental and climate education programme			
	Health and wellbeing	8	Strengthen the health facilities network to improve care for victims of climate impacts			
		9	Monitor air pollution			
Blue-Green Salvador	Ecosystem services	10	Create and implement a payment programme for ecosystem services			
		11	Create a carbon-credit/offset programme			
	Nature-based solutions	12	Create new parks, conservation areas and green spaces			
		13	Implement ecological corridors			
		14	Expand urban afforestation			
	Coastal zone and the Bay of Todos os Santos	15	Gain Blue Flag Certification for more beaches in Salvador by 2049			
		16	Create a coastal management system			
		17	Expand marine protected areas			
		18	Develop effective measures to reduce climate impacts in the coastal region and on the islands			
	River and stream valleys	19	Adopt the concept of blue-green infrastructure in city projects			
		20	Revitalise the Paraguari River detention basin			
21		Improve water management				

Pillar	Guiding Theme	No.	Action	Short term (until 2024)	Medium term (until 2032)	Long term (until 2049)
Resilient Salvador	Soil use	22	Strengthen and expand the use of mechanisms to retrofit old or unoccupied buildings			
	Urban drainage	23	Review and update drainage plans			
	Urban agriculture	24	Create a platform for 'invisible' producers			
		25	Expand the Urban Gardens and Orchards project			
		26	Foster organic urban agriculture			
	Smart and sustainable city	27	Expand the role of the Civil Defence			
		28	Launch calls for sustainable innovations with a focus on mitigation and adaptation			
		29	Launch an Intelligent Adaptation Platform			
	Sustainable tourism	30	Create GHG mitigation protocols for large events			
		31	Implement adaptation measures in the tourism sector			
		32	Encourage the adoption of circular economy principles in Salvador's production chains			
	Sustainable consumption	33	Launch the Be Circular Programme			
		34	Launch the Salvador Collaborative Platform			
		35	Encourage sustainable public procurement			
		36	Launch a Municipal Circular Economy Hub			



Pillar	Guiding Theme	No.	Action	Short term (until 2024)	Medium term (until 2032)	Long term (until 2049)
Low-Carbon Salvador	Transport and mobility	37	Expand and promote the use of the bicycle route network			
		38	Create and strengthen programmes to encourage active mobility			
		39	Encourage a modal shift in transport			
		40	Renew public transport fleets with less polluting vehicles			
		41	Expand BRT and BRS corridors			
	Wastewater	42	Strengthen water resources management and wastewater treatment Strengthen water resources management and wastewater treatment			
		43	Expand the basic sanitation network			
	Solid waste	44	Expand Salvador's separate collection programme			
		45	Implement mechanisms to reduce waste generation by and enhance separate collection for the public administration			
		46	Establish composting facilities and encourage composting			
		47	Strengthen the reverse logistics system			
	Energy	48	Prevent dispersal of solid waste			
		49	Develop renewable energy projects in communities			
		50	Include distributed generation in plans to attract new investment			
		51	Include energy efficiency criteria in public procurement			
	Sustainable buildings	52	Ensure energy efficiency improvements in public lighting			
		53	Encourage the use of Green IPTU			
54		Encourage the adoption of cool roofs				
55		Adopt EbA solutions in plans for the upgrading of public spaces				
56		Encourage energy efficiency in construction work and buildings				
		57	Encourage the use of Yellow IPTU			

Source: Prepared by WayCarbon/ICLEI



## 4.1. INCLUSIVE SALVADOR

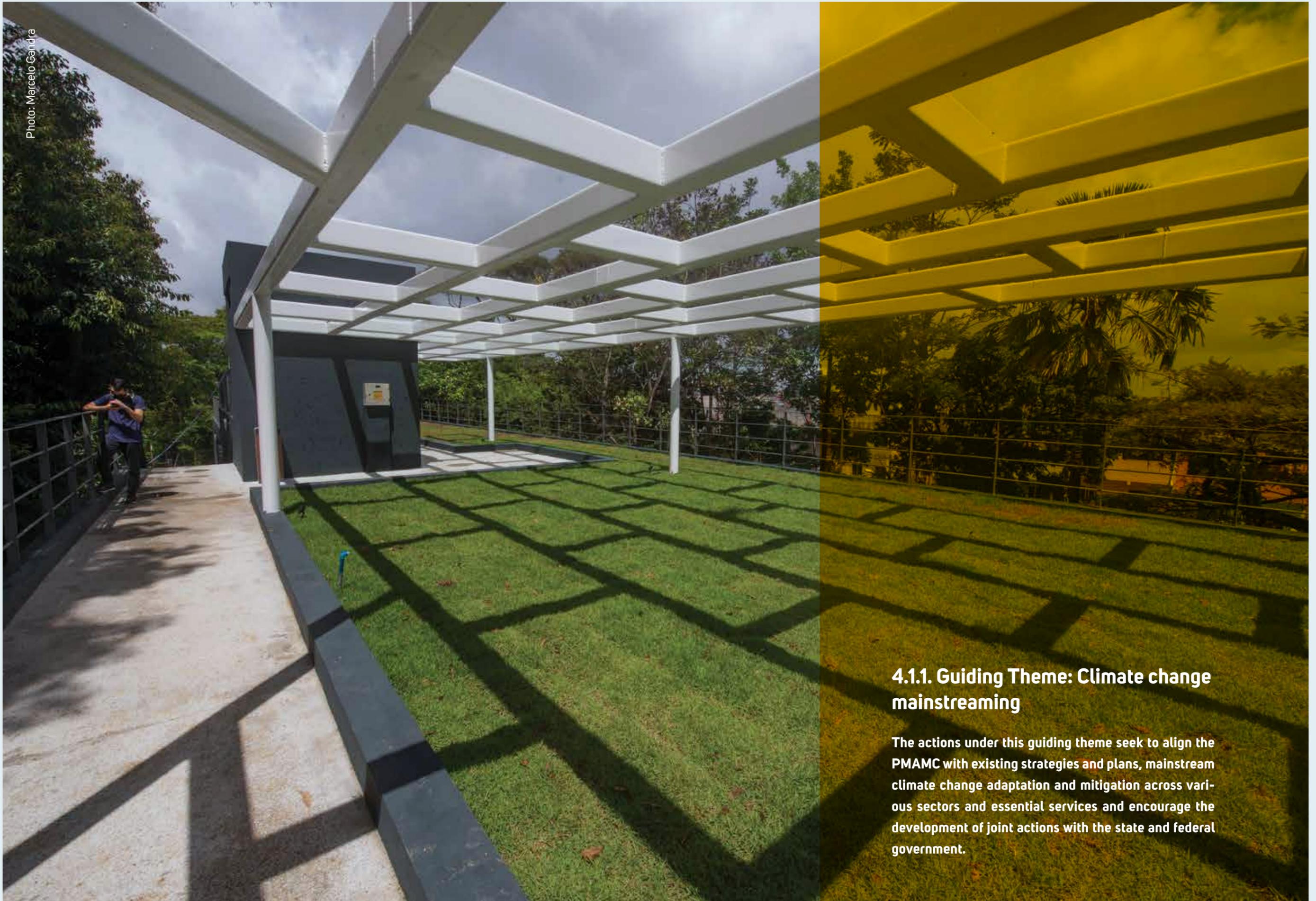
4.1.1. Guiding Theme: Climate change mainstreaming

4.1.2. Guiding Theme: Governance and participation

4.1.3. Guiding Theme: Indigenous peoples and vulnerable communities

4.1.4. Guiding Theme: Environmental education

4.1.5. Guiding Theme: Health and wellbeing



#### **4.1.1. Guiding Theme: Climate change mainstreaming**

The actions under this guiding theme seek to align the PMAMC with existing strategies and plans, mainstream climate change adaptation and mitigation across various sectors and essential services and encourage the development of joint actions with the state and federal government.



STRATEGIC PILLAR | INCLUSIVE SALVADOR  
GUIDING THEME | Climate change mainstreaming

**ACTION 1** Mainstream climate change into city programmes, plans and projects

TYPE: ENABLING ACTION

Description:

Integrate climate change and the city's mitigation and adaptation goals into all strategic and sectoral plans at the design, implementation and review stages. Key plans include the city's Master Plan, Health Master Plan, Construction Code, Salvador 500, Urban Sewage Plan and the Smart City Technologies Master Plan.

Synergy with other pillars:



Status: Proposition

(until 2024) Timeframe:

Short term

Medium term

Long term

Lead institution: SECIS <

Partner institutions: PMS <<

Climate risks:

GHG Mitigation - Sectors:



Benefits:

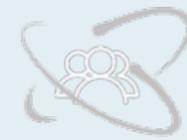
Adaptation  
Mitigation

Co-benefits:

Health and wellbeing  
Green spaces  
Climate justice

Financing:

Identified – Public funds and/or international partnerships



STRATEGIC PILLAR | INCLUSIVE SALVADOR  
GUIDING THEME | Climate change mainstreaming

Monitoring indicators:

- Number of climate-related actions inserted into municipal programmes, plans and projects as a result of climate mainstreaming.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
1.1 Include nature-based solutions on the Specification Sheet for Architectural and Urban Projects (Caderno de Especificações de Projetos Arquitetônicos).	FMLF	SECIS	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>



STRATEGIC PILLAR | INCLUSIVE SALVADOR  
GUIDING THEME | Climate change mainstreaming

**ACTION 2** Create food security programme

TYPE: PROGRAMME

Description:

Create a food security programme to allow the municipality to access federal or international financing for the implementation of food security-related actions. Potential actions include the development of community vegetable gardens, the expansion of community restaurants and the strengthening of the food bank. Through these actions, the city will not only ensure the food security of vulnerable groups, but also provide income generation and training opportunities, which advance social, economic and spatial inclusion.

Synergy with other pillars:



Status: Proposition

(until 2032) Timeframe:

Short term

Medium term

Long term

Lead institution: SEMPRE <

Partner institutions: SECIS, SMS <<

Climate risks:



GHG Mitigation - Sectors:



Benefits:

Adaptation

Co-benefits:

Health and wellbeing  
Climate justice

Financing:

Not identified –  
Potential for public funds and/or  
international partnerships



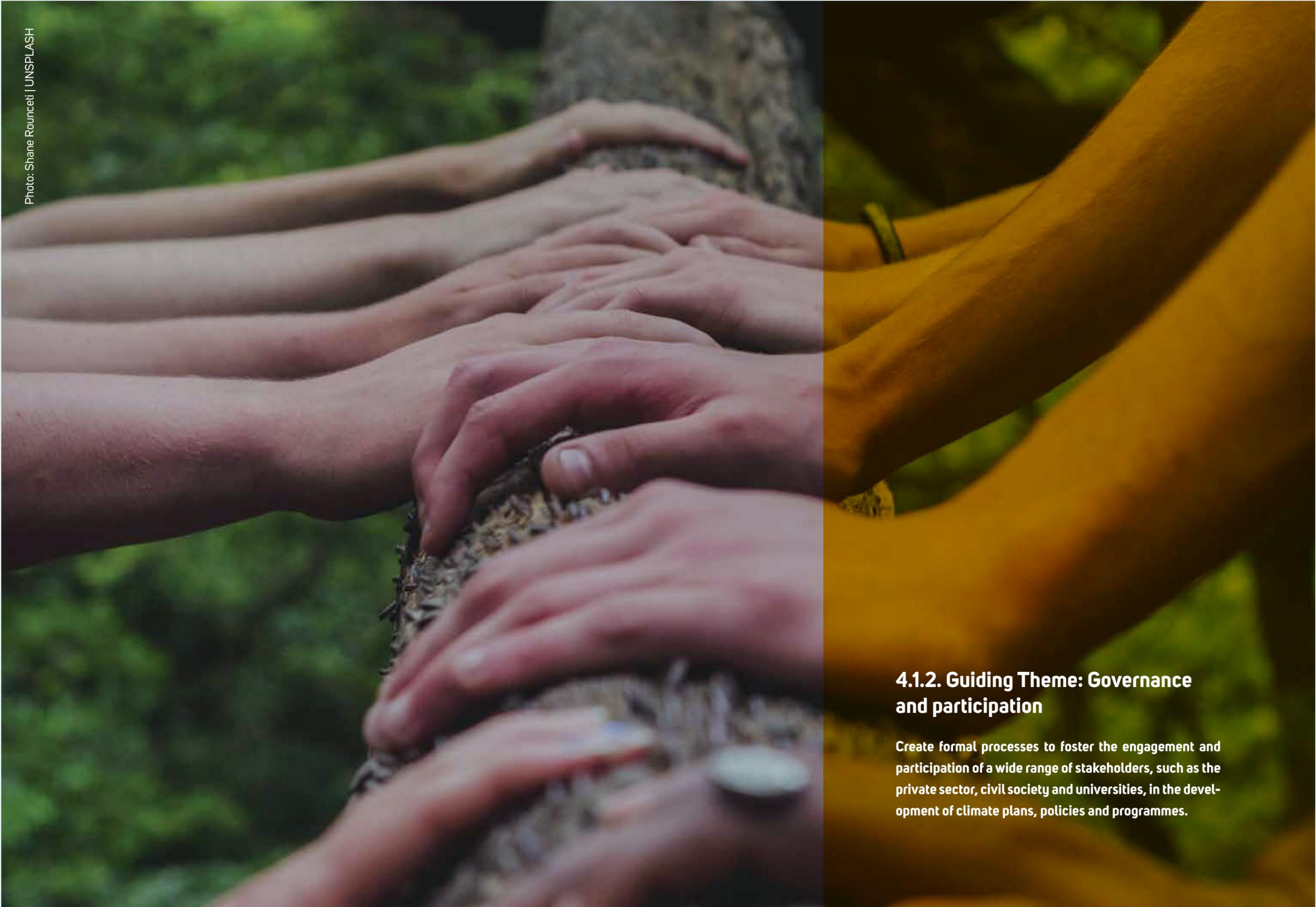
STRATEGIC PILLAR | INCLUSIVE SALVADOR  
GUIDING THEME | Climate change mainstreaming

Monitoring indicators:

- Number of extended community vegetable gardens;
- Malnutrition rate in children under 5 years of age;
- Rate of babies born with low birth weight (<2500 grams);
- Percentage of the city's population suffering from malnourishment;
- Percentage of the population with obesity;
- Incidence of hypertension, diabetes and heart problems in the population.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
2.1 Create a healthy eating programme in schools.	SEMPRE	SMS, SMED, SECIS	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>
2.2 Launch healthy eating campaigns.	SEMPRE	SMS	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>



#### **4.1.2. Guiding Theme: Governance and participation**

Create formal processes to foster the engagement and participation of a wide range of stakeholders, such as the private sector, civil society and universities, in the development of climate plans, policies and programmes.



**STRATEGIC PILLAR | INCLUSIVE SALVADOR**  
**GUIDING THEME | Governance and participation**

**ACTION 3** Create and implement a PMAMC Support Seal

**TYPE: PROJECT**

**Description:**

The City of Salvador will encourage companies and other private sector entities to implement mitigation and adaptation actions by recognising them with a 'PMAMC-friendly company' or 'planet friendly' seal. Companies can qualify for the seal by reducing and correctly disposing of solid waste, developing corporate GHG emissions inventories, setting emission reduction targets, encouraging employees to commute using active transportation, participating in tree planting activities promoted by the Municipal Government and other activities. The design process for the seal will involve developing a name, brand and logo, as well as storytelling and brand positioning.

**Synergy with other pillars:**



**Status:** Proposition

(until 2024) **Timeframe:**

**Short term**

Medium term

Long term

**Lead institution:** SECIS

**Partner institutions:**

**Climate risks:**



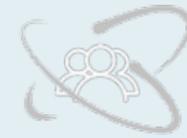
**GHG Mitigation - Sectors:**



**Benefits:**  
Adaptation  
Mitigation

**Co-benefits:**  
Health and wellbeing  
Green spaces  
Climate justice

**Financing:**  
Not identified –  
Potential for public funds and/or  
international partnerships



**STRATEGIC PILLAR | INCLUSIVE SALVADOR**  
**GUIDING THEME | Governance and participation**

**Monitoring indicators:**

- Creation of seals related to PMAMC;
- Number of applications for the seal;
- Number of seals granted.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
3.1 Create an ecotourism seal.	SECULT	SALTUR SECIS	<b>Short</b> <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>





**STRATEGIC PILLAR | INCLUSIVE SALVADOR**  
**GUIDING THEME | Governance and participation**

**ACTION 4** Expand and enhance the effectiveness of Community Civil Protection and Defence Centres (NUPDECs)

**TYPE: ENABLING ACTION**

**Description:**

In line with the National Civil Defence and Protection Policy, this action aims to integrate the Civil Defence System with companies, educational institutions and community and public security entities to facilitate more effective cooperation. The action involves cultural change and training programmes to create engaged and informed communities aware of their rights and duties related to community security, risk identification and adaptation. The city will appoint civil defence officials as intermediaries between the government and communities, to share information and initiate discussions about problems and intervention methods.

