

Sustainable and Resilient Cities of Tomorrow

case study

Best for...

- Partnering for Resilient & Sustainable Urban Development
- Strengthening Climate Change Resilience – Nouakchott, Mauritania
- Empowering Urban Resilience Initiatives
- Leveraging Fiber Optics for Economic and Social Advancements – Bloomington, Columbus, and Shelbyville, Indiana
- Notable Insights for Building Resilient & Sustainable Urban Areas



By 2050, almost 70% of the world's population will live in cities. That means 2.5 billion more people living in urban environments within the next 30 years.

Yet urbanisation trends are very different around the globe. Many conurbations in North America and Europe are today shrinking as their ageing populations move out. In contrast, developing economies are witnessing rapid urban growth – an expected 950 million people in Africa will make the continent's cities their home by 2050¹.

At the same time as many cities grow, climate change and the drive to net zero will require them to change. The challenges are as varied as they are urgent. Coastal cities in China, Latin

America and Africa are among those most at risk from rising sea levels, while inland metropolises in Africa and India face significant threat from extreme heat and drought. Europe and North America are far from immune as many cities contend with more severe weather events, erosion and flooding.

The result will be one of the greatest challenges for policymakers, city authorities, urban planners, infrastructure developers and investors, as well one of the greatest opportunities for us all to reimagine the way we live.

The Urban Resilience Fund

- €20m Catalytic Capital Fund
- €150m investment fund for OECD countries
- €350m investment fund for non-OECD countries (Africa)

In 2021, we launched The Urban Resilience Fund (TURF) in partnership with The Rockefeller Foundation and UNCDF to help large and emerging cities in Europe and Africa to respond to urbanisation and protect against their increased vulnerability to climate change.

TURF collaborates with city authorities from an early stage to identify challenges and define infrastructure solutions that can meet multiple issues. The aim is to work with and for cities to make a meaningful difference to people and environment around them, while paying close attention to the unintended and potentially negative effects that infrastructure development can cause.

TURF addresses the issues involved in preparing far-reaching infrastructure projects in cities, particularly in terms of infrastructure expertise and the lack of financial resources to scope potential projects. Its structure includes a €20m catalytic capital fund for project

preparation, as well as two funds for OECD and non-OECD countries, specifically Africa.

While climate change represents a key consideration for urban areas, many city authorities also have a focus on ensuring that disadvantaged communities are not left behind. Our strategy acknowledges that each city is unique and faces individual challenges, however we see lessons that can be learned and adapted to other locations as urban environments around the globe face threats and strive to become more resilient and sustainable.

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You need to **anticipate the development of cities** if you want to provide the key services needed for a growing population. **We want to deliver real social impact,** not just infrastructure.”

Emmanuelle Nasse-Bridier,
Executive Director, The Urban Resilience Fund (TURF), Meridiam

Strategies for Resilient & Sustainable Cities

SDG 11



“Make cities and human settlements inclusive, safe, resilient and sustainable”

The ambition to create sustainable and resilient cities is enshrined in **SDG 11**. The mission underpinning it is to make cities **inclusive, safe, resilient and sustainable**. In practical terms, the development of sustainable and resilient cities encompasses all the areas in which we invest, from **critical public services** to **sustainable mobility** and **innovative low-carbon solutions**. It also crosses all Meridiam's pillars:

- Resilient Infrastructure & Sustainable Cities
- Accelerate Energy Transition
- Avoid & Reduce Emissions
- Good Work Conditions, Inclusion, Diversity & Gender Equality
- Protect & Enhance Biodiversity

Meridiam's strategy is to firmly align our funds with the UN SDGs, create objectives for investments, and measure our progress against those targets. In the context of SDG 11, our projects are clear and meaningful contributors to the missions, as well as their underlying indicators.

INCLUSIVE – Essential fibre connections in North American and Europe, including cities in Indiana and Montabaur, Germany, target underserved cities and neighbourhoods to increase economic opportunities for their inhabitants.

