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100

RESILIENT CITIES



RESILIENT TBILISI

Resilient Tbilisi

A Strategy for 2030

2019 Edition

A resilient and vibrant city, where residents are protected and safe, where there is access to opportunity and healthy natural environments and where we are empowered to plan ahead, ready respond to any challenge.

Tbilisi's Resilience Strategy was produced by the Resilience Office of Tbilisi City Hall, with support from 100 Resilient Cities, pioneered by the Rockefeller Foundation. The strategy was developed in collaboration with strategic partners, BuroHappold Engineering.

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LETTER FROM THE MAYOR OF TBILISI MR KAKHA KALADZE



To all our collaborators in this strategy; our public, private, community and academic sector colleagues and IFI partners,

Thank you for your invaluable contributions in developing Tbilisi's first Resilience Strategy. Your support and suggestions to date have been instrumental.

This is the first document of its kind for Tbilisi, addressing the main challenges and providing solutions that will help us elaborate a better strategic vision for our city's development.

Like many modern cities, Tbilisi is facing the common challenges of urban mobility, economic shifts, urban infrastructure and environmental protection whilst also planning for the potential shocks that every city must prepare for. By implementing Tbilisi Resilience Strategy, we aim to deal with all these issues in a comprehensive way, that supports robust economic growth and builds a resilient society for the future.

This work will require us to discard the silos in which we traditionally work, and collaborate across sectors, in new forms of partnership. Here, your continued support, ideas and expertise and will be key for the success of Tbilisi's Resilience Strategy.

Being part of 100 Resilient Cities network gives us an excellent opportunity to learn from other cities to tackle our current challenges, what is the best approach to the problems and how we can share and adopt the knowledge accumulated over the years.

We as a local government, strongly support Tbilisi's resilience journey. This strategy provides us a long-term vision for the city, and a roadmap to resilience, enabling us to act proactively. The resilience strategy is a major milestone for Tbilisi in its future development.

Sincerely,

Mr Kakha Kaladze
Mayor

LETTER FROM TBILISI'S FIRST CHIEF RESILIENCE OFFICER, ANA ARDELEAN



Each city has its unique resilience story to tell, and Tbilisi is no exception.

As Georgia's capital, Tbilisi has a long history that goes back over fifteen centuries. Thanks to its key location on the crossroad of the east and west, Tbilisi became an important cultural, political and economic center of the region, developing into a melting pot of oriental and western cultures, whilst still maintaining its strong identity.

Over time, the city has withstood many stages of destruction and rebuilding. Residents of Tbilisi throughout history have spared no efforts to enable the city to survive, by supporting each other to overcome natural disasters and civil unrest. Together, we've ensured our city has progressed and prospered.

On 13th June 2015, Tbilisi experienced a devastating flash flood, that struck the centre of the city. This terrible shock became a turning point, and a catalyst for us to start thinking differently. It forced us to acknowledge our city's strengths and weaknesses, and spurred us to apply, successfully, to the 100 Resilient Cities network.

At the beginning, it was challenging to establish a common understanding of the concept of 'resilience'. We first had to find an accurate translation of the term 'resilience' in Georgian. With the correct and suitable term established, we then set about ensuring this important idea was firmly embedded into the minds of those responsible for tackling the city's challenges.

Tbilisi's very first Resilience Strategy is a product of multiple partnerships and collaborations with contributions from the academia, non-governmental organizations, international organizations, public agencies and the private sector. Together we've come up with solutions that will help Tbilisi succeed in overcoming the city's resilience challenges, and take a step towards a better future.

We envisage Tbilisi to be a city that is protected and safe, a city that is thriving, connected and accessible, and a city that mitigates and adapts to climate change. We are convinced that we will achieve these commitments and make Tbilisi more vibrant and livable for its residents and visitors alike.

Being a member of the 100 Resilient Cities network is a tremendous opportunity for cities to learn and share from the best case study examples, and enable them to become more sustainable and resilient.

In conclusion, I would like to take this opportunity to thank the 100 Resilient Cities network, and all contributors for their endeavor, strong support and inspiration. We are immensely thankful to our Strategy Partner BuroHappold Engineering for their invaluable support and dedication.

Sincerely,

Ms. Ana Ardelean
Chief Resilience Officer, Tbilisi.

LETTER FROM 100 RESILIENT CITIES PRESIDENT MICHAEL BERKOWITZ



Dear reader,

It is a real honour on behalf of 100 Resilient Cities and the Rockefeller Foundation to present to you this resilience strategy - the first one of its kind, and hopefully the beginning of a new kind of era in Tbilisi and in Georgia.

We are extremely happy about our partnership with the beautiful city of Tbilisi. A city of peace, of unification and of bridges between east and west and a city of very resilient people. A city which crisis after crisis, proves to the world how they are capable of bouncing back and keep improving the lives of its citizens. This is why we selected Tbilisi in 2014 for our global pioneering network. Because its leadership understood, and continues to understand that in order to address the challenges of this era, a shift in model and a new way of dealing with crisis is needed.

This is our role at 100 Resilient Cities-to support cities around the world become more resilient to the shocks and stresses of the XXI century.

Igniting a movement to rethink how urban governance needs to look like in this new globalised, urbanised and ever changing world.

We are extremely proud of having worked hard, hand by hand, with Ana Ardelean, Tbilisi and Georgia's first Chief Resilience Officer, to better understand Tbilisi's challenges in depth, engage stakeholders in a completely different way.

We are also thankful to Mayor Kahka for his leadership and vision around resilience - and we expect that this commitment will continue supporting the work of the resilience strategy, but taking it to the next level, institutionalizing resilience in all areas of government and the resilience office in the city. You have a unique opportunity to position your city as a leader and disruptor in the urban field in the region and the world. Let's ensure it happens.

To all international players and stakeholders working in Tbilisi and reading this strategy: As a community you have an extremely important role to play in this resilience conversation. We are happy to inform you that the city has done their homework, has worked hard to map initiatives and priorities, they have also studied your areas of expertise and priority agendas, and has mapped where support is needed. This exercise is a first attempt to make an honest assessment of Tbilisi's priorities for the future in order to become resilient - to become that cultural power in the Caucasus, which is safe, healthy and liveable, equitable and provides a prosperous economic future for all of its citizens.

In order to make that happen, we need you to be full part of the conversation. Not only with your funding and financial support, but mostly your expertise, your know-how, and your commitment to help make this strategy go from paper, to preparation and execution.

By adding all of these pieces of the puzzle, we will transform Tbilisi into the resilient city we all know it can be.

So I invite you to dive in, be critical, put your heart and mind into this resilience strategy, the same as the city has, and to own it as if it were yours - because it is. We count on you to be key thought partners and implementing actors of this strategy.

Join the resilient conversation and let's make Resilient Tbilisi a reality for the generation of kids to inherit a city we all feel proud of.

Sincerely,

Michael Berkowitz
President of 100 Resilient Cities -
Pioneered by the Rockefeller Foundation

EXECUTIVE SUMMARY

Advancing confidently beyond the political and social upheavals of the 1990s and early 2000s, Tbilisi today is a vibrant, diverse, city and a growing tourism and business destination.

The city has been able to resist polarisation, crime and political instability caused by economic transition, civil war and two territorial conflicts. Tbilisi's population has shown exceptional social cohesion and has been described as "being able to mobilise and face challenges with common sense" – in other words, resilient.

In May 2016, Tbilisi was selected to be part of the 100 Resilient Cities Network - an initiative pioneered by the Rockefeller Foundation.

The 100 Resilient Cities program supports the introduction and integration of a vision of resilience that includes not only sudden shocks (earthquakes, floods, epidemics, etc.) but also chronic events or stresses, that weaken the fabric a city every day or cyclically (high unemployment, inefficient transport systems, poor air or water quality etc.). By mitigating the sudden and chronic events, a city may improve its ability to respond effectively and provide better basic services to the population.

This strategy is about Tbilisi's residents, and building a vibrant city, ready to respond to any challenge.

Resilient Tbilisi sets a comprehensive roadmap for 2030. It provides a set of Missions, Goals, and Actions for building resilience in Tbilisi.

This Strategy is organised into three missions which reflect the city's communities' aspirations and needs for Tbilisi's future. The development of the strategy has been made possible by the commitment and contributions of many government agencies, institutions and groups within our city, and we will continue to collaborate widely to implement this strategy.

Mission 1: A city that is protected and safe - seeks to engage and inform all Tbilisi's residents around risk reduction so they can be prepared, ready to respond to any event. This incorporates actions and investments to make our homes, kindergartens and city safer.

Mission 2: A city that is thriving, connected and accessible - aims to connect residents to economic opportunities and enhance quality of life in Tbilisi for both residents and visitors. This mission incorporates actions to diversify Tbilisi's economic sectors, and ensure access across the city is efficient and inclusive for all.

Mission 3: A city that mitigates and adapts to climate change - draws together actions that look ahead and address the long-term effects of climate change. This incorporates actions to invest in strengthening our infrastructure and ecosystems, to ensure they can serve and protect Tbilisi in the future.



READING THIS STRATEGY

This strategy is about Tbilisi’s people, and building a resilient and vibrant city, ready to respond to any challenge. It is organized into three parts:

OUR RESILIENCE STORY

Our resilience story shows how we coped with challenges in the past, and sets Tbilisi’s vision for a resilient future.

- 10 Introduction
- 12 Learning From Our Past
- 14 Tbilisi Today
- 16 A Resilience Approach
- 18 Our Resilience Challenges & Opportunities
- 20 Developing our Resilience Strategy
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OUR RESILIENCE MISSIONS AND ACTIONS

This section presents the three missions for resilience, the goals we are setting ourselves, and the individual actions we are planning to take.

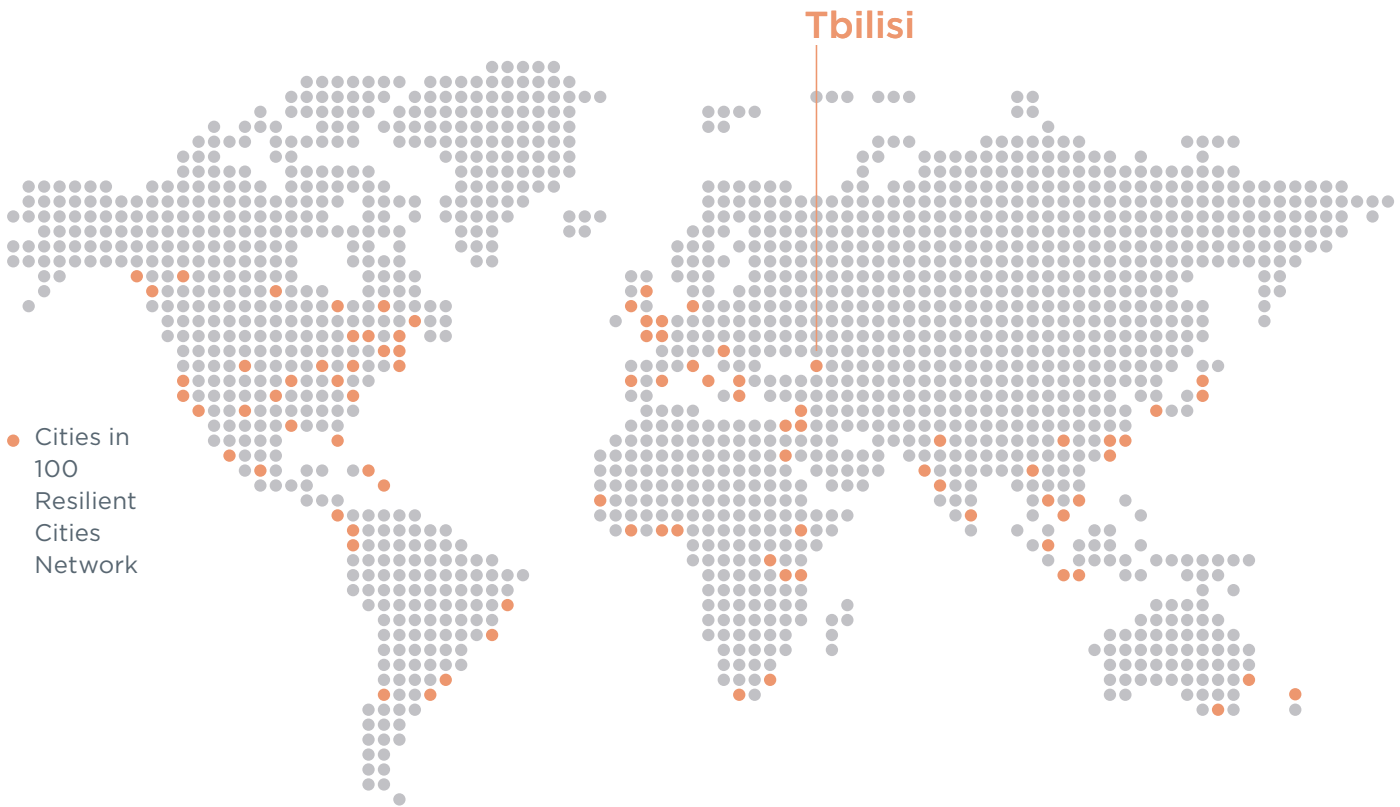
- 32 **Mission 1**
A city that is protected and safe
- 52 **Mission 2**
A city that is thriving, connected and accessible
- 76 **Mission 3**
A city that mitigates and adapts to climate change

NEXT STEPS

Developing this strategy is just the first step in our journey towards a more resilient future. This outlines how we will act to anchor this resilience strategy in the city.

- 96 Next Steps for the Resilience Strategy
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ABOUT 100 RESILIENT CITIES



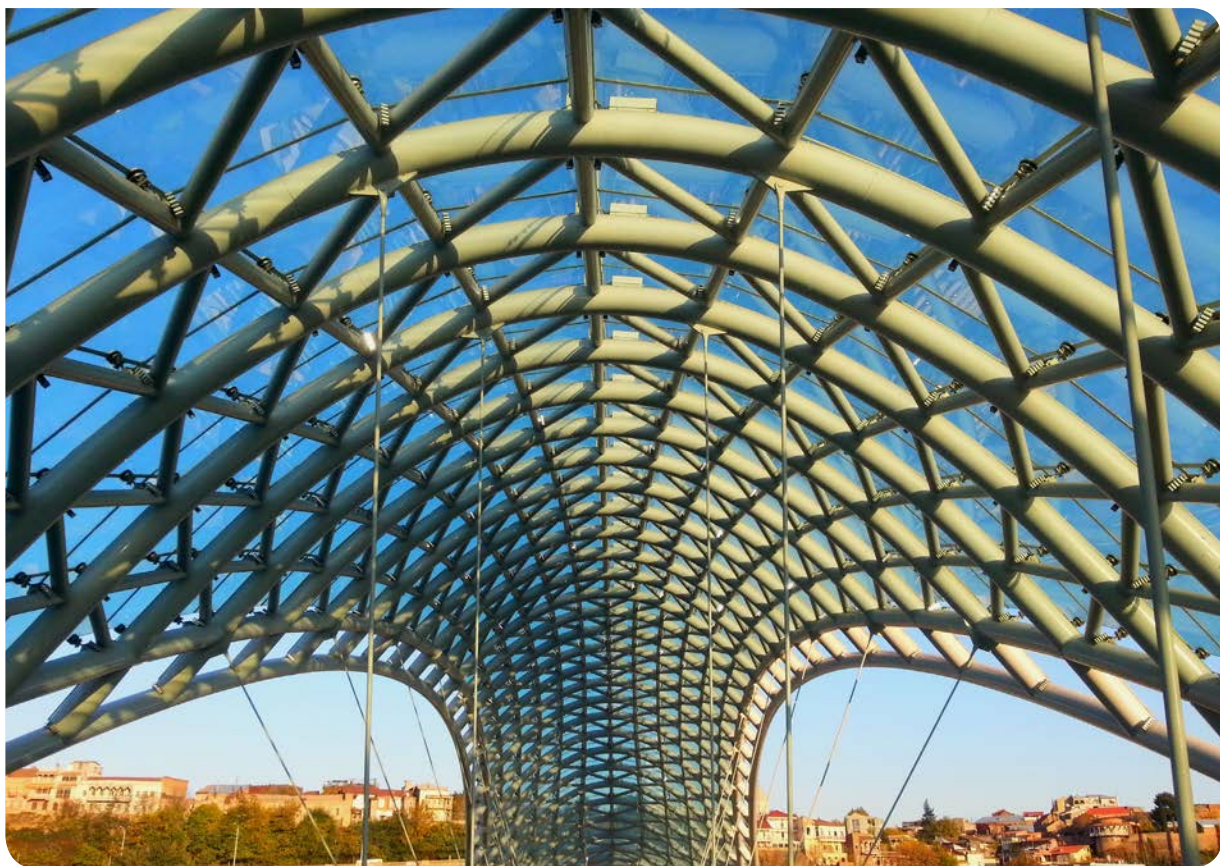
100 Resilient Cities (100RC), pioneered by the Rockefeller Foundation, is dedicated to helping cities around the world become more resilient to the physical, social, and economic challenges that are a growing part of the 21st century. 100RC supports the adoption and incorporation of a view of resilience that includes not just the shocks but also the stresses that weaken the fabric of a city on a day to day or cyclical basis. By addressing both the shocks and the stresses, a city becomes more able to respond to adverse events, and is overall better able to deliver basic functions in both good times and bad, to all populations.

Cities in the 100RC network are provided with the resources necessary to develop a roadmap to resilience along four main pathways:

1. Financial and logistical guidance for establishing an innovative new position in city government, a Chief Resilience Officer, who will lead the city’s resilience efforts,
2. Expert support for development of a robust resilience strategy,
3. Access to solutions, service providers, and partners from the private, public and NGO sectors who can help them develop and implement their resilience strategies, and
4. Membership of a global network of member cities who can learn from and help each other.

Through these actions, 100RC aims not only to help individual cities become more resilient, but will facilitate the building of a global practice of resilience among governments, NGOs, the private sector, and individual residents.

A RESILIENT TBILISI INTRODUCTION



Advancing confidently beyond the political and social upheavals of the 1990s and early 2000s, Tbilisi today is a vibrant, diverse, city and a growing tourism and business destination.

The city has been able to resist the polarisation, crime and political instability caused by economic transition, civil war and two territorial conflicts. Tbilisi’s population has shown exceptional social cohesion and has been described as “being able to mobilise and face challenges with common sense” – in other words, resilient.

Throughout its history, Tbilisi has been a multicultural city with a mixture of ethnic Georgians, Armenians, Azeris, (with significant Jewish and Kurdish communities) and Russians living alongside each other with a tolerance of ethnic and religious differences.

In this decade, the city has emerged as a strong business hub and many foreign banks have established a presence in the city attracted by its strategic location on major trade and pipeline routes.

This growth in finance and trade has been complemented by a growing tourism industry bringing rapidly rising visitor numbers to Tbilisi and Georgia as a whole, drawn by landscape, heritage, cuisine and an exceptionally welcoming culture.

Yet, alongside growing success, several key questions emerge:

- Is the city’s economy sufficiently balanced to ride out potential future shocks and stresses and is it sufficiently inclusive to provide opportunity and prosperity for all residents?
- What measures can be taken to ensure Tbilisi’s aging housing stock provides high quality affordable living conditions for its residents in future?
- Can the city’s environmental challenges be overcome to provide a safer, more sustainable city which supports a higher, healthier standard of living for its residents?
- Have the lessons learnt from the catastrophic floods of 2015 ensured residents, businesses and government are now better prepared to plan for and respond to the wide range of natural hazard events which the city potentially faces?
- Could congestion and car use in the city be reduced to increase accessibility and economic access whilst also improving and enhancing the experience of the city for both residents and visitors?
- What proactive measure can be taken by the city to mitigate and adapt to the risks of climate change and local environmental degradation?

Tbilisi’s Resilience Strategy brings an opportunity to address these challenges directly, providing a platform for our city’s confident growth and development.

This strategy not only gives a voice to important cross-sector challenges, but also provides five roadmaps for tackling them successfully.

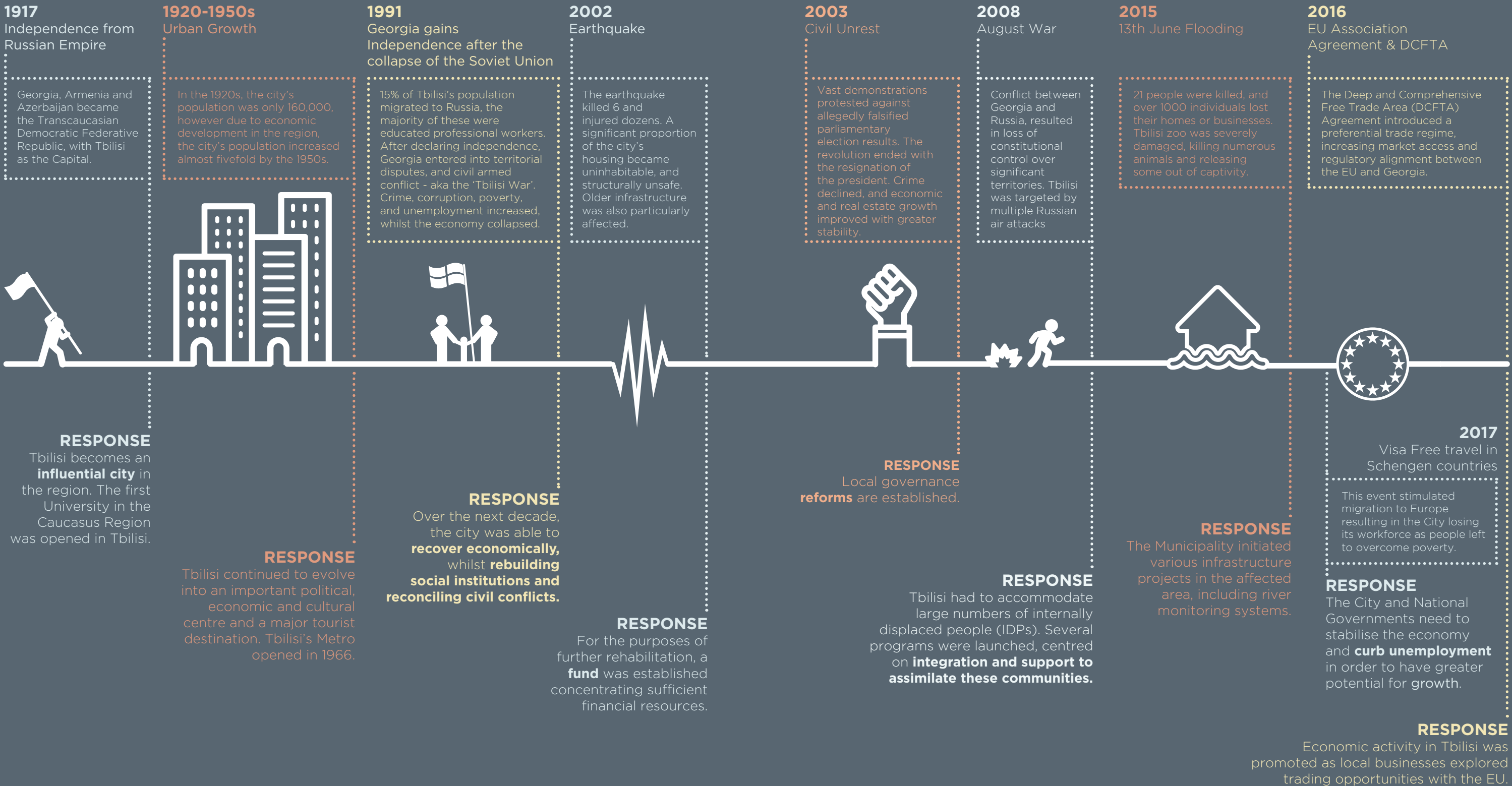
Urban Resilience

is the capacity of individuals, communities, institutions, businesses and systems within a city to survive, adapt and grow no matter what kinds of chronic stresses and acute shocks they experience.

By developing a Resilience Strategy, Tbilisi becomes more able to respond to adverse events and better able to deliver basic functions, especially to the more vulnerable in the city.