**Synergy with other pillars:**



**Status:** In execution

**Timeframe:** (until 2032)

Short term

Medium term

Long term

**Lead institution:** Codesal

**Partner institutions:** SECIS

**Climate risks:**

**GHG Mitigation - Sectors:**



**Benefits:**

Adaptation

**Co-benefits:**

Health and wellbeing  
Climate justice

**Financing:**

Identified – Public funds



**STRATEGIC PILLAR | INCLUSIVE SALVADOR**  
**GUIDING THEME | Governance and participation**

**Monitoring indicators:**

- Number of actions carried out to support the goal;
- Number of new NUPDECs established;
- Number of NUPDECs strengthened;
- Number of different climate risks addressed by the NUPDECs;
- Number of areas served;
- Number of people trained.

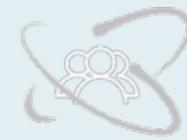
**SUSTAINABLE DEVELOPMENT GOALS**



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
4.1 Education campaigns and joint efforts with population living in areas with low rates of access to sanitation and drainage.	SECIS	SEINFRA CODESAL	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
4.2 Education campaigns on what to do in case of extreme precipitation events.	CODESAL	SECIS	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
4.3 Training of trainers in ecosystem-based adaptation (EbA) methods.	SECIS	SEINFRA CODESAL	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>



STRATEGIC PILLAR | **INCLUSIVE SALVADOR**  
GUIDING THEME | **Governance and participation**



STRATEGIC PILLAR | **INCLUSIVE SALVADOR**  
GUIDING THEME | **Governance and participation**

**ACTION 5** Support the Salvador Panel on Climate Change

TYPE: ENABLING ACTION

Description:

Support the Salvador Panel on Climate Change and consult the Panel on the design of climate programmes, projects and actions, while improving partnerships between experts and academics and the public administration.

**Synergy with other pillars:**



**Status:**  
In execution

(until 2032) **Timeframe:**

Short term

**Medium term**

Long term

**Lead institution:**  
SECIS

**Partner institutions:**  
PMS, Research Institutions and Universities

**Climate risks:**



**GHG Mitigation - Sectors:**



**Benefits:**

Adaptation  
Mitigation

**Co-benefits:**

Health and wellbeing  
Green spaces  
Climate justice

**Financing:**

Identified – Public funds,  
local and/or international  
partnerships

**Monitoring indicators:**

- Number of contributions to public policy made by the Panel.

**SUSTAINABLE DEVELOPMENT GOALS**





### **4.1.3. Guiding Theme: Indigenous peoples and vulnerable communities**

Enhance the climate resilience of the indigenous population and people in vulnerable situations by decreasing socioeconomic inequality, maintaining environmental services, providing access to infrastructure and fostering public participation in the development and monitoring of public policies.



**STRATEGIC PILLAR | INCLUSIVE SALVADOR**  
**GUIDING THEME | Indigenous peoples and vulnerable communities**

**ACTION 6** Train the most vulnerable populations to grow subsistence crops

**TYPE: ENABLING ACTION**

**Description:**

This action will empower communities in informal settlements or Special Areas of Social Interest (ZEIS) to begin cultivating native ornamental plants, unconventional food plants (PANC) and fruit in backyards, patios and small seedbeds to generate additional income, thereby ensuring households' food sovereignty, enhancing the gene pool of rare plants and increasing biodiversity in the space between forest fragments.

**Synergy with other pillars:**



**Status:** Proposition

**Timeframe:** (until 2024)

**Short term**

**Medium term**

**Long term**

**Lead institution:** SECIS

**Partner institutions:** SEMPRE, SMS

**Climate risks:**



**GHG Mitigation - Sectors:**



**Benefits:**

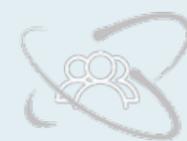
Adaptation  
Mitigation

**Co-benefits:**

Health and wellbeing  
Green spaces  
Climate justice

**Financing:**

Identified – Public funds, local and/or international partnerships



**STRATEGIC PILLAR | INCLUSIVE SALVADOR**  
**GUIDING THEME | Indigenous peoples and vulnerable communities**

**Monitoring indicators:**

- Number of training sessions held;
- Number of people trained.

**SUSTAINABLE DEVELOPMENT GOALS**





Photo: Marcelo Gandra

#### **4.1.4. Guiding Theme: Environmental education**

Foster knowledge about climate change impacts and adaptation and mitigation solutions in children, youths, adults and government employees in a comprehensive and permanent manner in schools, centres and through city institutional training.



**STRATEGIC PILLAR | INCLUSIVE SALVADOR**  
**GUIDING THEME | Environmental education**

**ACTION 7** Create and implement an environmental and climate education programme

**TYPE: PROGRAMME**

**Description:**

Develop an annual environmental and climate education programme incorporating all actions that are already under development and setting new goals. Actions under development are: sustainability in comic books, with distribution of comic books in schools in partnership with SMED and at specific SECIS events/actions, such as Laje Talks; Environment Day; seminars and lectures on environmental education and citizen culture in schools, followed by the establishment of vegetable gardens; community vegetable gardening and other community building actions; and awareness campaigns on SECIS social media, implemented jointly with Park Councils.

**Synergy with other pillars:**



**Status:** In execution

**Timeframe:** (until 2024)

**Short term**

**Medium term**

**Long term**

**Lead institution:** SECIS

**Partner institutions:** SMED, Subprefectures, CODESAL

**Climate risks:**



**GHG Mitigation - Sectors:**



**Benefits:**

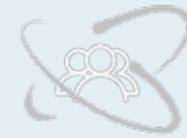
Adaptation  
Mitigation

**Co-benefits:**

Health and wellbeing  
Green spaces  
Climate justice

**Financing:**

Identified – Public funds and/or international partnerships



**STRATEGIC PILLAR | INCLUSIVE SALVADOR**  
**GUIDING THEME | Environmental education**

**Monitoring indicators:**

- Programme created;
- Number of training sessions held;
- Number of people trained;
- Number of participating schools;
- Number of teachers trained.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
7.1 Train citizens to be climate leaders.	SECIS		<b>Short</b> <input checked="" type="checkbox"/> <b>Medium</b> <input type="checkbox"/> <b>Long</b> <input type="checkbox"/>



Photo: Marcelo Gandra

#### **4.1.5. Guiding Theme: Health and wellbeing**

Improve the population's health, wellbeing and quality of life by reducing disease outbreaks and deaths related to pollution, extreme weather events, vector-borne diseases and insufficient access to essential services, thereby reducing the negative impacts of climate change.



**STRATEGIC PILLAR | INCLUSIVE SALVADOR**  
**GUIDING THEME | Health and wellbeing**

**ACTION 8** Strengthen the network of health facilities to improve care for victims of climate impacts

**TYPE: ENABLING ACTION**

**Description:**

This action will improve the city's health centres to provide medical assistance to people harmed by climate-related weather events (climate victims) such as those affected by heat waves or floods, especially in the most vulnerable areas. The city will also develop action plans to prepare the health services network for dealing with climate change-related extreme weather events.

**Synergy with other pillars:**



**Status:** Proposition

(until 2032) **Timeframe:**

Short term

**Medium term**

Long term

**Lead institution:** SMS

**Partner institutions:**

**Climate risks:**

**GHG Mitigation - Sectors:**



**Benefits:**

Adaptation

**Co-benefits:**

Health and wellbeing

**Financing:**

Identified – Public funds



**STRATEGIC PILLAR | INCLUSIVE SALVADOR**  
**GUIDING THEME | Health and wellbeing**

**Monitoring indicators:**

- Number of health facilities providing care to climate victims;
- Number of patients assisted/services provided related to climate-related illnesses;
- Number of climate-related illnesses on the disease monitoring list.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
8.1 Improve control programmes for endemic diseases and their vectors.	SMS		Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
8.2 Improve the sustainability and quality of hospitals.	SMS	SECIS	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>





**STRATEGIC PILLAR | INCLUSIVE SALVADOR**  
**GUIDING THEME | Health and wellbeing**

**ACTION 9**  
**Monitor air pollution**

**TYPE: ENABLING ACTION**

**Description:**

Establish air quality monitoring stations and integrate the resulting data with health data from monitoring units in the municipality.

**Synergy with other pillars:**



**Status:** Proposition

(until 2032) **Timeframe:**

Short term

Medium term

Long term

**Lead institution:** SMS

**Partner institutions:**   
 SECIS, Fundação Oswaldo Cruz, CETREL, ARIA, CODESAL

**Climate risks:**

**GHG Mitigation - Sectors:**



**Benefits:**

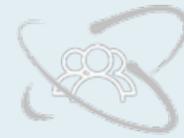
Adaptation

**Co-benefits:**

Health and wellbeing

**Financing:**

Not identified – Potential for public funds, international and/or local partnerships



**STRATEGIC PILLAR | INCLUSIVE SALVADOR**  
**GUIDING THEME | Health and wellbeing**

**Monitoring indicators:**

- Number of air quality monitoring stations deployed and operational;
- Number of interventions carried out (alerts issued, traffic restrictions imposed, etc.);
- Notification of illnesses related to air pollution such as asthma, bronchitis, pneumonia and other respiratory issues.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
9.1 Monitor air quality and human health.	SMS		Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
9.2 Soprar Project.	SMS		Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
9.3 Provide adequate care for pollution-related diseases.	SMS		Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>
9.4 Promote afforestation and carry out other interventions to help improve air quality in highly polluted areas.	SECIS	SMS	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>

## 4.2. BLUE-GREEN SALVADOR

4.2.1. Guiding Theme: Ecosystem services

4.2.2. Guiding Theme: Nature-based solutions

4.2.3. Guiding Theme: Coastal zone and Bay of Todos os Santos

4.2.4. Guiding Theme: River and stream valleys

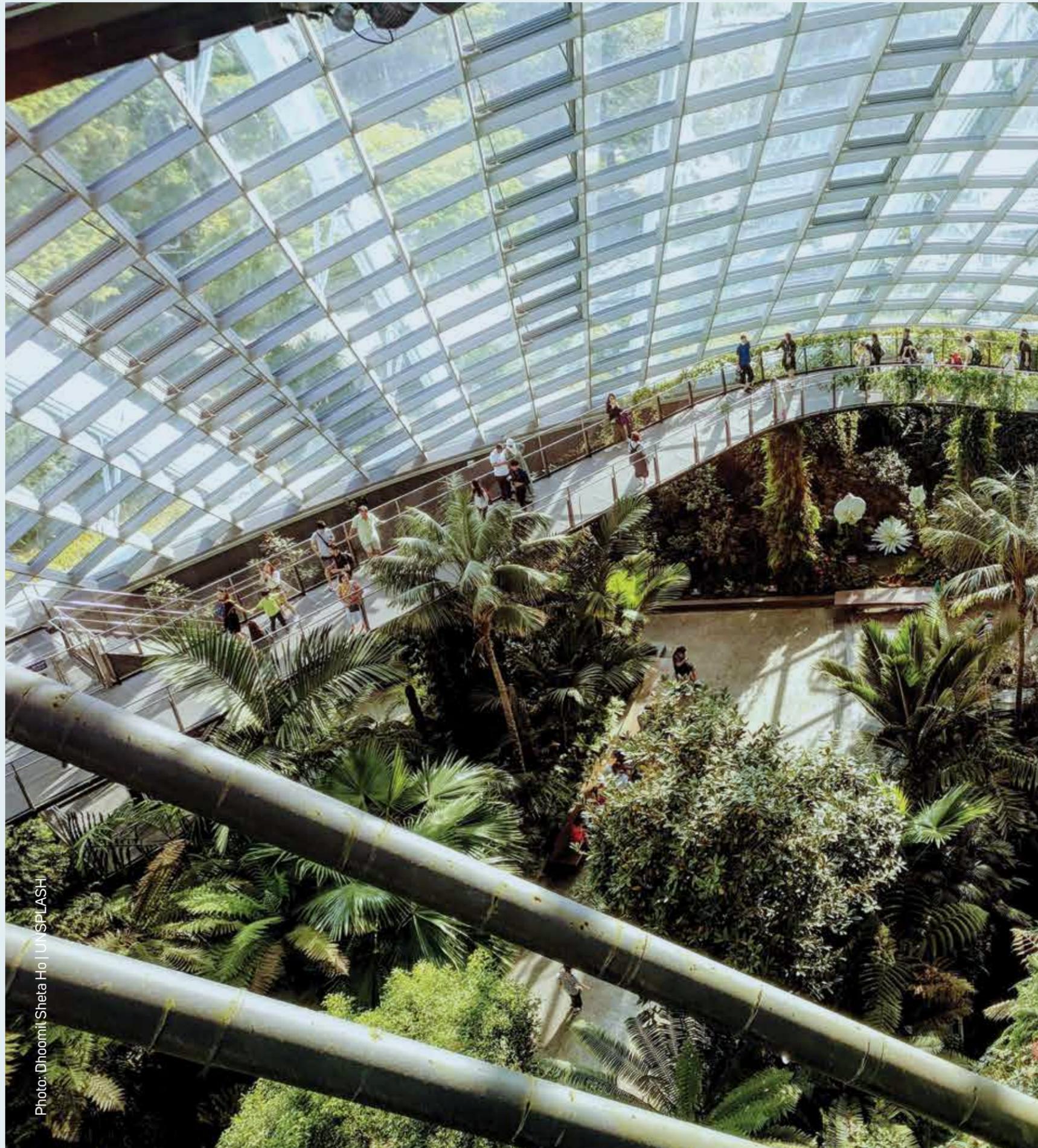


Photo: Dhoomil Sheta Ho | UN SPLASH

#### **4.2.1. Guiding Theme: Ecosystem services**

Develop programmes to boost ecosystem services, enhance the sustainability of communities and improve the health of Salvador's ecosystems.



STRATEGIC PILLAR | **BLUE-GREEN SALVADOR**  
GUIDING THEME | **Ecosystem services**

**ACTION 10** Create and implement a payment programme for ecosystem services

TYPE: PROGRAMME

Description:

This action will facilitate the dissemination of knowledge about payments for ecosystem services. It aims to reward people who enhance and protect ecosystem services, thereby increasing the profitability of environmental protection and the sustainable use of natural resources.

**Synergy with other pillars:**



**Status:** In execution

(until 2032) **Timeframe:**

Short term

**Medium term**

Long term

**Lead institution:** SECIS

**Partner institutions:** SEFAZ, SEDUR, SEMGE

**Climate risks:**



**GHG Mitigation - Sectors:**



**Benefits:**

Adaptation  
Mitigation

**Co-benefits:**

Health and wellbeing  
Green spaces  
Climate justice

**Financing:**

Identified – Public funds



STRATEGIC PILLAR | **BLUE-GREEN SALVADOR**  
GUIDING THEME | **Ecosystem services**

**Monitoring indicators:**

- Number of mapped ecosystem services;
- Number of payments for ecosystem services requested;
- Number of ecosystem services payments made.





STRATEGIC PILLAR | **BLUE-GREEN SALVADOR**  
GUIDING THEME | **Ecosystem services**

**ACTION 11** Create a carbon-credit/offset programme

TYPE: PROGRAMME

Description:

This action will create legal instruments for the implementation of a carbon-credit/offset programme, which can be used to mitigate the environmental impacts of major events or construction work, for instance. The action aims to enhance the environmental compensation mechanism and facilitate the generation of resources for the protection of the Atlantic Forest.