SAFE – The development and maintenance of **4,000 school and childcare spaces in Espoo, Finland**, will contribute 15% of the city's need for healthy, functional and safe school places, including improved air quality and a better learning environment.

RESILIENT – The development of nature-based **coastal defences in Nouakchott, Mauritania**, will directly protect some 75,000 people living in low-lying areas of the capital from the risk of flooding caused by rising sea levels.

SUSTAINABLE – Bus Rapid Transit, Dakar, will put 121 electric buses on the road in the Senegalese capital, a first for Africa, and will transport some 300,000 people and avoid 59,000 tonnes of CO² emissions annually.

While the infrastructure need met by each project can align with a specific mission and indicator, it is essential that we take a holistic approach to investment, development and management. In practice, Meridiam's projects combine multiple positive impacts spanning benefits for people and the planet.

For example, while delivering safe and healthy school spaces, our project in Espoo actively contributes to the city's aim of being carbon neutral by 2050 and meeting the SDGs by 2030. The project has been selected by the UN itself as an example of what cities can do to implement and achieve the SDGs.

And at the same time as it creates sustainable transport for the city, Bus Rapid Transit, Dakar, will create approximately 1,000 direct and local jobs, a third of which will be drivers, with a particular focus on hiring women and young people.

As an investor in essential public infrastructure at the heart of cities, we aim to consider and address all the positive and negative consequences our projects will have, while finding ways to generate benefits for people and the environment that go beyond the direct impacts of the infrastructure itself.

¹ https://www.oecd-ilibrary.org/development/africa-s-urbanisation-dynamics-2020_b6bccb81-en#:~:text=Africa%20has%20the%20fastest%20urban,an%20additional%20950%20million%20people.

