



30 May 2024, Ankara, Türkiye

## **Building climate-smart and resilient cities in Türkiye: Climate Action Planning and Green Urban Infrastructure**

Co-hosted by the World Bank and the Ministry of Environment, Urbanization and Climate Change of Türkiye, and supported by the GFDRR Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries for Global Resilience and Austria–World Bank World Bank Climate Change Fund, this workshop brought together national government officials, city representatives, financial institutions, and experts in Ankara, Türkiye on 30 May 2024 to discuss climate actions at the city level and leveraging green infrastructure and Nature-based Solutions (NbS) to build climate-resilient cities.

### **Turkish Ministries represented:**

- Strategy and Budget Office
- Ministry of Agriculture and Forestry
- Ministry of Culture and Tourism
- Ministry of Energy and Natural Resources
- Ministry of Environment, Urbanization and Climate Change
- Ministry of Health
- Ministry of Industry and Technology
- Ministry of Transport and Infrastructure

### **Turkish cities represented:**

- Ankara
- Antalya
- Gaziantep
- Istanbul
- Izmir
- Konya
- Samsun
- Sakarya
- and others

### **International cities represented:**

- Berlin, Germany
- Cape Town, South Africa
- Copenhagen, Denmark
- Curitiba and São Paulo, Brazil
- Guangzhou, China
- Seattle, USA

### **Finance institutions represented:**

- French Development Agency
- Asia Infrastructure and Investment Bank
- European Bank for Reconstruction and Development
- Inter-American Development Bank
- Development Investment Bank of Türkiye
- Development Bank for Southern Africa
- World Bank

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*This report was compiled with contributions from Peter Griffiths.*

## Agenda overview

Time	Session
09:30 –10:00	Welcome and opening remarks
10:00 – 10:30	Türkiye city climate action overview
10:30 – 10:45	Coffee break
Session 1. Planning for Green Urban Infrastructure and Supporting Climate Adaptation	
10:45 – 12.00	How cities around the world leverage green infrastructure for climate adaptation
12.00–13.00	Green Urban Infrastructure Investment Framework
13:00 – 14:00	Lunch break
Session 2. Dialogue with Turkish Cities: Climate Action Plans and Implementation	
14:00 – 15:30	Panel discussion with Turkish cities
15:30 – 15:45	Coffee break
Session 3. Climate Financing and Investing in Green Urban Infrastructure	
15:45– 16:45	Multilateral and domestic financial institutions share the perspectives of supporting cities to implement climate action and finance green urban infrastructure
16:45 –17:00	Closing remarks and end of workshop

## Summary

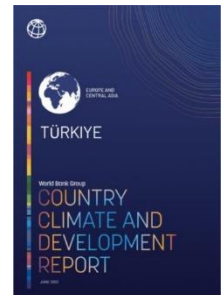
### Welcome and opening remarks



Left to Right: Christoph Push, Practice Manager, World Bank; Orhan Solak, Deputy Director Ministry of Environment, Urbanization and Climate Change (MoEUCC)

Christoph Push, Practice Manager, World Bank welcomed respected colleagues from across the Government of Türkiye, city representatives from Türkiye and abroad, national and international development banks, experts, and partner organizations to discuss and explore how to collectively advance city climate action.

This engagement builds on the World Bank’s partnership with the Government of Türkiye on the cities and municipal agenda, including dialogue on climate change. (See: [World Bank Group Country Partnership Framework for Türkiye](#) and [Country Climate and Development Report](#).) It is also part of a renewed vision to create a world free of poverty on a livable planet. In 2023 the World Bank pledged to increase annual climate finance to 45 percent by 2025, equally split between mitigation and adaptation efforts, with a focus on the critical role of cities and the need for finance to support cities in taking climate action.



Orhan Solak, Deputy Director Ministry of Environment, Urbanization and Climate Change (MoEUCC) welcomed guests to Ankara. Noting that 2023 was warmest in history, Mr Solak stressed the need for global accountability on climate action at a time when the region around Türkiye was experiencing significant conflict.