**Synergy with other pillars:**



**Status:**  Proposition

(until 2032) **Timeframe:**

Short term

**Medium term**

Long term

**Lead institution:**  SECIS

**Partner institutions:**  SEFAZ, SEDUR, SEMGE

Climate risks:

GHG Mitigation - Sectors:



**Benefits:**

Mitigation

**Co-benefits:**

Health and wellbeing  
Climate justice

**Financing:**

Not identified – Potential for public funds and/or local partnerships



STRATEGIC PILLAR | **BLUE-GREEN SALVADOR**  
GUIDING THEME | **Ecosystem services**

**Monitoring indicators:**

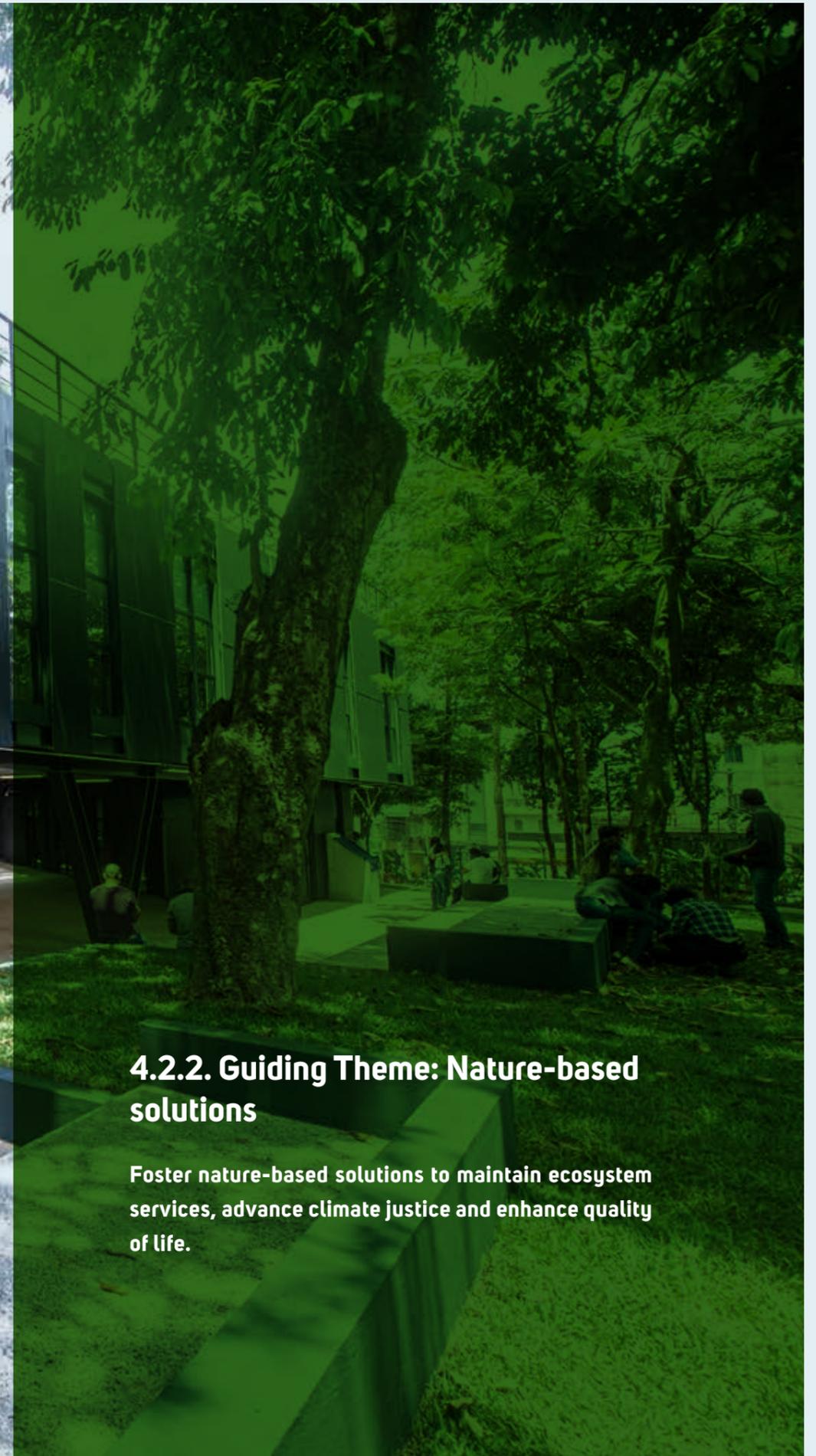
- Publication of the legal framework for the implementation of the carbon-credit programme;
- Amount of carbon offset annually.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
11.1 Develop a licensing protocol for environmental compensation.	SEDUR	SECIS	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>



Photo: Marcelo Gandra



#### **4.2.2. Guiding Theme: Nature-based solutions**

Foster nature-based solutions to maintain ecosystem services, advance climate justice and enhance quality of life.



STRATEGIC PILLAR | **BLUE-GREEN SALVADOR**  
GUIDING THEME | **Nature-based solutions**

**ACTION 12** Create new parks, conservation areas and green spaces

TYPE: PROGRAMME

Description:

Parks and green spaces create cool zones in cities and provide unpaved surfaces that facilitate rainwater infiltration. The creation of new public green spaces such as parks and squares also generates important social benefits. The Salvador Urban Development Master Plan (PDDU) includes plans for four new parks, which are in the design or planning phase: (1) Pedra de Xangô; (2) Refúgio de Vida Silvestre Vale Encantado; (3) Lagoa da Paixão/ Pirajá Park; and (4) Mata Escura Park. In addition to these parks, other green spaces should be created, such as squares in areas with little forest cover or new conservation areas.

Synergy with other pillars:



Status: In execution

(until 2049) Timeframe:

Short term

Medium term

Long term

Lead institution: SECIS

Partner institutions: SEDUR, FMLF

Climate risks:



GHG Mitigation - Sectors:



Benefits:

Adaptation Mitigation

Co-benefits:

Health and wellbeing  
Green spaces

Financing:

Partially identified – Potential for public funds, International and/or local partnerships



STRATEGIC PILLAR | **BLUE-GREEN SALVADOR**  
GUIDING THEME | **Nature-based solutions**

Monitoring indicators:

- Number of parks created;
- Green space (hectares) per 100,000 inhabitants.





STRATEGIC PILLAR | **BLUE-GREEN SALVADOR**  
GUIDING THEME | **Nature-based solutions**

**ACTION 13** Implement ecological corridors

TYPE: PROJECT

Description:

Green corridors are essential to ensure maintenance of ecosystem services and minimise the consequences of climate change in the region. The implementation of ecological corridors is also part of the Resilience Strategy of Salvador. This action aims to connect different green spaces across the city, to conserve local biodiversity by facilitating the movement of animals, the dispersion of seeds and an increase in vegetation cover. The action is part of a strategy that aims to raise awareness of threats to the Atlantic Forest and to support its preservation by creating a balance between enhancing tourism and preserving ecosystem services.

**Synergy with other pillars:**



**Status:** Proposition

**Timeframe:** (until 2032)  
Short term   
**Medium term**   
Long term

**Lead institution:** SECIS

**Partner institutions:** SEDUR, FMLF

**Climate risks:**

**GHG Mitigation - Sectors:**



**Benefits:**  
Adaptation  
Mitigation

**Co-benefits:**  
Health and wellbeing  
Green spaces

**Financing:**  
Not identified – Potential for public funds, international and/or local partnerships



STRATEGIC PILLAR | **BLUE-GREEN SALVADOR**  
GUIDING THEME | **Nature-based solutions**

**Monitoring indicators:**

- Number of green corridors implemented;
- Area (km<sup>2</sup>) transformed into green corridors.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
13.1 Implement a pilot green corridor project in Pedra de Xangô Park.	SECIS	SEDUR, FMLF	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>





STRATEGIC PILLAR | **BLUE-GREEN SALVADOR**  
GUIDING THEME | **Nature-based solutions**

**ACTION 14** Expand urban afforestation

TYPE: ENABLING ACTION

Description:

Although Salvador is already implementing several tree planting programmes, urban afforestation needs to be expanded further to provide more shade, reduce the impact of heat waves and increase the visual appeal of the city. In addition, tree roots facilitate water infiltration and thereby help to replenish the groundwater table and to reduce flooding. Afforestation can be expanded through both public and private projects and should be implemented in areas including urban complexes and buildings. This action also aims to direct public tree planting projects towards areas at high risk from the impacts of the urban heat island effect and with insufficient green spaces.

Synergy with other pillars:



Status:  In execution

(until 2024) Timeframe:

Short term

Medium term

Long term

Lead institution:  SECIS

Partner institutions:  SEMAN, FMLF

Climate risks:



GHG Mitigation - Sectors:



Benefits:

Adaptation  
Mitigation

Co-benefits:

Health and wellbeing  
Green spaces  
Climate justice

Financing:

Identified – Public funds



STRATEGIC PILLAR | **BLUE-GREEN SALVADOR**  
GUIDING THEME | **Nature-based solutions**

Monitoring indicators:

- Number of wooded areas;
- Number of trees per 100,000 inhabitants;
- Number of trees planted.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
14.1 Develop an urban afforestation inventory.	SECIS	SEDUR	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
14.2 Plant trees during the rainy season.	SECIS		Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
14.3 Donate native Atlantic Forest seedlings.	SECIS		Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
14.4 Initiate Atlantic Forest caravan seed distribution and planting projects with communities.	SECIS		Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>

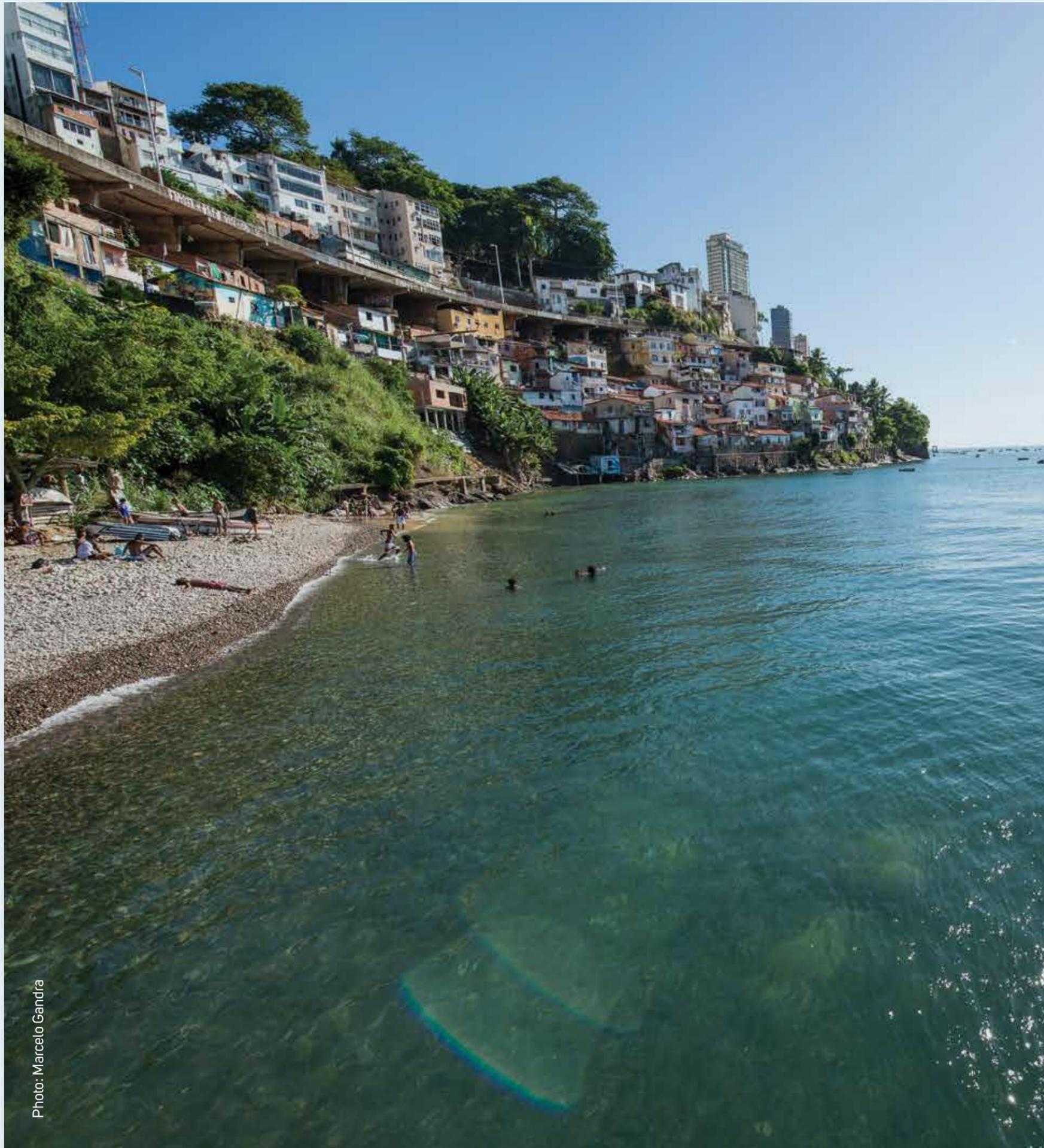


Photo: Marcelo Gandra

### **4.2.3. Guiding Theme: Coastal zone and Bay of Todos os Santos**

Foster economic and social strategies to promote the sustainable, non-extractive use of marine and coastal ecosystems, especially in the Bay of Todos os Santos and on Salvador's islands, to ensure the maintenance of carbon sinks, the sustainable economic development of the coastal zone and the preservation of the natural landscape.



**STRATEGIC PILLAR | BLUE-GREEN SALVADOR**  
**GUIDING THEME | Coastal zone and Bay of Todos os Santos**

**ACTION 15** Gain the Blue Flag Certification for more beaches in Salvador by 2049

**TYPE: PROJECT**

**Description:**

This action aims to obtain the Blue Flag sustainability certification for the city's beaches. Blue Flag recognises urban beaches all over the world that are managed following certain socio-environmental criteria and qualifies them as clean for swimming, thus encouraging tourism. The action will increase afforestation and ensure the preservation of green spaces, which enhances soil permeability, reduces flood risk and increases thermal comfort by mitigating the urban heat island effect. Ilha dos Frades beach is already certified and Stella Maris, Flamengo and Ipitanga beaches are in process of obtaining Blue Flag certification.

**Synergy with other pillars:**



**Status:** In execution

**Timeframe:** (until 202049)

Short term

Medium term

Long term

**Lead institution:** SECIS

**Partner institutions:**   
 INEMA, SEINFRA, SEDUR, SEMOP, SEMAM

**Climate risks:**

**GHG Mitigation - Sectors:**



**Benefits:**

Adaptation

**Co-benefits:**

Health and wellbeing  
Green spaces

**Financing:**

Partially identified – Potential for public funds, international and/or local partnerships



**STRATEGIC PILLAR | BLUE-GREEN SALVADOR**  
**GUIDING THEME | Coastal zone and Bay of Todos os Santos**

**Monitoring indicators:**

- Number of Blue Flag-certified beaches;
- Number of Blue Flag certification applications submitted.





## STRATEGIC PILLAR | BLUE-GREEN SALVADOR

### GUIDING THEME | Coastal zone and Bay of Todos os Santos

#### ACTION 16 Create a coastal management system

TYPE: PROJECT

#### Description:

This action will establish a coastal management system, which includes limiting the number of beach hut permits issued and the occupancy of beach huts depending on the environmental vulnerability of each section of shore. The management system will also use geospatial data analysis to preserve strips of sand and protect mangroves and coral reefs.

#### Synergy with other pillars:



Status: Proposition

(until 2032) Timeframe:

Short term

Medium term

Long term

Lead institution: SEDUR

Partner institutions: SECIS, Brazilian Navy, INEMA, FMLF, SEMOP

Climate risks:

GHG Mitigation - Sectors:



#### Benefits:

Adaptation

#### Co-benefits:

Health and wellbeing  
Green spaces

#### Financing:

Not identified –  
Potential for public funds



## STRATEGIC PILLAR | BLUE-GREEN SALVADOR

### GUIDING THEME | Coastal zone and Bay of Todos os Santos

#### Monitoring indicators:

- Coastal management system created;
- Protected mangrove area (in km<sup>2</sup>);

- Annual expenditure on green and blue infrastructure as a percentage of the city's total budget.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
16.1 Strengthen the geospatial data collection system.	COGEL		Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>
16.2 Preserve strips of sand.	SECIS		Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>
16.3 Establish a mangrove protection programme.	SECIS	FMLF	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>
16.4 Establish a coral reef protection programme.	SECIS	FMLF	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>
16.5 Improve policies for the supervision and control of fishing and the prevention of overfishing in the Bay of Todos os Santos, such as income generation policies for fisher people.	SECIS	INEMA	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>



STRATEGIC PILLAR | **BLUE-GREEN SALVADOR**  
GUIDING THEME | Coastal zone and Bay of Todos os Santos

**ACTION 17** Expand marine protected areas

**Synergy with other pillars:**

TYPE: PROJECT

Description:

Expand existing marine protected areas in order to create a mosaic of protected areas that connect, for instance, Ilha dos Frades, Cidade Baixa Marine Park and Barra Marine Park.

**Status:**  Proposition

(until 2032) **Timeframe:**  
Short term   
Medium term   
Long term

**Lead institution:** SECIS <

**Partner institutions:** <<  
FMLF, SEDUR, Brazilian Navy, local civil society organisations

Climate risks:

GHG Mitigation - Sectors:



**Benefits:**  
Adaptation

**Co-benefits:**

**Financing:**  
Partially identified – Potential for public funds and/or local partnerships



STRATEGIC PILLAR | **BLUE-GREEN SALVADOR**  
GUIDING THEME | Coastal zone and Bay of Todos os Santos

**Monitoring indicators:**

- Number of marine protected areas created.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
17.1 Create Boa Viagem Marine Park.	SECIS		Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>





**STRATEGIC PILLAR | BLUE-GREEN SALVADOR**  
**GUIDING THEME | Coastal zone and Bay of Todos os Santos**

**ACTION 18** Develop effective measures to reduce climate impacts in the coastal region and on the islands

**TYPE: ENABLING ACTION**

**Description:**

This action will assess potential impacts of flooding as a result of or exacerbated by rising sea levels on coastal infrastructure and implement actions to reduce potential damage. These actions will focus on the highest-risk areas, such as Ilha dos Frades, Ilha da Maré and Bom Jesus dos Passos in the Bay of Todos os Santos region and on Salvador's west coast.