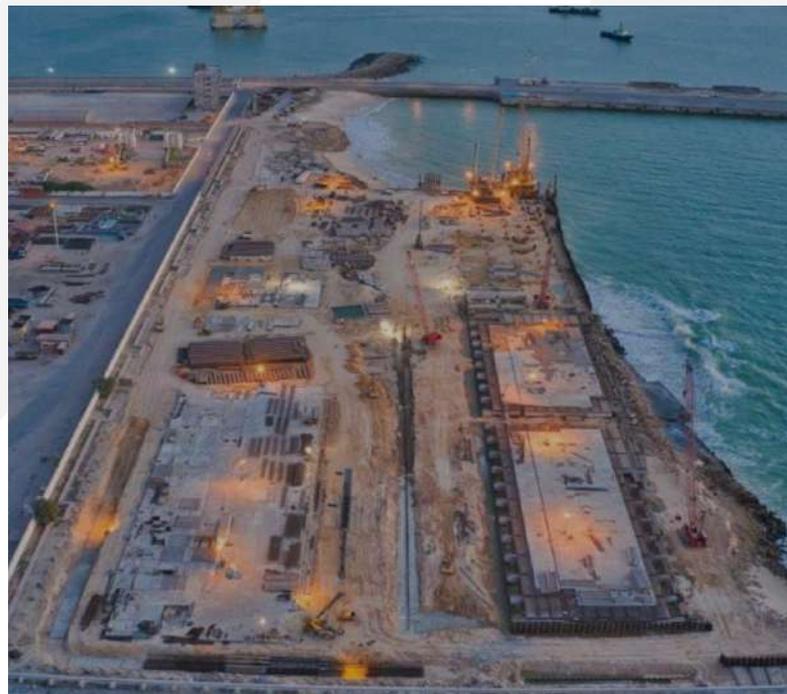


Building Resilience to Climate Change – Nouakchott, Mauritania

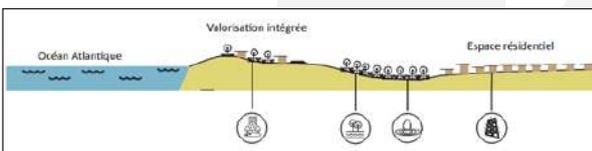
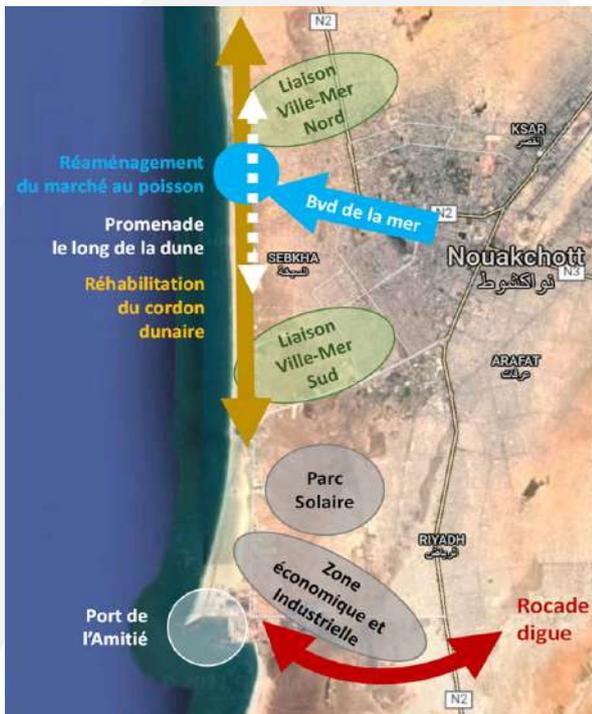
Cities are not only huge contributors to climate change, but also highly susceptible to it. Nouakchott, the capital of Mauritania is today home to more than 1 million inhabitants, a figure which is growing rapidly as the city expands. Located on the west coast of Africa, the city is mainly at or below sea level, putting it at severe risk of rising ocean levels, a threat exacerbated by the erosion of its protective sand dunes due to a combination of natural forces, sand mining and livestock grazing on the fragile vegetation.

Through our existing relationship with Nouakchott as developer and operator of the city's port, our TURF investment vehicle (The Urban Resilience Fund) worked with the Mauritanian Ministry of Economic Affairs on identifying priority urban infrastructure projects to build resilience against climate change and its repercussions.

Through the development of nature-based coastal protection, we aim to strengthen the dunes' ability to safeguard the city from extreme weather. That development goes hand in hand with the construction of new pathways to the coast and areas for leisure that can make the city more comfortable for people during heatwaves. There will also be new planting and redirecting of waterways to improve vegetation and biodiversity.



The development of solutions to protect the city goes hand in hand with the creation of critical transportation infrastructure and economic opportunities for Nouakchott's inhabitants. The protective dyke will incorporate a ring road that will improve traffic circulation and limit congestion in the city centre. The relocation and construction of the city's fish market will create a new hub for economic activity. And the development of new access routes to the beach and recreation areas will support the city's goal of new leisure and tourism activities on the coast.



The goal is a city that is more resilient to climate change, with critical infrastructure services that can also withstand extreme conditions, while providing a healthy environment for inhabitants and economic opportunities for the city to grow sustainability.



Our impact

- Protect over 75,000 inhabitants in low-lying areas from risk of flooding
- New 6.5km dyke/ring road to protect inhabitants, reduce coastal erosion and improve traffic circulation
- Drainage solutions to counter the risk and effects of flooding in the city, as well as investigation into potential treatment and recycling of water for irrigation
- 12km of dune rehabilitated and replanted, protecting local habitats and biodiversity
- Relocation and upgrade of 6.7ha of land and 27,000m² of buildings around city's fish market to reduce coastal erosion and reinforce economic activity
- Construction of two green city-sea axes, as well as commercial and recreational areas to increase sustainable commerce, leisure and tourism
- Direct jobs for local communities in construction and management phases, as well as indirect economic development in the city

Fibre as a Driver for Economic and Social Opportunities – Bloomington, Columbus and Shelbyville, Indiana

Today, high-speed, high-quality internet connection is a critical public service that can influence opportunities and outcomes for large swathes of urban inhabitants. Across the US, 42 million people are currently underserved for internet connection, many of whom are in smaller cities in less-populated regions, according to the OpenVault Broadband Insights report.