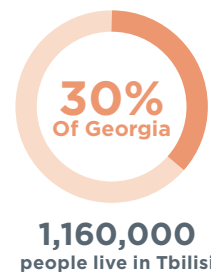
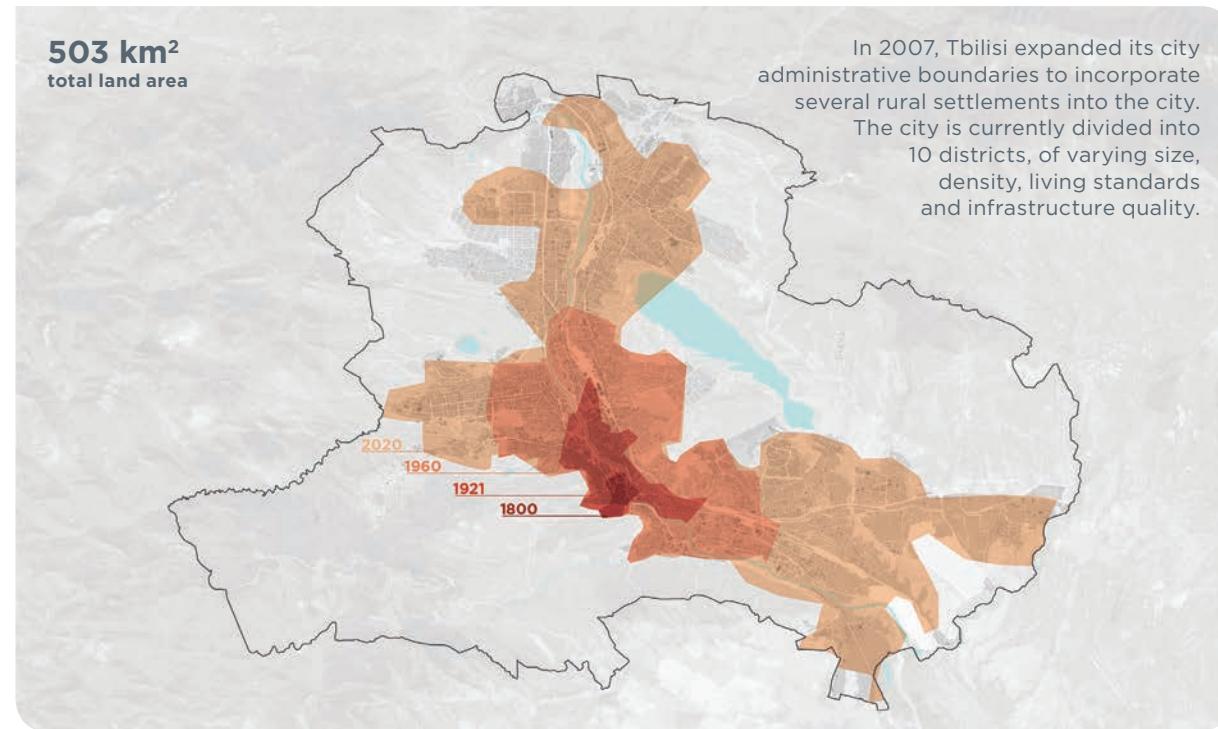
LEARNING FROM OUR PAST:

Tbilisi has demonstrated an extraordinary ability to recover from the diverse challenges the city has faced throughout its past. Resilience is very much embedded within the city's history, and we can learn a lot from how we coped with shocks and stresses in the past

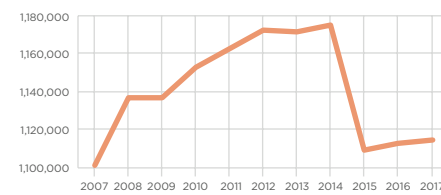


TBILISI TODAY

GEOGRAPHY & DEMOGRAPHICS



Tbilisi's population is now predicted to decline by 1.1% by 2030.



Three key trends are at play:

- Tbilisi's population is aging
- A significant number of people are migrating to other countries. According to 2014 General Population Census, most of Georgia's international emigrants were from Tbilisi itself.
- There is a demographic deficit (or gap) created by the lower birth rate experienced through the upheaval of the 1990s.

MOBILITY & ACCESSIBILITY



Between 2011 and 2016 mode share of cars **INCREASED** from 19% to 30%

In 2016, 20% of all car trips occurred on distances of **LESS THAN 1.5 KM**

People often **DRIVE SHORT DISTANCES** instead of **WALKING**

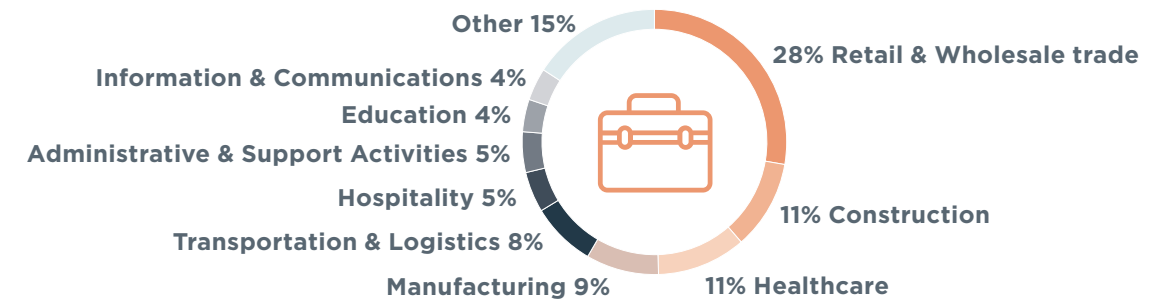
Source: Household Transport Survey, Systra (2016)



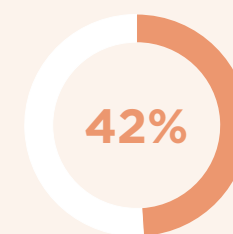
The city is serviced by buses, mini buses, metro and cable cars but coverage is currently limited. The bus and metro networks have potential to increase in both frequency and coverage.

SOCIETY & ECONOMY

EMPLOYMENT BY SECTOR



Tbilisi's Share of National GDP



↑ Tbilisi's economy has been **GROWING STEADILY**, at a rate of **10%** per annum

👤 **YOUTH UNEMPLOYMENT** is **36%** compared to **17%** average across the EU

Sources: National Statistics Office of Georgia (GeoStat), 2016-2018. Deloitte Growth Sector (2019), [http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Unemployment_rates,_seasonally_adjusted,_December_2017_\(%25\)_F2.png](http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Unemployment_rates,_seasonally_adjusted,_December_2017_(%25)_F2.png)

CITY ASSETS

FORESTS & GREEN SPACE

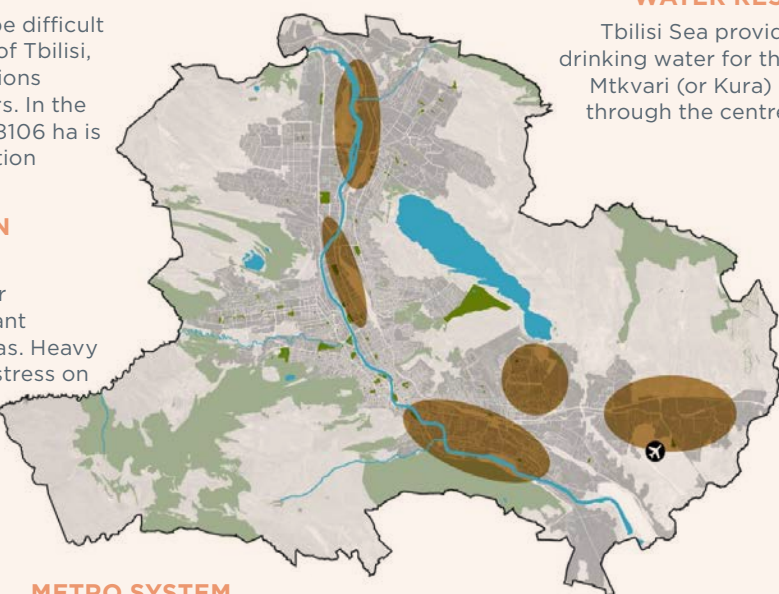
Natural ecosystems can be difficult to sustain within the city of Tbilisi, due to dry climate conditions and anthropogenic factors. In the outskirts, approximately 8106 ha is covered by green vegetation

WATER DISTRIBUTION NETWORKS

Drainage and storm water networks require significant maintenance in some areas. Heavy rain places considerable stress on the drainage system.

HISTORIC ARCHITECTURAL ASSETS

Tbilisi's Historic District is recognised by UNESCO as a potential site of world heritage.



METRO SYSTEM

Tbilisi's metro comprises of two lines, serving 23 stations.

WATER RESOURCES

Tbilisi Sea provides 40% of drinking water for the city. The Mtkvari (or Kura) River, runs through the centre of Tbilisi.

BROWNFIELD SITES

Many industrial sites across the city were abandoned following the economic decline of the early 1990s, and are now ready for development.



A RESILIENCE APPROACH

What is resilience?
100 Resilient Cities defines urban resilience as:

“the capacity of individuals, communities, institutions, businesses, and systems within a city to **survive, adapt, and grow** no matter what kinds of chronic stresses and acute shocks they experience.”

Urban resilience aims to find effective and pragmatic solutions that prepare cities for expected shocks or stresses, as well as unforeseen challenges. This approach calls for a fundamental change in the way in which urban ecosystems are understood as flexible and adaptable to change.

All cities in the 21st century face complex and interdependent crises. This includes a global economic system under great strain, social and territorial tension, ongoing terror threats, decreasing environmental resources, increasing migration flows, and the unknown consequences of a changing global climate

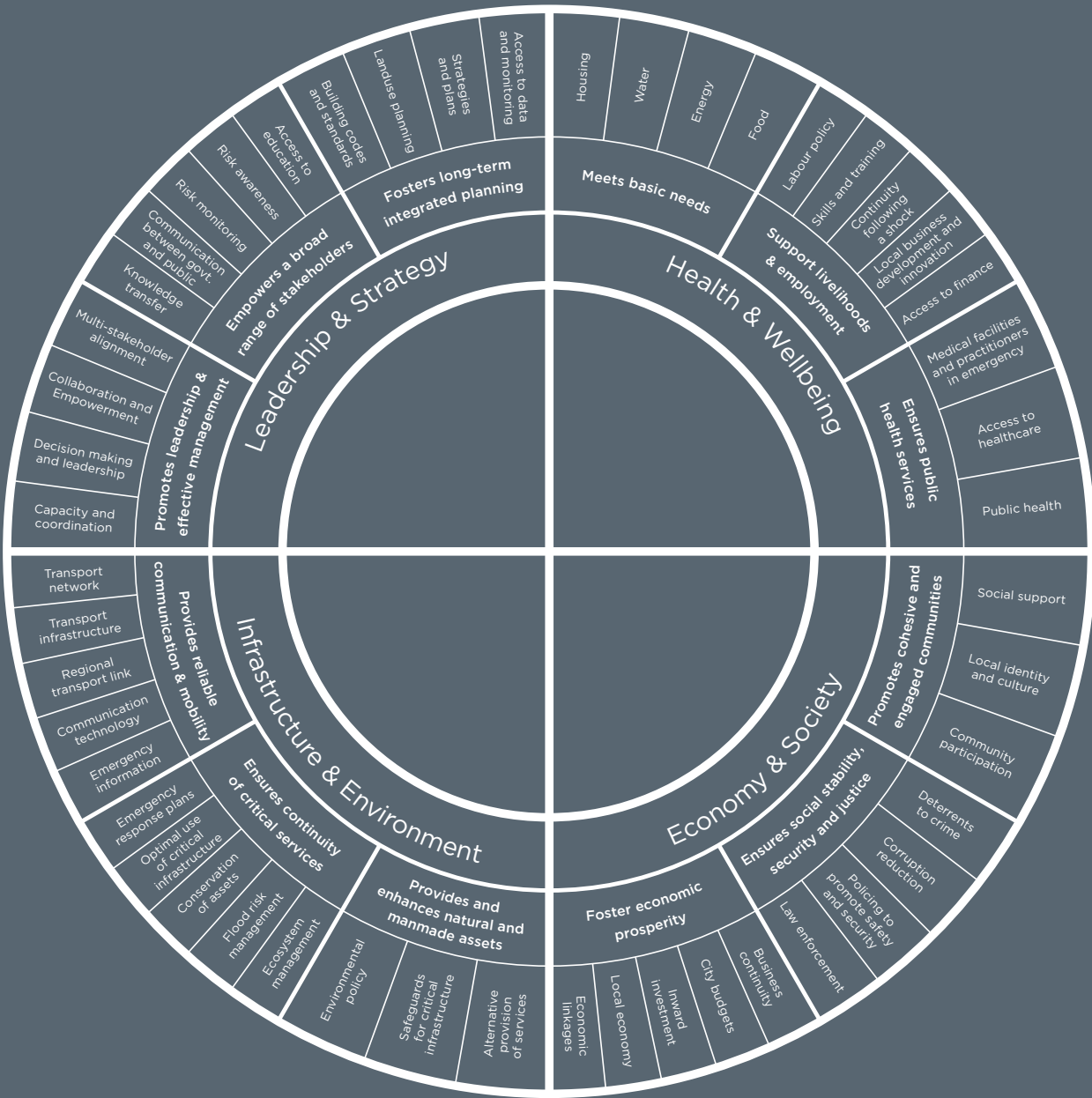
As cities are at the forefront of these disruptions, they must **adapt** and be **flexible to change**.

Characteristics of resilient systems

Resilient systems possess seven qualities that enable them to withstand, respond to and adapt more readily to shocks and stress by taking appropriate or prompt action.



City Resilience Framework



The City Resilience Framework encompasses all aspects of urban development, from natural and built assets to residents’s wellbeing, and socio-economic issues, underpinned by effective leadership and governance. The CRF provides a frame of reference through which the complexity of the a city can be analysed. This was used to design Tbilisi’s Resilience Strategy.

TBILISI'S RESILIENCE CHALLENGES

We face a series of interconnected challenges...

The Preliminary Resilience Assessment identified nine interconnected resilience challenges. These set the foundations for this strategy.

The projects within Tbilisi's Resilience Strategy are designed to address the city's shocks and stresses in a comprehensive and integrated manner.

In resilience terms, a **shock** is a sudden or acute event that threatens Tbilisi's immediate wellbeing. A shock could be an earthquake, infrastructure failure, an extreme weather event, or civil unrest.

100RC encourages cities to adopt and incorporate a view of resilience that includes not just the shocks, but also the **stresses** that weaken the fabric of a city on a day to day, or cyclical basis.

A **stress** is a daily or chronic challenge that weakens Tbilisi's natural built, or human resources. Examples include climate change, aging infrastructure, inequity, homelessness and poor air quality. Stresses can amplify the effect of a shock when it occurs, particularly for vulnerable populations.

By addressing both the shocks and stresses, a city becomes more able to respond to adverse events, and is overall better able to function in both good times and bad, for all its residents.

...but there are many opportunities to bring about change

The Preliminary Resilience Assessment also highlighted key areas of **strength and opportunity** for Tbilisi. These form the foundations from which we have built the vision and goals of this Resilience Strategy.

KEY SHOCKS



Flooding

Tbilisi's geomorphology, malfunctioning drainage system and imperfectly controlled construction contribute greatly to its vulnerability to rainfall related floods and they can bring considerable damage to the city population. During the industrialisation of the city, much of the industrial infrastructure was built into the ravines, which today have become unsafe areas, due to the risk of flooding.

During the June 2015 floods, heavy rainfall in the Vere basin and its tributaries triggered large scale landslides and debris flows, putting the Tskneti-Samadlo and Tskneti-Akhaldaba motorways out of use. Residential buildings and miscellaneous infrastructural facilities, buildings and structures and Tbilisi Zoo located at the low elevations in the River Vere Gorge were significantly damaged or/and totally destroyed. Over 21 people were killed, and over 1000 people lost their homes or businesses.



Seismic Risk

Tbilisi is located in a region of potentially high seismic activity. However, as yet, the tectonics near and around Tbilisi have not been fully investigated. The vulnerability of many old, soviet-era, multi-story buildings to earthquake shaking is quite high. The most recent earthquake in 2002 left a significant proportion of housing uninhabitable and structurally unsafe. The city is currently lacking the information needed to develop seismic risk regulations for new constructions too.



Infrastructure or Building Failure

Despite investments in selected sites, there is considerable need to replace existing aging infrastructure to meet the requirements generated by urban redevelopment and expansion. Renovation of aging Infrastructure, including housing, roads, bridges and utilities, still remains one of the main priorities of the city. At present, approximately 330 residential blocks are damaged and every third block is in a force majeure condition. This is especially dangerous as Tbilisi lies in a seismically active zones.



Landslides and Ground Instability

In the aftermath of the 13 June floods, a preliminary slope stability hazard map was created by a team of U.S. Department of Agriculture (USDA) Forest Service staff working together with Georgia's National Environmental Agency. This map indicates that between 8% and 11 % of the entire Vere River drainage basin is characterized by either potentially high or moderate slope stability hazards.

KEY STRESSES



Unemployment Challenges

Despite the strong economic growth, the unemployment rate in the city, 22.5%, is relatively high, particularly amongst the 15-29 year old section of the population (36%), compared to only 17% across the EU.



Lack of Regulations, Standards & Enforcement

Since the fall of the Soviet Union, no comprehensive building codes have been established in Georgia, as deregulation aiming to boost investment removed all 'obstacles' to fast and cheap construction. Various regulations, for fire protection, construction quality, utility checks and maintenance for example, are now being put in place. However, there remains a lack of technical and legal institutions to enforce these standards and regulations.



Deteriorating Housing Stock

A large proportion of Tbilisi's housing stock dates back to the Soviet era. The vast majority of the housing stock is privately owned, but occupiers are often unable to afford the remediation and repair costs of these multi-family blocks. This increases running costs, reduces quality of life for many residents, and poses a significant risk of damage or collapse in the event of a physical shock, such as an earthquake.



Lack of Adequate Public Mobility Systems

Often the frequency and capacity of the bus service is not sufficient even for the existing demand, and overcrowding is very common, even in off-peak periods. The mobility for people with disabilities around the city is problematic, as Public Transport services are not currently suitably adapted, and pedestrian infrastructure is in poor condition. People are therefore increasingly using private vehicles instead of public transport, 19% in 2011 growing to 30% in 2016.



Inadequate capacity in the kindergarten system

Recent assessments indicate that some of Tbilisi's 180 kindergarten buildings are structurally unsound and prone to unprompted isolated collapse; likely as a result of historically poorly defined/applied building standards, exacerbated by limited maintenance.

The current capacity of kindergartens is also not sufficient to meet existing demand, resulting in some children being unable to access education (creating a constraint for families) and others being educated in unacceptably large group sizes.



Poor Air Quality

PM 2.5 levels across the city are above the WHO recommended guidelines and studies have found that dust (primarily from construction sites), carbon, sulphur and nitrogen oxides from transport emissions also all significantly exceed maximum permissible levels in Tbilisi.

OPPORTUNITIES FOR RESILIENCE



Celebrating the collective nature of society in Tbilisi

Social relations between residents in Tbilisi are strong, creating a stable and safe society. The city has been able to resist polarisation, crime and political instability caused by the economic transition, civil war and territorial conflicts of recent decades.

The 2015 post-flood period in the city successfully demonstrated an ability to mobilise rapidly and collaborate effectively across different levels of civil society, government and private sector. Over ten thousand volunteers self-mobilised quickly to help with cleaning flooded territories and providing basic supplies to affected populations. The private sector and other supportive governments provided financial support reaching over 25 million GEL, and several banks paused loan repayments for affected people.

The collective and self-organising nature of the city's residents is a great asset and fundamental in building resilience capacity.



Encouraging economic diversity

Building on economic growth to support a wide range of economic sectors will strengthen both the city and national economic performance, but also provide economic opportunities to a broader range of residents.



Strengthening public transport systems

Addressing the challenges in public transport provision will enhance accessibility across the city for both residents and visitors, and reduce air pollution.



Improving Tbilisi's building stock

Renewing and reinforcing Tbilisi's building stock will enhance energy efficiency, reduce running costs and allow better service provision and housing conditions for residents.



Preserving Tbilisi's Cultural Heritage and Tourism sector

Residents are proud of these sectors, and they are providing a positive impact on the economy and jobs.



Repurposing brownfield sites for resilience

The large number of brownfield sites in and around the city's centre represents significant development potential for Tbilisi. These sites could be re-purposed to provide space for housing renewal programmes, transportation improvements, new economic activities. or flood alleviation.

DEVELOPING OUR RESILIENCE STRATEGY

Phase I of our approach is all about understanding the resilience issues facing Tbilisi. At the end of this process, we produced an initial assessment of the city’s resilience known as the Preliminary

Resilience Assessment (PRA), and identified Discovery Areas, which are thematic areas around which deeper analysis and broader engagement was undertaken in the next stage.



This strategy outlines the key resilience opportunities the CRO and city are committed to delivering between now and 2030.



Phase II focused on a combination of technical analysis, and strategic stakeholder alignment and engagement. During this phase, we developed the Discovery Areas in to opportunities

to implement change. This resulted in new ideas for projects and prioritised initiatives that will have the greatest impact.

DEVELOPING THIS STRATEGY THROUGH PARTNERSHIPS AND COLLABORATION

Building resilience is fundamentally about sharing knowledge, creating and expanding partnerships.

To address the complex and interrelated issues Tbilisi will face in the future, we need to discard the silos in which we traditionally work in order to:

- Obtain multiple perspectives and approaches,
- Leverage the resources and expertise of multiple stakeholders

This strategy was therefore developed in collaboration with hundreds of colleagues across municipal and national government, academia, the IFI sector and the 100 Resilient Cities Network across the world.

Resilient Tbilisi is the result of many existing and emerging partnerships

Collaborative Support and feedback

from over 100 international participants in Tbilisi's IFI & Strategy Partners Convening

Over 35 survey responses

sharing the general public's perceptions of shocks & stresses

100s of discussions with City Hall experts

from the Urban Development, Environmental Protection, Transport and Economic Development Departments and Tbilisi's Kindergarten Management Agency

Collaborative feedback

from participants at Tbilisi's Local Economic Development Forum, International Day of Disaster Risk Reduction event and 4th National Climate Adaptation Workshop

Over 50 Focus Group participants

sharing ideas on themes of Mobility, Disability & Accessibility and Youth Engagement

Earthquake Assets & Risks Workshop

with contributions from 35 cross sector city stakeholders

Over 60 interviews

with cross-sector experts from academia, NGOs and private sector

Expertise from London School of Economics

Cities Executive MSc programme

Many valuable conversations with Resilience Officers in Bristol, Thessaloniki, Paris, Rotterdam and Amman

sharing lessons learnt and perspectives on international best practice

Support and consultation from the national Ministry of Economy & Sustainable Development, Ministry of Labour, Health & Social Affairs, and Ministry of Environmental Protection & Agriculture

WORKING TOWARDS A RESILIENT TBILISI IFI & STRATEGIC PARTNERS CONVENING

On 12 November 2018, Tbilisi's IFI & Partners Convening brought together over 100 representatives from major funders, diplomatic corps, development institutions, banks, the Ministry of Finance, Tbilisi City Hall and other important actors, with the aim of fostering key partnerships and building support for the implementation of the Resilience Strategy.

Participants were invited to collaborate, in developing and refining a selection of priority projects needing expertise, ownership and funding.



Mayor Kaladze opening the IFI & Strategic Partners Conference



BUILDING RESILIENCE IN TBILISI

Several major strategies and planning efforts are already contributing to Tbilisi's resilience, operating at the local, national and even international scale. These plans complement each other to outline the path Tbilisi is taking to achieve its future development goals.

The concept of resilience appears across many of these documents, however often they focuses upon either urban development, economic development or climate change, rather than the holistic, multi-sector approach described by 100 Resilient Cities.

Tbilisi's Resilience Strategy establishes an overarching approach to resilience, which works with, and is aligned to other international, national and city policies. These links are highlighted throughout the strategy and its actions.

The aims of Resilient Tbilisi can only be achieved through local, national and international partnerships. This strategy serves as a foundation for working with these partners.

Integrating Resilience into Tbilisi City Hall

The long lasting changes set by this strategy aim to support Tbilisi in becoming better positioned to deliver basic functions and respond to adverse shocks and stresses, especially to the most vulnerable in the city.

This will only be possible if it is embraced and owned by all agencies, residents and businesses, not just by on resilience office in Tbilisi City Hall.

For this reason, this strategy places special emphasis on collaboration, and invites stakeholders from the private sector, academia, NGOs and IFIs to join the effort. We recognise and value the accumulated knowledge and experience held by our city's stakeholders, and value the contributions many can make to the city's development.

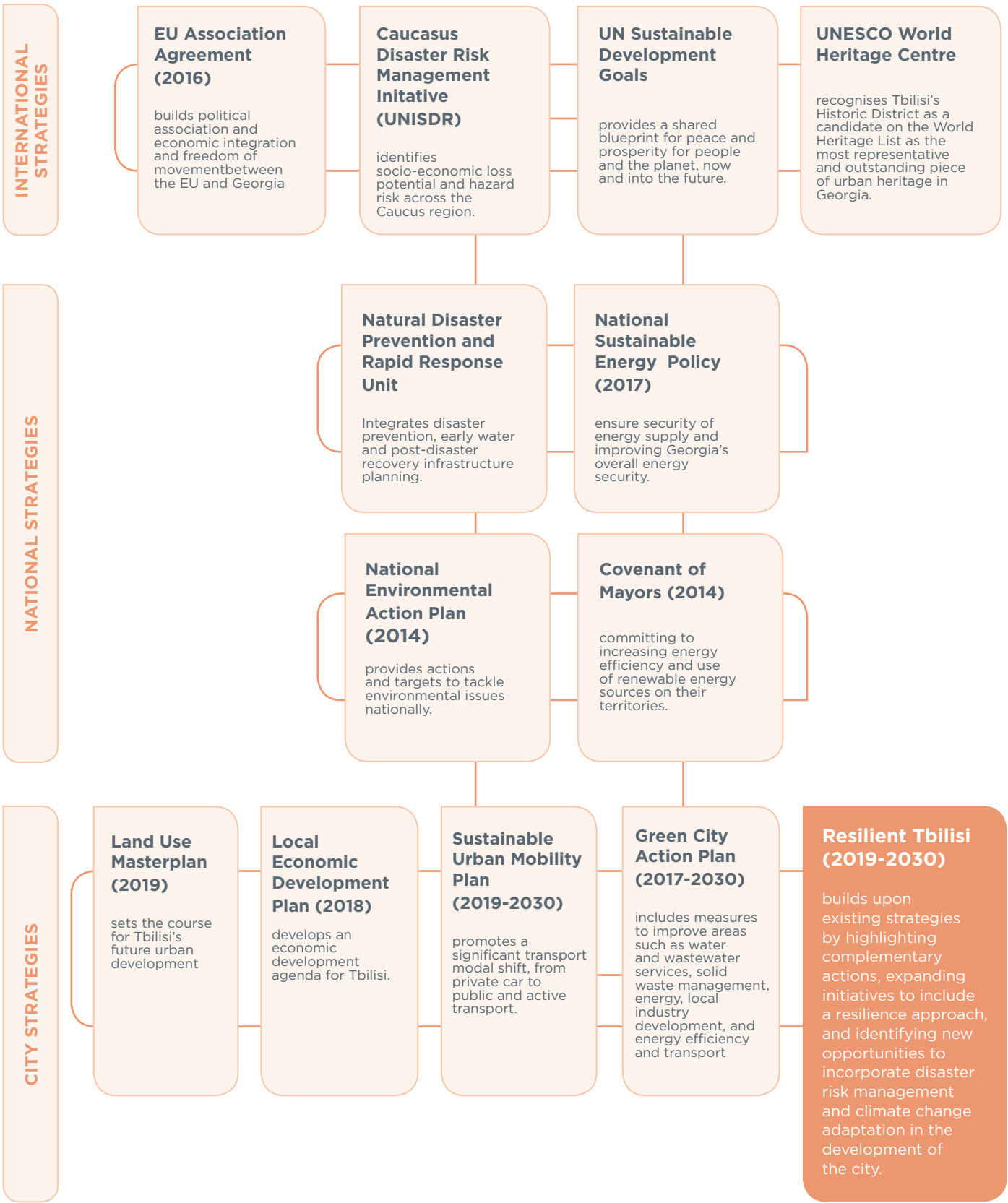
Tbilisi's Resilience Office

Within Tbilisi City Hall, we will establish a City Resilience Office, under the Mayor's administration. This office, headed by the Chief Resilience Officer will be tasked with implementing Tbilisi's Resilience Strategy, in close collaboration with the Heads of Department of City Hall and other key partners.