Türkiye is working to align national and local policies to advance a green transition and preparing a climate model with the ambition to lead regional change. Local Climate Change Actions Plans are being developed alongside using NbS to improve inclusion, livability, and resilience. Climate change grants are being used to finance local stakeholders. Overall, Türkiye is working to be better prepared for extreme weather events and using scientific approaches to improve climate action.



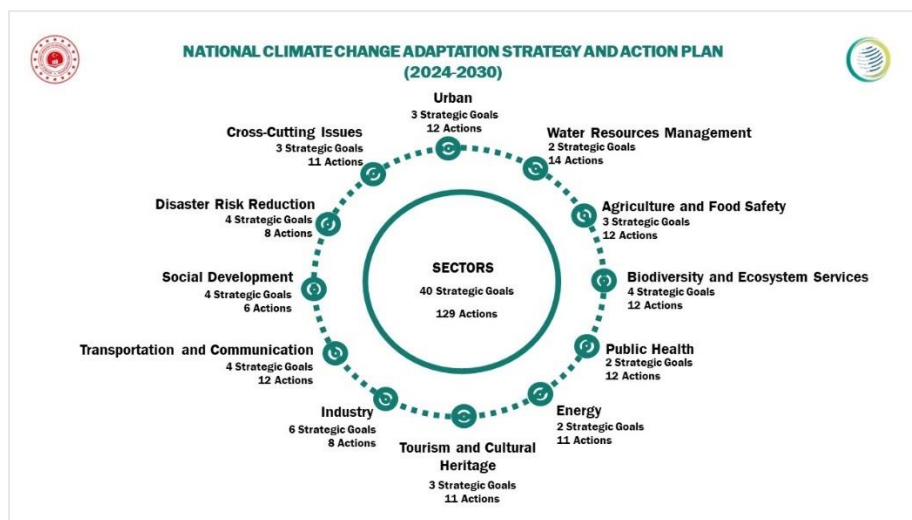
## Türkiye city climate action overview



Left to Right: Selin Dilekli, Strategy and Budget Office; Müberra Betül Yalçın, MoEUC; and Melih Fırat AYAZ, MoEUC

Selin Dilekli (Strategy and Budget Office) outlined Türkiye's National Development Plan, which includes a strong focus on cities. Creating resilience zones in cities to combat earthquake risk and climate change is one measure to create more livable, green, and resilient cities in all corners of Türkiye. Actions focus on expanding nuclear baseload with desire to increase renewables, introducing obligatory earthquake insurance, implementing ongoing evaluation to improve the quality of buildings, and using key metrics to improve infrastructure like reducing water leakage and expanding the length of railways. A focus on smart technologies is evidenced in greater use of early warning solutions and air quality sensors.

Müberra Betül Yalçın (MoEUC) shared [Türkiye's Climate Change Adaptation Strategy and Action Plan](#), which includes strategies in 12 sectors at highest risk of climate change, including urban, water resources management, and biodiversity and ecosystem services. The country's adaptive vision is for greater economic, social, and ecological resilience and using a participatory process to ensure people and organizations are prepared for and able to adapt to the effects of climate change. This includes a desire to prioritize NbS across all sectors and strategies and the development of an online monitoring portal for climate ([iklim Portal](#)).



Türkiye's climate plan includes a clear focus on urban and biodiversity alongside other key focus areas

Melih Firat Ayaz (MoEUCC) added that the Climate Change Mitigation Strategy and Action Plan required updating given a significant increase in demand for energy. In 2023 Türkiye submitted its first updated nationally determined contributions (NDCs), which increased the unconditional emissions reduction target from 21% to a 41% reduction from the business-as-usual baseline scenario (BAU) by 2030. Focus areas for emissions reduction include buildings, transport, waste, agriculture, and land use. Cross-cutting strategies include carbon pricing and ensuring a just transition.