**Synergy with other pillars:**



**Status:** Proposition

(until 2032) **Timeframe:**

Short term

Medium term

Long term

**Lead institution:** SECIS

**Partner institutions:** FMLF, COGEL, SEDUR, Codesal, SEMPRE

**Climate risks:**

**GHG Mitigation - Sectors:**



**Benefits:**

Adaptation

**Co-benefits:**

Health and wellbeing  
Climate justice

**Financing:**

Not identified – Potential for public funds, international and/or local partnerships



**STRATEGIC PILLAR | BLUE-GREEN SALVADOR**  
**GUIDING THEME | Coastal zone and Bay of Todos os Santos**

**Monitoring indicators:**

- Number of high-risk areas mapped;
- Number of impacts on/risks to coastal infrastructure mapped;
- Percentage of the population exposed to high risk of natural hazards.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
18.1 Identify communities vulnerable to sea level rise.	CODESAL	SECIS	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>
18.2 Adapt free areas to enhance their resilience to extreme weather events.	FMLF	COGEL, SECIS	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>

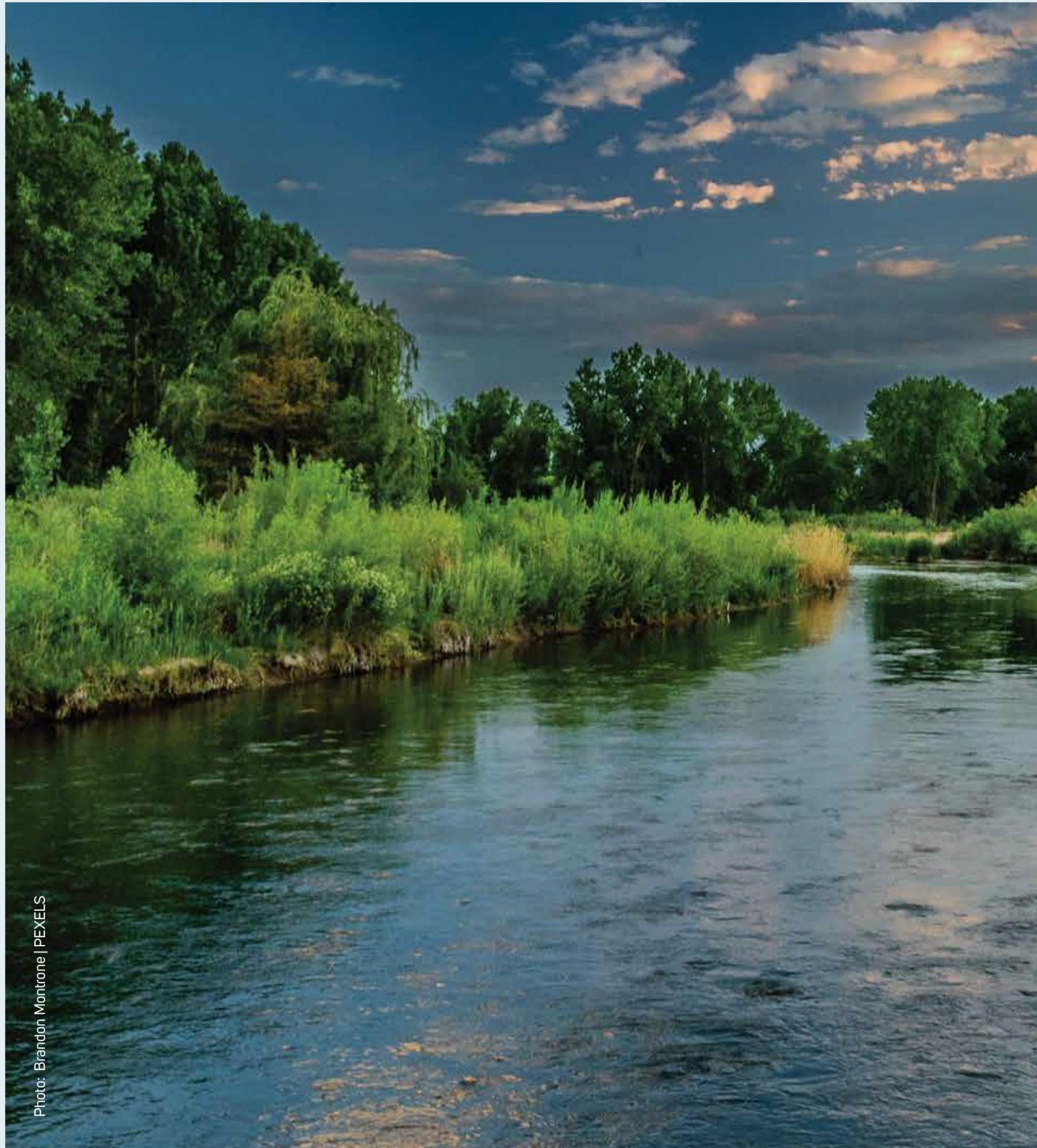
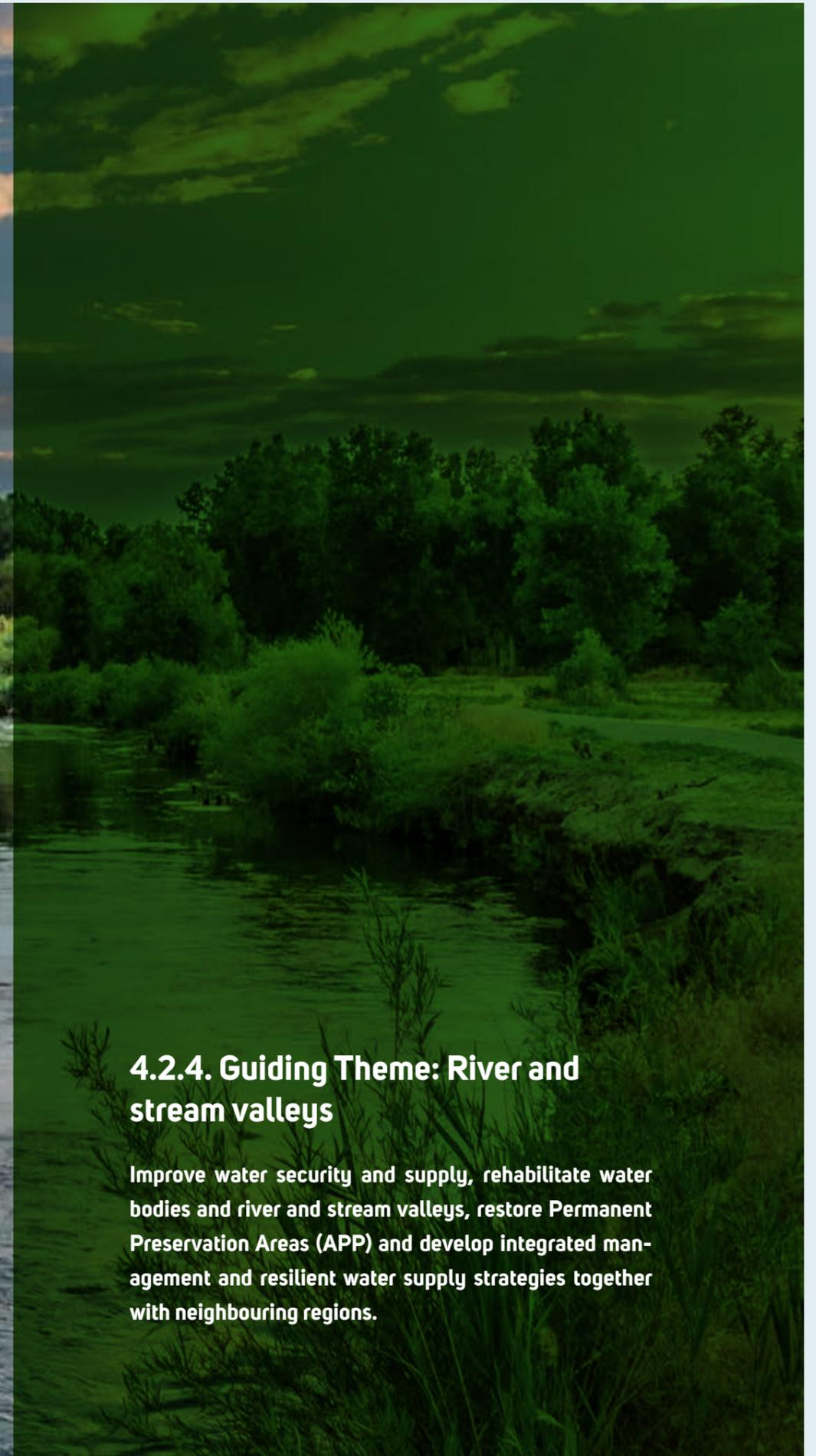


Photo: Brandon Montrone | PEXELS

#### **4.2.4. Guiding Theme: River and stream valleys**

Improve water security and supply, rehabilitate water bodies and river and stream valleys, restore Permanent Preservation Areas (APP) and develop integrated management and resilient water supply strategies together with neighbouring regions.





**STRATEGIC PILLAR | BLUE-GREEN SALVADOR**  
**GUIDING THEME | River and stream valleys**

**ACTION 19** Adopt the concept of blue-green infrastructure in city projects

**TYPE: ENABLING ACTION**

**Description:**

This action will encourage the adoption of the blue-green infrastructure concept. Blue infrastructure refers to the urban water system whereas green infrastructure refers to ecosystems and green spaces. By integrating water policy and green space management, the city can restore the natural water cycle, which, among other benefits, reduces the urban heat island effect and aids the recovery of ecosystems.

**Synergy with other pillars:**



**Status:**  Proposition

(until 2032) **Timeframe:**

Short term

Medium term

Long term

**Lead institution:** SECIS <

**Partner institutions:** <<  
 FMLF, SEDUR, SEINFRA

**Climate risks:**



**GHG Mitigation - Sectors:**



**Benefits:**

Adaptation  
 Mitigation

**Co-benefits:**

Health and wellbeing  
 Green spaces  
 Climate justice

**Financing:**

Not identified – Potential for public funds, International and/or local partnerships.



**STRATEGIC PILLAR | BLUE-GREEN SALVADOR**  
**GUIDING THEME | River and stream valleys**

**Monitoring indicators:**

- Number of city projects which adopt the concept of blue-green infrastructure;
- Number of buildings and projects that recycle water.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
19.1 Create green riversides.	SECIS	SEINFRA, FMLF, SEDUR	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>
19.2 Encourage the installation of rainwater harvesting systems in buildings.	SECIS	SEINFRA, SEDUR	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>



**STRATEGIC PILLAR | BLUE-GREEN SALVADOR**  
**GUIDING THEME | River and stream valleys**

**ACTION 20** Revitalise the Paraguari River detention basin

**TYPE: PROJECT**

**Description:**

This action will construct a flow control device in the Paraguari River basin in the Periperi neighbourhood. The action will also improve the Paraguari Dam and limit urban expansion to maximise the basin's water retention capacity and create an enhanced buffer for river flooding. Finally, the project will establish a recreation area, including squares, bicycle lanes, modern lighting and new paving.

**Synergy with other pillars:**



**Status:** In execution

(until 2032) **Timeframe:**

Short term

**Medium term**

Long term

**Lead institution:** SEINFRA

**Partner institutions:** FMLF, SEDUR, SECIS, SUCOP

**GHG Mitigation - Sectors:**



**Benefits:**  
Adaptation  
Mitigation

**Co-benefits:**  
Health and wellbeing  
Climate justice

**Financing:**  
Funded - Public funds



**STRATEGIC PILLAR | BLUE-GREEN SALVADOR**  
**GUIDING THEME | River and stream valleys**

**Monitoring indicators:**

- Area created for recreation around the Paraguari River;
- Delivery of the work.

**SUSTAINABLE DEVELOPMENT GOALS**





**STRATEGIC PILLAR | BLUE-GREEN SALVADOR**  
**GUIDING THEME | River and stream valleys**

**ACTION 21** Water management

**TYPE: ENABLING ACTION**

**Description:**

This action aims to reduce the share of imported water by instituting environmental services payments for water producers, thereby reducing energy costs and water losses by reducing the need for water pumping from the Paraguaçu River to Salvador. This action will also promote the recovery of springs.

**Synergy with other pillars:**



**Status:** Proposition

(until 2032) **Timeframe:**

Short term

**Medium term**

Long term

**Lead institution:** SEINFRA

**Partner institutions:** EMBASA, FMLF, SEFAZ, SEDUR, SECIS

**Climate risks:**



**GHG Mitigation - Sectors:**



**Benefits:**  
Adaptation  
Mitigation

**Co-benefits:**  
Health and wellbeing  
Climate justice

**Financing:**  
Not identified – Potential for public funds and local partnerships.



**STRATEGIC PILLAR | BLUE-GREEN SALVADOR**  
**GUIDING THEME | River and stream valleys**

**Monitoring indicators:**

- Implementation of a project or agreement to implement the action.



## 4.3. RESILIENT SALVADOR

4.3.1. Guiding Theme: Soil use

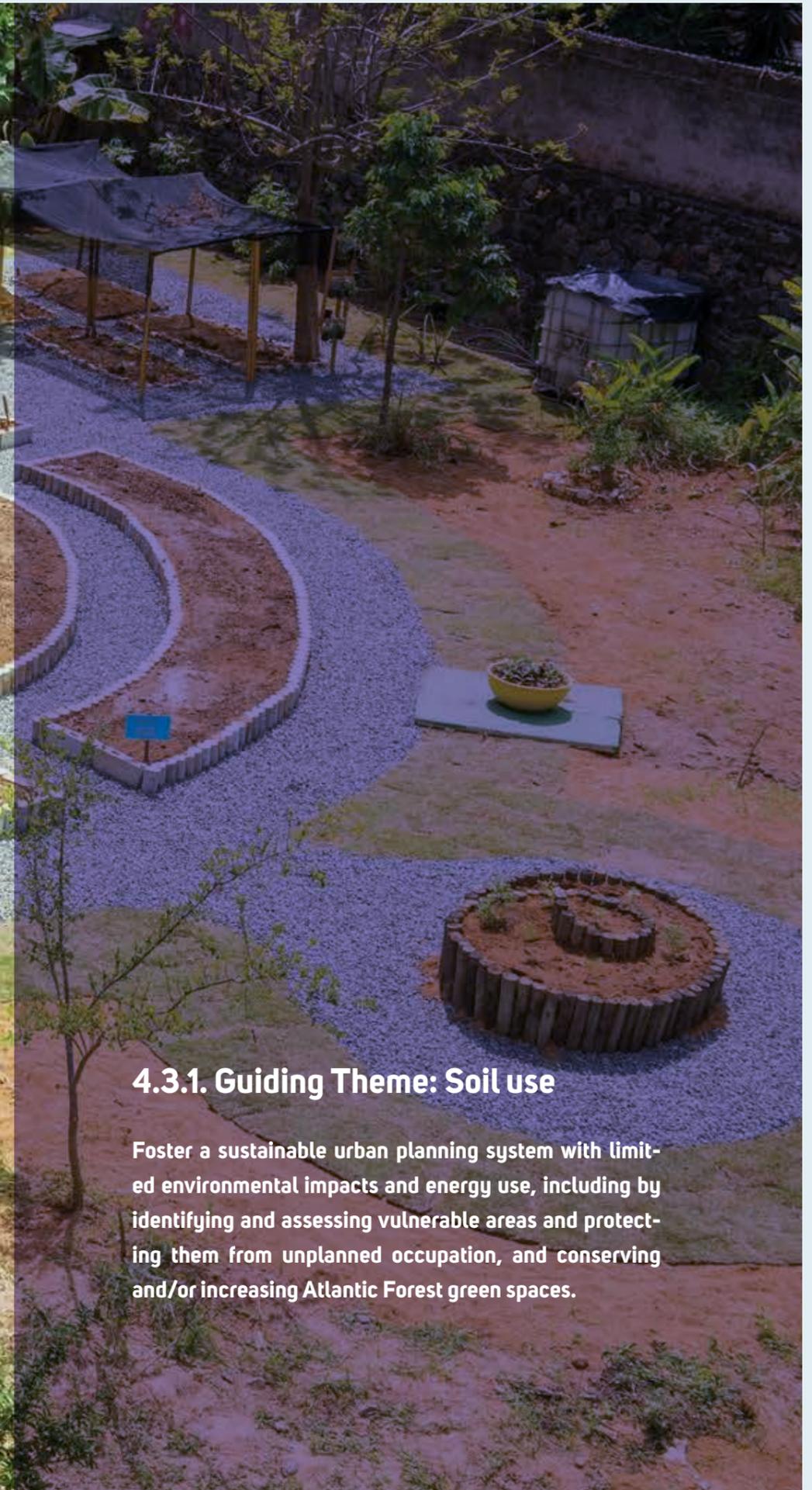
4.3.2. Guiding Theme: Urban drainage

4.3.3. Guiding Theme: Urban agriculture

4.3.4. Guiding Theme: Smart and sustainable city

4.3.5. Guiding Theme: Sustainable tourism

4.3.6. Guiding Theme: Sustainable consumption



### 4.3.1. Guiding Theme: Soil use

Foster a sustainable urban planning system with limited environmental impacts and energy use, including by identifying and assessing vulnerable areas and protecting them from unplanned occupation, and conserving and/or increasing Atlantic Forest green spaces.