Tbilisi's Resilience Office has a key role to become a platform for the City to convene with strategic international and IFI partners, and coordinate action across multiple sectors

The Resilience Office will be responsible for:

- Monitoring and updating the Resilience Strategy;
- Supporting the creation of a network of organisations and stakeholders who work in the field of resilience to promote good practices;
- Promoting a culture of resilience; This may involve coaching different municipal departments in planning, developing annual priorities and setting budgets in an integrated, cross-department way;
- Coordinating multi-sector grant and funding applications, with departments at Tbilisi City Hall, and other key stakeholders to implement actions that make Tbilisi stronger and more resilient.



Vision for a Resilient Tbilisi

“A resilient and vibrant city, where residents are protected and safe, where there is access to opportunity and healthy natural environments and where we are empowered to plan ahead, ready respond to any challenge.”



TBILISI'S STRATEGY MISSIONS AND ACTIONS

A resilient and vibrant city, where residents are protected and safe, where there is access to opportunity and healthy natural environments and we are empowered to plan ahead, ready respond to any challenge.

1

A city that is protected and safe

10
Goals

- 1. Build resilient and inspiring kindergartens
- 2. Provide safe housing in safe locations for all residents
- 3. Coordinate an Emergency Response Plan for Tbilisi that empowers residents to be prepared
- 4. Equip decision-makers with information to reduce risks from natural hazards

2

A city that is thriving, connected and accessible

- 5. Connect all residents with economic opportunities
- 6. Grow a resilient tourism economy, that celebrates Tbilisi's cultural assets, and enhances quality of life for residents
- 7. Develop active and inclusive transport systems

3

A city that mitigates and adapts to climate change

- 8. Develop Tbilisi's approach to Climate Change Adaptation
- 9. Protect healthy natural environments
- 10. Act to diversify energy sources and reducing consumption

42
Actions

- 1. Accelerating the structural assessment and rehabilitation programme for Tbilisi's kindergartens
- 2. Ensuring kindergarten spaces for all eligible children
- 3. Engaging the community in redesigning kindergartens for the future
- 4. Integrating energy efficient, and green space solutions into rehabilitating Tbilisi's kindergartens
- 5. Working with Tbilisi's Architecture Biennale for resilience
- 6. Microzonation Study for Seismic Risk
- 7. Safe Housing Rehabilitation and Development Fund
- 8. Establish an Emergency Response Committee for Tbilisi
- 9. Develop an Initial Disaster Response and Recovery Plan for Tbilisi
- 10. Community Emergency Preparedness and Risk Awareness training programme
- 11. Emergency Response Preparedness Programme in kindergartens
- 12. Landslide and Ground Instability Risk Assessment
- 13. Multi Hazard Risk Assessment & Early Warning System
- 14. Brownfield and Industrial Development Strategy
- 15. Resilient Transit Orientated Development for Tbilisi's new metro stations
- 16. Supporting our new and growing economic sectors
- 17. Improve understanding of skills gaps workforce trends
- 18. Tbilisi Business Accelerator
- 19. Hospitality Skills Training Programme
- 20. Tourism Strategy and Action Plan for Tbilisi
- 21. Promoting Diverse and Inclusive Visitor Activities
- 22. Building Capacity for Safeguarding, Preserving and Managing Tbilisi's Historic District
- 23. A People-Centered Night-Time Economy
- 24. Sustainable Urban Mobility Plan
- 25. Mtkvari River Tourism Transport Study
- 26. Develop Tbilisi's 'Street Manual' for cycling+walking+public transport
- 27. A resilient and user-friendly bus network
- 28. Intelligent Transport Management Systems
- 29. Elaborate a Climate Change Strategy for Tbilisi
- 30. Action Plan for Public Environmental Awareness
- 31. Infrastructure Climate Change Adaptation Commitment
- 32. Rehabilitating Tbilisi's Parks for Resilience
- 33. Restoring Tbilisi's Forests
- 34. Inventory for small scale urban parks & Biodiversity Assessment
- 35. Cleaning up Sewerage and Floodwater Networks to prevent Mtkvari River pollution
- 36. Lisi & Turtle Lake Rehabilitation For Recreational Area
- 37. Improving Air Quality Monitoring & Management
- 38. Establishing an Air Quality information portal to inform decision-making
- 39. Feasibility Study for Green Energy Generation from Landfill
- 40. Bio-waste Recycling
- 41. Waste Management Strategy
- 42. Energy Efficient Municipal Buildings and Street Lighting

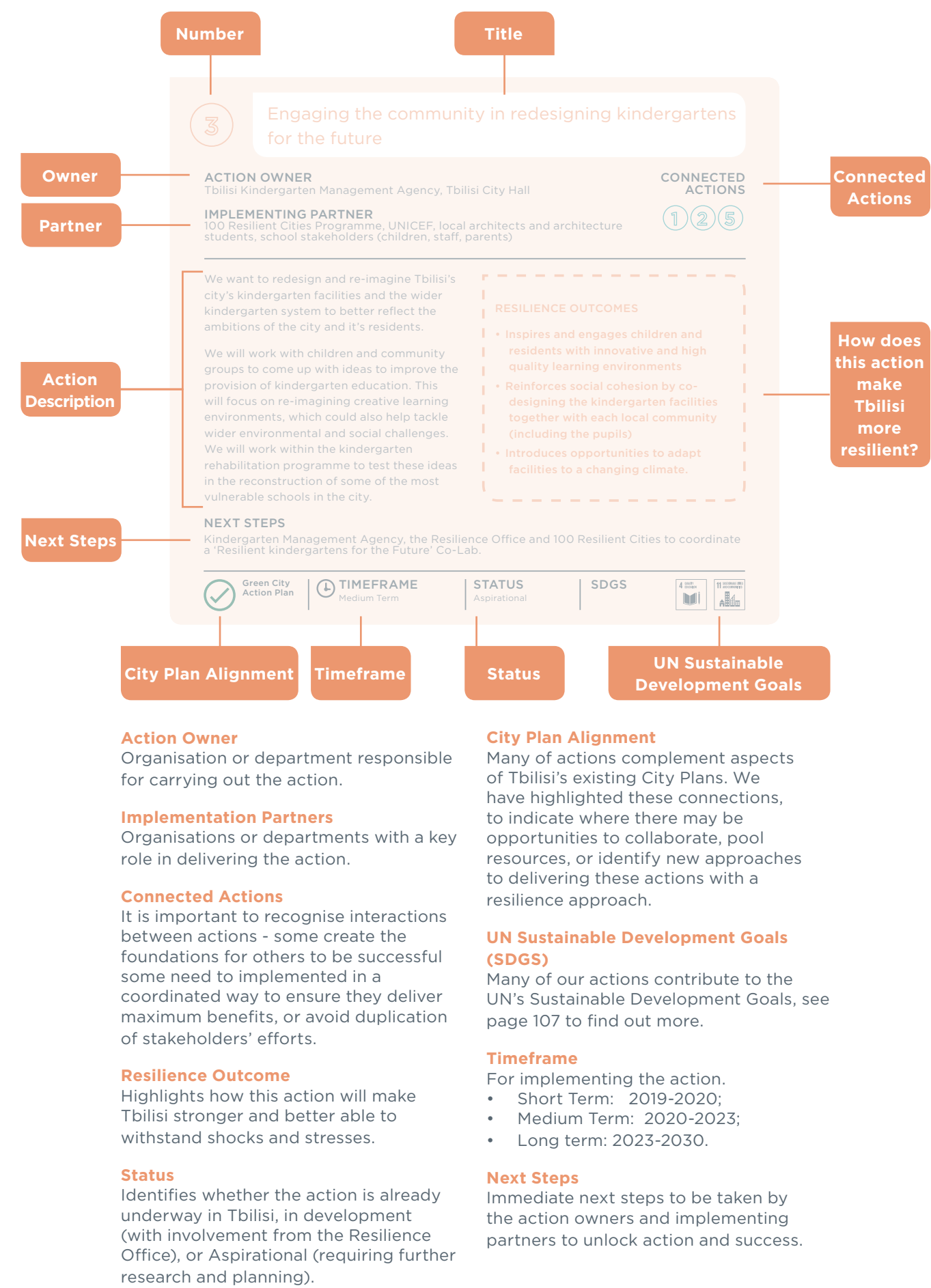
3X MISSIONS FOR RESILIENCE

Together, the three missions build resilience in Tbilisi. Each mission is a call for every person in Tbilisi to collaborate and contribute to the resilience of our city, at every scale.



Many of the actions within each mission overlap, bringing xo-multiple benefits that support Tbilisi in tackling the physical, social and economic challenges that are a growing part of the 21st century.

HOW TO READ A RESILIENCE ACTION



Action Owner
Organisation or department responsible for carrying out the action.

Implementation Partners
Organisations or departments with a key role in delivering the action.

Connected Actions
It is important to recognise interactions between actions - some create the foundations for others to be successful some need to implemented in a coordinated way to ensure they deliver maximum benefits, or avoid duplication of stakeholders' efforts.

Resilience Outcome
Highlights how this action will make Tbilisi stronger and better able to withstand shocks and stresses.

Status
Identifies whether the action is already underway in Tbilisi, in development (with involvement from the Resilience Office), or Aspirational (requiring further research and planning).

City Plan Alignment
Many of actions complement aspects of Tbilisi's existing City Plans. We have highlighted these connections, to indicate where there may be opportunities to collaborate, pool resources, or identify new approaches to delivering these actions with a resilience approach.

UN Sustainable Development Goals (SDGS)
Many of our actions contribute to the UN's Sustainable Development Goals, see page 107 to find out more.

Timeframe
For implementing the action.

- Short Term: 2019-2020;
- Medium Term: 2020-2023;
- Long term: 2023-2030.

Next Steps
Immediate next steps to be taken by the action owners and implementing partners to unlock action and success.



A CITY THAT IS PROTECTED AND SAFE

Goal 1:

Build resilient and inspiring kindergartens

Actions

1. Accelerating the structural assessment and rehabilitation programme for Tbilisi's kindergartens
2. Ensuring kindergarten spaces for all eligible children
3. Integrating energy efficient, and green space solutions into Tbilisi's kindergartens
4. Engaging the community in redesigning kindergartens for the future
5. Working with Tbilisi's Architecture Biennale for resilient kindergartens

Goal 3:

Coordinate an Emergency Response Plan for Tbilisi that empowers residents to be prepared

Actions

8. Establish an Emergency Response Committee
9. Develop an Initial Disaster Response and Recovery Plan for Tbilisi
10. Community Emergency Preparedness and Risk Awareness Training Programme
11. Emergency Response Preparedness Programme in Kindergartens

Goal 2:

Provide safe housing in safe locations for all residents

Actions

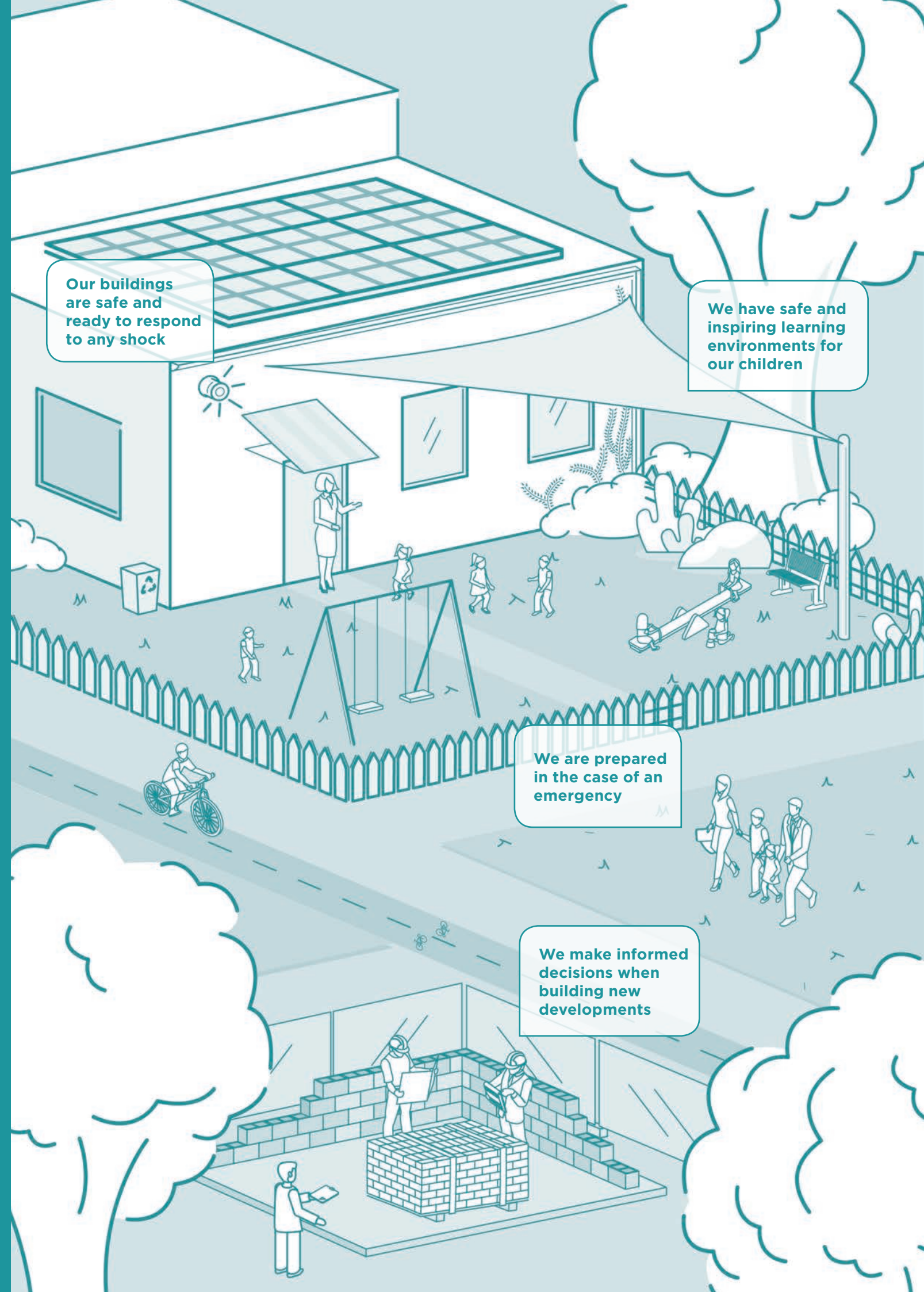
6. Microzonation Study for Seismic Risk
7. Safe Housing Rehabilitation and Development Fund

Goal 4:

Equip decision makers with information to reduce risks from natural hazards

Actions

12. Landslide and Ground Instability Risk Assessment
13. Multi Hazard Risk Assessment Early Warning System



GOAL 1.
BUILD RESILIENT AND INSPIRING KINDERGARTENS

We want to ensure all of Tbilisi's kindergartens set a **solid, positive foundation** for our community's welfare and resilience.

We will :

- > create facilities that **both educate and inspire** children, drawing upon the designs of both **experts** and the **children themselves**.
- > take opportunities to **enhance** new and retrofitted kindergartens with **additional benefits** - for example with passive design concepts to increase natural daylight, nature-inspired green space solutions and improved cross ventilation.
- > design facilities that **minimise the likelihood of student absence or disenrollment**, which have long term consequences for education and employment.



This resilience goal also supports the **EU Georgia Association Agenda target of:**

'Ensuring the right to education for all children and young individuals, including those with special educational needs and taking further steps to promote inclusive primary and secondary education'.

1

Accelerating the structural assessment and rehabilitation programme for Tbilisi's kindergartens

ACTION OWNER
Tbilisi Kindergarten Management Agency, Tbilisi City Hall

IMPLEMENTING PARTNERS
IFI Partners, Rockefeller Foundation's 100 Resilient Cities Programme

CONNECTED ACTIONS

4 5 6

We aim to deliver a comprehensive rehabilitation and improvement programme for Tbilisi's kindergarten facilities. Recent assessments of the kindergarten buildings have indicated that some are in urgent need of structural remediation.

Accelerating Structural Assessments
As a first stage, we will partner with technical experts to accelerate this assessment and prioritise the relocation of any children at risk. Approximately 128 kindergarten facilities require structural assessments. We will need support from external partners to directly fund some of these structural improvements, and support with technical feasibility studies. Based on the City's current resource and expertise availability it would take the city almost five years to complete a prioritised structural assessment of the remaining kindergarten buildings. We want to act now to ensure the necessary assessment and rehabilitation programme takes place quicker than that.

Ensuring high standards of Structural Safety Requirements are met
Georgia's structural safety requirements are currently under revision, with new standards due to be implemented by 2024. We will

act now, with the support of implementing partners, to ensure all kindergartens are compliant with the update structural requirements (including those that have been recently built).

Rebuilding for the future
As a second stage, we will partner to secure funding and expertise to rehabilitate and rebuild kindergartens for the future. We want to improve Tbilisi's kindergartens so that they reflect the city's ambitions in terms of resilience and sustainability, and ensure children have access to high quality and safe educational environments.

RESILIENCE OUTCOMES

- Ensures children can learn in **safe, protected and high quality educational environments**.
- Reduces risk by identifying areas in need of structural improvements or reinforcement.
- Introduces opportunities to partner with different stakeholders in real estate and construction sectors.

NEXT STEPS

Tbilisi Kindergarten Management Agency to secure:

- support for identifying a suitably qualified organisation who can undertake the structural assessment work, and review of revised 2024 structural safety standards;
- financial assistance for the construction of new kindergartens and rehabilitation of existing buildings.
- In an ideal case scenario, further capacity building assistance for the City would also be secured in order for it to be able to continue to independently deliver a long-term school investment strategy and maintain, operate safe, functional schools

TIMEFRAME
Short - Medium Term

Structural Assessments and Safety Requirements - Short Term
Rebuilding and rehabilitating for the future - Medium Term

STATUS
Pre-existing

SDGS



2

Ensuring kindergarten spaces for all eligible children

ACTION OWNER

Tbilisi Kindergarten Management Agency, Tbilisi City Hall

IMPLEMENTING PARTNERS

National Ministries for Economy and Education, education-focused NGOs

CONNECTED ACTIONS

3 14

There is currently a shortage of kindergarten facilities in Tbilisi. We have 180 kindergartens across the city, which serve up to 61,000 children during the school year and 13,010 children during the summer period. This number is not sufficient to meet existing demand, resulting in some children being unable to access education (creating a constraint for families) and others being educated in unacceptably large group sizes. In some cases, class sizes are 50% above the recommended number.

We will work with partners to explore opportunities to increase capacity across Tbilisi's kindergarten system, and identify locations through a potentially IFI funded feasibility study for additional kindergartens to be built. We will strive to bring the 3000 children who do not currently have a kindergarten place, into the education system.

We will also conduct research, in partnership with implementation partners, to gain a better understanding of Tbilisi's longer term kindergarten demand, (in terms of anticipated demographic change for the coming decades) in order to inform the future planning for the city's kindergartens.

RESILIENCE OUTCOMES

- Improves access to kindergarten education, making the system more equitable.
- Reduces overcrowding and disruption in kindergarten classes.
- Supports a long-term approach to the management and planning of kindergarten facilities.

NEXT STEPS

Kindergarten Management Agency to secure assistance from Ministry of Education and Ministry of Economy to identify opportunities to introduce additional kindergarten classrooms.

TIMEFRAME
Short Term

STATUS
In Development

SDGS



3

Engaging the community in redesigning kindergartens for the future

ACTION OWNER

Tbilisi Kindergarten Management Agency, Tbilisi City Hall

IMPLEMENTING PARTNERS

100 Resilient Cities Programme, UNICEF, local architects and architecture students, school stakeholders (children, staff, parents)

CONNECTED ACTIONS

1 2 5

We want to redesign and re-imagine Tbilisi's kindergarten facilities and the wider kindergarten system to better reflect the aspirations of the city and its residents.

We will work with children and community groups to develop ideas to improve the provision of kindergarten education. This will focus on re-imagining creative learning environments, which could also help tackle wider environmental and social challenges. We will work within the kindergarten rehabilitation programme to test these ideas in the reconstruction of some of the most vulnerable kindergartens in the city. External partner support would be required for piloting some of

these ideas in the form of design competitions or a open procurement programme to appoint local developers, architects and contractors.

RESILIENCE OUTCOMES

- Inspires and engages children and residents with innovative and high quality learning environments.
- Reinforces social cohesion by co-designing the kindergarten facilities together with each local community (including the pupils).
- Introduces opportunities to adapt facilities to a changing climate.

NEXT STEPS

Kindergarten Management Agency, the Resilience Office and 100 Resilient Cities to coordinate a 'Resilient kindergartens for the Future' Co-Lab.

TIMEFRAME
Short Term

STATUS
Aspirational

SDGS



LEARNING FROM CALI'S SCHOOL INFRASTRUCTURE RESILIENCE CO-LAB WITH 100RC

Schools are more vulnerable to natural hazards than any other type of building. Worldwide, not only is most educational infrastructure underfunded and overextended, but post-disaster reconstruction often fails to meet standards for resilience.

The city of Cali (Colombia) is working to change that. The 'My Community, My School' program focuses on strengthening the quality and relevance of public education in Cali's schools by integrating improvements to facilities and curriculum not only for its students, but also for teachers, directors and surrounding communities.

Building on this program, a 100 Resilient Cities' CoLab on School Infrastructure Resilience brought together partners from municipal

agencies and international subject-matter experts. The objective of the CoLab was to identify recommendations and develop solutions for Cali that both reduce school vulnerability to natural hazards and create opportunities for economic, social and environmental benefits which further support and incentivize investment in risk reduction.

As a result of the CoLab, the city embarked on a partnership with the World Bank's Global Program for Safer Schools to implement their Roadmap for Safer Schools. The city is now in the process of developing a long-term investment strategy to reduce the vulnerability of its school portfolio to natural hazards, and improve educational outcomes and community resilience.



For further information:
<https://www.100resilientcities.org/100rc-colab-cali-colombia-explores-cities-can-build-resilient-school-infrastructure/>

4

Integrate energy efficient, and green space solutions into Tbilisi's kindergartens

ACTION OWNER

Tbilisi Kindergarten Management Agency, Municipal Environmental Protection Department

IMPLEMENTING PARTNERS

Tbilisi Kindergarten Management Agency, IFI Partners

CONNECTED ACTIONS

1 34 42

As a part of the rehabilitation and rebuilding of Tbilisi's kindergartens, we will identify opportunities to integrate energy efficient and nature-based green space improvements into kindergarten facilities. Many buildings are old, and built to the construction codes and regulations in operation during the Soviet period. Buildings therefore experience significant thermal losses.

Energy efficiency and green spaces measures could include:

- Roof and wall insulation solutions
- Ventilation systems with thermal recovery

- Installing green playground spaces (rather than asphalt or concrete) and adapting outdoor spaces with plants for share and education purposes.

These improvement measures should build upon the recommendations given in the World Bank's Energy Efficiency Assessment (2018).

RESILIENCE OUTCOMES

- Reduces energy consumption and operating costs.
- Reduces CO₂ emissions.
- Enhances learning opportunities around sustainability and the environment.

NEXT STEPS

We will start by identifying selected pilot sites for installing energy efficiency technology, and removing asphalt (during 2019). Coordination with the wider structural assessment and rehabilitation programme will be key to ensure these improvements can be installed in an efficient and cost-effective manner. We will then assess results and expand the programme to further kindergartens.



Green City
Action Plan



TIMEFRAME
Medium Term

STATUS
Aspirational

SDGS



LEARNING FROM PARIS'S OASIS SCHOOLYARD OASIS PROGRAMME

The 2017 heatwaves in Paris highlighted that the city's impermeable asphalt-covered schoolyards were a contributing factor to increasing temperatures in the city. With more than 750 schoolyards in the city, covering up to almost 80 hectares, and yet only 5.8 m² of green space per inhabitant, the city looked to transform its schoolyards into urban cooling islands.

As part of the Paris Resilience Strategy, the "Oasis" program aims to:

- Adapt the schoolyards by replacing asphalt with porous material, enhancing revegetation, modernizing water management (fountains, water sprayers), as well as creating natural and artificial shaded structures;
- Reinforce social cohesion by co-designing the schoolyards together with each local community (including the pupils) with the goal

of eventually opening these spaces to the wider public outside of school hours for recreational and sport activities;

- Protect the health of the most vulnerable by adapting the infrastructure children use as well as through the opening of these spaces to elderly people during heatwave.