## Session 1. Planning for Green Urban Infrastructure and Supporting Climate Adaptation



*Left: Xueman Wang, GPSC Program Manager, World Bank. Right (from left to right): Simone Bröschke, Senate Department for Mobility, Transport, Climate Protection and the Environment of Berlin; Bronwen Griffiths, Head: Sustainable Partnerships & Financing, Environmental Planning & Sustainability Branch, Spatial Planning & Environment: Environmental Management Department, Cape Town; Sabina Zwergius Teilmann, Chief Consultant for City of Copenhagen; Felipe Maia Ehmke, Director of Climate Change, Secretary of the Environment; Rodrigo Pimentel, Environmental Secretary of São Paulo; and Anthony-Paul Diaz, Superintendent/Director, Seattle Parks and Recreation.*

Xueman Wang, GPSC Program Manager, World Bank opened Session 1 on Planning for Green Urban Infrastructure and Supporting Climate Adaptation. Presentations followed on how cities around the world are leveraging green infrastructure for climate adaptation.

### How cities around the world leverage green infrastructure for climate adaptation

#### [International Cities Slides](#)

#### *Berlin, Germany*

Berlin's plan to be climate neutral by 2045 includes clear indicators on access to green space (6m<sup>2</sup> of green space/inhabitant and accessible within 500m), the reversal of wild species loss by 2030, and using a long-term roadmap to integrate local plans, including a biodiversity strategy, within the requirements of national and international law.



## Cape Town, South Africa

Cape Town is working to make spatial planning more logical, equitable and sustainable, including integrating the city's environmental framework into the spatial development plan. NbS is being used to decrease the risk of wildfires, improve water security and to reduce the cost of coastal defenses and infrastructure maintenance. City flood modelling data is also being used by the insurance industry to determine the risk valuations.



Dune rehabilitation in Cape Town

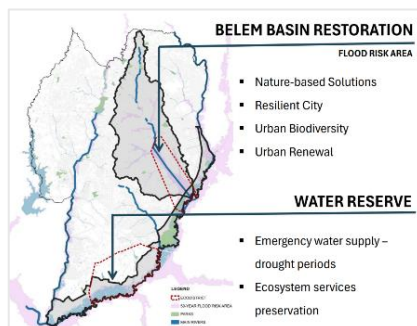
## Copenhagen, Denmark

Copenhagen is working to make grey infrastructure, like roads, greener by strategically investing in increasing tree cover (from 17.5% to 20%). A storm surge protection project to reclaim 60-hectares will provide additional green space and new housing.



## Curitiba, Brazil

Curitiba is creating a water reserve area connected to the city via a linear park to improve drainage and provide an emergency water supply. Drones are being trialed to improve the quality of data collection. The city is also using building rights to increase green space by, for example, allowing additional height or exchanging development rights for another part of the city.



## São Paulo, Brazil

São Paulo has 50% tree coverage and is focusing efforts on expanding protected green spaces and wildlife preservation. The city's [Biodiversity Index](#), with digital monitoring (remote satellite sensing and ground sensors), is used to measure the city's success continually and to rapidly target interventions by identifying heat islands, failing vegetation, and fire risk.

## Seattle, USA

Historically cooler and less prepared for heat, Seattle is creating cooling centers to reduce mortality during periods of extreme heat and is exploring heat tolerant species from the south of the country to increase resilience. Seattle has a developed community outreach and education program to increase public buy-in for investing in parks and green infrastructure. Residents have agreed to pay a temporary special levy to increase the budget available for capital development and infrastructure support.

### Climate Resiliency & Green Infrastructure

- Water Conservation & Plant Establishment
- Rain Gardens
- Adaptive Plant Species
- Tree Planting
- Urban Forest Restoration
- Pollinator Habitat
- Coastal Impacts Study



#SeattleShines

## Green Urban Infrastructure Investment Framework



Left to right: Ahmet Kindap, Senior Urban Specialist, World Bank; Dr Serdar Koyuncu, Head of Climate Change and Zero Waste Department, Konya Municipality; Ye Shanhu, District Mayor, Panyu District, Guangzhou Municipality, China; and Christiane Eberts, Director for Rehwaldt Architecture Firm, Germany

Ahmet Kindap, Senior Urban Specialist, World Bank moderated the conversation around the Green Urban Infrastructure Investment Framework, highlighting the importance of sharing growing experience from implemented projects to advance the use of green and blue infrastructure.