## STRATEGIC PILLAR | RESILIENT SALVADOR

### GUIDING THEME | Soil use

**ACTION 22** Strengthen and expand the use of mechanisms to retrofit old or unoccupied buildings

TYPE: PROGRAMME

#### Description:

This action aims to retrofit, including with energy efficiency solutions, buildings in built-up urban areas that are underutilised or used for purposes unsuitable for the area. Through urban policy instruments, partnerships and other initiatives, the city will facilitate more appropriate uses for these buildings.

#### Synergy with other pillars:



Status: Proposition

(until 2032) **Timeframe:**

Short term

Medium term

Long term

Lead institution: SEDUR <

Partner institutions: SEFAZ, FMLF, SEINFRA, SECIS, SEMAN <<

#### Climate risks:



#### GHG Mitigation - Sectors:



#### Benefits:

Adaptation Mitigation

#### Co-benefits:

Climate Justice Green Spaces

#### Financing:

Not identified – Potential for public funds and local partnerships.



## STRATEGIC PILLAR | RESILIENT SALVADOR

### GUIDING THEME | Soil use

#### Monitoring indicators:

- Number of permits issued for retrofits of buildings in the old city centre.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
22.1 Expand the knowledge of existing legislation (PDDU, LOUS, Revitalizar) in civil construction companies and society more broadly.	SEDUR	SECIS	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>
22.2 Expand knowledge about retrofitting and its benefits.	SEDUR	SECIS	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>



#### **4.3.2. Guiding Theme: Urban drainage**

Upgrade the drainage system and expand the area of permeable surfaces to ensure the resilience and maintenance of environmental services and reduce the impacts of extreme weather events in the city.



## STRATEGIC PILLAR | RESILIENT SALVADOR

### GUIDING THEME | Urban drainage



## STRATEGIC PILLAR | RESILIENT SALVADOR

### GUIDING THEME | Urban drainage

**ACTION 23**

Review and update drainage plans

TYPE: ENABLING ACTION

Description:

This action will update macro- and micro-level drainage plans, especially for the most vulnerable areas to flooding, as identified by the climate risk analysis. The upgrades will be performed using nature-based solutions that enhance ecosystem services.

Synergy with other pillars:



Status: Proposition

(until 2032) Timeframe:

Short term

Medium term

Long term

Lead institution: SEINFRA <

Partner institutions: FMLF, SEDUR, LIMPURB, SUCOP <<

Climate risks:

GHG Mitigation - Sectors:



Benefits:

Adaptation

Co-benefits:

Health and wellbeing  
Climate justice

Financing:

Identified - Public funds and/or local partnerships.

Monitoring indicators:

- Macro-level drainage plan updated;
- Micro-level drainage plan updated.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
23.1 Enhance underground rainwater retention.	SEINFRA	FMLF, SEDUR	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
23.2 Prevent the dispersal of solid waste dumped on public roads.	LIMPURB		Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>
23.3 Develop a study on the health of all rivers in Salvador.	SEINFRA	FMLF	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>



### **4.3.3. Guiding Theme: Urban agriculture**

Foster food sovereignty in vulnerable communities by helping them to expand urban and peri-urban vegetable growing as a way of generating income, improving the regulation of micro-climates and promoting food security and healthy nutrition.



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Urban agriculture**



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Urban agriculture**

**ACTION 24** Create a platform for 'invisible' producers

**Synergy with other pillars:**

TYPE: ENABLING ACTION

Description:

This action will create a platform to map local rural 'invisible' producers, provide them with technical assistance and certification, and incorporate them into the production chain. The mapping exercise and provision of technical assistance and extension services will increase the quality and quantity of fresh food produced, as well as the number of local producers from which the Municipal Government can procure food. In addition, the mapping will provide data for the development of other actions, such as agri-food processing services to produce fruit pulp and spices.



**Status:** Proposition

(until 2032) **Timeframe:**

Short term

**Medium term**

Long term

**Lead institution:** SEMPRE

**Partner institutions:** SECIS, SEMTEL, COGEL, SMS

Climate risks:

GHG Mitigation - Sectors:



**Benefits:**  
Mitigation

**Co-benefits:**  
Health and wellbeing  
Climate justice  
Green spaces

**Financing:**  
Identified - Local and/or international partnerships.

**Monitoring indicators:**

- Number of local producers registered on the platform;
- Number of consultations (technical assistance) provided;

- Amount (kg) of food produced and incorporated into the production chain.





## STRATEGIC PILLAR | RESILIENT SALVADOR

### GUIDING THEME | Urban agriculture

**ACTION 25**

Expand the Urban Gardens and Orchards project

**TYPE: ENABLING ACTION**

**Description:**

The Urban Gardens and Orchards project aims to create gardens and orchards in the city of Salvador to encourage the production and consumption of organic food, raise awareness of agroecological production methods and increase the utility of abandoned or underutilised green spaces in the city. The programme also creates community vegetable gardens at social assistance facilities such as Social Assistance Reference Centres (CRAS) and Specialised Social Assistance Reference Centres (CREAS) to alleviate extreme poverty in vulnerable groups. These vegetable gardens also benefit people who are socio-nutritionally vulnerable, by allowing them to grow their own food and generate income (30% of production is destined for household consumption and 70% for sale). The action aims to expand this project to include more public schools and social assistance facilities that have space for a vegetable garden or orchard.

**Synergy with other pillars:**



**Status:** In execution

(until 2032) **Timeframe:**

Short term

Medium term

Long term

**Lead institution:** SECIS

**Partner institutions:** SEMPRE, SMED, SEMTEL, SMS (VISAM)

**Climate risks:**



**GHG Mitigation - Sectors:**



**Benefits:**

Adaptation  
Mitigation

**Co-benefits:**

Health and wellbeing  
Climate justice  
Green spaces

**Financing:**

Identified - Public funds  
and/or local partnerships



## STRATEGIC PILLAR | RESILIENT SALVADOR

### GUIDING THEME | Urban agriculture

**Monitoring indicators:**

- Number of vegetable gardens/orchards created in the city;
- Number of vegetable gardens in CREAS and CRAS;
- Amount (in kg) of food produced for household consumption;
- Urban agricultural area per 100,000 inhabitants;
- Percentage of annual municipal budget earmarked for urban agriculture initiatives;
- Income (in R\$) generated for households through the sale of food produced.

**SUSTAINABLE DEVELOPMENT GOALS**





STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Urban agriculture**

**ACTION 26** Foster organic urban agriculture

TYPE: PROGRAMME

Description:

Create mechanisms and incentives for the expansion of urban agricultural production in the city, for example by making available public spaces for agriculture, providing training and including urban farmers in production and consumption chains.

Synergy with other pillars:



Status: Proposition

(until 2032) Timeframe:

Short term

Medium term

Long term

Lead institution: SECIS

Partner institutions: SEMPRE, SEMTEL, SMS

Climate risks:



GHG Mitigation - Sectors:



Benefits:

Adaptation Mitigation

Co-benefits:

Health and wellbeing  
Climate justice  
Green spaces

Financing:

Identified - Public funds and/or local partnerships



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Urban agriculture**

Monitoring indicators:

- Number of hectares of potential urban agricultural land identified in the city;
- Number of active farmers in the city;
- Number of organic producers (mapped) in the city;
- Amount (in kg) of food produced using agroecological methods;
- Percentage of school meals prepared using organic ingredients;
- Number of Declarations of Aptitude (DAPs) for the Family Farming National Programme issued;
- Number of risk analyses performed per year;
- Urban agricultural area per 100,000 inhabitants.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
26.1 Expand the area used for urban agriculture.	SECIS	SEDUR, FMLF, SMS	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>
26.2 Expand the use of organic and agroecological ingredients in school lunches in public schools.	SMED	SMS	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
26.3 Expand urban agriculture monitoring.	SMS	SECIS, SEMPRE	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>



#### **4.3.4. Guiding Theme: Smart and sustainable city**

Foster the use of low-carbon technologies to improve the efficiency of service delivery, reduce social inequality, enhance the health and wellbeing of the population, foster economic development, advance adaptation to climate change and enhance urban biodiversity and ecosystem services, in alignment with the Smart City Technologies Master Plan (PDTCI).



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Smart and sustainable city**

**ACTION 27** Expand the role of the Civil Defence

TYPE: ENABLING ACTION

Description:

Expand the role and strengthen the position of the Civil Defence, allowing it to cooperate more effectively with other departments and enhancing its ability to prepare for and respond to extreme weather events throughout the city.

Synergy with other pillars:



Status: Proposition

(until 2032) Timeframe:

Short term   
Medium term   
Long term

Lead institution: CODESAL

Partner institutions: Municipal Government

Climate risks:



GHG Mitigation - Sectors:

Benefits:	Co-benefits:	Financing:
Adaptation	Health and wellbeing Climate justice	Identified - Public funds



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Smart and sustainable city**

Monitoring indicators:

- Number of sensors and alarm systems deployed (sirens, rain gauges, meteorological and hydrological stations, as well as hydrogeological and mass movement sensors);
- Number of communities with evacuation systems in place.
- consumption;



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
27.1 Adopt new technologies to detect and warn for extreme weather conditions, such as sensors placed in high-risk areas.	CODESAL	COGEL	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
27.2 Implement an evacuation system for vulnerable areas.	CODESAL	COGEL	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
27.3 Conduct Civil Defence trainings in coastal areas.	CODESAL	COGEL	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>
27.4 Implement Structural Action Plans (PAE) in high-risk areas, applying the principles of ecosystem-based adaptation (EbA).	CODESAL	PMS	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Smart and sustainable city**

**ACTION 28** Launch calls for sustainable innovations with a focus on mitigation and adaptation

TYPE: PROJECT

Description:

Since 2017, the City of Salvador has sought to boost its innovation sector through public calls. This action involves launching public calls to encourage innovation to tackle the challenges of mitigation and adaptation and enhance the effectiveness of the actions of the PMAMC. The calls will focus on themes such as improvement of energy efficiency in public buildings, expansion of solar energy generation and expansion of urban agriculture.

Synergy with other pillars:



Status: In execution

(until 2032) Timeframe:

Short term

Medium term

Long term

Lead institution: SECIS

Partner institutions: SEMGE, SEDUR, COELBA, Universities, SENAI-CIMATEC, Sebrae

Climate risks:



GHG Mitigation - Sectors:



Benefits:

Adaptation  
Mitigation

Co-benefits:

Health and wellbeing  
Climate justice  
Green spaces

Financing:

Identified - Public funds, local and/or international partnerships.



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Smart and sustainable city**

Monitoring indicators:

- Number of new public calls launched with the theme of mitigation and adaptation;
- Resources (in R\$) made available per strategic theme.

SUSTAINABLE DEVELOPMENT GOALS



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
28.1 Promote community hackathons to find solutions to address climate change-related issues.	SECIS	SEBRAE	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>





STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Smart and sustainable city**

**ACTION 29**

Launch an Intelligent Adaptation Platform

**TYPE: PROJECT**

**Description:**

This action will develop and launch a Platform for Intelligent Adaptation to Environmental Vulnerabilities and Risks (PLAMIRA), which will integrate the resources and solutions provided by the Internet of things (IoT) and Geographic Information Systems (GIS), using artificial intelligence and machine learning. The purpose of the Platform will be to facilitate intelligent collaboration between the function of the Smart City, the dispatch of emergency services and critical disaster response processes. Using live data, the Platform will facilitate live monitoring and analysis of extreme weather events, in order to reduce climate vulnerability and provide comprehensive communication with the population using alerts as well as real-time two-way communication with specific vulnerable groups. The project involves the acquisition, implementation and operationalisation of intelligent systems for air quality, heat wave, tide and hydrometeorological monitoring; the identification of critical points; the monitoring of the population's response to critical events, the issuing of threat alerts and the prediction of responses to extreme events. The military police (PM), Codesal and COGEL technicians will also be trained in the use of information derived from the Platform.

**Synergy with other pillars:**



**Status:** Proposition

(until 2032) **Timeframe:**

Short term

**Medium term**

Long term

**Lead institution:** COGEL <

**Partner institutions:** SECIS, CODESAL, SMS <<

Climate risks:

GHG Mitigation - Sectors:



**Benefits:**

Adaptation

**Co-benefits:**

Health and wellbeing  
Climate justice  
Green spaces

**Financing:**

Identified - Public funds and international partnerships



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Smart and sustainable city**

**Monitoring indicators:**

- Number of people receiving alerts and communications from the Platform;
- Number of remote stations monitoring air quality in real time, per km<sup>2</sup>;
- Percentage of the city's population served by multiple early warning systems;
- Percentage of local threat alerts issued by national agencies that are received on time by the city.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
29.1 Map the urban heat island effect.	SECIS	CODESAL, Academia	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>





Photo: Marcelo Gandra

#### 4.3.4. Guiding Theme: Sustainable tourism

Support sustainable tourism in Salvador by training tourism professionals to develop new strategies to attract, retain and encourage the return of tourists by promoting the city internationally as a sustainable, low-carbon destination.



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Sustainable tourism**



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Sustainable tourism**

**ACTION 30** Create GHG mitigation protocols for large events

TYPE: PROGRAMME

Description:

Create protocols and mechanisms to mitigate GHG emissions generated by the organisation of major events, addressing issues such as energy efficiency, waste management, environmental compensation and reduction of transport emissions.

Synergy with other pillars:



Status: Proposition

(until 2024) Timeframe:

Short term

Medium term

Long term

Lead institution: SALTUR <

Partner institutions: SECIS, SEDUR, SECULT <<

Climate risks:

GHG Mitigation - Sectors:



Benefits:

Mitigation

Co-benefits:

Financing:

Not identified – Potential for local and international partnerships.

Monitoring indicators:

- Number of major events that have adopted GHG mitigation measures as a share of the total number of major events;
- Number of areas and blocks that received the Sustainable Carnival seal.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
30.1 Encourage the production of GHG emissions inventories for major events.	SALTUR	SECIS, SEDUR	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
30.2 Encourage adoption of the sustainable practices promoted by the International Congress and Convention Association (ICCA).	SALTUR	SECIS, SEDUR	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
30.3 Expand the Sustainable Carnival Campaign.	SECIS	SALTUR, SECULT	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Sustainable tourism**

**ACTION 31** Implement adaptation measures in the tourism sector

TYPE: ENABLING ACTION

Description:

Implement the adaptation measures for the tourism sector outlined by the project 'Analysis and economic measurement of the risks associated with climate change for Salvador's tourism sector and identification of adaptation measures', implemented in partnership with GIZ as part of the ProAdapta programme.

**Synergy with other pillars:**



**Status:** Proposition

(until 2032) **Timeframe:**  
 Short term   
**Medium term**   
 Long term

**Lead institution:** SALTUR / SECULT <

**Partner institutions:** SECIS, SEDUR, GIZ <<

Climate risks: GHG Mitigation - Sectors:



Benefits:	Co-benefits:	Financing:
Adaptation	Health and wellbeing	Identified - Local and international partnerships



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Sustainable tourism**

**Monitoring indicators:**

- Number of adaptation measures implemented in tourism facilities.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
31.1 Create institutional and market mechanisms to compensate for emissions generated by the tourism sector, especially those related to air travel.	SALTUR	SECIS	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>





#### **4.3.6. Guiding Theme: Sustainable consumption**

Develop political, institutional and market mechanisms to advance the sustainable consumption agenda, promote regenerative food systems and adopt circular economy concepts, with the aim of creating new income generation opportunities and reducing the environmental impacts of production chains.



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Sustainable consumption**

**ACTION 32** Encourage the adoption of circular economy principles in Salvador's production chains

**TYPE: ENABLING ACTION**

**Description:**

This initiative will aim to encourage the introduction of circular economy principles in Salvador's production chains, working with vulnerable communities and creating new markets for the reuse of waste products. The principles of the circular economy include the preservation and strengthening of natural capital, the optimisation of the use of material resources and the maximisation of system efficiency. Circular economy concepts can help to improve water and energy efficiency and waste management and also reduce unemployment and informality.