The program started with 3 pilot schools in 2018, and another 30 schoolyards in 2019. The long-term aim is to adapt the entire city's schoolyards in the years to come. With the average Parisian living within 200m of a schoolyard, the project has the potential to impact every resident in the city when fully implemented.



5

Working with Tbilisi's Architectural Biennale for resilience

ACTION OWNER

Tbilisi Architecture Biennale (TAB) Founders, Tbilisi Kindergarten Management Agency

IMPLEMENTING PARTNERS

Tbilisi Architecture Biennale (TAB), Tbilisi Kindergarten Management Agency

CONNECTED ACTIONS

2 3 22

We aim to build upon the success of the Tbilisi Architecture Biennale (TAB) – established in 2017 – and collaborate with local urban designers and architects to integrate urban resilience into the TAB programme of biannual events.

Through the biennale event, we will collaborate to advance standards, building codes and to incorporate resilience thinking into design for the built environment by drawing upon the wealth of multi-disciplinary expertise the Biennale attracts. This event is an excellent opportunity to build relationships and leverage the skills and expertise of local academia, designers and built environmental specialists.

As a first stage, we will engage participants in the Biennale in re-imagining resilient kindergartens and playgrounds.

RESILIENCE OUTCOMES

- Builds capacity within city planning and design sectors through convening various private and public stakeholders around the issues of urban resilience in the built environment.
- Provides a clear platform to communicate and deliberate the challenges and desires from public and civic institutions – i.e. schools or community centers – to private sector bodies.

NEXT STEPS

Tbilisi Architectural Biennale organisers, Resilience Office and Kindergarten Management Agency stakeholders to develop a working group and agree key opportunities for collaboration.



TIMEFRAME
Medium Term

STATUS
Aspirational

SDGS



GOAL 2.
PROVIDE SAFE HOUSES IN SAFE LOCATIONS FOR ALL



It's estimated that 330 residential blocks still show signs of damage following the 2002 earthquake, it's possible that 1 in 3 are in force majeure condition.

We want to ensure that future developments and building rehabilitation programmes provide **safe and good quality living conditions** for Tbilisi's residents.

We will:

- > work with multiple stakeholders to ensure new developments **meet safe standards**, in **safe locations**
- > ensure safe building standards are applicable in both retrofit and renovation works, as well as new developments.
- > develop a **greater understanding** of geomorphological risk in Tbilisi, and **integrate** this within city planning regulations and investment strategies.

This resilience goal supports actions currently being taken to address the lack of building codes & regulations under the **Georgia-EU Association Agreement**.

6

Microzonation Study for Seismic Risk

ACTION OWNER

Tbilisi City Hall, Municipal Department for Urban Development, and Emergency Response Committee

CONNECTED ACTIONS

1 7 13 14 15

IMPLEMENTING PARTNERS

Ilia State University's Institute of Earth Sciences and National Seismic Monitoring Centre, IFI Partner.

We will partner with earthquake risk experts to conduct a microzonation study specifically for Tbilisi. The city is located in a region of potentially high seismic activity. The only existing seismic map dates from the Soviet era, and requires updating with modern methods and technology.

We will explore the option of working closely with academic and IFI partners to develop an updated and reliable seismic microzonation map will inform land use zoning, building codes and infrastructure development. This is particularly important as many private businesses are investing in infrastructure development in Tbilisi, often at sites where local site specific hazard studies have not been performed to the modern standards to guarantee the safety of new buildings. The microzonation map will support the city in developing regulation and building codes to ensure earthquake-safe construction for new buildings

We will work with international experts to ensure the study adopts a high quality methodological approach. Ilia State University's Institute of Earth Sciences and National Seismic Monitoring Centre have also identified a team of young scientists to deliver elements of the field work and data analysis, with the intention of ensuring this project also delivers capacity building outcomes.

RESILIENCE OUTCOMES

- Provides greater understanding of vulnerable locations to inform the prioritisation of rehabilitation and renovation works, and locations for new developments.
- Builds upon Tbilisi's disaster risk reduction program, through a coordinated approach to documenting earthquake risk zones.
- Builds local capacity and expertise in seismic risk and management.

NEXT STEPS

Tbilisi City Hall and Resilience Office to secure technical assistance from IFIs to conduct microzonation study in collaboration with Ilia State University and National Seismic Monitoring Centre. Early involvement from the Municipal Department for Urban Development and Emergency Response committee will facilitate the integration of study findings into urban planning and construction regulations.

TIMEFRAME
Medium Term

STATUS
Aspirational

SDGS



7

Develop a Safe Housing Rehabilitation and Development Fund

ACTION OWNER

Municipal Urban Development Department, Tbilisi City Hall

IMPLEMENTING PARTNERS

Ministry of Regional Development, Municipal Department of Health and Social services, Municipal Department of Economic development, IFI Partner

CONNECTED ACTIONS

6 14 15 22

Tbilisi City Hall aims to develop institutional, legislative and financial mechanisms to establish a housing fund for the rehabilitation and development of Tbilisi's housing stock. There is a need to clearly define a housing development and rehabilitation strategy, with supporting action plans and tools to finance the redevelopment.

This includes a technical feasibility study identifying and assessing potential funding models and partnerships to implement housing sector renewal programmes. Throughout this work, we aim to increase expertise and capacity within the city administration in undertaking risk-based infrastructure

improvement programmes (as there are several other areas within city infrastructure believed to be facing similar structural challenges).

RESILIENCE OUTCOMES

- Develops a coordinated and strategic approach to rebuilding the city's residential infrastructure.
- Improves living conditions and quality
- Builds local expertise and capacity in infrastructure and improvement planning.

NEXT STEPS

Municipal Department of Urban Development to work with IFIs to secure technical and financial assistance to:

- Conduct an inventory of the city's existing housing stock
- Develop a robust methodology for implementing a Housing Rehabilitation and Development Programme
- Identify partnerships and a funding model for housing sector renewal programme



City Masterplan



TIMEFRAME
Medium Term

STATUS

In Development

SDGS

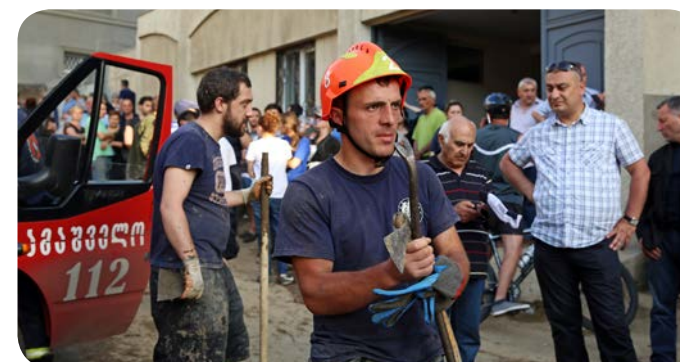


GOAL 3. COORDINATE AN EMERGENCY RESPONSE PLAN TO EMPOWER RESIDENTS TO BE PREPARED

Tens of thousands of volunteers self-mobilised quickly to help with cleaning and recovery efforts following the 2015 floods.

We want to build on this impressive capacity to self-organise and respond by formalising Tbilisi's Emergency Response plans.

We will develop activities to **support** various levels of **civil society, government and private sector** to **prepare** in the case of any emergency.



This goal supports **national efforts implementing the Sendai Framework on DRR** for:

Priority 4: 'Enhancing disaster preparedness for effective response and to build back better in recovery, rehabilitation and reconstruction'





Establish an Emergency Response Committee for Tbilisi

ACTION OWNER

Tbilisi City Hall Administration and Resilience Office

IMPLEMENTING PARTNERS

Tbilisi City Hall Emergency Services and Emergency Management Department of the Ministry of Internal Affairs of Georgia

CONNECTED ACTIONS



Tbilisi City Hall will establish an Emergency Response Committee for Tbilisi. This committee will be responsible for coordinating the activities of municipal units during the event of a natural disaster or crisis. The committee will work closely with the Emergency Management Department of the Ministry of Internal Affairs to fulfill the obligations of the Emergency Management Plan for Tbilisi.

The Committee will be responsible for preparing and updating the Disaster Response and Recovery plans (see Action 9) for the city as well as other cross sectoral initiatives to strengthen disaster preparedness. For example, the committee will help provide clear

guidance to mitigating and managing disaster risks related to public buildings, as well as advising the private sector in best practice approaches to protecting assets and mitigating financial, structural, and supply chain risks.

RESILIENCE OUTCOMES

- By planning for comprehensive disaster recovery in advance of a major shock, the city can accelerate the recovery process, make more efficient use of scarce resources, and reduce the overall economic impact of future shocks.

NEXT STEPS

Tbilisi City Hall and Resilience Office to convene a stakeholder working group develop greater understanding of city and national level obligations for the future committee.



SDGS



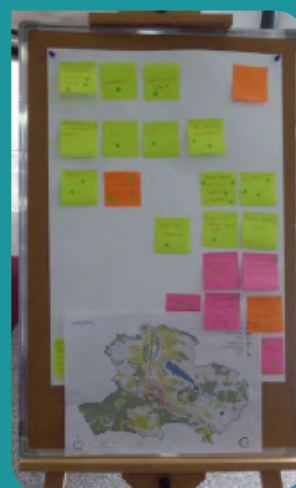
EARTHQUAKE DESIGN SPRINT

In February 2018, a broad range of stakeholders from Tbilisi City Hall, International Development Banks, private organisations, academia, and emergency services explored the threat of earthquakes in the city. The workshop asked participants to consider 'how can Tbilisi's assets become more resilient to withstand the impact of a potential earthquake in the city? Participants worked in small groups to focus on one of the following:

- Critical infrastructure assets
- Social infrastructure assets

- Mobility & Transport assets and networks

A series of Design Sprint exercises enabled participants to gain a greater understanding of some of the cities' critical assets or vulnerabilities, and subsequently identify opportunities for action across government, business and public sectors. Our initial thinking around risks and solutions identified are available within the Preliminary Resilience Assessment. These require further development and testing with key decision-making authorities in Tbilisi.



Develop an Initial Disaster Response and Recovery Plan for Tbilisi

ACTION OWNER

Emergency Response Committee and District Authorities of Tbilisi City Hall, Emergency Management Department of the Ministry of Internal Affairs of Georgia

CONNECTED ACTIONS



IMPLEMENTING PARTNERS

Tbilisi City Hall, District Authorities, community organisations and IFI Emergency Response experts

We will collaborate across multiple local organisations to develop and disseminate a Disaster Response and Recovery Plan for Tbilisi, in order to improve coordination and planning in responding to emergencies (ranging from earthquake and floods, to large-scale evacuations, epidemics or civil unrest).

The plan will address - disaster mitigation and preparedness, initial disaster response, post disaster recovery and the approach to reconstruction based on 'build back better' principles. The plan will provide clarity on the roles, responsibilities and frameworks for rapid decision-making. We will also work to develop the skills needed to respond to local threats effectively, drawing upon the lessons learnt from the 2002 Earthquake and 2015 Floods.

We will prepare plans for recovery to enable quick and efficient action when it is needed most. This involves assessing recovery needs in Tbilisi, developing institutional arrangements

and funds, and ensuring people's participation in potential recovery efforts.

Our priority is to develop these plans for Tbilisi, at a city level. In due course, we aim to develop local versions, tailored to the unique characteristics and needs of each of our district. By looking at community assets, risks and vulnerabilities at a neighbourhood-scale, we can develop plans that address the individual needs to each district.

RESILIENCE OUTCOMES

- Builds capacity across multiple sectors to respond to emergencies in an effective and coordinated manner.
- Increases public awareness and enhances communication channels with residents around mitigating risk and safety when responding to emergencies.

NEXT STEPS

Emergency Response Committee to seek guidance from Disaster Response and Recovery Experts for developing a comprehensive city-wide plan.



SDGS



10

Community Emergency Preparedness and Risk Awareness Training programme

ACTION OWNER

Emergency Management Department of the Ministry of Internal Affairs of Georgia, Emergency Response Committee and District Authorities

IMPLEMENTING PARTNERS

Environmental Information & Education Centre (EIEC), NGOs, local schools and community organisations

CONNECTED ACTIONS

9 11

A fundamental element of disaster risk reduction within cities is building community risk awareness and capacity to respond, through training programs. We will partner with experts and community groups to deliver a programme of risk awareness, community mitigation measures, preparedness and emergency response guidelines for Tbilisi's residents.

This will entail setting up appropriate structures to engage residents, communicate information, signal warnings, and provide a space for active engagement and knowledge sharing. Successful examples have involved mobile/app-based platforms that send early warning messaging around specific disaster

events (i.e. floods or heavy storms). Crucially these systems are relatively low cost and thus accessible for the poorest communities, who coincidentally are often the worst affected.

RESILIENCE OUTCOMES

- Provides formal and informal volunteer organisations with knowledge and resources to respond in the case of emergencies.
- Provides safe space to practice for real life emergencies and ensures improvements in the effectiveness of response and recovery efforts.

NEXT STEPS

Tbilisi City Hall and Resilience Office to secure technical assistance from IFIs to develop and implement a comprehensive community disaster awareness and preparedness programme.

TIMEFRAME
Short Term

STATUS
Aspirational

SDGS



11

Emergency Response & Preparedness Programme in kindergartens

ACTION OWNER

Tbilisi Kindergarten Management Agency, Tbilisi City Hall

IMPLEMENTING PARTNERS

Environmental Information & Education Centre (EIEC), NGOs, kindergartens teachers, youth and community organisations

CONNECTED ACTIONS

3 10

Teaching children from a young age about how to protect themselves in the case of an emergency is fundamental in developing community capacity to prepare for and respond to a crisis.

We will develop a programme of emergency response preparedness training tailored for young children, to be delivered in kindergartens across Tbilisi. This will involve training teachers to lead safe evacuations, establishing appropriate communication and warning apparatus, accessible fire exits and safe assembly points. We will ensure all training is age-appropriate, designed to minimise stress and equips children with the knowledge to respond calmly and effectively in any emergency situation.

In parallel, we will also coordinate with the Ministry of Education to roll out equivalent emergency response and preparedness training in all schools and public education institutions in Tbilisi.

RESILIENCE OUTCOMES

- Prepares children to respond to unforeseen events in a safe and calm manner.
- Raises awareness around emergency response and risk reduction among our youngest and sometimes most vulnerable residents.

NEXT STEPS

Kindergarten Management Agency to collaborate with agencies delivering Action 10 to secure technical assistance from IFIs to develop and implement an emergency response and preparedness programme suitable for kindergartens

TIMEFRAME
Short Term

STATUS
Aspirational

SDGS



GOAL 4.
EQUIP DECISION MAKERS TO REDUCE RISKS FROM
NATURAL HAZARDS

We want to improve the city's identification and assessment of risks from natural hazards.

We want to ensure decision makers are informed in order to be able to mitigate risks and develop effective monitoring systems.



This resilience goal also supports the **EU Georgia Association Agenda and Sendai Framework on DRR targets for:**

- Improving the knowledge base on disaster risks by enhancing cooperation on data accessibility and comparability;
- Progress with the development of a country-wide disaster risk assessment and mapping

12

Landslide and Ground Instability Risk Assessment

ACTION OWNER
Tbilisi City Hall Municipal Environmental Protection Department, National Environmental Agency (NEA) of the Ministry of Environmental Protection and Agriculture

IMPLEMENTING PARTNERS
National Environment Agency

CONNECTED ACTIONS

6 7 13 14 33

Following the 2002 Earthquake, and flash flooding events in 2012 and 2015, many areas have become geologically unstable, and prone to land or mudslides.

In 2016, the Ministry of Environment and Natural Resource Protection, in collaboration with NEA started to conduct a geological hazard assessment of Tbilisi.

This included developing:

- Thematic maps (1:25,000 scale) showing landslide, mudflow and rockfall hazard risk across Tbilisi's municipal territory.
- A geological hazards GIS database

RESILIENCE OUTCOMES

- Provides evidence for informed risk management decisions and policy making.
- Reduces risk and vulnerability associated flooding, flash flooding, landslides and extreme temperatures.

NEXT STEPS
Once this Risk Assessment is published, Tbilisi City Hall's Infrastructure Development, Environmental Protection, Transport and Urban Development departments will integrate the study's findings into decision making processes and regulations for construction permits and public service planning.

 City Masterplan

 **TIMEFRAME**
Short Term

STATUS
Pre-existing

SDGS
  



13

Multi Hazard Risk Assessment & Early Warning System

ACTION OWNER
Tbilisi City Hall

IMPLEMENTING PARTNERS
Italy-Georgia Bilateral funded project, implemented by the National Environment Agency, (NEA) of the Ministry of Environmental Protection and Agriculture

CONNECTED ACTIONS

8 12 29

We will work with experts in order to develop an integrated Multi Hazard Risk Assessment and Early Warning System for Tbilisi. This will incorporate monitoring data based on the following studies:

- Hydro-meteorological and geological assessment to identify areas at risk of flooding, flash-flooding and mudflows. This should be supported with an assessment of the processes contributing to these hazards.
- A feasibility study identifying locations for installing observation equipment to create an observation network of meteorological and hydrological parameters in the Mtkvari River basin (for fluvial flood monitoring) and across the city (for surface water and pluvial flood monitoring).
- Elaboration of high-resolution models for weather and hydrological forecasting.
- A morphological study of the Mtkvari River banks and riverbed to identify factors contributing to excessive sedimentation, and pollution. This should be supported with recommendations to prevent and manage pollution and flood risks.
- A multi (natural) hazard risk zoning map and GIS database to inform city zoning plans and building regulations.

These studies should inform the installation of early warning and monitoring systems for flooding, flash flooding, landslide, mudslide and river pollution events.

There will also be the opportunity to coordinate with the nation-wide Multi-Hazard Early Warning System project conducted by UNDP and the Swiss Agency for Development and Cooperation (2018-2025), in order to implement the relevant actions and findings for Tbilisi.

RESILIENCE OUTCOMES

- Provides evidence for informed risk management decisions and policy making.
- Builds institutional capacity in multi-hazard risk reduction and adaptation
- Increases the capacity of Tbilisi to reduce damage and recover effectively following a major natural hazard event.
- Supports continuity of critical services, quicker recovery and provides greater confidence to potential investors.

NEXT STEPS

Tbilisi City Hall and NEA to secure technical and financial assistance from IFIs to conduct risk assessment and early warning system feasibility studies.



A CITY THAT IS PROTECTED AND SAFE
IMPLEMENTATION ROADMAP

The actions to make Tbilisi protected and safe require collaboration across sectors ranging from structural safety, building regulations, and disaster risk management and prevention, to education and community engagement.

Many actions within this mission create the foundations for actions featured in other pillars. A microzonation study, for example, is fundamental for ensuing many other actions are taking place in safe locations.

Identifying Safe Locations

The results of the Microzonation Study, Multi-Hazard Risk Assessment and Landslide Risk Assessment will be integrated into the planning the kindergarten rehabilitation (Action 1), Housing Rehabilitation and Development (Action 7), and Brownfield Industry Development Strategy (Action 14), for example.

Cost Saving Opportunities

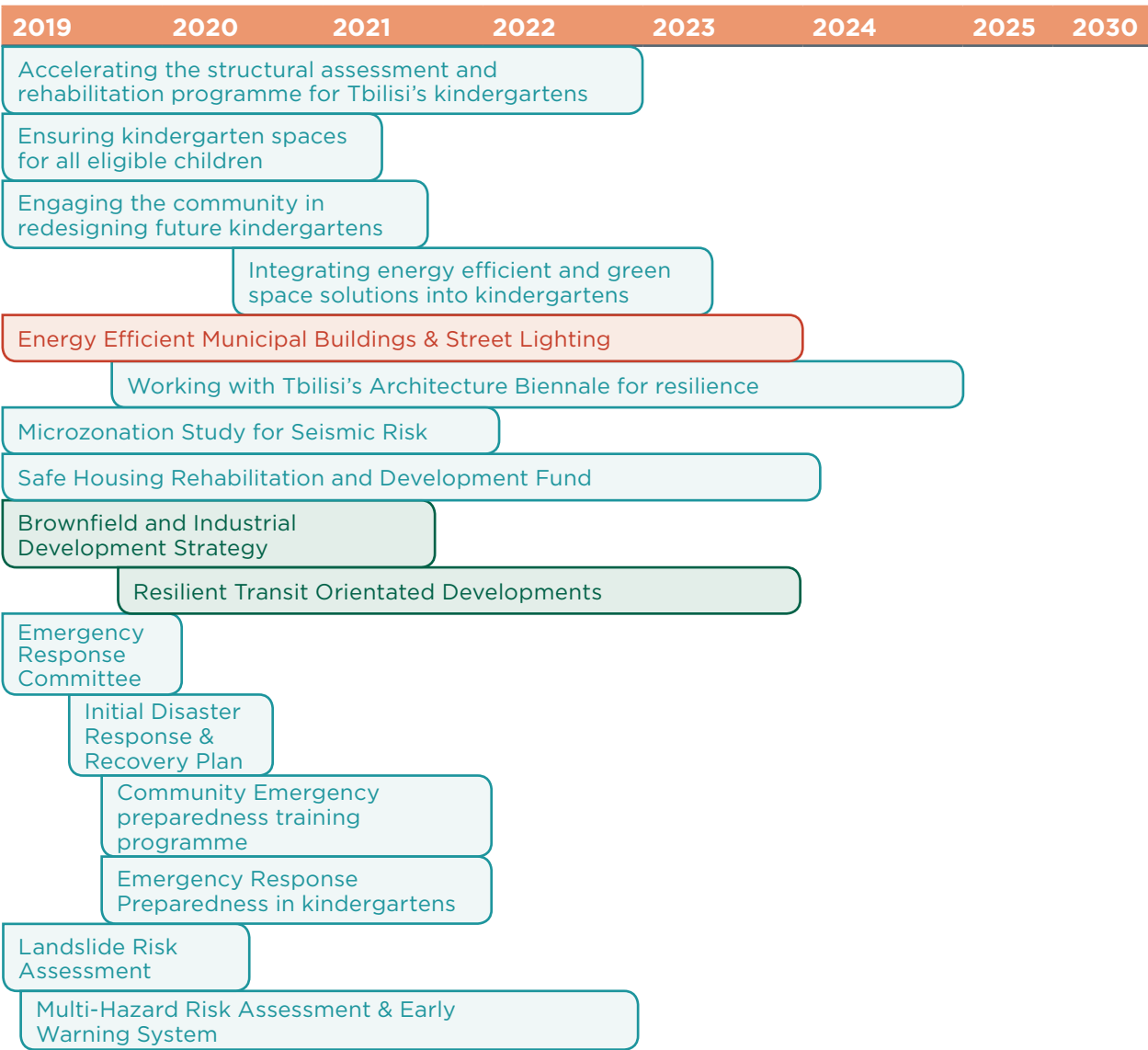
It will be important to ensure the energy efficient and green space retrofits are coordinated with

kindergarten, housing construction and renovation, and wider municipal building programmes to ensure cost savings, and avoid duplication of efforts from implementation partners.

Capacity building opportunities

There are opportunities for expertise and lessons learnt to be shared across Actions involving structural assessments and renewal programmes. Collaboration across the Kindergarten and Housing Rehabilitation (Actions 1 and 7), and Historic District management (Action 22) programmes. Integrating ctions could increase expertise and capacity within the city administration in undertaking risk-based infrastructure improvement programmes.

The architectural biennale also presents an excellent opportunity to build sustained engagement to leverage the skills, expertise and ingrained local knowledge of local academia. This event holds great potential to build resilience in many sectors, from kindergarten design, to heritage preservation and developing diverse visitor activities in Tbilisi.