### BOX 1: What is green and blue infrastructure?

Cities across the world are experiencing more regular extreme weather events, with shared challenges including extreme heat, wildfires, flooding, drought, plant and wildlife extinction, and land subsistence.

Green and blue infrastructure protects cities from these risks by leveraging ecological functions that are best suited to local conditions. Flood water, for example, can be slowed or diverted by plants to support urban cooling, or filtered to increase potable groundwater supply or to reduce subsistence.

#### Examples include:

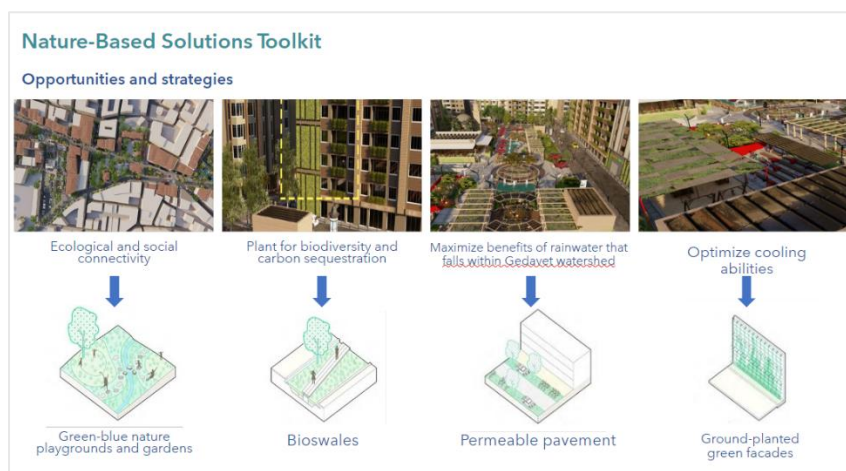
- Green streets
- River rehabilitation
- Public spaces rehabilitation
- Buildings and surrounding areas
- Rain gardens
- Groundwater infiltration ponds
- Permeable pavement

### Konya, Türkiye

#### Konya Slides

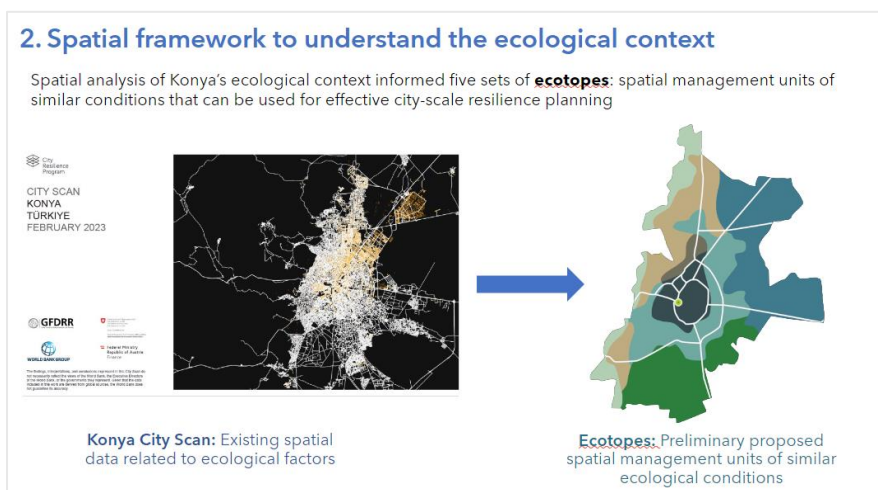
Dr Serdar Koyuncu, Head of Climate Change and Zero Waste Department, Konya Municipality, spoke on the city's ambition to develop the Gedavet Ecological Corridor as a pilot to demonstrate the value of investing in urban green infrastructure. The need for collaboration, technical capacity, and having clear climate change actions at city level for mitigation and adaptation was stressed, alongside not letting finance be an excuse for not preparing new climate action projects.