**Synergy with other pillars:**



**Status:** Implemented

(until 2032) **Timeframe:**

Short term   
Medium term   
Long term

**Lead institution:** SECIS

**Partner institutions:** Limpurb, SEMPRE, SEDUR

**Climate risks:**

**GHG Mitigation - Sectors:**



**Benefits:**  
Mitigation

**Co-benefits:**  
Climate justice

**Financing:**  
Partially identified and secured – Local and international partnerships.



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Sustainable consumption**

**Monitoring indicators:**

- Number of green companies/entrepreneurs;
- Number of actions to encourage green entrepreneurship in low-income communities;
- Percentage of municipal solid waste that is recycled.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
32.1 Encourage green entrepreneurship, particularly in low-income communities.	SECIS	SEMPRE	<b>Short</b> <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>





STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Sustainable consumption**

**ACTION 33**

Launch the Be Circular Programme

**TYPE: PROGRAMME**

**Description:**

The Be Circular Programme will assist start-ups and existing businesses with the adoption of circular economy principles. The programme will consist of an online platform and a series of co-creation workshops with relevant stakeholders from the public and private sectors and from universities, to define the type of support businesses need to adopt circular production models. The online platform will contain useful information to grow awareness of circular economy models and to help businesses to apply sustainable and circular economy principles to their products, services and use of materials. The platform will also allow companies to exchange information with each other and with relevant stakeholders from universities, in order to promote greater integration among sectors, foster academic research and promote new sustainable businesses and products.

**Synergy with other pillars:**



**Status:** Proposition

(until 2032) **Timeframe:**

Short term

**Medium term**

Long term

**Lead institution:** SECIS

**Partner institutions:**   
Ellen MacArthur Foundation, Limpurb, Sebrae, Social Park (Parque Social), Cimater, Universities and Research Centers, Abastartup, private sector

**Climate risks:**

**GHG Mitigation - Sectors:**



**Benefits:**

Mitigation

**Co-benefits:**

Climate justice

**Financing:**

Not identified – Potential for local and international partnerships.



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Sustainable consumption**

**Monitoring indicators:**

- Number of companies that made the transition to a more circular production;
- Percentage of solid urban waste which is recycled;
- Percentage of total amount of plastic waste recycled in the city



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
33.1 Launch "I am Circular" Seal.	SECIS	Ellen MacArthur Foundation	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
33.2 Organise circular economy hackathons.	SECIS	Private sector, universities	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>
33.3 Conduct trainings on the circular economy for employees.	SECIS	Ellen MacArthur Foundation, private sector, universities	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Sustainable consumption**

**ACTION 34**

Launch the Salvador Collaborative Platform

**TYPE: PROJECT**

**Description:**

This action involves the launch of the Salvador Collaborative Platform, an online platform to promote companies operating in the sharing economy and to facilitate the lending or exchange of tools and other items by citizens and companies. The platform will also serve to produce and disseminate information about the sharing economy. Campaigns will be launched to raise awareness of the importance and benefits of sharing. Finally, the platform will provide companies, media, universities and civil society organisations the opportunity to connect, strengthening local networks and fostering knowledge sharing about sharing models and new businesses.

**Synergy with other pillars:**



**Status:** Proposition

(until 2032) **Timeframe:**

Short term

**Medium term**

Long term

**Lead institution:** SECIS <

**Partner institutions:** <<  
Limpurb, Abastartup, Parque Social, Fecomercio, COGEL, SEDUR

Climate risks:

GHG Mitigation - Sectors:



**Benefits:**

Mitigation

**Co-benefits:**

Climate justice

**Financing:**

Identified - Local and international partnerships.



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Sustainable consumption**

**Monitoring indicators:**

- Volume of materials shared/exchanged on the platform;
- Number of new companies in the sharing economy;
- Savings due to sharing as a percentage of revenue;
- Number of users of mobility systems based on the sharing economy, per 100,000 inhabitants.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
34.1 Create markets for the sale of second-hand products.	SECIS	SALTUR, SEDUR, SEMOP	<b>Short</b> <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
34.2 Launch campaigns to encourage the consumption of local and seasonal products.	SECIS		<b>Short</b> <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>





STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Sustainable consumption**

**ACTION 35** Encourage sustainable public procurement

TYPE: PROGRAMME

Description:

This action will establish sustainability criteria for public procurements enshrined in decree or law. Criteria will include life cycle costs of materials, percentage of biodegradable materials/components, percentage of recycled or reused materials and whether the company has provisions in place for reverse logistics. The objective of this action is to give products produced following circular economy principles priority in public procurement processes.

Synergy with other pillars:



Status: Proposition

(until 2032) Timeframe:

Short term   
 Medium term   
 Long term

Lead institution: Mayor's Office <

Partner institutions: PMS <<



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Sustainable consumption**

Monitoring indicators:

- Publication of a regulatory framework;
- Number of contracts that include components of circularity, reverse logistics and material reuse.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
35.1 Create circularity criteria for public procurement of products and services.	SEMGE	SECIS	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>

Climate risks: GHG Mitigation - Sectors:



Benefits:	Co-benefits:	Financing:
Mitigation	Health and wellbeing Climate justice	Identified – Public funds





STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Sustainable consumption**

**ACTION 36** Launch the Municipal Circular Economy Hub

TYPE: PROJECT

Description:

The Municipal Circular Economy Hub will encourage companies to adopt a circular production model instead of the linear model of extraction, use and disposal of materials. The Hub will host events, workshops, courses and mentorship programmes to encourage the use of circular design in products and services and facilitate the creation of innovative businesses.

Synergy with other pillars:



Status: Proposition

(until 2032) **Timeframe:**

Short term

Medium term

Long term

Lead institution: SECIS <

Partner institutions: SEDUR, SEINFRA, Parque Social, Sebrae, Abastartups, Ellen MacArthur Foundation <<

Climate risks:

GHG Mitigation - Sectors:



Benefits:

Mitigation

Co-benefits:

Climate justice

Financing:

Not identified – Potential for public funds, local and international partnerships.



STRATEGIC PILLAR | **RESILIENT SALVADOR**  
GUIDING THEME | **Sustainable consumption**

Monitoring indicators:

- Number of new companies created within the circular economy hub;
- Number of businesses that receive mentorship for the adoption of circular economy principles;
- Number of new products created that use waste as a raw material.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
36.1 Launch a mentorship programme to strengthen new circular economy businesses.	SECIS	Sebrae, Abastartups, Cimatic/Fieb, Social Park (Parque Social)	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
36.2 Launch the Circular Economy Urban Laboratory (Fab Lab).	SECIS	Sebrae, Abastartups, Cimatic/Fieb, Social Park (Parque Social), universities	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>





Photo: Marcelo Gandra

## 4.4. LOW-CARBON SALVADOR

- 4.4.1. Guiding Theme: Transport and mobility
- 4.4.2. Guiding Theme: Wastewater
- 4.4.3. Guiding Theme: Solid Waste
- 4.4.4. Guiding Theme: Energy
- 4.4.5. Guiding Theme: Sustainable buildings

#### 4.4.1. Guiding Theme: Transport and mobility

Improve the quality of public transport and encourage active mobility, while pursuing the sustainable expansion and integration of road infrastructure to facilitate GHG emissions mitigation.



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Transport and mobility**

**ACTION 37** Create and strengthen programmes to encourage active mobility

TYPE: PROGRAMME

Description:

Active mobility directly improves people’s health and quality of life. This action aims to improve the infrastructure for active mobility so that it becomes a viable, pleasant and safe option for Salvador’s residents. The programme will improve microaccessibility and upgrade sidewalks, as well as enhance modal integration to encourage active mobility while improving road safety.

**Synergy with other pillars:**



**Status:** In execution

(until 2032) **Timeframe:**

Short term   
**Medium term**   
 Long term

**Lead institution:** SEMOB, FMLF

**Partner institutions:**   
 SECIS, SALTUR, TRANSALVADOR, SEINFRA

Climate risks:

GHG Mitigation - Sectors:



**Benefits:**

Mitigation

**Co-benefits:**

Health and wellbeing

**Financing:**

Identified – Public funds and local partnerships.



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Transport and mobility**

**Monitoring indicators:**

- Number of new complete streets created;
- Upgraded and/or expanded sidewalks (in km<sup>2</sup>);
- Number of car-free street initiatives;
- Number of people using non-motorised transport as their main means of transport.
- Number of users of bicycle programmes.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
37.1 Improve modal integration with a focus on promoting active mobility.	SEMOB	TRANSALVADOR	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>
37.2 Complete Streets: expand the Miguel Calmon complete street pilot project to other parts of the city, favouring pedestrianisation, public squares and trees and active mobility flow in regions of high commercial activity in the city.	FMLF	SEINFRA, SEMAN, SECIS, SEMOB	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>
37.3 Pedestrianisation: invest in sidewalk infrastructure and improve conditions for pedestrians.	FMLF	Transalvador, SEMAN, SEMOB	<b>Short</b> <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
37.4 Car-free streets: establish a programme of days when streets are closed to cars and open to pedestrians and cyclists.	SEMOB	Transalvador	<b>Short</b> <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Transport and mobility**

**ACTION 38** Expand and promote the use of the bicycle route network

TYPE: PROJECT

Description:

This action aims to expand the bicycle route network to 480 km by 2032 and promote active mobility through the expansion of bicycle share programmes and incentive programmes. The bicycle share programmes will feature bicycle stands at metro and bus stations and allow bicycles to be returned to a different station from where they were picked up. Current plans foresee the expansion of the bicycle network by 100 km during the period of 2021-2024.

**Synergy with other pillars:**



**Status:** In execution

(until 2032) **Timeframe:**

Short term

Medium term

Long term

**Lead institution:** TRANSALVADOR

**Partner institutions:** SALTUR, SEMOB, FMLF

Climate risks:

GHG Mitigation - Sectors:



**Benefits:**

Mitigation

**Co-benefits:**

Health and wellbeing  
Climate justice

**Financing:**

Partially secured  
- Public funds



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Transport and mobility**

**Monitoring indicators:**

- Extension of the bicycle route network (in km);
- Modal share of bicycle trips;
- Kilometres of bicycle paths and bicycle lanes, per 100,000 inhabitants;
- Number of bicycles available through municipal bicycle sharing services, per 100,000 inhabitants;
- Number of public bicycle stands.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
38.1 Plant trees along bicycle routes.	SECIS	Transalvador, FMLF	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
38.2 Expand the network of bicycle stands.	SEMOB	TRANSALVADOR	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>
38.3 Launch incentive programmes for cycling.	SALTUR	SECIS, SEMOB, Transalvador	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Transport and mobility**

**ACTION 39** Encourage a modal shift in transport

TYPE: ENABLING ACTION

Description:

This action will aim to reduce traffic congestion and travel distance per vehicle by supporting improvements to metro and bus systems, increasing the number of active cyclists and expanding the bicycle route network, bicycle sharing programmes, the smart parking policy and the city's low emission zones.

**Synergy with other pillars:**



**Status:** In execution

(until 2049) **Timeframe:**

Short term

Medium term

Long term

**Lead institution:** SEMOB

**Partner institutions:** TRANSALVADOR, SALTUR, SEMGE

Climate risks:

GHG Mitigation - Sectors:



**Benefits:**

Mitigation

**Co-benefits:**

Health and wellbeing

**Financing:**

Partially secured



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Transport and mobility**

**Monitoring indicators:**

- Number of bus passengers (daily average);
- Annual number of public transport trips per capita;
- Average commuting time;
- Size of the bus-lane network (in km).





STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Transport and mobility**

**ACTION 40** Renew public transport fleets with less polluting vehicles

TYPE: PROJECT

Description:

This action will accelerate the transition from fossil fuel combustion vehicles to cleaner and more efficient vehicle technologies by renewing the municipal public transport fleet with less polluting vehicles.

**Synergy with other pillars:**



Status:  Proposition

(until 2049) **Timeframe:**

Short term

Medium term

Long term

Lead institution: SEMOB <

Partner institutions: SEMGE, TRANSALVADOR <<

Climate risks:

GHG Mitigation - Sectors:



**Benefits:**  
Mitigation

**Co-benefits:**  
Health and wellbeing

**Financing:**  
Not identified – Potential for public funds and/or local and international partnerships.



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Transport and mobility**

**Monitoring indicators:**

- Percentage of less polluting and more efficient vehicles in the public transport fleet.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
40.1 Implement a supply network for electric vehicles.	SEMOB	SECIS	Short <input type="checkbox"/> Medium <input type="checkbox"/> Long <input checked="" type="checkbox"/>





STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Transport and mobility**

**ACTION 41** Expand BRT and BRS corridors

TYPE: PROJECT

Description:

This action involves the expansion of bus rapid transit (BRT) and bus rapid service (BRS) lines following PlanMob guidelines, to enhance the efficiency of the public transport network and encourage more widespread use of public transport. The action will also seek to transition the entire public bus system to zero-emission vehicles, create the necessary electric vehicle charging infrastructure and develop external partnerships for the supply of electric buses and to attract financing for the project.

**Synergy with other pillars:**



**Status:**  Proposition

(until 2049) **Timeframe:**

Short term

Medium term

Long term

**Lead institution:** SEMOB

**Partner institutions:** SEMAN, SECIS, FMLF, CASA CIVIL

Climate risks:

GHG Mitigation - Sectors:



**Benefits:**

Mitigation

**Co-benefits:**

Health and wellbeing

**Financing:**

Identified – Public funds.



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Transport and mobility**

**Monitoring indicators:**

- Kilometres of exclusive/priority bus corridors.





#### 4.4.2. Guiding Theme: Wastewater

Develop a sustainable wastewater management system, facilitate the universal collection and treatment of domestic and commercial wastewater and upgrade those infrastructure assets and services most at risk from extreme weather events.



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Wastewater**

**ACTION 42** Strengthen water resources management and wastewater treatment

TYPE: PROGRAMME

Description:

This action aims to strengthen water resources management and expand reliable water supply and sewage collection and treatment services to the poorest, most vulnerable areas of the city. Efficient water supply management is required to ensure universal access to sufficient, high-quality water, even during periodic droughts or following events that can interrupt the water supply. Strategies to enhance water supply efficiency include decreasing water use by addressing losses, stimulating water recycling and rainwater use, and expanding water collection by protecting water sources and interconnecting systems.

Synergy with other pillars:



Status:  Proposition

(until 2049) Timeframe:

Short term

Medium term

Long term

Lead institution: SEINFRA <

Partner institutions: EMBASA, SUCOP, SEMAN <<

Climate risks:



GHG Mitigation - Sectors:



Benefits:

Mitigation  
Adaptation

Co-benefits:

Health and wellbeing  
Climate justice

Financing:

Identified – Public funds



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Wastewater**

Monitoring indicators:

- Percentage of the city's population served by the sewage collection and removal system;
- Percentage of the city's population served by the drinking water supply system.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
42.1 Establish goals for water recycling and the reduction of water losses.	SEINFRA	EMBASA	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>
42.2 Define protection measures for water sources.	SEINFRA	EMBASA	<b>Short</b> <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
42.3 Create water supply redundancy.	SEINFRA	EMBASA	Short <input type="checkbox"/> Medium <input type="checkbox"/> <b>Long</b> <input checked="" type="checkbox"/>
42.4 Make collection and use of rainwater mandatory in new buildings.	FMLF	SEDUR	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Wastewater**

**ACTION 43** Expand the basic sanitation network

TYPE: PROGRAMME

Description:

This action will aim to expand basic wastewater infrastructure primarily in the poorest and most infrastructure-deprived areas of the city, to protect the environment, improve residents' quality of life and reduce medical expenses. Together with awareness campaigns, this action can prevent the release of untreated wastewater and domestic solid waste into rivers and public spaces, and thus reduce the proliferation of diseases related to a lack of basic sanitation, including leptospirosis, bacterial dysentery, schistosomiasis and cholera.

**Synergy with other pillars:**



**Status:** In execution

(until 2049) **Timeframe:**

Short term

Medium term

Long term

**Lead institution:** SEINFRA

**Partner institutions:** EMBASA, SUCOP, SECIS

**Climate risks:**



**GHG Mitigation - Sectors:**



**Benefits:**

Mitigation  
Adaptation

**Co-benefits:**

Health and wellbeing  
Climate justice

**Financing:**

Identified – Public funds



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Wastewater**

**Monitoring indicators:**

- Percentage of the city's population served by the drinking water supply system;
- Percentage of the city's population served by the sewage collection and removal system;
- Total population served by the water distribution system as a share of total population served by the sewage system;
- Percentage reduction in the incidence of diseases related to a lack of basic sanitation (leptospirosis, bacterial dysentery, schistosomiasis, cholera, etc.).





#### **4.4.3. Guiding Theme: Solid waste**

Develop an integrated and sustainable management system for urban solid waste, promote zero-waste concepts using material and nutrient recovery technologies and generate income for vulnerable groups through recycling programmes.



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Solid waste**

**ACTION 44** Expand Salvador's separate collection programme

TYPE: PROGRAMME

Description:

This action will expand Salvador's Waste Sorting Programme, which provides delivery points for different types of waste to facilitate voluntary waste separation, establishes waste sorting facilities, recycling cooperatives, composting sites, etc. The programme must be expanded to assist vulnerable communities through existing practices.