2

A CITY THAT IS THRIVING, CONNECTED AND ACCESSIBLE

Goal 5:

Connect all residents with economic opportunities

Actions

14. Brownfield and Industrial Development Strategy
15. Resilient Transit Orientated Development
16. Supporting Our New and Growing Economic Sectors
17. Improve Understanding Of Skills Gaps Workforce Trends
18. Tbilisi Business Accelerator
19. Hospitality Skills Training Programme

Goal 6:

Grow a resilient tourism economy, that celebrates Tbilisi's cultural assets, and enhances quality of life for residents

Actions

20. Tourism Strategy and Action Plan for Tbilisi
21. Promoting Diverse and Inclusive Visitor Activities
22. Building Capacity for Safeguarding, Preserving and Managing Tbilisi's Historic District
23. A People-Centered Night-Time Economy

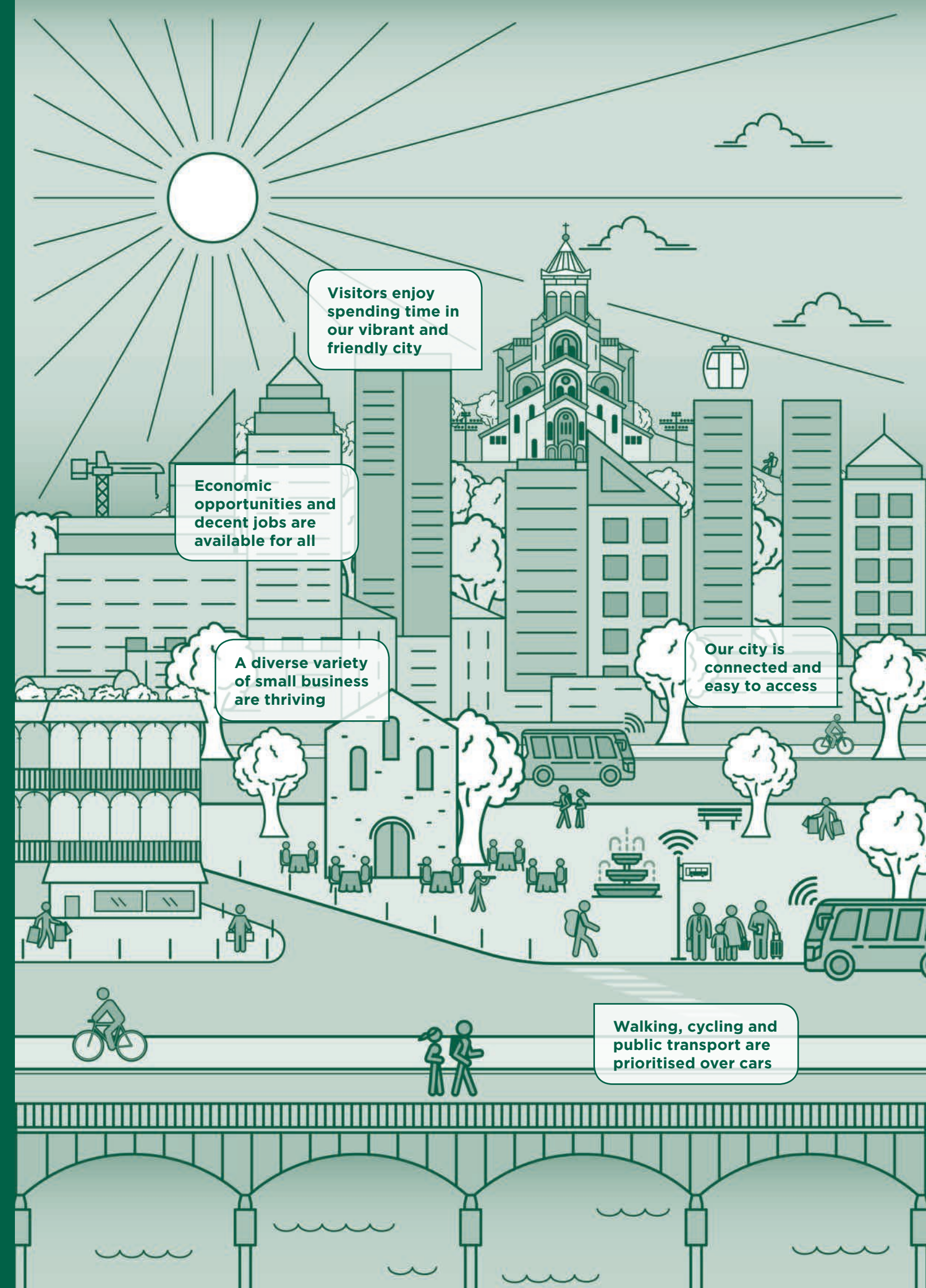
Goal 7:

Develop active and inclusive transport systems

Actions

24. Sustainable Urban Mobility Plan
25. Mtkvari River Transport Tourism Study

26. Develop Tbilisi's 'Street Manual' for cycling+walking+transport
27. Upgrading buses for a resilient bus service
28. Intelligent Transport Management systems



GOAL 5.
CONNECT ALL RESIDENTS WITH
ECONOMIC OPPORTUNITIES



Tbilisi’s people are its greatest asset. We want to ensure residents have access to economic opportunity and a greater quality of life.

We will:

- Develop economic sectors that ensure a **diverse range of economic opportunities** that will also **provide decent jobs** for all of Tbilisi’s population;
- Ensure all residents can access economic opportunities across the city via efficient and comfortable means of transport;
- Tackle the skills gaps that currently prevent people in Tbilisi from accessing secure, high value employment;
- Reduce our high unemployment rate, especially amongst the younger population, by facilitating the transition between school and employment.

This resilience goal contributes to **two** of the **targets** set in the **EU Georgia Association Agenda**:

- Develop a strategic approach to employment, vocational education and training; aiming at more and better jobs with decent working conditions, better matching of skills and jobs in the labour market and promoting active labour market measures and efficient employment services, with a particular focus on youth;
- Improve the regulatory framework, operational environment and support to SMEs.

14

Brownfield and Industrial Development Strategy

ACTION OWNER

Tbilisi City Hall, Municipal Department of Urban Development, Municipal Department of Economic Development

CONNECTED ACTIONS

6 12 15 16 23 32

IMPLEMENTING PARTNERS

Private Owners of Brownfield Sites, IFI partners

Tbilisi has extensive areas of unused brownfield land across the city - this represents a huge development potential for the city. These were often former factory sites, which were largely privatised and left unused after the fall of the Communist regime. Tbilisi City Hall will develop a rehabilitation and investment strategy for these sites. This will include developing models for public-private partnerships and a detailed action plan. This programme would require a number of technical and feasibility studies that could potentially be funded by external partners.

These studies would then form the basis of special planning and regulatory frameworks to support the development of these sites. In parallel, new models for public private development partnerships to facilitate regeneration of these sites will be examined and enabled.

The brownfield and industrial development strategy will need to be linked with a sustainable multi-modal transport vision (see

Actions 15 and 23) in order to successfully develop these sites as linked centres of economic development or community amenities. Some sites will be key in developing Tbilisi’s new metro and transport links. Others have potential to boost investment in tourism and night-time economy infrastructure - in some cases, the industrial soviet heritage may give some sites their own charm.

RESILIENCE OUTCOMES

- **Recovery and regeneration of central sites reduces urban sprawl and revives activity in the city centre.**
- **Enables synergies and collaboration between public and private stakeholders.**
- **Attracts private investment for city projects.**
- **Supports basic conditions to increase employment and services in Tbilisi.**

NEXT STEPS

Municipal Department of Urban Development to secure technical expertise to conduct a detailed survey of brownfield sites, identify priority sites for development, and prepare a Brownfield Land Strategy and related policies for Tbilisi.



City Masterplan



TIMEFRAME
Medium Term

STATUS
In Development

SDGS



15

Resilient Transit-Orientated Development for Tbilisi's New Metro Stations

ACTION OWNER

Tbilisi City Hall, Municipal Transport Department, Municipal Department of Urban Development

CONNECTED ACTIONS

7 14 24

IMPLEMENTING PARTNERS

Tbilisi Transport Company (TTC), in partnership with planning and construction sector. IFI partners may provide technical assistance and studies.

Between 2021-2022, seven new metro stations will be built, linking Lilo and the Airport to Tbilisi's city centre.

We will work with both public and private sector stakeholders to ensure the new metro station developments maximise the amount of residential, business and recreational areas in easy reach of these public transport hubs.

This will involve ensuring that the development of areas around the new metro stations maximises opportunities for:

- Integrated land use and transport planning
- Efficient land use, with a balanced density of buildings
- Mixed-use developments for vibrant communities

- Highly accessible neighbourhoods
- Effective use of pedestrianised public space with street furniture and public art installations.
- Easy connections to employment areas
- Cost recovery for construction
- Land value capture mechanisms

RESILIENCE OUTCOMES

- Promote regeneration, economic development and investment in new neighbourhoods.
- Supports basic conditions to increase access to employment and services in Tbilisi.

NEXT STEPS

Municipal Transport and Urban Development departments to convene key stakeholders and identify the necessary planning regulations and agencies required to support the development of a comprehensive TOD plan. Successful TOD strategies require integrated engineering, planning, GIS, transport modeling and business studies. IFIs and external partners could support these studies.



City Masterplan



TIMEFRAME
Medium Term

STATUS

In Development

SDGS



16

Supporting our new and growing economic sectors

ACTION OWNER

Tbilisi City Hall Municipal Economic Development Department

CONNECTED ACTIONS

14 15 23

IMPLEMENTING PARTNERS

Ministry of Economy, Municipal Economic Development Department and IFI partners

We want to foster economic development and economic diversity in Tbilisi. We recently worked with the consultancy Deloitte to identify the sectors with potential for further development and investment Tbilisi. These sectors included: healthcare, hospitality, retail and entertainment.

We will develop a City Incentive Scheme to support the growth of 'up and coming' economic sectors with high development potential. We will investigate opportunities to support knowledge-based business, and others adding value to Tbilisi's economy, via the following measures:

- Providing co-working spaces for businesses

- Contributing to infrastructure provision for businesses
- Creating beneficial incentives and regulatory environments for priority sector development

RESILIENCE OUTCOMES

- Supports job creation in high earning knowledge-based sectors.
- Attains economic sustainability by encouraging diversity across Tbilisi's economic sectors.



City Masterplan
Local Economic
Development Plan



TIMEFRAME
Medium Term

STATUS
In Development

SDGS



17

Improve Understanding of Workforce Trends and Skill Gaps

ACTION OWNER

Tbilisi City Hall Municipal Economic Development Department

IMPLEMENTING PARTNERS

Ministry of Economy, Ministry of Education, Educational Institutions, IFI partners (e.g. ILO), private sector, sector associations

CONNECTED ACTIONS

16 23

Unemployment is a key challenge for Tbilisi. The capital's unemployment rate (24.7%) is significantly higher than the national average (14%).

We will conduct a comprehensive workforce study, assessing Tbilisi's current and projected labour market needs and skill-sets, as well as the barriers to employment. This research will enable Tbilisi City Hall to:

- Engage local businesses in identifying the skill-sets and workforce they need;
- Improve the job searching services available to support those entering or re-entering the workforce;
- Collaborate with educational institutions, to validate and adjust study programmes to ensure students leave with the skills ready for employment.

This research will be key in providing the insight needed to develop pilot projects, and inform policy making.

RESILIENCE OUTCOMES

- Enhances understanding of the levers to reduce unemployment in Tbilisi.
- Provides evidence to tailor education and training programmes to business needs.
- Increases the percentage of population in gainful employment, increasing productivity rates, and quality of life.

NEXT STEPS

Municipal Economic Development department to secure technical and capacity building assistance from IFIs and key stakeholder organisations to conduct the necessary labour market & skills research.



Local Economic Development Plan



TIMEFRAME
Medium Term

STATUS

In Development

SDGS



18

Tbilisi Business Accelerator Programme

ACTION OWNER

Tbilisi City Hall Municipal Economic Development Department

IMPLEMENTING PARTNERS

European Union and Tbilisi City Hall (co-funded, 50%)

CONNECTED ACTIONS

14 16

In 2017, Tbilisi City Hall was awarded with the European Union Grant for "Creating a Business Accelerator for Sustainable SME Development".

This programme, co-funded by both an EU Grant, and Tbilisi City Hall, will provide a range of start-up and small-to-medium sized enterprises with:

- Appropriate office spaces with suitable supporting technical infrastructure;
- Expert consultation support;
- Meeting venues;
- Sales promotion and marketing support for international and local markets and assistance in identifying and localizing potential target groups;
- Mentorship and assistance in drafting business plans, and in raising finances at the early stages of starting the businesses.

This programme aims to support sustainably-focused local businesses to overcome the challenges often faced by SMEs and start ups. Once the accelerator programme is complete, Tbilisi City Hall aims to assist programme beneficiaries with raising finances via a start-up capital fund. This fund can be setup and co-operated with an IFI or external partner with the requisite technical experience and capacity.

RESILIENCE OUTCOMES

- Promotes local sustainable businesses and diversifying Tbilisi's urban economy.
- Upskills local business owners.
- Creates jobs and enabling diverse livelihoods.

NEXT STEPS

Municipal Economic Development department to establish a diverse pool of programme participants and provide support in developing business plans and business promotion strategies.



Local Economic Development Plan



TIMEFRAME
Medium Term

STATUS

In Development

SDGS



19

Hospitality Sector Training Programme

ACTION OWNER

Tbilisi City Hall Municipal Economic Development Department

IMPLEMENTING PARTNERS

Municipal Economic Development Department, educational institutions and sector associations

CONNECTED ACTIONS

21 23

We will collaborate with hospitality associations and vocational colleges to develop a Hospitality Skills Training Programme. This will help prepare job seekers looking to join small to medium sized businesses in the fast-growing and important hospitality sector.

This programme will provide a range of training opportunities for both young students leaving school, and those with existing employment experience, including:

- Food and Beverage Service Skills
- Sales and Marketing Skills
- Business Development skills

- Mentorship
- Apprenticeships with large-scale hospitality organisations

RESILIENCE OUTCOMES

- Promotes employment opportunities in HORECA and other related sectors.
- Increases language/business/services skills of local population.
- Promotes Tbilisi as a diverse high quality visitor destination.

NEXT STEPS

Municipal Economic Development department to deliver initial pilot training modules during Year 1, then to engage hospitality organisations in the long-term, to assist with the delivery of the training programme.



SDGS



GOAL 6. GROW A RESILIENT TOURISM ECONOMY CELEBRATING TBILISI'S CULTURAL ASSETS AND ENHANCING QUALITY OF LIFE FOR RESIDENTS

The number of international visitors coming to Tbilisi has significantly increased over the past few years, drawn by the city's well-established art scene, low street criminality, excellent wine and relatively low prices.

We will:

- Ensure growth in tourism brings benefits for all residents of Tbilisi
- Preserve and enhance Tbilisi's unique built heritage
- Promote Tbilisi's attractiveness as a tourism destination whilst also enhancing quality of life for residents



The actions under this resilience goal contribute to two of the targets set by the **EU Georgia Association Agenda**:

- Cooperating on the development of an inclusive cultural policy in Georgia and on the preservation and valorisation of cultural and natural heritage with a view to fostering socioeconomic development
- Promoting the implementation of the 2005 UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions

20

Tourism Strategy and Action Plan for Tbilisi

ACTION OWNER

Tbilisi City Hall Municipal Economic Development Department

IMPLEMENTING PARTNERS

Municipal Economic Development Department, Georgian Tourism Administration, Tourism Sector Associations (including tourism, guides, hiking associations) IFI partners, NGOs

CONNECTED ACTIONS

16 21 23

Tbilisi City Hall will develop a Tourism Strategy and Action Plan to strengthen its role in guiding investment in the city and ensuring Tbilisi's tourism industry provides diverse and gainful employment opportunities.

This Tourism Strategy and Action Plan will enable Tbilisi to benefit from:

- Strategic direction in developing new and diversified tourism products and attractions;
- Increased employment opportunities in the tourism and services sector;
- Increased FDI in the tourism sector
- Increased visitor spending supported by higher value, more diverse visitor offer enabling increased average length of stay;

- Promotion of Tbilisi's hospitality and diversity of touristic products.

RESILIENCE OUTCOMES

- Coordinates a strategic approach to growing tourism-led economic development opportunities.
- Support economic growth and local jobs while helping to minimize the unintended adverse consequences that can come from rapid development of tourism in a city.

NEXT STEPS

Municipal Economic Development Department to explore opportunities to learn from international tourism organisations and cities across the 100 Resilient Cities Network, and then secure technical and capacity building assistance from IFIs if required to develop Strategy and Action. Plan.



Local Economic Development Plan



TIMEFRAME
Medium Term

STATUS

In Development

SDGS



LEARNING FROM THESSALONÍKI

Tbilisi's Municipal Economic Development department will collaborate with the Municipality of Thessaloníki to learn from their holistic approach to developing a resilient city tourism strategy through:

- Aligning city promotion campaigns with the city's identity as a knowledge and talent hub
- Working with entrepreneurs in the creative economy sector to support tourism.



21

Promoting Diverse and Inclusive Visitor Activities

ACTION OWNER

Tbilisi City Hall, Municipal Economic Development Department

IMPLEMENTING PARTNERS

Private-Public Partnerships, Tbilisi City Hall Municipal Economic Development Department

CONNECTED ACTIONS

18 20 23 27

Tbilisi City Hall will advocate for increasing the variety of activities on offer for visitors to Tbilisi. We want to ensure there is a range of ways visitors can explore our city. We want to provide activities for everyone, from our youngest to our oldest visitors. We will explore the following options:

- A feasibility study for using the Mtkvari River for touristic routes and transport
- Developing and upgrading visitor trails across the city, to promote and celebrate both the city's tangible and intangible heritage and cultures. This includes expanding visitor trails to include additional neighbourhoods surrounding the historic district, and developing food, history, music, architectural and nature trails.

- Improving way-finding tools in the city
- Using innovative new technologies and collaborating with small and medium tourism enterprises to offer new tourism products.

RESILIENCE OUTCOMES

- Promotes Tbilisi's cultural identity, image and reputation.
- Promotes longer stays and deeper engagement with Tbilisi's culture, histories, and environments.
- Generates additional revenues through expansion of tourist sector.

NEXT STEPS

Municipal Economic Development department to identify locations for pilot trail projects and collaborate with Environmental Protection Department in reviewing the findings of Mtkvari River feasibility study.



City Masterplan
Local Economic Development Plan



TIMEFRAME
Medium Term

STATUS

In Development

SDGS



22

Building Capacity for Safeguarding, Preserving and Managing Tbilisi's Historic District

ACTION OWNER

Tbilisi City Hall, Municipal Urban Development Department

IMPLEMENTING PARTNERS

Municipal Urban Development Department, Economic Policy Department, Municipal Inspections Department, Municipal Legal Department, Tbilisi Architecture Service, District Administrations, Tbilisi City Assembly, Tbilisi Development Fund.

CONNECTED ACTIONS

7 21

Tbilisi's Historic District is a candidate on the UNESCO World Heritage List as the most representative and outstanding piece of urban heritage in Georgia. The Historic District covers around 12 000 buildings and 1700 listed monuments, and about 5% of the city's population live in this area. However, the physical condition of the historic fabric is poor. The 2002 earthquake has left buildings cracked and damaged, and much of the aging infrastructure is in need of significant maintenance and renewal.

Tbilisi City Hall will partner with various stakeholders in order to establish the governance systems needed for the preservation and enhancement of Tbilisi's Historic District. This newly developed governance system will be supported by funding mechanisms and planning instruments to safeguard and rehabilitate the district. Throughout this, we will ensure the essential

social mix of residents and users is preserved as well as the authenticity and integrity of the historic urban fabric.

RESILIENCE OUTCOMES

- Ensures protection and utilisation of Tbilisi's historical and cultural heritage.
- Preserves and strengthens the city's cultural identity.
- Builds capacity and governance within Tbilisi City Hall, which can be applied to managing other heritage assets.
- Improves housing conditions within the Historic District.

NEXT STEPS

Municipal Urban Development department to secure technical and capacity building assistance from IFIs and external partners to develop regulations, institutional framework and financing models for the management and rehabilitation of Tbilisi's historic district.



23

A People-Centered Night-Time Economy

ACTION OWNER

Tbilisi City Hall, Municipal Economic Development Department, Municipal Department of Culture, Education, Sport and Youth Affairs, Ministry of Internal Affairs

IMPLEMENTING PARTNERS

Tbilisi City Hall Municipal Department of Culture, Education, Sport and Youth Affairs, Ministry of Internal Affairs

CONNECTED ACTIONS

19 21 27

We will support the growth of Tbilisi's night economy, and act to ensure it is people centred, bringing opportunities and benefits to residents, as well as visitors to our city.

We will collaborate with a range to stakeholders to ensure:

- Navette buses operate throughout the night providing affordable public transport
- Night economy workers receive a living wage
- We develop good practice in consulting with local residents when developing new night economy activities
- We support local street musicians and market stall businesses in extending their working hours

- An increase in the number of pedestrian areas, restricting car circulation in certain locations
- Support for museums, galleries, music venues in promoting events across the capital and extending opening hours
- Regulations that provide a safe and inclusive environment.

RESILIENCE OUTCOMES

- Promotes Tbilisi's cultural identity and reputation as a diverse visitor destination.
- Promotes longer stays and generates additional revenues through expansion of tourist sector.

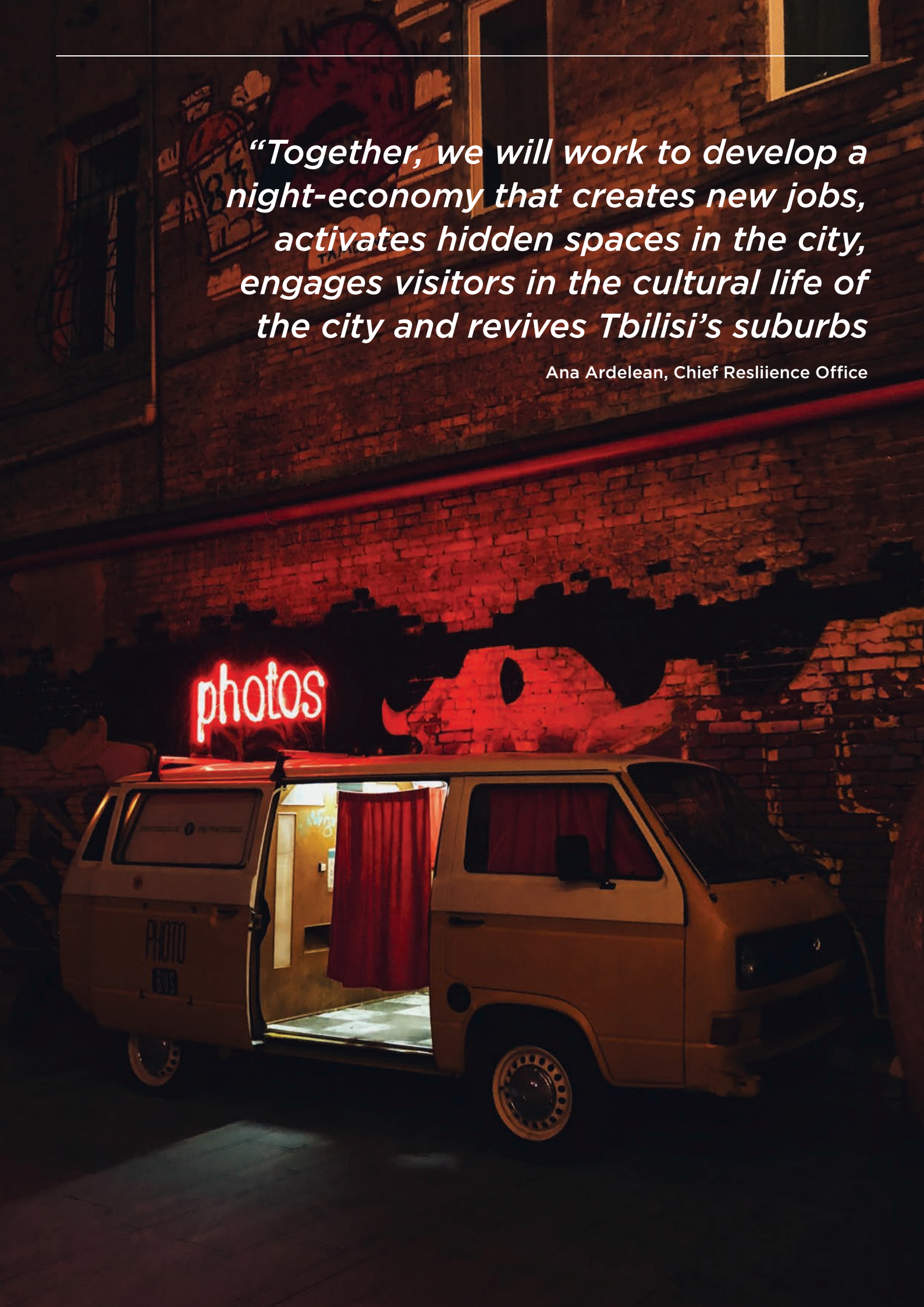
NEXT STEPS

Municipal Economic Development Department and Resilience Office to convene a key stakeholder working group focused on developing Tbilisi's night-time economy with benefits for local residents. As a first step, this working group should develop a vision and the strategic next steps to guide their work.



“Together, we will work to develop a night-economy that creates new jobs, activates hidden spaces in the city, engages visitors in the cultural life of the city and revives Tbilisi’s suburbs

Ana Ardelean, Chief Resilience Office



GOAL 7.
ACTIVE AND INCLUSIVE TRANSPORT SYSTEMS

We want to ensure our transport networks support a more resilient urban development, which is people-centred and inclusive.

We aim to develop opportunities that ensure resident’s travel around the city can **enhance their quality of life** and promote more **healthy active lifestyles**;

The following actions aim to tackle issues including: traffic congestion, air pollution, access, and high levels of private vehicle use.



This resilience goal contributes to the following **National Environmental Action Programme (2017) targets**:

Reduce air emissions through the regulation of air pollutants from various economic sectors

24

Implementing the Sustainable Urban Mobility Plan

ACTION OWNER
Tbilisi City Hall, Municipal Transport Department

IMPLEMENTING PARTNERS
Tbilisi Transport Company (TTC), IFI Partners

CONNECTED ACTIONS

26 27 37

Tbilisi City Hall is developing a strategic Sustainable Urban Mobility Plan (SUMP). Funding for this has been provided by the Asian Development Bank, and will be finalised in 2020.

The SUMP’s overarching priority is to promote a modal shift, from private car use to public transport and active forms of mobility (walking & cycling).

institutional capacities. This will also include assessing the capacity to enforce the plan

- Setting clear framework for monitoring and evaluation of plan implementation.

The SUMP sets a course of action for Tbilisi between 2020 and 2035.

RESILIENCE OUTCOMES

- Decreases traffic congestion, and provides a safe environment for pedestrians and drivers alike.
- Integrates land-use and transportation planning to deliver public transport infrastructure and accessibility.
- Encourages behavior change in residents travel mode in favor of more walking and more public transport use.
- Contributes to emissions reduction and improve the city’s air quality.
- Enhances the city’s identity by making the city more accessible for local residents and visitors.

- The SUMP will include actions to:
- Ensure affordable, safe and sustainable mobility and equal access to urban opportunities for all
 - Create an integrated transport system with a well-defined hierarchy which achieves a balance between modes.
 - Ensure integration between different sectors and different levels of decision-making
 - Ensure participation and involvement of all stakeholders (including the public) throughout the process of SUMP development and implementation
 - Ensure implementability of the plan by assessing the financial, human, technical and

NEXT STEPS
Sustainable Urban Mobility Plan to be finalised and published with a clear action plan for implementation, detailing secured budgets and stakeholder responsibilities.