*Gedavet Park Ecological Corridor is a city center location where green and blue infrastructure forms part of the proposed management strategy for high temperatures and air pollution. Ecological connectivity to adjacent green spaces will provide regional bird habitats, while downslope flood control, groundwater recharge and improved water supply will also support urban cooling for the high number of residents and visitors. The project also provides a steppingstone for further investments into nature.*

Xueman Wang, GPSC Program Manager, World Bank expanded on the steps Konya is taking, including developing a spatial framework to group similar ecological systems to support city-scale resilience planning. These “ecotopes” include air, earth/water, biota, and human/social, and are being used to develop an investment plan that targets key risks and strengths. A city scan was used as a tool to understand the city’s landform and to identify areas of risk.



*Green connectivity is becoming an increasingly important aspect of urban competitiveness. An Urban Nature Framework encourages cities to maximize benefits by thinking about holistic and integrated change*

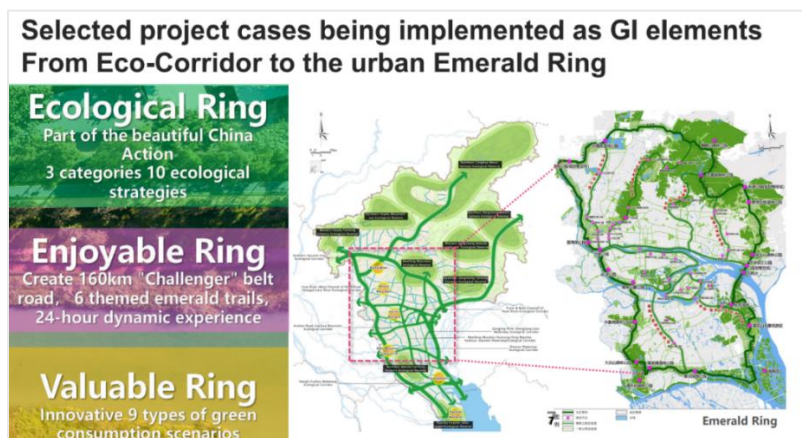
## BOX 2: Key components of Konya’s Green and Blue Infrastructure Investment Framework

- Konya’s need for climate resilience through Green and Blue Infrastructure
- Frameworks for ecological opportunities and priorities
- Analysis for Green and Blue Infrastructure Pilot Projects
- Investment recommendations
- Advancing Konya as a global leader in Green and Blue Infrastructure