Situated 50 miles (or less) south of State capital Indianapolis, the cities of Bloomington, Columbus and Shelbyville are home to some 150,000 inhabitants combined. The largest, Bloomington, is the seat of Indiana University, a leading public research university with over 40,000 students on campus. However, it is also an area that highlights the disparity in wealth and opportunity across the US.

Bloomington's Digital Equity study in 2020 showed that twice as many households on low incomes below \$25,000 a year had no internet at home when compared with those in the \$25,000-\$49,900 category. Those low-income residents reported lacking the skills and experience to recognise online threats, while a sizeable minority of parents and caregivers surveyed also felt poorly equipped to protect their children from online harm. COVID further exacerbated the challenges with children less able to access remote learning, and elderly residents at risk of being cut off from access to healthcare services that migrated online.

Our agreement with the city governing bodies in 2022 will see more than \$90 million invested in fibre networks that commit to reach 85% of premises, representing over 70,000 homes and businesses. The project also foresees multiple plan choices tailored to households' needs and wallets. Eligible low-income residents will also be able to access subsidised support via the national Affordable Connectivity Plan that will enable them to benefit from fibre connection for free.

High-speed connections are only part of the solution for digital equity. In the US, we are working with local organisations to give people on low incomes access to low-cost new and

refurbished computers and devices, and helping with training on how to use them. We are working with Chattanooga's Enterprise Center in Tennessee to replicate its "Tech Goes Home" programme that provides 15 hours of digital skills training and a device for as little as \$50, supported by low-cost subscriptions to internet services.

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Fibre is a way to **raise up communities** and give people greater access to other essential services and economic opportunities. **Without it, low-income neighbourhoods will fall even further behind.**”

Scott Layman,
Digital Infrastructure Director, Meridiam

Our impact

- 70,000 underserved Indiana homes and businesses to be connected to fibre
- Total regional coverage to be 85% or higher
- Affordable solutions for residents who qualify for Federal support programmes
- Programmatic approach to digital equity, literacy and community engagement
- Part of global drive with €1.7 billion invested by Meridiam in fibre for underserved communities in 2022
- Over 1.35 million homes and premises currently targeted for fibre connection

Key Takeaways for Resilient & Sustainable Cities

The development of resilient and sustainable cities of tomorrow will require vast investment into a myriad of projects, ranging from defences against climate change and high-speed fibre connections to carbon neutral transport and safe school spaces. Many other investments in areas such as last-mile logistics (Sogaris) or technology to reduce energy consumption in homes and businesses (Voltalis) also have the power to help cities address their emissions and achieve the SDGs.

Meridiam seeks to maximise the positive impacts and minimise the negative consequences of our infrastructure by considering all the ways it can affect people and the environment. This approach follows common themes which include:

- **Partnerships** – Work closely with city and municipal authorities to understand their needs and expectations. Financial partnerships create alignment on objectives as well as delivery and accountability.
- **Stakeholders** – Understand various stakeholder groups and educate them on the project. Positive voices have the potential to become champions for the project, getting more groups onside.
- **Employment** – Define ways for infrastructure projects to actively contribute to inclusion through hiring practices and training for local communities.
- **Synergies** – Seek ways to maximise the social and environmental benefits of infrastructure, such as measures to enhance biodiversity or low-cost access for low-income groups.



There is no one-size-fits-all approach to creating a resilient and sustainable city of tomorrow. However, there are trends and approaches that can be applied and adapted to all cities, enabling them to withstand climate threats and other risks, while creating dynamic, inclusive and welcoming environments in which all people can thrive.

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