City Masterplan, Green City Action Plan



TIMEFRAME
Long Term



STATUS
In Development



SDGS



25

Mtkvari River Feasibility Study for Tourism and Transport

ACTION OWNER

Municipal Transport Department

CONNECTED ACTIONS

13 21 35

IMPLEMENTING PARTNERS

Municipal Urban Development Department, Economic Policy Department, Municipal Inspections Department, Municipal Legal Department, Tbilisi Architecture Service, District Administrations, Tbilisi City Assembly, Tbilisi Development Fund.

The Mtkvari River, the largest river in the Caucasus, runs through the centre of Tbilisi. The river is a defining feature of the city, and has potential to become an alternative means of transport through the city.

Tbilisi's city centre currently faces heavy congestion and traffic. River transportation offers the potential to enhance the public transport system's connectivity and capacity, as well as to enhance the experience for visitors.

Tbilisi City Hall is partnering with the Asian Development Bank to conduct a feasibility study for tourism and transport infrastructure on the Mtkvari River, between Ortatchala HPP and Zahesi.

If tourism and transport infrastructure development is recommended, extensive river cleaning and rehabilitation works will be key future steps within the project programme.

RESILIENCE OUTCOMES

- Provides a sustainable and alternative means of transport, extending connectivity and transport options through the city centre.
- Enhances the city identity and supports tourism.
- Extends tourism corridors from Tbilisi's Old Town, through the full centre of the city.

NEXT STEPS

Tbilisi City Hall to consider feasibility study recommendations and identify appropriate infrastructure commitments for the next phase of work.



City Masterplan



TIMEFRAME
Short Term

STATUS

In Development

SDGS



26

Develop Tbilisi's Street Manual for promoting multi-modal and active transport

ACTION OWNER

Tbilisi City Hall, Municipal Transport Department

CONNECTED ACTIONS

15 27

IMPLEMENTING PARTNERS

IFI Partners, specialist consultants, Municipal Infrastructure Department District Administrations (responsible for neighbourhood scale pedestrian infrastructure)

Tbilisi is dominated by car traffic and congestion, and one of the biggest challenges in changing this trend is the poor condition and limited extent of pedestrian and cycling infrastructure.

We will collaborate with IFI experts to develop best practice comprehensive design standards and guidance to help planners, engineers, designers and other practitioners to create safe, integrated and comfortable streets and public spaces. This Street Manual and design standards will be key creating a public realm which encourages walking and cycling, whilst ensuring the safe cohabitation of motorised and non-motorised modes of transport in Tbilisi.

This will initially involve working with IFIs to conduct a feasibility study to identify the most relevant standards for effectively managing the interactions between pedestrian, cyclists and motorised vehicles, and the design of sidewalks accessible for all, in Tbilisi. As a second stage, we will then explore opportunities to develop high visibility projects or pilots, to raise public awareness and support the identified need for change.

This manual will also be an opportunity for the relevant local stakeholders to identify international best practice and create a unique framework suited to Tbilisi's identity and needs.

RESILIENCE OUTCOMES

- Provides guidance in designing high quality active, and accessible forms of transport.
- Improves safety for pedestrian and cycling road users.
- Triggers behaviour change away from private vehicle use in favor of more walking, cycling and more public transport use.
- Contributes to the emissions reduction and improve the city's air quality.

NEXT STEPS

Municipal Transport Department to secure technical assistance from IFI or external partners to conduct a feasibility study, identifying suitable multi-modal Street Design Standards for Tbilisi.



City Masterplan
Green City Action Plan



TIMEFRAME
Short Term

STATUS
Aspirational

SDGS



27

A resilient and user-friendly bus network

ACTION OWNER

Tbilisi City Hall, Municipal Transport Department

IMPLEMENTING PARTNERS

IFI Partners, specialist consultants, Municipal Infrastructure Department District Administrations (responsible for neighbourhood scale pedestrian infrastructure), Tbilisi Transport Company (TTC)

CONNECTED ACTIONS

15 21 26 28

Tbilisi's bus services need to be easy, safe and reliable for both residents and visitors to use. We will collaborate with public transport planning experts to deliver improvements to both the infrastructure and design of Tbilisi's bus network.

i) Enhancing bus procurement tenders:

As Tbilisi renews its bus fleet in the coming years, we want to ensure our new buses are fit for purpose and participate in the effort towards behaviour change identified in Actions 24 and 25. We will work with experts to integrate and formalise resilience guidelines to enhance our bus procurement tenders.

This could include incorporating criteria to ensure new buses are:

- designed to low-emission standards;
- accessible for all passengers (incorporating inclusive designs to cater to those traveling with young children, restricted mobility, or partial vision);
- equipped with CCTV for passenger safety;
- equipped with bike mounts to encourage multi-modal forms of active travel;
- designed to accommodate an increasing volume of bus users over time.

ii) Designing a user-friendly bus network

We will work with specialists and IFI partners to establish best practice design standards for Tbilisi's bus stops and information systems.

NEXT STEPS

Municipal Transport Department to convene a stakeholder working group to consider the findings of the Systra Bus Restructuring Study findings (end of 2019) and establish a roadmap for bus infrastructure and procurement enhancements. This working group should also establish which areas require technical assistance from IFIs and external partners.

Improved and consistent design standards will support planners, engineers and designers to ensure bus stops are:

- Orientated to ensure passengers are safe from traffic when alighting
- Designed to protect passengers from the weather
- Recognisable and clearly-signed, in a consistent way
- Equipped with real-time announcements and wait-time information for passengers
- Equipped with route maps and apps that can be easily interpreted by all bus network users.

RESILIENCE OUTCOMES

- Provides a safe, modern and reliable public transport system to reduce reliance on cars.
- Promotes behaviour change in residents' travel in favour increased use of public transport.
- Enhances accessibility of public transport through inclusive designs.
- Reduces CO₂ emissions and contributes to reducing overall transport emissions.



28

Intelligent Transport Management System

ACTION OWNER

Tbilisi City Hall, Municipal Transport Department

IMPLEMENTING PARTNERS

KfW and GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit) (for feasibility study) and other IFI Partners

CONNECTED ACTIONS

9 13 27 37 38

Our long term goal is to enhance the efficiency and reliability of our transport network. This involves developing an intelligent transport management system, with multi-purpose sensors, to collect and integrate real-time data on:

- traffic congestion, and pedestrian or public transport crowding
- weather
- air quality monitoring & forecasting
- CCTV safety cameras

Our first step in achieving this goal is to work with KfW and GIZ to develop a feasibility study to evaluate the potential to install intelligent transport management systems in Tbilisi.

In parallel to this, we will create a specific **Intelligent Transport System division** within the Municipal Transport Department to manage the current and future transport management systems.

With this first step in place, we will then identify appropriate infrastructure investment options and partners for installing a transport management system in Tbilisi.

NEXT STEPS

Municipal Transport Department to consider findings from initial scoping study (Q3-4 2019) and work to secure technical assistance to conduct a feasibility study identifying suitable ITM systems for Tbilisi.

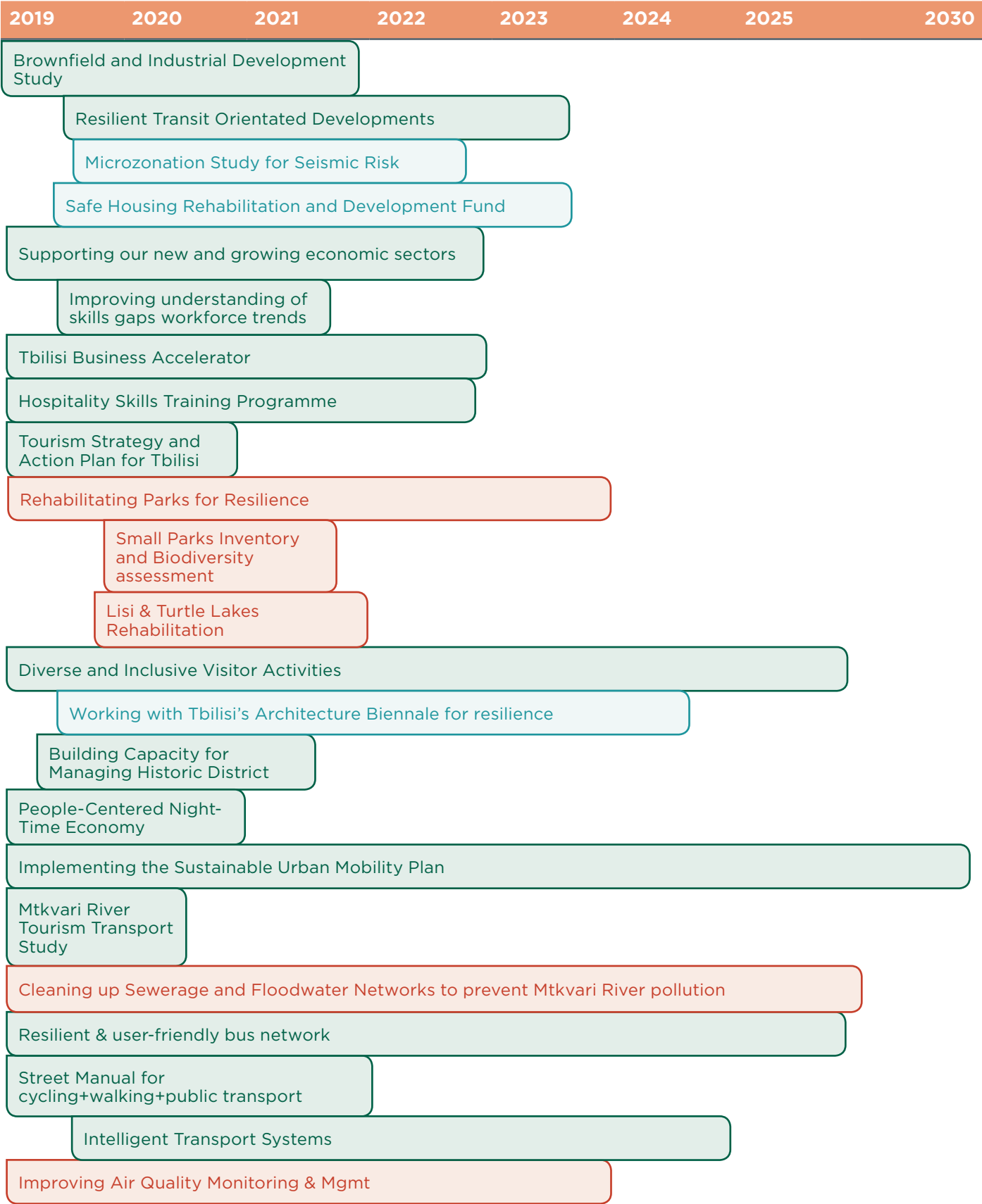
RESILIENCE OUTCOMES

- Ensures a data-driven decision-making approach across multiple sectors.
- Promotes integrated and efficient mechanism to managing mobility issues - from traffic regulation, pollution, road safety and enforcement (e.g. vehicle tax, insurance and road worthy regulations).
- Helps to influence traveller behaviours by warning of incidents along routes and redirecting people to other modes of transport.
- Prepares the transport systems for the inclusion of automated vehicles
- Supports crisis management on the transport network.
- Helps to manage emergency vehicles, and evacuation routes.



A THRIVING, CONNECTED & ACCESSIBLE CITY

IMPLEMENTATION ROADMAP



The actions to make Tbilisi a thriving, connected and accessible city require collaboration across sectors ranging from economic and business development, vocational training, employment support, transport planning and heritage management.

Together, these actions aim to connect Tbilisi's residents with economic opportunities, and enhance their quality of life.

Coordinating economic development with public & active mobility services

Enhancing accessibility will be key to a successful, inclusive city economy. Residents, visitors and businesses rely on safe, fast and affordable ways to access the employment, services, activities, markets and supply chains that they need.

This is particularly important in developing Tbilisi's brownfield sites. These locations can only be successfully redeveloped if they are well networked into sustainable and multi-modal transport systems which connect them fully to the city economy.

Restoring natural environments to enhance Tbilisi for residents and visitors

There are opportunities to incorporate Tbilisi's parks, forests and lakes as part of the city's visitor attractions. Providing a broad range of activities for visitors can encourage longer stays in the city, bringing many indirect benefits for the local economy.

This can be unlocked by measures to ensure visitors can easily use public transport to access these areas of the city.

Cost Saving Opportunities

The installation of an Intelligent Transport System provides opportunities to get higher accessibility performance out of existing assets, as well as to integrate air quality management sensors across the transport network. An integrated approach to installing sensor infrastructure could achieve significant cost savings. There are also opportunities to also integrate a transport management system with early warning systems or meteorological monitoring systems should also be investigated.

Capacity Building Opportunities

The private sector and potentially IFI organisations will play a key role in delivering many actions (for example Actions 14, 15, 16, 21, 22) successfully. The development of partnerships with external delivery partners will strengthen the city's capacity to build institutional frameworks to deliver investment and services more rapidly and at greater scale.



A CITY THAT IS MITIGATES AND ADAPTS TO CLIMATE CHANGE

Goal 9:

Protect healthy natural environments

Actions

- 32. Rehabilitating Tbilisi's parks for resilience
- 33. Restoring Tbilisi's forests
- 34. Inventory of small scale parks
- 35. Biodiversity Assessment to protect vulnerable areas
- 36. Cleaning up sewerage and floodwater networks to prevent Mtkvari River pollution
- 37. Lisi & Turtle Lake Rehabilitation for Recreational Areas
- 38. Improving Air Quality Monitoring & Management
- 39. Establishing an Air Quality information portal to inform decision-making

Goal 8:

Develop Tbilisi's Climate Change Strategy

Actions

- 32. Elaborate a Climate Change Strategy for Tbilisi
- 33. Action Plan for Public Environmental awareness
- 34. Infrastructure Adaptation Climate Change Commitment

Goal 10:

Act to diversify energy sources and reduce consumption

Actions

- 40. Feasibility study for green energy generation from Landfill
- 41. Bio-waste recycling
- 42. Waste Management Strategy
- 43. Energy Efficient Municipal Buildings and Street Lighting



GOAL 8.
DEVELOP TBILISI'S CLIMATE CHANGE STRATEGY



Tbilisi is one of the fastest growing cities in the South Caucasus, and is home to 1/3 of Georgia's population. Yet, the city does not currently have a climate change strategy.

We will develop a Climate Change Strategy for Tbilisi that :

- enhances our understanding of the potential local impacts of global climate trends,
- guides Tbilisi City Hall in elaborating modern mitigation and adaption projects, based on international best practice;
- informs integrated planning
- supports Tbilisi to secure state funds for climate action
- contributes to effective measures for protecting local environments in Tbilisi.

This goal supports two targets within the **EU Georgia Association Agenda:**

- Start implementing new global agreement on Climate Change (Paris Agreement)
- Ensure public access to environmental information and public participation in decision-making, by involving all interested stakeholders, as well as by integrating the environment into other policy areas and by improving environmental information sharing.

29

Elaborating A Climate Change Strategy for Tbilisi

ACTION OWNER
Tbilisi City Hall, all Departments

IMPLEMENTING PARTNERS
IFI Partners, NGOs, Ministry of Environmental Protection and Agriculture

CONNECTED ACTIONS

13 30 31

Tbilisi City Hall recognises that the impacts of climate change are already affecting the quality of life for its residents both in the short term and the future.

We aim to develop a comprehensive strategy that aims to enhance Tbilisi's capacity for climate change mitigation and adaptation. Developing this strategy, will involve collaborating with multi-sector city stakeholders to :

- Identify the actions Tbilisi can take to contribute to Georgia's commitments under the EU Georgia Association Agenda and Paris Agreement
- Establish a multidisciplinary committee responsible for delivering and developing a climate change strategy

- Identify opportunities to collaborate with international agencies and cities to learn from and share experiences.
- Ensure the strategy is reinforced with environmental laws and regulations that aim to improve air quality and natural resource protection.
- Ensure climate actions in Tbilisi are equitable and socially inclusive.

Resilience Outcomes:

- Develops a coordinated approach to climate adaptation, strengthening municipal leadership and integrated planning.
- Promotes sustainable management and development.

NEXT STEPS

Tbilisi City Hall to convene cross-department working group, lead by the Environmental Protection Department, to develop the objectives of a Climate Change Strategy for Tbilisi. Once these objectives are agreed, collaboration with IFI partners will be needed to secure technical assistance to develop a strategy and action plan programme.

TIMEFRAME
Medium Term

STATUS
Aspirational

SDGS



30

Action Plan for Public Environmental Awareness

ACTION OWNER

Tbilisi City Hall, Municipal Department of Environmental Protection

CONNECTED ACTIONS

IMPLEMENTING PARTNERS

EcoService, Tbil'Service Group, Ministry of Environment Protection and Agriculture, private sector, NGOs and educational institutions, National Centre of Disease Control of Georgia, (EU Twinning project Strengthening of Environmental Health Management Capacity)

4 29 32 33

We can only really tackle climate change if everyone in Tbilisi participates in efforts to reduce their impact on our environment.

We want to develop a comprehensive Action Plan to promote environmental awareness and behaviour change among Tbilisi's inhabitants.

This Action Plan will require strong collaboration, between central and local government, civil society, academia, educational institutions and media, to develop a comprehensive plan for delivering effective awareness raising campaigns and initiatives.

The Action Plan for Public Environmental Awareness could involve actions such as:

- **Recycling & Littering Awareness Campaigns** -encouraging residents to reduce, reuse and recycle everyday waste materials
- **Air Pollution Prevention Campaign** - increasing public awareness of the links between transport emissions, construction activities and health.
- **Green space and urban biodiversity conservation initiative** - engaging the public in tree planting or food growing activities.
- **Making public health information widely available** to help inform the public of potential environmental risks. This could include:

- Recommended times to exercise to avoid higher air pollution peaks
- Recommendations to avoid streets and central areas with high pollution
- Advice for avoiding toxic substance exposure from painted toys
- Advice for avoiding contaminants and pesticides from food
- Recommended practices for ventilating homes to reduce radon levels

- **Coordinating with kindergartens, schools and universities** - to ensure the initiatives above are integrated within their curriculum
- **Engaging the private sector** in the above activities.

These initiatives and campaigns should use a variety of social media messaging, TV and newspaper advertising and campaign days to ensure vulnerable populations are aware of the preventative actions they can take.

Resilience Outcomes:

- Raises awareness of opportunities to mitigate health risks.
- Enhances and promote communication channels with residents.
- Promotes resident well-being and improved quality of life.

NEXT STEPS

Municipal Environmental Department to convene a cross-departmental working group to identify key objectives and focus areas for raising environmental awareness in Tbilisi, in close co-operation with central government institutions. Once objectives have been established, technical assistance from IFIs and NGOs will be required to develop an action plan which actively engages residents in environmental issues.

 **TIMEFRAME**
Medium Term

STATUS
Aspirational

SDGS



31

Climate Adaptation for Infrastructure Commitment

ACTION OWNER

Tbilisi City Hall, Municipal Department for Environmental Protection

CONNECTED ACTIONS

IMPLEMENTING PARTNERS

Municipal Department for Infrastructure Development, Tbilisi Development Fund, and infrastructure delivery partners

29

Tbilisi City Hall will allocate 500 million GEL each year for infrastructure improvement projects, many of which will incorporate climate adaptation, based on guidelines developed by UNDP. These guidelines developed within the 4th National Report to the UNFCC (published in 2019-2020), will be used by Georgian authorities to ensure projects comply with climate adaptation recommendations.

Resilience Outcomes:

- Invests proactively in protecting and maintaining critical infrastructure.
- Reduces risk from flooding, flash flooding, landslides and extreme temperatures.

NEXT STEPS

Tbilisi City Hall will adopt guidelines developed by UNDP to identify effective Climate Change adaptation projects for funding. It may be necessary to develop some capacity building or training to ensure stakeholders responsible for delivering infrastructure improvements are aware of UNFCC guidelines.

 **TIMEFRAME**
Long Term

STATUS
Pre-existing

SDGS



GOAL 9.
PROTECT HEALTHY NATURAL ENVIRONMENTS

We want to secure a rich and accessible local natural environment. We will aim to provide:

- accessible green areas to improve health and leisure opportunities for visitors and residents
- enhanced management of local water catchments and biodiversity
- green areas across Tbilisi to beneficially modify the city micro-climate and reduce urban heat effects.

The actions in this goal could support Tbilisi in meeting five of the **National Environmental Action Programme of Georgia (NEAP) 2017** targets:

- Reduction of water pollution from point and diffuse sources and ensuring sustainable use of water resources
- Improvement of the water quality and quantity monitoring and assessment systems
- Promotion of sustainable management of biodiversity
- Expansion of the protected areas network improvement of the protected area management system
- Promotion of sustainable eco-tourism in protected areas



32

Rehabilitating Tbilisi’s Recreational Parks for Resilience

ACTION OWNER
Tbilisi City Hall, Municipal Department of Environmental Protection

CONNECTED ACTIONS

IMPLEMENTING PARTNERS
Municipal Development Fund, Tbilisi City Hall, IFI Partners, private funders, NGOs and community groups.

21 26 29

Tbilisi City Hall will revive existing urban parks and establish two new parks, designing them to be resilient and ready to respond to a mix of city challenges. We will integrate opportunities for more active lifestyles and playground facilities, we will integrate green flood mitigation infrastructure, and involve community groups in designing park facilities, to ensure they are community-orientated and inclusive.

We want to ensure residents in all neighbourhoods have access to good quality outdoor recreational areas. Previously, many parks were in poor condition, with dilapidated or unsafe infrastructure, and lacking trees or lighting at night.

- Following the damage of the June 13 2015 flood, we are rehabilitating **Mziuri** park, and rebuilding cafes, a puppet museum, bike trails, ponds and walking routes around the park.
- **Vake, Vera, Veterans, Dedaena, Godziashvili, and Gldani** parks in the centre of Tbilisi are being revived with new walking routes, picnic and seating areas, vegetation and trees, playgrounds and irrigation systems.
- The City Masterplan identified sites for two new city parks. Work is underway to create a 9000m² park at **Dighmis Tchalebi**. Here, different nature-inspired solutions

will be integrated into the park design, including ecological restoration of polluted soils, and involvement of local residents in replanting trees and designing playground facilities and spaces for relaxation, exercise or cultural expression. A bird nesting and nature reserve will also be restored and preserved. This will serve as a key recreational area for the Gldani and Dighomi districts.

- The previously disused 20 ha territory at **Temkiskhevi** will become the biggest park in Tbilisi. Significant environmental remediation works and flood mitigation infrastructure is needed, but the restoration of the site would provide flood protection and access to recreational green space for almost 80,000 residents in the surrounding areas.

Resilience Outcomes:

- Provides residents with access to good quality green space in urban areas.
- Restores natural ecosystems, landscapes and biodiversity.
- Enhances attractiveness of Tbilisi to residents and visitors.
- Encourages active and healthy lifestyles.
- Provides flood mitigation, air pollution mitigation and reduced Urban Heat Island effects.

NEXT STEPS

Municipal Environmental Protection department to secure additional technical and financial assistance from IFI Partners for the infrastructure construction in Dighmis Tchalebi and park designs for Temkiskevi.



City Masterplan
Green City Action
Plan



TIMEFRAME
Medium Term

STATUS

In Development

SDGS



33

Restoring Tbilisi's Forests

ACTION OWNER

Tbilisi City Hall Municipal Department of Environmental Protection

IMPLEMENTING PARTNERS

Private sector businesses, local schools, NGOs, youth and community organisations

CONNECTED ACTIONS

12 21 30

Tbilisi's surrounding forest areas perform key functions in preventing natural hazard events - such as mudflows, landslides and flash floods. In recent years, ongoing degradation of forest areas has contributed to significant and destructive mudslide events. In the past decade, 20 people have been killed by mudslides in Tbilisi. Considerable damage has also been inflicted on nearby roads and residential houses, as well as water, electricity and gas networks, resulting in the need to resettle affected populations.

As part of Tbilisi's Forest Management Plan, Tbilisi City hall will co-fund a long-term

reforestation programme. We aim to replant over 1500 hectares of forests. We will work with kindergartens, schools, community organisations and businesses to deliver pilot tree planing projects.

Resilience Outcomes

- Mitigates landslide and mudslide risk.
- Restores natural ecosystem and biodiversity.
- Promotes public environmental risk awareness amongst all residents.
- Absorbs CO₂ emissions from atmosphere.

NEXT STEPS

Environmental Protection Department will work with IFIs and local NGOs to secure assistance for long-term reforestation activities. Tbilisi City Hall will organise tree planning activities to engage and involve the local population.



LEARNING FROM TIRANA'S "PLANT YOUR TREE" SPONSORSHIP PROGRAMME

The Municipality of Tirana (Albania) managed to plant 126,000 trees in one year, through various sponsorship programmes.

In partnership with the European Bank for Reconstruction and Development (EBRD), the city sent letters inviting local businesses to sponsor certain segments of the forest. Other initiatives included appealing to car owners to donate one or two trees per car to reduce pollution. Many local school and community groups also raised funds and volunteered to help planting trees in their local neighbourhoods.

"Our ambition is to have a green belt of 2 million trees in the outskirts of the city which will serve to oxygenise Tirana and halt the urban sprawl."



34

Urban Small Parks Inventory & Biodiversity Assessment

ACTION OWNER

Tbilisi City Hall, Municipal Department of Environmental Protection

IMPLEMENTING PARTNERS

IFI Partners, specialist consultants

CONNECTED ACTIONS

4 21 32

One of our top priorities is improving quality of life through enhancing the quality and accessibility of the city's parks and recreational facilities. We believe there is a great opportunity to restore and revive small green spaces and parks around the city, especially in neighbourhoods that are currently under-served by local parks. However the exact boundaries, and the condition of vegetation or technical infrastructure of existing parks is currently unknown.