**Synergy with other pillars:**



**Status:**  
In execution

(until 2032) **Timeframe:**

Short term   
**Medium term**   
 Long term

**Lead institution:**  
SECIS

**Partner institutions:**  
LIMPURB

**Climate risks:**



**GHG Mitigation - Sectors:**



**Benefits:**

Mitigation  
Adaptation

**Co-benefits:**

Health and wellbeing  
Climate justice

**Financing:**

Identified – Public funds  
and local partnerships.



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Solid waste**

**Monitoring indicators:**

- Per capita volume of recyclable materials collected via separate collection;
- Per capita volume of recovered recyclable materials (except organic matter and tailings) as a share of total waste production per capita;
- Number of waste sorting facilities created;
- Number of recycling cooperatives launched.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
44.1 Strengthen recycling cooperatives.	LIMPURB	SECIS	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>
44.2 Expand the use of civil construction waste.	SEINFRA	SEMAN, SUCOP	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>
44.3 Train and empower recycling cooperatives to separate electronic waste in order to increase the recycling of this type of waste.	SECIS	LIMPURB	<b>Short</b> <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
44.4 Promote waste sorting into three categories - recyclable, organic and tailings - in order to minimise the amount of dry and wet waste sent to landfill.	LIMPURB	SECIS	<b>Short</b> <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Solid waste**

**ACTION 45** Implement mechanisms to reduce waste generation by and enhance separate waste collection for the public administration

TYPE: ENABLING ACTION

Description:

Implement mechanisms to reduce waste generation by the public administration and implement a separate waste collection system to serve municipal offices.

**Synergy with other pillars:**



Status: Proposition

(until 2024) **Timeframe:**

Short term

Medium term

Long term

Lead institution: SECIS

Partner institutions: LIMPURB

Climate risks:

GHG Mitigation - Sectors:



**Benefits:**

Mitigation

**Co-benefits:**

**Financing:**

Identified – Public funds



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Solid waste**

**Monitoring indicators:**

- Volume of paper waste generated by public administration offices.





STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Solid waste**

**ACTION 46** Establish composting facilities and encourage composting

TYPE: PROGRAMME

Description:

This action will establish a central composting facility to process waste from fairs, pruning waste from public green spaces and household organic waste. The facility will also function as an environmental education centre. In addition, the action will launch small-scale composting programmes in public schools and incentive programmes for residential and commercial composting.

**Synergy with other pillars:**



**Status:** In execution

(until 2032) **Timeframe:**

Short term   
**Medium term**   
 Long term

**Lead institution:** SECIS

**Partner institutions:** LIMPURB

Climate risks:



GHG Mitigation - Sectors:



**Benefits:**

Mitigation  
Adaptation

**Co-benefits:**

Health and wellbeing  
Climate justice

**Financing:**

Identified – Potential for public funds and/or local partnerships



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Solid waste**

**Monitoring indicators:**

- Creation of a composting facility;
- Number of composters deployed in schools.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
46.1 Develop a feasibility study for the adoption of anaerobic digestion methods.	SECIS	LIMPURB, EMBASA, BATTRE	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
46.2 Promote recycling and use of waste generated by restaurants.	LIMPURB	SECIS	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>





STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Solid waste**

**ACTION 47** Strengthen the reverse logistics system

TYPE: PROGRAMME

Description:

This action will involve regulating and implementing reverse logistics as mandated by the National Solid Waste Policy (PNRS) at the municipal level, establishing methods for management, monitoring and inspection as well as punishment for offenders, to ensure that large generators of waste contribute to the maintenance and costs of the municipal reverse logistics system and also play their part in the development of reuse systems.

Synergy with other pillars:



Status:  Planned

(until 2032) Timeframe:

Short term

Medium term

Long term

Lead institution: LIMPURB <

Partner institutions: <<  
SECIS, Recycling cooperatives, Private sector

Climate risks:



GHG Mitigation - Sectors:



**Benefits:**  
Mitigation  
Adaptation

**Co-benefits:**  
Health and wellbeing

**Financing:**  
Identified – Public funds and Local partnerships.



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Solid waste**

Monitoring indicators:

- Publication of the municipal regulatory framework for reverse logistics;
- Number of companies registered as large waste generators that have a reverse logistics programme in place.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
47.1 Develop a training programme for reverse logistics.	LIMPURB	SECIS, universities, Casa SO+MA	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>





STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Solid waste**

**ACTION 48** Prevent dispersal of solid waste

TYPE: PROGRAMME

Description:

Expand barriers to prevent dispersal of solid waste in neighbourhoods in order to avoid pollution of water bodies.

**Synergy with other pillars:**



**Status:** Proposition

(until 2032) **Timeframe:**

Short term

**Medium term**

Long term

**Lead institution:** LIMPURB

**Partner institutions:** SECIS, SEINFRA

**Climate risks:**



**GHG Mitigation - Sectors:**



**Benefits:**

Mitigation  
Adaptation

**Co-benefits:**

Health and wellbeing

**Financing:**

Identified - Public funds



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Solid waste**

**Monitoring indicators:**

- Volume of material collected at the barriers.





Photo: Pixabay | PEXELS

#### **4.4.4. Guiding Theme: Energy**

Expand the generation of clean and renewable energy, promote the use of eco-efficiency and energy efficiency solutions in buildings, motorised transport, trade and industry, and include actions targeted at low-income and vulnerable communities.



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Energy**

**ACTION 49** Develop renewable energy projects in communities

TYPE: PROJECT

Description:

This action will promote the development of community energy projects, including micro-grids and district systems, to provide social, environmental and economic benefits.

**Synergy with other pillars:**



**Status:** In execution

(until 2024) **Timeframe:**  
 Short term   
 Medium term   
 Long term

**Lead institution:** SECIS

**Partner institutions:** COELBA, SEINFRA, FMLF

**Climate risks:**



**GHG Mitigation - Sectors:**



**Benefits:**  
Mitigation

**Co-benefits:**  
Climate justice

**Financing:**  
Identified – Public funds and/or local and international partnerships.



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Energy**

**Monitoring indicators:**

- Number of community energy projects implemented;
- Number of vulnerable families/groups served by the projects.





STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Energy**

**ACTION 50** Include distributed generation in plans to attract new investment

TYPE: ENABLING ACTION

Description:

This action will ensure that all plans that aim to attract investment for the city, such as tourism and economic development strategies, consider interventions which promote renewable energy generation and the transition to a low-carbon economy.

**Synergy with other pillars:**



**Status:**  Proposition

(until 2032) **Timeframe:**

Short term

Medium term

Long term

**Lead institution:** Cabinet Office <

**Partner institutions:** SECIS <<

Climate risks:

GHG Mitigation - Sectors:



**Benefits:**

Mitigation

**Co-benefits:**

Climate justice

**Financing:**

Identified – Public funds



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Energy**

**Monitoring indicators:**

- Number of plans that include interventions promoting renewable energy generation and the transition to a low-carbon economy as a share of the total number of city plans.

**SUSTAINABLE DEVELOPMENT GOALS**





STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Energy**

ACTION  
**51**

Include energy efficiency criteria in public procurement

TYPE: PROJECT

Description:

This action will ensure that decisions to purchase, hire or lease equipment by the municipality are made following energy efficiency criteria, for example that any equipment procured by the municipality must have been rated "A" for energy efficiency by the Brazilian Labelling Programme (PBE).

**Synergy with other pillars:**

Status:  Proposition

(until 2032) **Timeframe:**

Short term

**Medium term**

Long term

Lead institution: SEMGE <

Partner institutions: SECIS, Cabinet Office <<

Climate risks:

GHG Mitigation - Sectors:



**Benefits:**

Mitigation

**Co-benefits:**

Health and wellbeing

**Financing:**

Identified – Public funds



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Energy**

**Monitoring indicators:**

- Number of public procurements following energy efficiency criteria as a share of total public procurements.





STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Energy**

**ACTION 52** Ensure energy efficiency improvements in public lighting

**Synergy with other pillars:**

TYPE: PROJECT

Description:

This project aims to upgrade 100% of the city's public lighting infrastructure, replacing vapor lamps with LED lamps and installing an intelligent monitoring system. In addition to the reduction in energy consumption, this replacement will also reduce maintenance costs, as the failure rate of LED lamps is lower than 1%.

**Status:**  In execution

(until 2024) **Timeframe:**

**Short term**

Medium term

Long term

**Lead institution:** SEMOP <

**Partner institutions:** <<

Climate risks: GHG Mitigation - Sectors:



Benefits:	Co-benefits:	Financing:
Mitigation	Health and wellbeing	Secured - Public funds



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Energy**

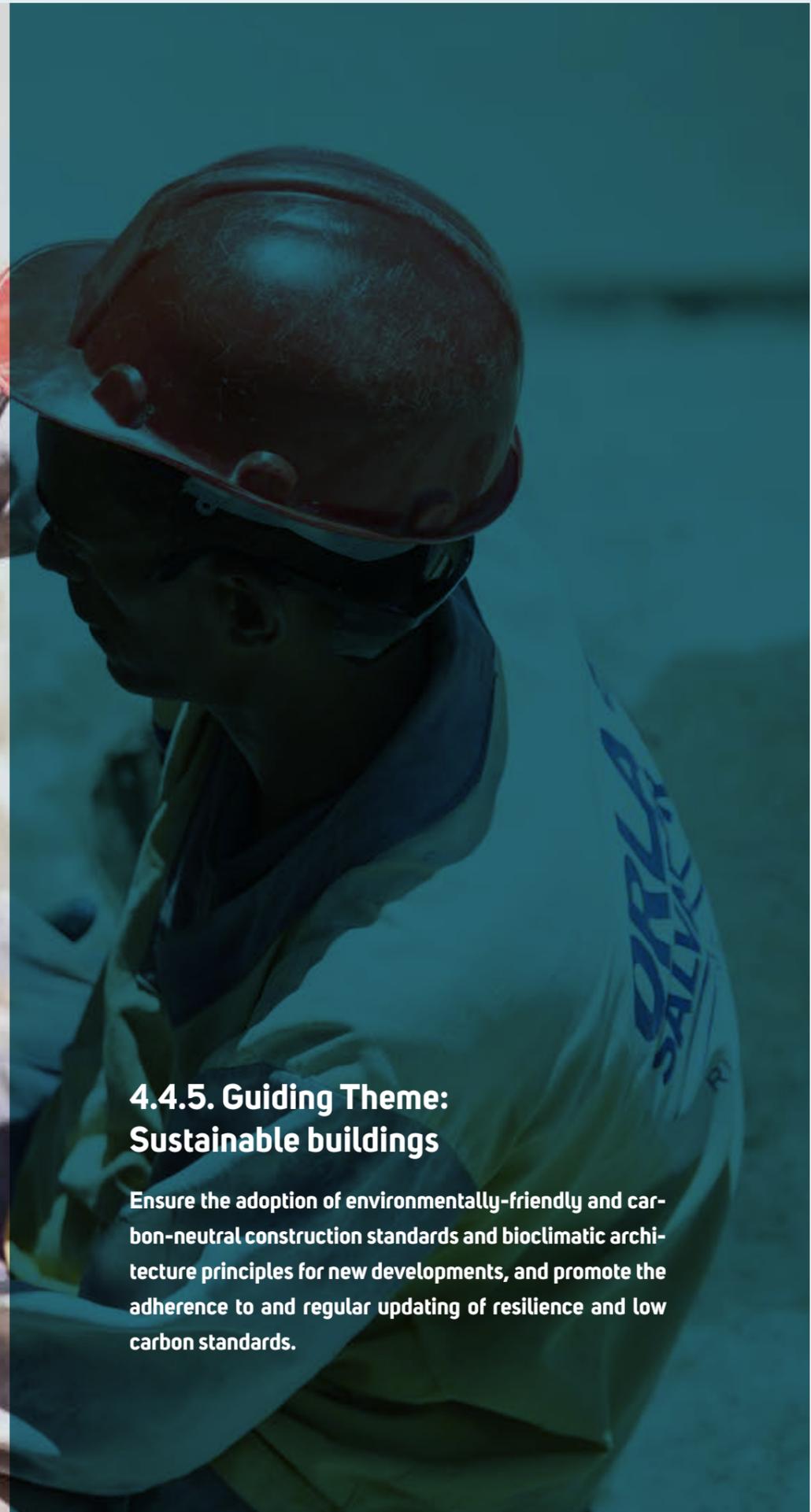
**Monitoring indicators:**

- Percentage of LED lamps in public lighting;
- Percentage of public lighting managed by the intelligent monitoring system.





Photo: Marcelo Gandra



#### **4.4.5. Guiding Theme: Sustainable buildings**

Ensure the adoption of environmentally-friendly and carbon-neutral construction standards and bioclimatic architecture principles for new developments, and promote the adherence to and regular updating of resilience and low carbon standards.



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Sustainable buildings**

**ACTION 53** Encourage the use of Green IPTU

TYPE: ENABLING ACTION

Description:

The Green IPTU (IPTU Verde) programme encourages businesses in Salvador to implement sustainability actions such as energy efficiency interventions by granting them Urban Property Land Tax (IPTU) exemptions and Public Concession of Building Rights. The discount can amount to a maximum of 10% of total tax based on the property value, for up to six years (3 +3). The tax discount can amount to as much as 80% for land in protected natural areas when owners choose not to build or economically explore.

Synergy with other pillars:



Status: In execution

(until 2024) Timeframe:

Short term    
Medium term    
Long term

Lead institution: SECIS

Partner institutions: SEDUR, SEFAZ

Climate risks: GHG Mitigation - Sectors:



Benefits:	Co-benefits:	Financing:
Mitigation Adaptation	Health and wellbeing Green spaces	Partially secured - Public funds



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Sustainable buildings**

Monitoring indicators:

- Number of buildings for which applications for Green IPTU certification have been submitted;
- Number of Green IPTU-certified buildings.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
53.1 Develop renewable energy awareness campaigns.	SECIS	SEMOP, COELBA	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
53.2 Encourage the use of the Green IPTU.	SECIS	SEDUR, FMLF	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>
53.3 Launch advertising campaigns to raise awareness of the Green IPTU programme.	SECIS	SEDUR	Short <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>





STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Sustainable buildings**

**ACTION 54** Encourage the adoption of cool roofs

TYPE: ENABLING ACTION

Description:

This action will promote the creation of white or green cool roofs on public buildings and include mechanisms to enhance the effectiveness of these roofs as thermal insulators. It will also promote other zero-energy techniques to provide greater climate comfort in buildings and thereby reduce energy use for heating and cooling.

Synergy with other pillars:



Status:  Proposition

(until 2032) Timeframe:

Short term

Medium term

Long term

Lead institution: FMLF, SEINFRA <

Partner institutions: SECIS, SEDUR <<

Climate risks:



GHG Mitigation - Sectors:



Benefits:

Mitigation  
Adaptation

Co-benefits:

Health and wellbeing

Financing:

Identified – Public funds  
and/or Local partnerships.



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Sustainable buildings**

Monitoring indicators:

- Area (m<sup>2</sup>) of green roofs in the city;
- Area (m<sup>2</sup>) of white roofs on public buildings;
- Percentage of the city's surface area covered with materials with a high albedo, which contributes to the mitigation of the urban heat island effect.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
54.1 Encourage the creation of white roofs.	SEINFRA, FMLF	SECIS, SEDUR	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>
54.2 Encourage the creation of green roofs.	SECIS	SEINFRA, FMLF, SEDUR	Short <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Long <input type="checkbox"/>





STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Sustainable buildings**

**ACTION 55** Include EbA solutions in plans for the upgrading of public spaces

TYPE: ENABLING ACTION

Description:

This action will ensure the inclusion of ecosystem-based adaptation (EbA) solutions in projects to upgrade buildings, public spaces and shading equipment in squares, especially those spaces in busy and/or touristic areas.

Synergy with other pillars:



Status: In execution

(until 2032) Timeframe:

Short term

Medium term

Long term

Lead institution: FMLF

Partner institutions: SECIS, SEINFRA, SEMAN, SUCOP

Climate risks:



GHG Mitigation - Sectors:



Benefits:

Mitigation  
Adaptation

Co-benefits:

Health and wellbeing  
Climate justice

Financing:

Partially secured and identified – Public funds



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Sustainable buildings**

Monitoring indicators:

- Number of public upgrading projects which have adopted EbA solutions as a share of total number of public upgrading projects.





STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Sustainable buildings**

**ACTION 56** Encourage energy efficiency in construction work and buildings

TYPE: ENABLING ACTION

Description:

This action will reduce energy consumption during the construction and operation of establishments (such as hospitals, buildings, and housings) through the adoption of energy efficiency measures, such as: modernisation of lighting and equipment (using high-efficiency technologies), installation of presence sensors and automation of ventilation mechanisms that facilitate appropriate ventilation and cooling, minimising high temperatures.

**Synergy with other pillars:**



Status:  Proposition

(until 2032) **Timeframe:**

Short term

Medium term

Long term

Lead institution: **SECIS** <

Partner institutions: **SEDUR, FMLF, SEINFRA** <<

Climate risks:



GHG Mitigation - Sectors:



**Benefits:**

Mitigation  
Adaptation

**Co-benefits:**

Health and wellbeing

**Financing:**

Identified – Public funds  
and/or Local partnerships.