We will undertake a comprehensive inventory and biodiversity assessment of the existing city parks in order to inform a programme of park rehabilitation and improvements. This will expand upon the recent World Bank Park

Recreational Areas Inventory. The findings of the biodiversity assessment will be used to inform environmental zoning and protection measures.

Resilience Outcomes:

- Provides residents with access to good quality green space in urban areas.
- Restores natural ecosystems, landscapes and biodiversity.
- Enhances attractiveness of Tbilisi to residents and visitors.

NEXT STEPS

Municipal Department of Environmental Protection to elaborate technical guidelines for the small parks inventory and biodiversity assessment based on international best practice. Partnership with IFIs and NGOs will then be required to implement the inventory and assessment.



35

Cleaning up Sewerage and Floodwater Networks to prevent Mtkvari River pollution

ACTION OWNER

Tbilisi City Hall, Municipal Environmental Protection Department

IMPLEMENTING PARTNERS

GWP (for sewerage system interventions), Tbil'Service Group (for floodwater interventions), in collaboration with IFI partners

CONNECTED ACTIONS

13 25 31 36

The Mtkvari River suffers from high levels of pollution, caused by surface water run-off from roads, industrial sites and agricultural land around the City. There is currently no strategy for the management and maintenance of the storm water network, and there many instances where sewage pipes are connected to the drainage system, resulting in polluted water flowing into the river.

We will collaborate with experts to establish a comprehensive programme of actions to clean the Mtkvari River. This involves:

- in-depth research to develop a thorough understanding of the existing infrastructure, through surveying and fieldwork;
- developing a strategy for separating flood water and sewerage networks;
- identifying priority areas and feasible infrastructure solutions, prioritising the most vulnerable and worst affected locations. This study should be informed by meteorological monitoring stations across the city (See Action 12);

- developing appropriate regulations and governance mechanisms to ensure the city is able to prevent and manage future flood and pollution events.

Resilience Outcomes:

- Increases the capacity of Tbilisi to reduce damage and recover effectively following a flood or flash flood event.
- Restores and protects a key city ecosystem and water source.
- Opens up opportunities for transport and economic developments along the river, enhancing the area for residents and visitors.

NEXT STEPS

Municipal Environmental Protection Department to secure technical assistance from IFI and external partners to conduct baseline research identifying priority areas for interventions. With a reliable baseline established, key stakeholders will be able to develop a comprehensive rehabilitation programme.



SDGS



36

Ensuring Lisi & Turtle Lakes are safe for recreational use

ACTION OWNER

Tbilisi City Hall, Municipal Department of Environmental Protection

IMPLEMENTING PARTNERS

National Environmental Agency (NEA); Other technical departments responsible for the management of sewerage, drainage, water quality, tourism and agriculture; Institute of Bacteriophage, Microbiology and Virology, Tbilisi. IFI partners for technical and funding assistance.

CONNECTED ACTIONS

13 25 31 35

We aim to provide residents with the opportunity to use Lisi and Turtle lakes as recreational spaces for water-sports and swimming.

We will collaborate with IFI partners to conduct a comprehensive assessments of the lakes' water quality and contamination sources to ensure they comply to national standards and EU regulations for bathing. Water levels in these lakes have been decreasing in recent years, therefore research and remediation solutions will also be considered to ensure sustainable management of water levels in the future.

Resilience Outcomes:

- Restores natural ecosystems, landscapes and biodiversity.
- Enhances attractiveness of Tbilisi to residents and visitors.
- Restores and protects a key city water sources.

NEXT STEPS

Municipal Department of Environmental Protection to secure technical assistance from IFI and external partners to develop a prioritised Action and Implementation Plan for rehabilitating Lisi and Turtle Lakes. This would involve an assessment of current water quality status, pollution sources and the causes of recent water level change. This technical assistance should also incorporate the development of a water quality monitoring programme to ensure the longterm rehabilitation of the lakes.



SDGS



38

Improving Air Quality Monitoring & Management

ACTION OWNERS

Tbilisi City Hall, Municipal Department of Environmental Protection

IMPLEMENTING PARTNERS

National Environment Agency (NEA) of the Ministry of Environmental Protection and Agriculture, SmartAtmoSIM Lab at Tbilisi State University

CONNECTED ACTIONS

13 24 28 29 39

Across Tbilisi, five permanent air quality stations are operated by the National Environment Agency (NEA) and used by SMART | AtmoSIM Lab at Tbilisi State University.

The coverage of these stations across the city is currently limited – both in the number of sampling points and the range of pollutants measured.

We will ensure further resources and equipment in order to improve both the monitoring and forecasting of air quality in Tbilisi by SMART AtmoSIM Lab. This will create a comprehensive evidence base of air quality monitoring data, to inform vehicle regulations and restrictions.

We will also revise building code regulations to ensure dust and air pollution coming from construction sites are reduced.

This work is aligned with the EU Air Quality Directive (2008/50), encouraging cities to introduce air quality assessment and management protocols to facilitate monitoring and inform decision making.

This work also contributes to the state program for reduction of air pollution in Tbilisi (1457 decision of Government of Georgia from July 12, 2017) and the National Action Plan for implementation of obligations in air pollution management based on EU-Georgia association agreement (2014).

Resilience Outcomes:

- Improves understanding of air pollution sources, and opportunities to act with regulation and policy.
- Establishes a more robust and accurate air quality monitoring system for Tbilisi.
- Provides information to inform awareness raising and behaviour change campaigns.

NEXT STEPS

Municipal Department of Environmental Protection to secure funding for expansion of Tbilisi's air quality monitoring and management equipment with IFI partners where necessary. Opportunities to integrate air quality monitoring sensors within an Intelligent Transport Management System (Action 28) should certainly be pursued, to ensure cost saving installation and operational efficiencies.

TIMEFRAME
Medium Term

STATUS
In Development

SDGS



39

Establishing an Air Quality information portal to inform decision-making

ACTION OWNER

Tbilisi City Hall, Municipal Department of Environmental Protection

CONNECTED ACTIONS

24 28 29 38

IMPLEMENTING PARTNER

Environmental Information and Education Centre, National Environment Agency (NEA), of the Ministry of Environmental Protection and Agriculture

We will work with partners to centralise and publish air quality data on a new portal, making it available to both the public and political decision makers, with the aim of improving understanding of the impact of air pollution on human and environmental health.

This portal will also feature guidance and advice developed with the World Health Organisation, on reducing exposure to air pollution.

Portal Link: <http://air.gov.ge/>

This portal and the information it publishes will contribute to the State program for the reduction of air pollution in Tbilisi (1457

decision of Government of Georgia from July 12, 2017) and the National Action Plan for the implementation of obligations in air pollution management based on EU-Georgia association agreement (2014).

Resilience Outcomes:

- Increases transparency in air quality monitoring.
- Improves air quality.
- Increases public awareness of health risks associated with air pollution, and reduces exposure to air pollution hot-spots.

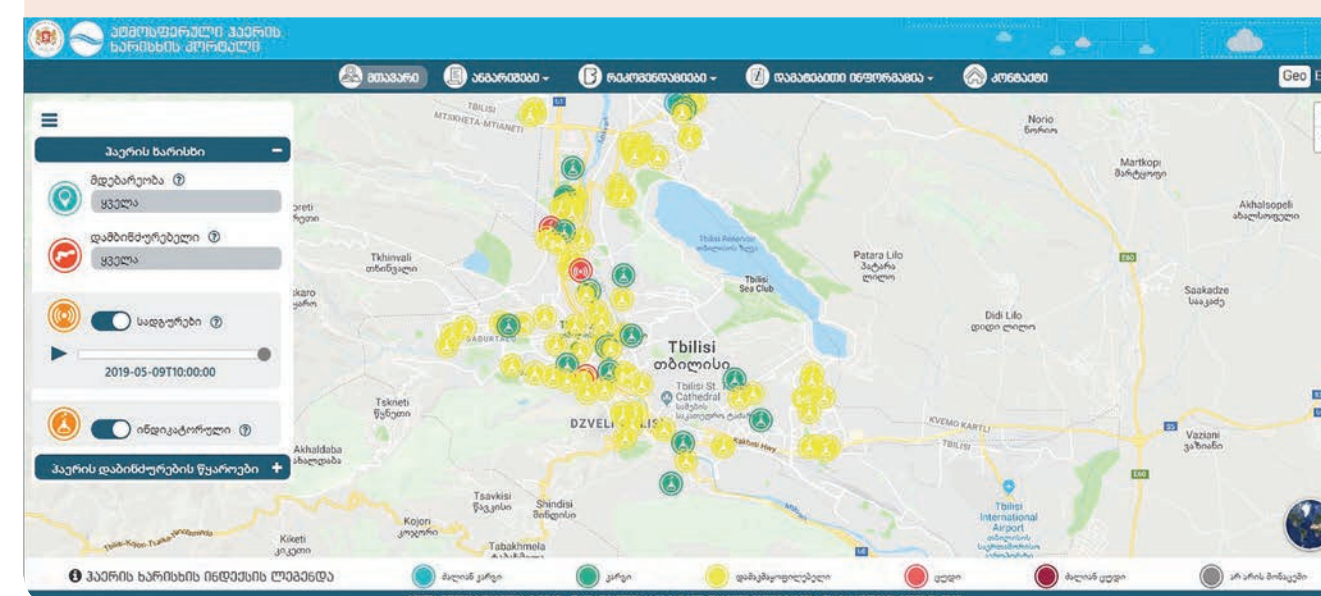
NEXT STEPS

Municipal Department of Environmental Protection to work with media, educational and NGO partners to further promote public knowledge of this site, and to ensure the integration of air quality information in transport and urban development decision making.

TIMEFRAME
Short Term

STATUS
Pre-existing

SDGS



GOAL 10.
ACT TO DIVERSIFY ENERGY SOURCES AND
REDUCE CONSUMPTION

This programme of projects acts to reduce Tbilisi's green house gas emissions and carbon footprint.

These projects also aim to increase energy efficiency and security for the city through innovative forms of technology



Tbilisi Municipality City Hall is one of the signatories of the “**Covenant of Mayors**” and has assumed the commitment:

- To reduce at least 20% of CO₂ emissions by 2020
- To develop a Sustainable Energy Action Plan (SEAP)
- To raise public awareness on energy efficiency and renewable energy sources
- To promote energy efficiency projects

The actions in this goal contribute to these objectives.

These actions also contribute to the **EU Georgia Association Agenda** obligation to:

- Invest in energy efficiency and security



40

Feasibility Study for Green Energy Generation from Landfill

ACTION OWNER
Tbil'Service Group

CONNECTED ACTIONS

IMPLEMENTING PARTNERS
IFI Partners

41

We will collaborate with experts and seek IFI assistance and funding to conduct a feasibility study for a co-generation plant at Norio, Tbilisi's municipal landfill. Co-generation could provide the city with an efficient and environmentally friendly means of generating heat and electricity at the same time, reducing both GHG emissions and dependency on fossil fuels. This alternative energy source could enhance Tbilisi's natural resources, by contributing to cleaner air quality.

could transform Tbilisi's landfill into a revenue generating asset, delivering the following environmental and financial benefits for the city.

Resilience Outcomes:

- Enables local production of Tbilisi's own climate neutral gas.
- Reduces dependency on buying electricity from providers, and the possibility of selling the electricity produced to distributors.

This study will contribute to the City's energy efficiency ambitions and wider Sustainable Energy Action Plan. With proper management, it is possible that co-generation technology

NEXT STEPS

Tbil'Service Group and Resilience Office to secure technical assistance from IFIs or external partners to conduct a feasibility study, identifying potential quantities of landfill gas available, installation and operating costs and economic viability and options for connecting electricity generation facility to nearby distribution stations.



Green City Action Plan



TIMEFRAME
Short Term



STATUS
In Development

SDGS



41

Bio-waste Recycling

ACTION OWNER

Tbilisi City Hall, Municipal Department of Environmental Protection

IMPLEMENTING PARTNERS

EcoService Group, IFI Partners

CONNECTED ACTIONS

32 41

We are collecting all green waste from the city's green spaces, and we want to ensure this matter is composted, and made available for reuse in parks and in agriculture. Over 350 tonnes of green waste is collected each year. This could be composted and diverted from going into landfill.

We will establish a green waste facility that will initially convert bio-waste into compost, with the potential to upscale to recycle food waste from restaurants and catering businesses in the future. This would enable potentially 200,000 tones of waste to be recycled annually.

This project contributes to Georgia's Waste Management Code and the EU-Georgia association agreement.

Resilience Outcomes:

- Reduces the amount of waste going to landfill, thus limiting the associated environmental and economic impacts and cost.
- Reduces Tbilisi's carbon footprint
- Embeds circular economy principals to make waste a resource for new products and services.

NEXT STEPS

Tbilisi City Hall to seek technical assistance from IFIs or external partners to conduct a feasibility study identifying relevant bio-waste recycling technologies. Funding will then need to be secured from IFIs (with part funding from Tbilisi City Hall) in order to purchase and install the green waste facility.



Green City Action Plan



TIMEFRAME
Long Term

STATUS
In Development

SDGS



41

Waste Management Strategy

ACTION OWNER

Tbilisi City Hall, Municipal Department of Environmental Protection

IMPLEMENTING PARTNERS

EBRD, Tbil'Service Group

CONNECTED ACTIONS

29 39 40

Tbilisi City Hall will partner with the European Bank for Reconstruction and Development (EBRD) to develop Tbilisi's first Waste Management Strategy. This will identify opportunities to process waste for use in different purposes, promote new jobs, and protect the city's natural environment. The strategy will be published in 2019, and set the course of action for the city until 2030.

Resilience Outcomes:

- Reduces the waste produced by city and increases the amount diverted from landfill.
- Encourages more sustainable behaviours and empowers residents to make informed choices around waste.

NEXT STEPS

Municipal Department of Environmental Protection to oversee publication and implementation of Waste Management Strategy, with a dedicated budget and action plan.



Green City Action Plan



TIMEFRAME
Long Term

STATUS
Pre-existing

SDGS



43

Energy Efficient Municipal Buildings and Street Lighting

ACTION OWNER

Tbil'Service Group(for LED lighting), and Tbilisi City Hall Municipal Economic Development Department (for Energy Efficiency Retrofit)

IMPLEMENTING PARTNERS

Tbil'Service Group, IFI Partners

CONNECTED ACTIONS

4 29 30

We will identify and implement energy saving solutions for municipal buildings, public spaces and streets.

Street Lighting: we will investigate opportunities to replace existing lighting with more energy efficient LED Lights. We will also install LED street lighting in all new neighbourhoods and those undergoing renovation works.

Energy Efficient Buildings: We will act upon the energy efficiency guidelines set out in the City Masterplan and the recommendations from the World Bank's initial energy efficiency assessment report (2017). We will be starting with priority/small scale pilots To implement energy saving and green solutions such as solar panels, reducing energy and water consumption, and upgrading HVAC and monitoring systems. This work will

be strengthened by the energy efficiency regulations due to come into effect in 2025.

This will help to improve the efficiency of municipal services, achieve cost savings, and reduce environmental impacts. It will also support Tbilisi's commitments under the Covenant of Mayors

Resilience Outcomes:

- Reduces Green House Gas (GHG) emissions.
- Mitigates air pollution.
- Improves quality of municipal services and increases operational cost savings.

NEXT STEPS

LED Street Lighting: Action Owners to secure technical assistance for implementing street lighting and developing standards for ongoing renovations.

Energy Efficient Buildings: Action Owners to develop an implementation plan for energy efficiency retrofitting (aligned with national energy efficiency legislation), with priority buildings identified for initial pilot projects.



Green City Action Plan



TIMEFRAME
Medium Term

STATUS

In Development

SDGS



A CITY THAT ADAPTS TO CLIMATE CHANGE IMPLEMENTATION ROADMAP

The actions to support Tbilisi in mitigating and adapting to climate change require collaboration across sectors ranging from ecosystem management, biodiversity conservation, and air quality monitoring, to urban planning, building design, energy efficiency and infrastructure rehabilitation.

Together, these actions ensure investments in city infrastructure and ecosystems will protect and serve Tbilisi's residents into the future.

Benefits to Public Health

Many factors associated with climate change, lifestyles and local environments (e.g. air pollution) are contributing to increased long-term health risks for city populations. However, climate change adaptation strategies can have multiple co-benefits for health - from creating a cooler city with higher air quality, to introducing more opportunities for active travel and physical leisure activities.

Economic Development Benefits

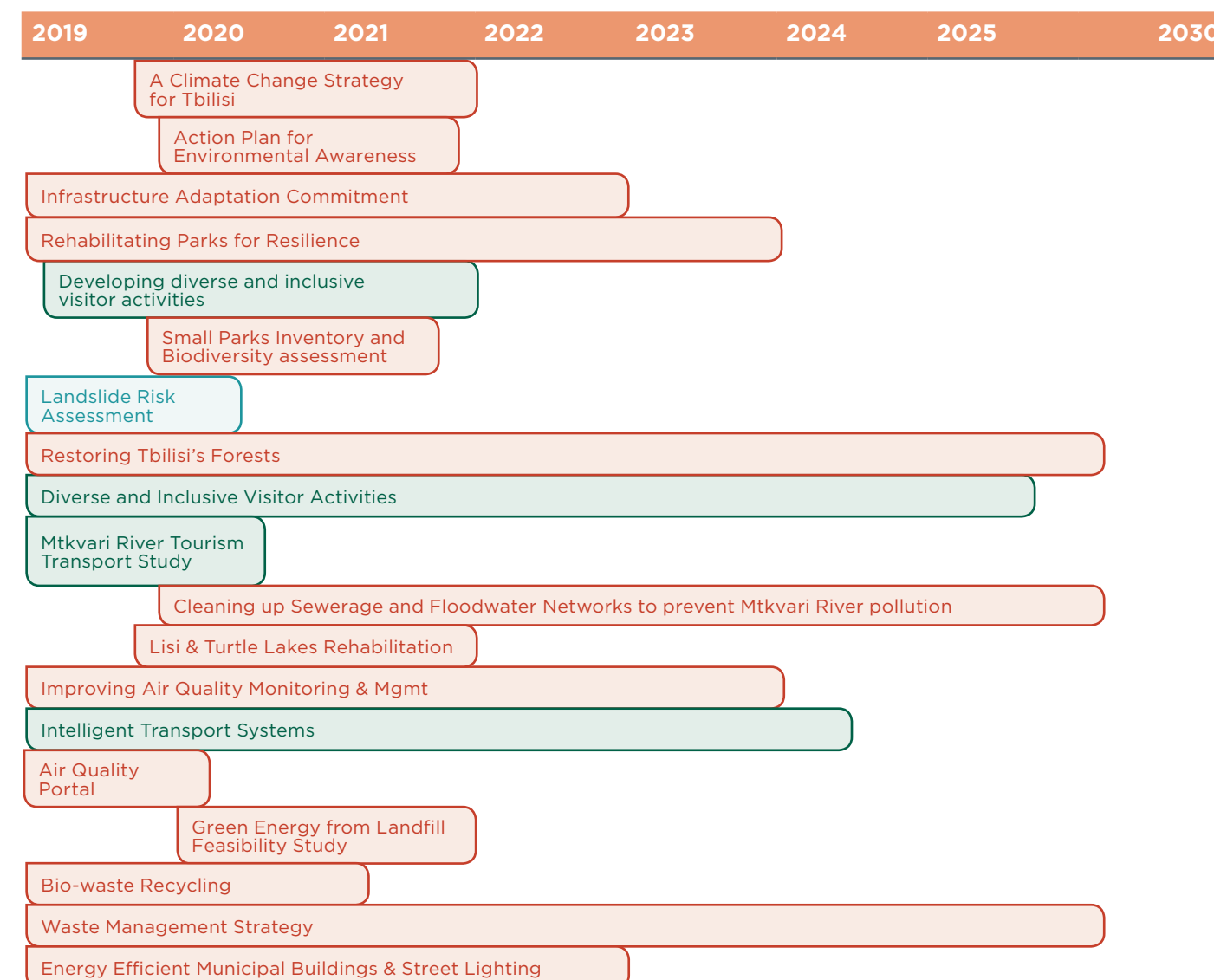
As mentioned previously, the improvement of Tbilisi's air quality and city environment as well as the rehabilitation of Tbilisi's parks, forests and lakes could greatly enhance the attractiveness of Tbilisi to visitors and investors- especially if they are easily accessed by public transport.

Cost Saving Opportunities

The adoption of energy efficient infrastructures and other mitigation and adaptation measures also help to create a city with lower resource requirements - reducing running costs for public agencies, businesses and residents.

Capacity Building Opportunities

The extensive partner city network created by 100RC will enable Tbilisi and its local partners to learn from the broad experience of other cities in developing and implementing climate change mitigation and adaptation strategies.



NEXT STEPS

Now we have developed the Resilient Tbilisi Strategy, the real work can start!

We recognize that this strategy is ambitious, but we believe we can unlock the necessary resources to make these actions a reality. This will be achieved through local, national, and international partnerships. This strategy will serve as the foundation for working with these partners, providing a coherent and thoughtful road map for action and innovation.

Tbilisi's Resilience Office

Within Tbilisi City Hall, we will establish a City Resilience Office, under the Mayor's administration. This office, headed by the Chief Resilience Officer will be tasked with implementing Tbilisi's Resilience Strategy, in close collaboration with the Heads of Department of City Hall and other key partners.

Next Steps

Implementing the Strategy Actions

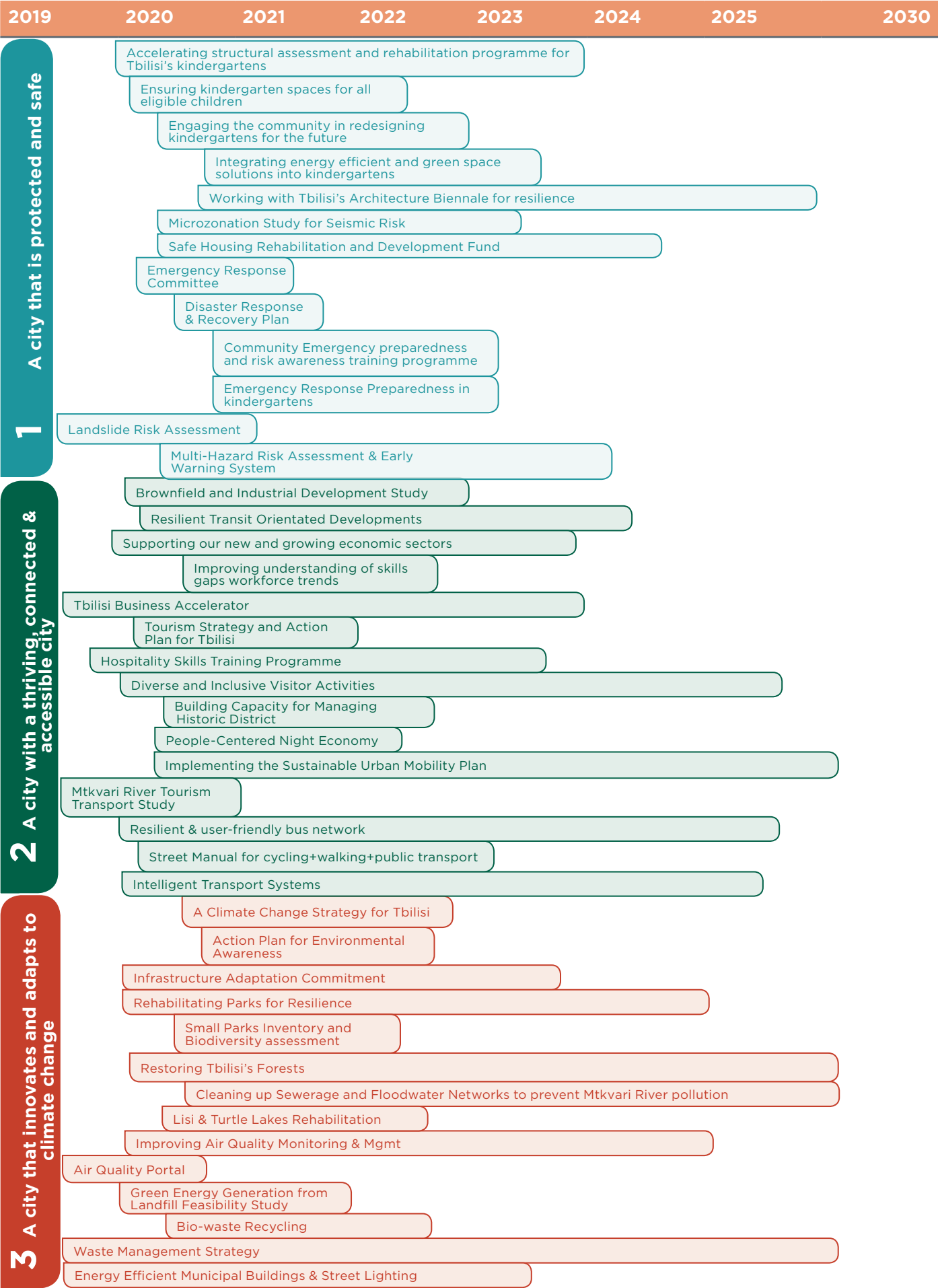
Our efforts will now turn to implementing the actions described in this strategy. We will work in close collaboration with experts, public agencies and IFI and external partners to develop detailed implementation plans and concept notes, which assign timelines, responsibilities and resources to each of the projects, to ensure they are delivered. These are currently in progress.

The diagram overleaf provide a timeline for implementing the Actions within Tbilisi's Resilience Strategy.

Tbilisi will continue in its collaborations with IFI and Strategic Partners and the 100 Resilience Cities network. Through this continued knowledge exchange, we hope strategy stakeholders can continue to work with other like-minded cities on co-designing resilient urban solutions.

Embedding resilience in behaviours and norms is a challenge for the future. Long lasting changes for resilience will only come about if they are embraced and owned throughout Tbilisi City Hall and other key institutions, not just within one municipal office.

IMPLEMENTATION TIMELINE



PUBLIC SECTOR SUPPORT FOR IMPLEMENTATION

Public sector bodies and NGOs will play a central role in the delivery of this Resilience Strategy, as often they are responsible for implementing change in the city. These roles fall into one of five broad categories, detailed below.

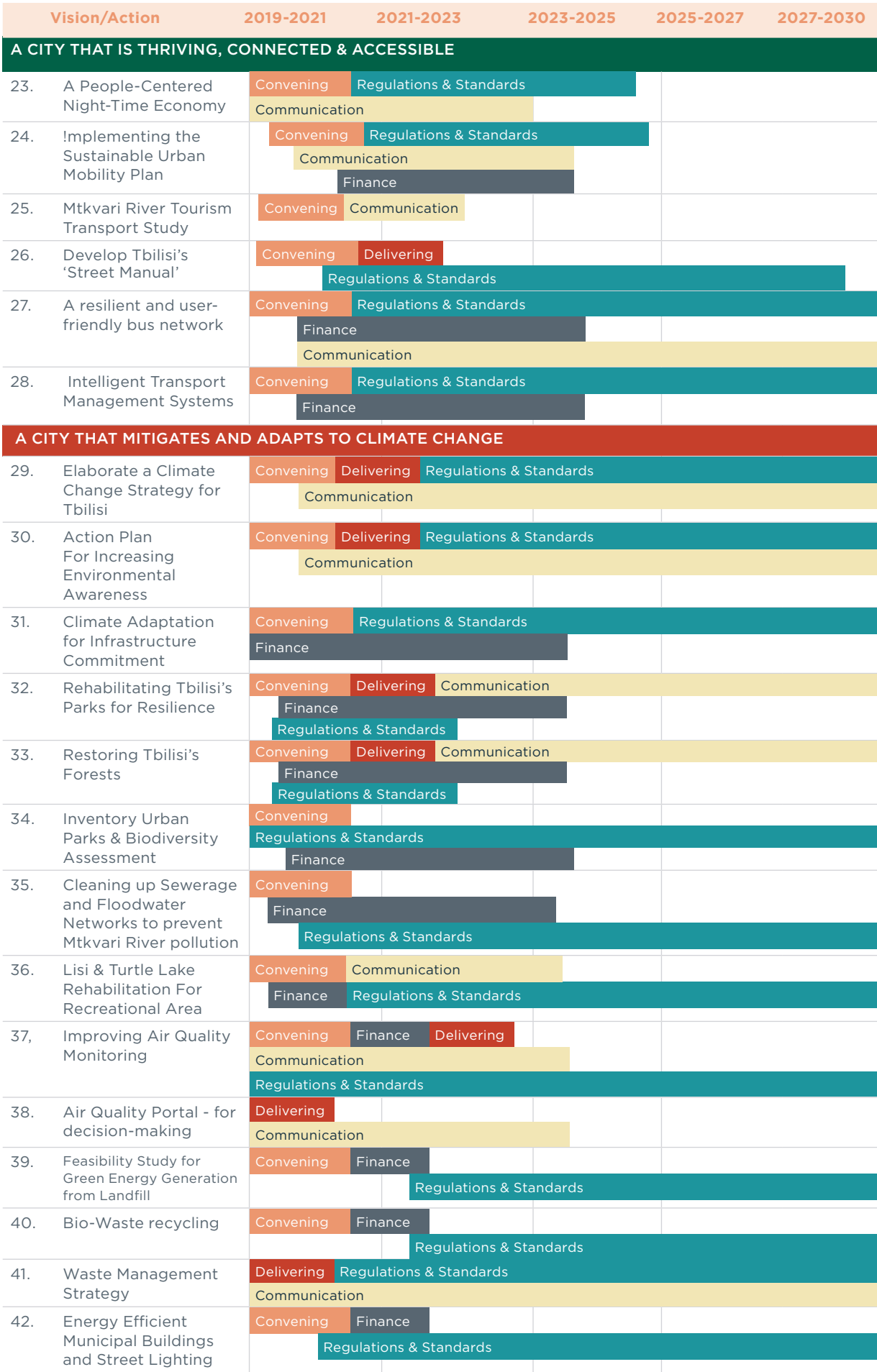
- Convening stakeholders to deliver actions** - this involves taking a leadership role to bring together different agencies or departments to agree and implement a course of action. This also involves regular coordination and being accountable for ensuring the action is implemented, with the intended impact.
- Ensuring regulatory guidance and performance standards are met** - this involves providing the legislation, regulations, policies or standards required to ensure actions are delivered to the agreed local, national or international standards. This may also involve updating existing policies and laws, or establishing new regulations based on the outputs of an action, to ensure its impact is sustained in the long-term.
- Communication** - this involves different types of outreach activities, tailored to different stakeholders, to ensure an action and its outcomes are disseminated. Making people aware of an action can be key in facilitating its success. This may also involve activities to engage residents, businesses and civil society stakeholders in parts of the action.
- Coordinating or raising finance** - this may involve funding or part-funding an action, by accessing municipal or national budget, or working with private sector or IFI organisations to finance an action.
- Acting as primary delivery agency:** many actions fall within the responsibility of city and wider government agencies to deliver both infrastructure investment and services. Appropriately supported and funded, these agencies remain the best placed and most accountable bodies to deliver many long-term programmes.

In some cases, public agencies will need to work in close collaboration with private sector organisations or IFIs to implement and finance actions. The role of private sector organisations and IFIs is detailed in the following section.

Resilience Projects							
Vision/Action		2019-2021		2021-2023	2023-2025	2025-2027	2027-2030
A CITY THAT IS PROTECTED AND SAFE							
1.	Accelerating the structural assessment & rehabilitation programme for Tbilisi's kindergartens	Convening	Delivering				
		Finance					
		Regulations & Standards					
2.	Ensuring kindergarten spaces for all eligible children	Regulations & Standards					
		Convening	Delivering				
3.	Integrate energy efficient, and green space solutions into Tbilisi's kindergartens	Regulations & Standards					
		Finance					
4.	Engage the community in redesigning kindergartens for the future	Convening					
		Communication					
		Finance					
5.	Working with Tbilisi's Architecture Biennale for resilience	Convening					
		Communication					

Resilience Projects						
Vision/Action		2019-2021	2021-2023	2023-2025	2025-2027	2027-2030
A CITY THAT IS PROTECTED AND SAFE						
6.	Microzonation Study for Seismic Risk	Convening				
		Finance				
		Regulations & Standards				
7.	Safe Housing Rehabilitation and Development Fund	Convening	Delivering			
		Regulations & Standards				
		Finance				
8.	Establish an Emergency Response Committee for Tbilisi	Convening	Delivering			
		Regulations & Standards				
		Communication				
9.	Emergency Response and Recovery Plan	Convening	Delivering			
		Communication				
10.	Community preparedness and risk awareness training programme	Convening				
		Communication				
11.	Emergency Response Preparedness Programme in Kindergartens	Convening				
		Communication				
12.	Landslide and Ground Instability Risk Assessment	Regulations & Standards				
		Communication				
13.	Multi Hazard Risk Assessment and Early Warning System	Convening	Finance			
		Communication				
A CITY THAT IS THRIVING, CONNECTED & ACCESSIBLE						
14.	Brownfield and Industrial Development Strategy	Convening	Delivering	Communication		
		Finance				
		Regulations & Standards				
15.	Transport-Orientated-Development for new Metro developments	Convening	Delivering	Communication		
		Finance				
		Regulations & Standards				
16.	Supporting New and Growing Economic Sectors	Convening	Delivering			
		Communication				
17.	Workforce trends & skills gaps study	Convening				
		Finance				
		Regulations & Standards				
18.	Tbilisi Business Accelerator	Convening				
		Regulations & Standards				
19.	Hospitality Skills Training Programme	Convening	Delivering			
20.	Tourism Strategy and Action Plan for Tbilisi	Convening	Delivering			
		Regulations & Standards				
21.	Diverse & Inclusive Visitor Activities	Convening	Communication			
		Regulations & Standards				
22.	Safeguarding, Preserving & Managing Historic District	Convening	Delivering	Regulations & Standards		
		Finance				
		Communication				

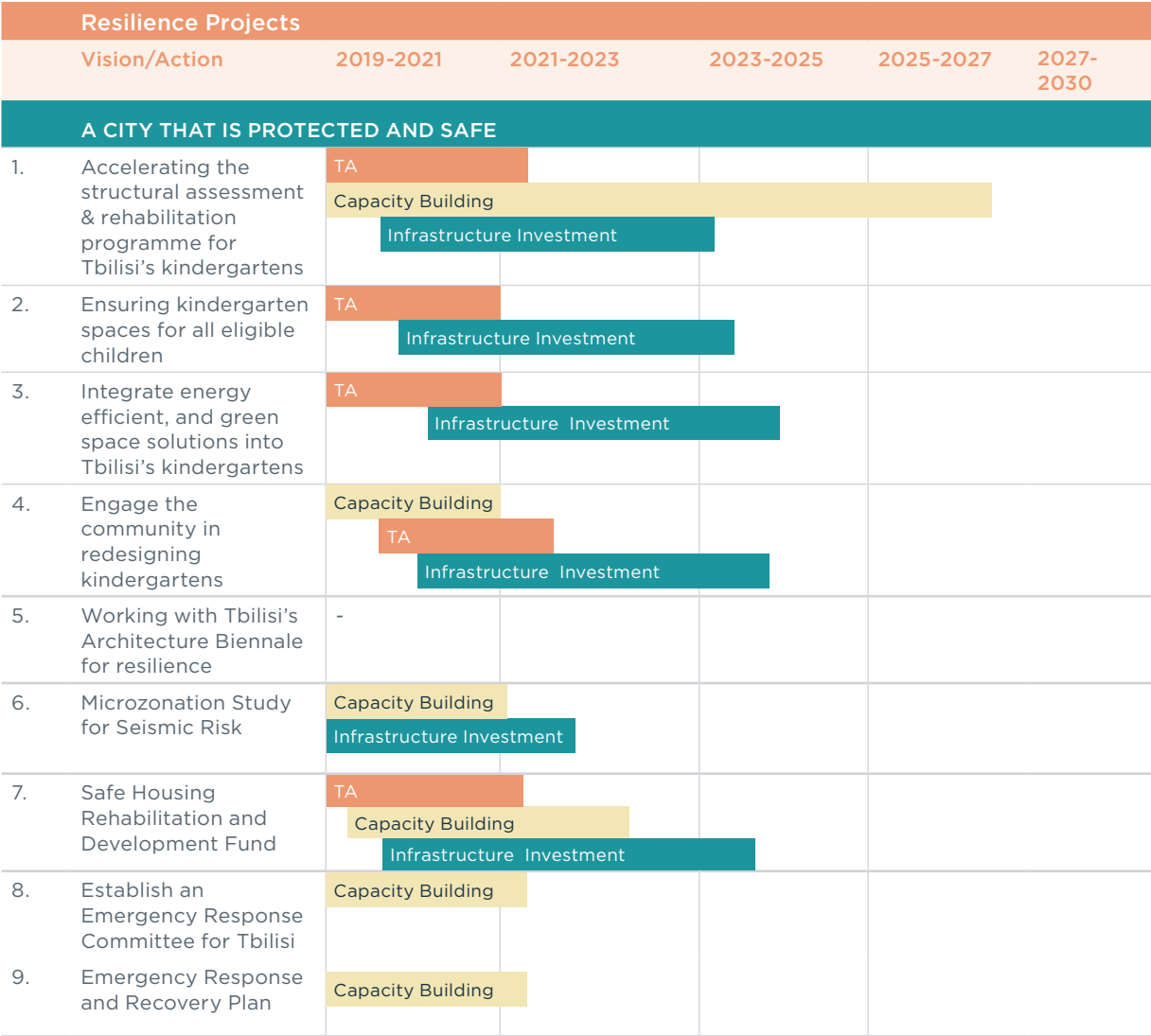
PUBLIC SECTOR SUPPORT FOR IMPLEMENTATION



IFI AND PRIVATE SECTOR SUPPORT FOR IMPLEMENTATION

We intend to begin implementing the strategy immediately. To do this, we will need assistance and expertise from IFIs, and private sector specialists, many of whom have played long-term roles in supporting the development of Tbilisi and Georgia as a whole. We have assumed that IFIs will be involved in interventions which match their country programs and mandates. Some actions would suit private sector involvement. In these cases, a clear commercial model and opportunities for the private sector to generate revenue and returns from the interventions would need to be developed. In some cases, the private sector or IFI would need to work in partnership with each other or other delivery partners. Hence, this assistance could involve one or more of the following over different phases:

- Capacity Building** - supporting organisations or departments to obtain, improve and retain the skills, knowledge, tools, enabling frameworks, equipment or resources needed to do their work competently or to add greater capacity. This can be part of an IFI TA programme, if specialist training or knowledge dissemination is required, or a targeted initiative by relevant delivery partners.
- Infrastructure Investment** - capital investment in utility networks, public amenities, built environment or technology networks. This may be grant funded, loan funded or funded through public-private partnerships.
- Technical assistance (TA)** - non-financial assistance or resource allocation provided by local or international specialists, sharing expertise in the form of feasibility studies, risk assessments, skills training, strategy development or standard reviews.



IFI AND PRIVATE SECTOR SUPPORT FOR IMPLEMENTATION

A CITY THAT IS PROTECTED AND SAFE					
Vision/Action	2019-2021	2021-2023	2023-2025	2025-2027	2027-2030
10. Community preparedness and risk awareness training programme	Capacity Building				
11. Emergency Response Preparedness Programme in Kindergartens	Capacity Building				
12. Landslide and Ground Instability Risk Assessment	-				
13. Multi Hazard Risk Assessment and Early Warning System	Capacity Building TA Infrastructure Investment				
A CITY THAT IS THRIVING, CONNECTED & ACCESSIBLE					
14. Brownfield and Industrial Development Strategy	TA Capacity Building				
15. Transport-Orientated-Development for new Metro developments	TA Capacity Building				
16. Supporting New and Growing Economic Sectors	Infrastructure Investment				
17. Workforce trends & skills gaps study	TA Capacity Building				
18. Tbilisi Business Accelerator	TA Infrastructure Investment				
19. Hospitality Skills Training Programme	-				
20. Tourism Strategy and Action Plan for Tbilisi	TA Capacity Building				
21. Diverse & Inclusive Visitor Activities	TA Capacity Building				
22. Safeguarding, Preserving & Managing Historic District	TA Capacity Building Infrastructure Investment				
23. A People-Centered Night-Time Economy	-				
24. Sustainable Urban Mobility Plan	TA Infrastructure Investment				
25. Mtkvari River Tourism Transport Study	-				
26. Develop Tbilisi's 'Street Manual'	TA Capacity Building				
27. A resilient and user-friendly bus network	Capacity Building				
28. Intelligent Transport Management Systems	TA Capacity Building Infrastructure Investment				

Vision/Action	2019-2021	2021-2023	2023-2025	2025-2027	2027-2030
A CITY THAT MITIGATES AND ADAPTS TO CLIMATE CHANGE					
29. Elaborate a Climate Change Strategy for Tbilisi	TA Capacity Building				
30. Develop an Action Plan for Increasing Environmental Awareness	TA Capacity Building				
31. Climate Adaptation for Infrastructure Commitment	-				
32. Rehabilitating Tbilisi's Parks for Resilience	TA Infrastructure				
33. Restoring Tbilisi's Forests	TA				
34. Inventory for small scale Urban Parks & Biodiversity Assessment	TA Capacity Building				
35. Cleaning up Sewerage and Floodwater Networks to prevent Mtkvari River pollution	TA Infrastructure Investment				
36. Lisi & Turtle Lake Rehabilitation For Recreational Area	TA Infrastructure Investment Capacity Building				
37. Improving Air Quality Monitoring	TA Infrastructure				
38. Air Quality Portal - for decision making	-				
39. Feasibility Study for Green Energy Generation from Landfill	TA Infrastructure				
40. Bio-waste recycling	TA Capacity Building Infrastructure Investment				
41. Waste Management Strategy	-				
42. Energy Efficient Municipal Buildings and Street Lighting	TA Infrastructure				

MONITORING AND EVALUATING THE STRATEGY

The Resilience Office, in collaboration with key stakeholders across Tbilisi City Hall and partner agencies, will undertake a 3-year review early in 2021, to provide recommendations to further improve the strategy.

Ideally monitoring and evaluation exercises follow a systematic process which provides a rigorous evidence-base to inform decision-making.

This could include evaluation questions such as:

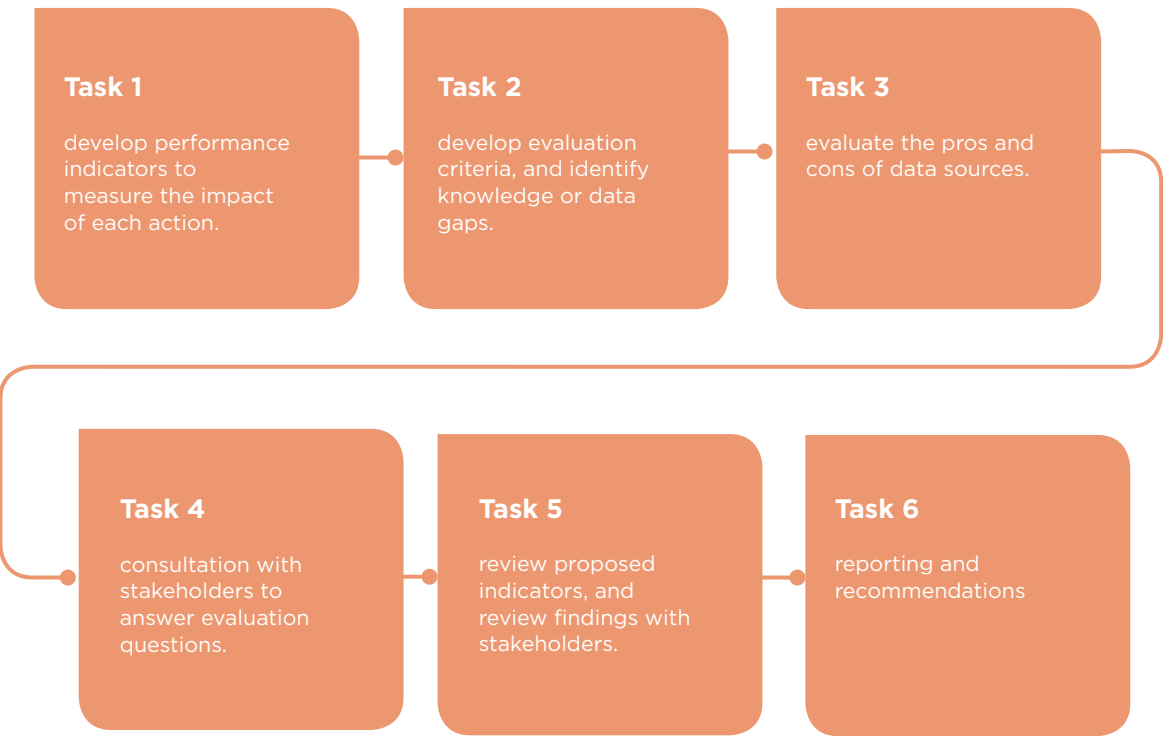
- **Relevance** - To what extent are the actions addressing and mitigating Tbilisi's key shocks and stresses.
- **Effectiveness** - What effects, or impacts have been obtained by the Actions?
- **Cost-effectiveness & efficiency**: How efficiently have the various inputs been converted into outputs and results? Were the expected effects obtained at a reasonable cost?
- **Sustainability**: Will the effects achieved last in the medium or long term?

- **Multiple Benefits** : Do actions also contribute, either directly, or indirectly to other goals (social, economic, environmental) listed in this strategy? This is important for recognising the synergies between actions.

Based on the results of a strategy evaluation, the Actions list may be amended, taking into account the progress and lessons learnt, and reviewing our resilience challenges to ensure they remain relevant.

Before commencing with a monitoring and evaluation study, performance indicators for each action will need to be developed. These should be based on the evaluation questions above, but could also incorporate the Sustainable Development Goal indicators, or other city performance metrics.

The diagram below illustrates a proposed monitoring and evaluation strategy in five steps.



SUSTAINABLE DEVELOPMENT GOALS



In September 2015, the Governments of 193 member Countries of the United Nations Organization signed “Transforming our World: the 2030 Agenda for Sustainable Development.” This is an action program designed for the prosperity of people and the planet. This extensive program aims to tackle issues including rapid urbanisation, resource use, poverty and climate change, and focuses on the role of local and regional institutions or actors within these challenges.

The framework is structured with 17 Sustainable Development Goals

These goals are intended as mechanisms for municipalities, businesses or countries to report on their contribution and impact on these global goals in an effective and comparable way.

Tbilisi's Resilience Strategy contributes directly to **Goal 11 'Make cities and human settlements inclusive, safe, resilient and sustainable**



Our Resilience Strategy support's Tbilisi contribution to the Sustainable Development Goals.

Icons in each of the project overviews highlights the contribution made one or more of the SDGs

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REFERENCES

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- Vladimer Chighladze - Head of Administration
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- Nia Rusadze - Deputy Mayors Office

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- Rusudan Mirzikashvili - Former Head of Urban Development Department (March-August 2018)

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- Mariam Berulashvili - Head of Integrated Management Division

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- Kakha Gvantseladze - Head of Agency
- Mariam Goginashvili – Head of the Department of Tbilisi Kindergarten Development

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- Nino Maghradze – Department Deputy Head
- Nata Kurkhuli - Chief Specialist
- Tengiz Jokhadze - Head of Division

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Pg 78, 99: Sergey Kuznetsov
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GLOSSARY

Action	Anything that deliberately contributes to the functioning or development of the city, including a practice, plan, strategy, program, project, initiative, study, assessment, legislation or provision of funding	Emergency Response and Preparedness Plan	An emergency management plan is a course of action developed to mitigate the damage of potential events that could endanger an organization or city’s ability to function. Such a plan should include measures that provide for the safety of people and, if possible, property and facilities.
Mission	A strategic direction that the city will pursue to achieve the vision	Institution -alisation	Long term, structural change achieved by embedding resilience into how a city plans and operates. The critical work of City Leaders and CROs operationalizing the function of resilience in their institutions in order to adapt and evolve city systems to better support resilience building. This includes making the CRO or Resilience Office permanent, as well as changes to city planning and operations that will better support resilience building.
Goal	A tenable and attainable objective		
ACTION STATUS			
Pre-existing	Action that already exists in the Municipality that will be reinforced with a resilience approach.		
In development	Action currently being planned together with the Resilience Office.		
Aspirational	Action that requires further research and planning.	Inclusive	Design principal ensuring mainstream services and products are accessible to, and useble by, as many people as reasonably possible, without the need to be adapted or specialised.
Action Owner	Actor who is responsible for carrying out the action.		
Implement-ation Partner	Organisations or departments with a key role in delivering the action. These could be municipal departments, private-sector stakeholders, or academic and community organisations.	Monitoring	- A systematic process of tracking project implementation, with a focus on activities and outputs, in order to promote learning and course correction, as needed. It helps answer the question: Are we doing what we set out to do?
Action Plan	A working document, used in strategy implementation, which outlines a timeline of key communications and initiative targets and deadlines, Project Charters and actions for institutionalization.	Preliminary Resilience Assessment	A document that establishes an initial, qualitative understanding of the city’s strengths and weaknesses against the City Resilience Framework
Asset	The physical, economic, social, built and natural resources that contribute to a city’s resilience.	Resilience	The capacity of individuals, communities, institutions, businesses and systems within a city to survive, adapt and thrive no matter what kinds of chronic stresses or acute shocks they encounter.
City Resilience Framework (CRF)	Comprising four dimensions and 12 drivers that together illustrate what makes a city resilient, the CRF is used by cities in the 100RC network to help them understand the complex and overlapping systems that contribute to their resilience. Developed by Arup with support from the Rockefeller Foundation.	Resilience Strategy	A tactical roadmap to build resilience in the city. The Strategy articulates the city’s resilience priorities and specific initiatives for short-, medium- and long-term implementation.
Chief Resilience Officer (CRO)	Advisor that reports directly to the city mayor. Their task is to establish a compelling resilience vision for his or her city, working across departments and with the local community to maximize innovation and minimize the impact of unforeseen events.	Resilience Value or Outcome	Multiple cross-cutting resilience benefits of an initiative that result from integrated, inclusive and risk-aware decision making.
		Risk	The severity and likelihood of a shock or stress occurring

GLOSSARY

Scale	The level at which the change sought by the initiative is meant to happen. Example scales include household, neighborhood, institution, sector, municipality, citywide, metropolitan region, national, and international.
Shock	A sudden event that threatens a city, such as an earthquake, flood or landslide
Stress	A chronic (ongoing or cyclical) natural or man-made event or phenomenon that renders the city less able to function and provide basic services, particularly for poor or vulnerable populations.

ABBREVIATIONS

100RC	100 Resilient Cities
CCA	Climate Change Adaptation
CCR	Climate risk reduction
DRM	Disaster Risk Management
GHG emissions	Green House Gas Emissions
IFI	International Finance Institution
ITM	Intelligent Transport Management
MHEWS	Multi Hazard Early Warning System
TOD	Transit Orientated Development