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Sustainable buildings**

**Monitoring indicators:**

- Per-capita total final energy consumption;
- Percentage of total final energy from renewable sources.



SUB-ACTION	LEAD INSTITUTION	PARTNER INSTITUTION	TIMEFRAME
56.1 Adopt energy efficiency criteria for public buildings.	SEINFRA,	FMLF, SEMGE, SEMOP	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>
56.2 Demand the installation of facilities and devices for separate waste collection in buildings.	FMLF	SEDUR	Short <input type="checkbox"/> <b>Medium</b> <input checked="" type="checkbox"/> Long <input type="checkbox"/>
56.3 Improve the efficiency of air conditioning systems in public buildings.	SEMGE	FMLF	<b>Short</b> <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Long <input type="checkbox"/>





STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Sustainable buildings**

**ACTION 57** Encourage the use of Yellow IPTU

TYPE: ENABLING ACTION

Description:

The Yellow IPTU (IPTU Amarelo) Sustainable Certification Programme aims to encourage homeowners and condominium owners to install solar PV systems for energy generation, by offering an IPTU tax discount depending on the production and consumption rates of the residence. The action will develop and launch a campaign to spread awareness of the benefits of Yellow IPTU certification.

**Synergy with other pillars:**

**Status:**  In execution

**Timeframe:** (until 2024)

**Short term:**

**Medium term:**

**Long term:**

**Lead institution:** SECS <

**Partner institutions:** SEDUR, SEFAZ, COELBA <<

**Climate risks:** **GHG Mitigation - Sectors:**



Benefits:	Co-benefits:	Financing:
Mitigation		Identified – Public funds



STRATEGIC PILLAR | **LOW-CARBON SALVADOR**  
GUIDING THEME | **Sustainable buildings**

**Monitoring indicators:**

- Number of buildings for which applications for Yellow IPTU certification have been submitted;
- Number of Yellow IPTU-Certified buildings.



Photo: Drew Beamer | UNSPLASH

*"Achieving carbon-neutrality requires the inclusion of the most vulnerable people, the development of a greener and more sustainable economy and the improvement of quality of life in our city."*

*Bruno Reis*

**PART III**  
*FUTURE*



MONITORING AND OPPORTUNITIES

# HOW WE WILL GET THERE 5.

Photo: Carlos Arthur | UNSPLASH

The goals and targets presented in this Plan reflect Salvador's ambition to become not only a carbon-neutral city, but also a city that is resilient to the impacts of climate change.

To ensure the successful implementation of the Plan, it is important to conduct regular evaluations to assess whether the actions implemented in different sectors are effective and whether the city is on track to meet its goals. Monitoring and evaluation ensure transparency and form key parts of any climate action planning process. Salvador intends to adopt a policy mandating the development of a Management System for Climate Change Mitigation and Adaptation, which will facilitate monitoring of PMAMC implementation by a specially formed committee.

The actions in this Plan must be reviewed at least every four years, preferably during or near the end of the second financial year of each city council term, with the first revision commencing in early 2025. Based on the results of the monitoring of the PMAMC's implementation, actions can be redefined and new ones can be created to accelerate progress. The PMAMC revision process, which will involve participation of society and academic stakeholders, will also allow Salvador to raise its ambitions and to

align its climate targets with new studies and national and international agreements.

To allow for effective monitoring of GHG emission reductions, the city will regularly update and publish its GHG emissions inventory following the GPC BASIC or BASIC+ methodology. For this purpose, Salvador has created, with C40's support, a GHG Inventory Management Plan, which outlines important data points, how these should be used and which entities inside and outside the municipality should be involved in the process.

The management of climate data will be aligned with the management of strategic data contained in other plans or departments, such as

the Smart City Technologies Master Plan (PDT-CI), and in the development of programmes such as Data Salvador and Salvador's Observatory. The city should pursue the optimisation of data collection and sharing across different plans and programmes, to enhance the accessibility of data not only to all departments of the city, but also to the population.

Monitoring of the Plan's progress will be conducted based on indicators for each of the mitigation and adaptation goals presented in Section 3.4. The data for most of the indicators is easily accessible so that interested stakeholders can perform their own monitoring of PMAMC progress.

Photo: Marcelo Gandra



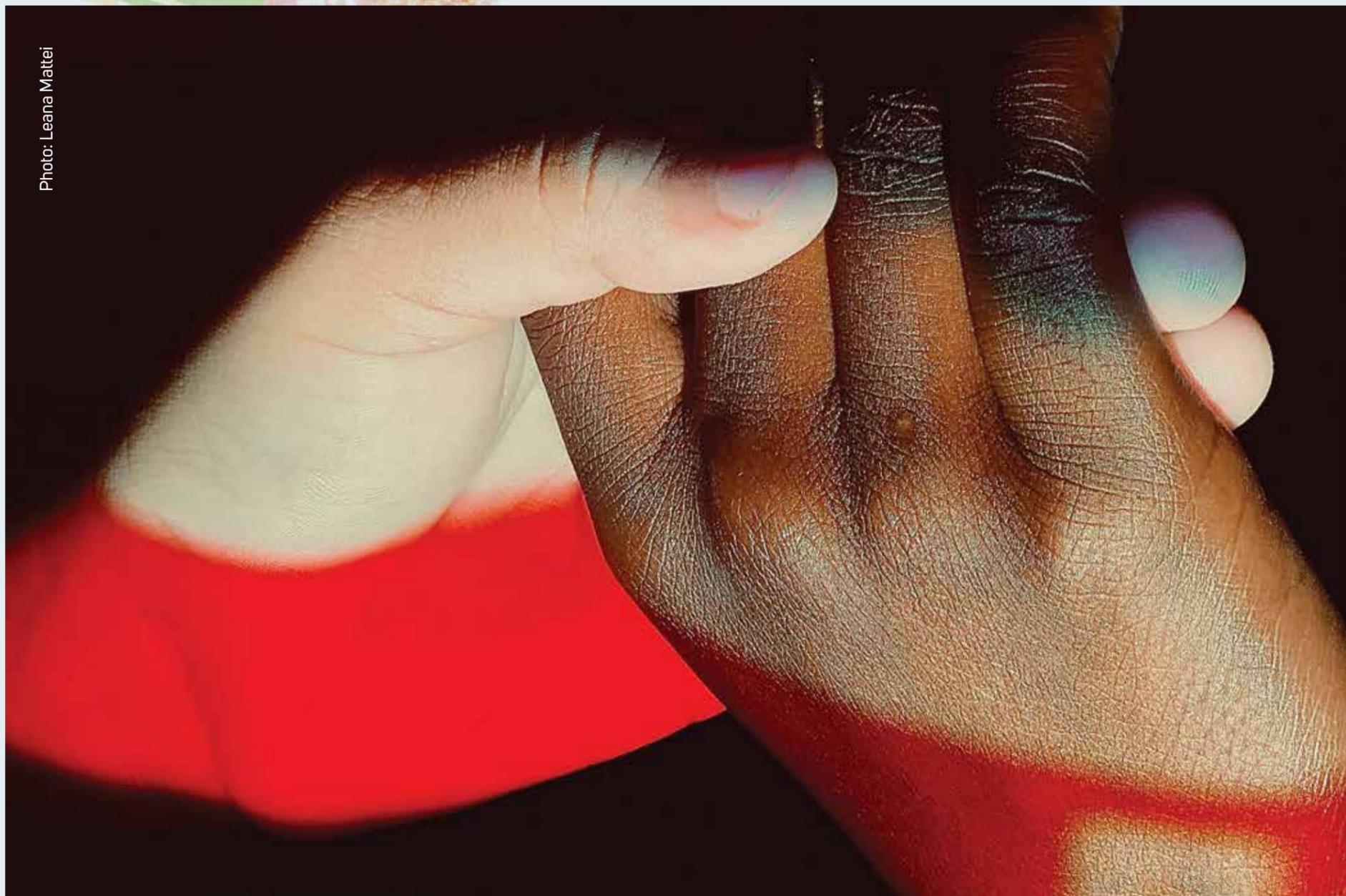
Using these urban policy instruments, the city will control and communicate how the implementation of the PMAMC is progressing, and, where needed, apply course corrections and redirect efforts to ensure greater effectiveness of actions. It should be stressed that the PMAMC is a dynamic plan that will be regularly updated based on the latest developments in science and technology, considering the limitations and innovations inherent to the climate change theme.

INDICATORS	SOURCES
Decrease in GHG emissions in 2024, 2032 and 2049	GHG emissions inventory
Percentage of less polluting vehicles in the public transport fleet	Secretariat / Department responsible for fleet management in the city
Modal share of bicycles versus private vehicles	Source-Destination Search
% of buildings equipped with distributed energy generation capacity	ANEEL
% of solid waste recycled and % of organic waste treated	Secretariat responsible for waste management in Salvador
Incidence of diseases spread by vector (mosquito <i>Aedes aegypti</i> – arboviruses)	Municipal Secretariat of Health
Green space per inhabitants.	MAPBIOMAS / IBGE

Source: Prepared by WayCarbon / ICLEI

# FINAL CONSIDERATIONS 6.

Photo: Leana Mattei



Climate change is one of the greatest challenges humankind is facing today and will be facing tomorrow. Cities hold the majority of the world's population and will therefore play a key role in addressing climate change to protect their residents and environmental assets, while reducing activities that contribute to worsening climate change. For this, strategic public mitigation and adaptation policies and effective actions are required.

To develop appropriate, effective climate action plans and direct investment where it is most useful and needed, cities must perform thorough analyses of their local context and geography, high-emission sectors and priority or high-risk areas. In addition, the mitigation and adaptation actions proposed in this Plan aim to build on projects and programmes that are already underway and to boost the local climate agenda in support of Salvador's goal to become a carbon-neutral, climate-resilient city.

In 2018, the City of Salvador emitted 3.0 Mt-CO<sub>2</sub>e. The transportation sector was the largest GHG emitter, responsible for nearly 65.1% of total emissions, followed by the stationary energy (21.7%), waste (12.6%) and AFOLU (0.6%) sectors. Between the years of 2014 and

2018 the city's emissions declined by nearly 20% as a result of an 18% emission reduction in the transport sector, mainly due to a partial fuel shift from gasoline to ethanol; and a 33% reduction in emissions from the stationary energy sector, due to a decrease in the emissions factor of national grid electricity.

Along with other recent developments, such as efficiency gains in privately owned and public transport vehicles, the economic crisis was a decisive factor behind Salvador's declining emissions. Despite this decline, however, the transportation sector remains by far the largest emitter in the city, largely due to the consumption of fossil fuels by privately-owned vehicles. This indicates the

need for effective transport policies to reduce emissions in this sector further.

A climate risk analysis revealed the risks posed to Salvador by natural disasters such as flooding, landslides, heat waves and droughts. These extreme weather events have devastating effects on the city's environment (natural and built) and its population. This Plan assessed how key climate threats exacerbated by climate change are projected to affect Salvador's population, especially socially and/or economically vulnerable communities with limited adaptive capacity.

Poor communities tend to be more susceptible to climate change risks and will therefore

require greater assistance to build resilience. Adaptation relies on structural adjustments in socio-ecological and economic systems, as a community's capacity to respond and adapt to climate extremes is closely linked to its social structure and the mechanisms available for its protection and assistance, as well as to its members' education and income levels. For this reason, urban environmental management must facilitate: (1) The participation of diverse economic sectors, communities and municipal entities; (2) Integrated and coordinated action across different levels and themes (e.g., jobs and income, education, infrastructure, housing, health and environment); (3) Greater cooperation and coordination among entities that are part of the local government, espe-

cially those agencies responsible for urban, environmental and health issues.

The PMAMC was developed with broad engagement and participation of important climate action stakeholders, including representatives of universities, civil society, the private sector and municipal agencies, in addition to a group of renowned experts. This broad stakeholder engagement made the process extremely rich and full of learning. Beyond the definition and implementation of the urban policy instruments contained in this Plan, PMAMC will consolidate the City of Salvador's climate change agenda, paving the way for the city to become a world leader in addressing climate change and to inspire other cities to follow the same path.



# ACKNOWLEDGEMENTS



Photo: Marcelo Gandra

It is with great pleasure that we highlight the participation of countless stakeholders without which the development of the PMAMC would not have been possible. Many people have contributed their time and experience to the development of this important Plan. We thank all secretaries, directors, managers, and municipal public officers, the members of the Salvador Panel on Climate Change, representatives of civil society organisations, university professors, researchers, private sector representatives,

experts, representatives of international and multilateral organisations, community leaders and all citizens for their contributions to the development of the Climate Change Mitigation and Adaptation Plan of the City of Salvador. We thank our international partners, especially the Inter-American Development Bank (IDB), the German Agency for International Cooperation (GIZ), and the Department for Business, Energy & Industrial Strategy (BEIS) of the British Government for their financial support to C40's Climate Action Planning Programme.



Photo: Marcelo Gandra

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## LIST OF ACRONYMS

ABC – Refers to the cities of Santo André, São Bernardo and São Caetano, in São Paulo State  
AFOLU – Agriculture, forestry and other land use  
APP – Permanent Preservation Area  
ASAP – Action Selection and Prioritization Tool  
BAHIAGÁS – Bahia Gas Company  
BATTRE - Bahia Transport and Waste Treatment S.A.  
Codesal – Salvador Civil Defence  
COELBA – Bahia State Electricity Company  
COGEL – Salvador Electronic Governance Company  
CRAS – Social Assistance Reference Centre  
CREAS – Specialised Social Assistance Reference Centre  
EbA – Ecosystem-based adaptation  
EMBASA – Bahia Water and Sanitation Company  
FIEB – Bahia State Federation of Industries  
FMLF – Mário Leal Ferreira Foundation  
FJP - João Pinheiro Foundation  
GDP – Gross Domestic Product  
GHG – Greenhouse gas  
GIZ – German Agency for International Cooperation  
GPC – Global Protocol for Community-Scale Greenhouse Gas Emission Inventories  
HDI - Human Development Index  
IADB – Inter-American Development Bank  
IBGE – Brazilian Institute of Geography and Statistics  
IDEB – Index of Development of Basic Education-  
INEMA – Institute of Environment and Water Resources  
IPCA - Broad National Consumer Price Index  
IPCC – Intergovernmental Panel on Climate Change  
IPEA - Instituto de Pesquisa Econômica Aplicada  
IPPU – Industrial processes and product use  
IPTU – Urban Property Land Tax  
Limpurb – Urban Cleaning Services Company  
LOUOS – Land Use and Occupation Law  
LPG – Liquefied petroleum gas  
NbS – Nature-Based Solutions  
NDC – Nationally Determined Contribution  
NGO - Non-governmental organisation  
NUPDEC – Community Civil Protection and Defence Centre  
PBE – Brazilian Labelling Program  
PBMC – Brazilian Panel on Climate Change

PDDU – Urban Development Master Plan  
PDITS – Integrated Development Plan for Sustainable Tourism  
PDTCI – Smart City Technologies Master Plan  
PlanMob – Salvador’s Sustainable Urban Mobility Plan  
PMAMC – Climate Change Mitigation and Adaptation Plan of the City of Salvador  
PMMA – Municipal Plan for Conservation and Recovery of the Atlantic Forest  
PMS – Salvador Municipal Government  
PNA – National Adaptation Plan  
PNAD - Pesquisa Nacional por Amostra de Domicílios  
PRODETUR – National Tourism Development Program  
RCP – Representative Concentration Pathway  
SALTUR – Salvador Tourism Company  
SAVAM - System of Areas with Environmental and Cultural Value  
Sebrae - Brazilian Micro and Small Business Support Service  
SECIS – Municipal Secretariat of Sustainability, Innovation and Resilience  
SECULT – Municipal Secretariat of Culture and Tourism  
SEDUR – Municipal Secretariat of Urbanism  
SEFAZ – Municipal Secretariat of Finance  
SEINFRA – Municipal Secretariat for Infrastructure and Public Works  
SEMAM – Municipal Secretariat of City Maintenance  
SEMGE – Municipal Secretariat of Management  
SEMOB – Municipal Secretariat of Urban Mobility  
SEMOP – Municipal Secretariat of Public Works  
SEMPRE – Municipal Secretariat for Social Advancement and Poverty Alleviation  
SEMTEL - Municipal Secretariat of Labor, Sports and Leisure  
SEMUR – Municipal Secretariat for Assistance and Reparation  
SENAI – National Industrial Training Service  
SENAI-CIMATEC - Integrated Manufacturing and Technology Campus  
SIN – National Interconnected Grid  
SMED – Municipal Secretariat of Education  
SMS – Municipal Secretariat of Health  
SUCOP - Superintendence of Public Works UNFCCC – United Nations Framework Convention on Climate Change  
VISAM - Environmental Health Surveillance  
ZEIS - Special Area of Social Interest

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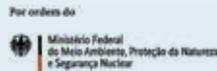
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