## Guangzhou, China

### Guangzhou Slides

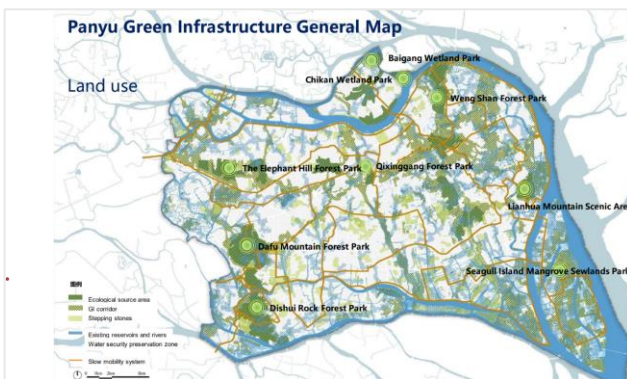
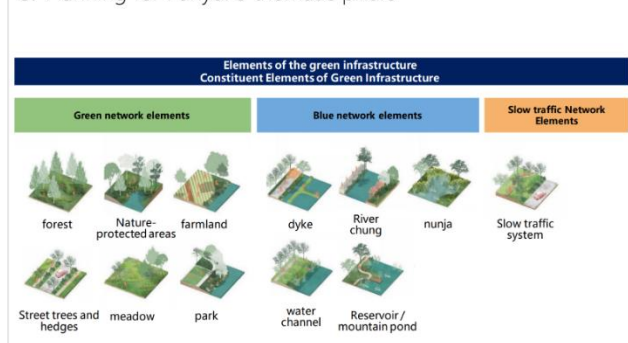
Ye Shanhu, District Mayor, Panyu District, Guangzhou Municipality, China, shared the city's pragmatic approach to piloting and scaling an integrated green, blue and 'orange' network around the city. The Emerald Ring project packages profitable projects with nature projects to make them financially sustainable and uses social media data to monitor the success of investments and to guide future interventions. The development of an orange network prioritizes walking and cycling infrastructure and other human infrastructure to reduce pollution and to make nature more accessible. The city is also piloting urban agriculture as green infrastructure to increase awareness of quality farming and using the Haizhu Wetland as a natural cooling source near the city center. Repurposing existing structures like riverways to build cycle lanes provides a pragmatic solution to high densities and competing land uses.



*Guangzhou's Emerald Ring integrates ecological, social and economic benefits into a multi-functional, nature-based, resilient network expected to cover 4,000km of greenways, 2,000km of waterways, and 520km of cycleways*

Christiane Eberts, Director for Rehwaldt Architecture Firm, Germany provided details on the Panyu green infrastructure construction plan, which seeks to reverse the negative impact of an increase in built up area in recent decades on ecological quality. Using existing structures like riverways to expand infrastructure, like new cycle lanes, is leveraged as a way of overcoming significant competition for space across the dense urban area. Integrating green planning into wider spatial planning was enabled by cooperation between city teams.

### GI-Planning for Panyu: 3 thematic pillars



*Green infrastructure planning is a comprehensive planning instrument for the sustainable development of open spaces that enables the prioritizing of green and blue spaces.*

## Session 2. Dialogue with Turkish Cities: Climate Action Plans and Implementation



*Left to right: Orhan Solak, MoEUCC; Aylin Giray, Head of Climate Change and Zero Waste Department, Muğla Metropolitan Municipality; Dr Serdar Koyuncu, Head of Climate Change and Zero Waste Department, Konya Metropolitan Municipality; Ali Tülümen, Head of Climate Change and Zero Waste Department, Samsun Metropolitan Municipality; and Mustafa Yıldırım, Head of Climate Change and Zero Waste Department, Sakarya Metropolitan Municipality*

Orhan Solak, MoEUCC opened and moderated the Dialogue with Turkish Cities which included representatives from Muğla, Konya, Samsun, and Sakarya on their climate action plans, highlighting the benefits of expanding climate action pilots to more provinces and building relationships with regional countries. This included a partnership with Bulgaria and Romania to promote sustainable tourism along their shared coastline.

### *Konya Metropolitan Municipality*

Serdar Koyuncu, Head of Climate Change and Zero Waste Department, Konya Metropolitan Municipality shared how the risk of flooding has a higher impact on vulnerable residents. Grants and low-interest credits are tools being developed to ensure a just transition, alongside ongoing capacity building.

### *Samsun Metropolitan Municipality*

Ali Tülümen, Head of Climate Change and Zero Waste Department, Samsun Metropolitan Municipality, added that Samsun benefits from learning from other parts of the country that have similar climate risks, like flooding, however, that there is still a need for localizing plans.

### *Sakarya Metropolitan Municipality*

Mustafa Yıldırım, Head of Climate Change and Zero Waste Department, Sakarya Metropolitan Municipality shared new approaches to using infrastructure to mitigate and adapt to extreme climate. Sakarya is, for example, investing in shading works, including using buildings, trees and other green infrastructure, in response to heatwaves and trying to reduce leakage alongside building dams. Sakarya is also increasing visibility in the international arena, awareness building and capacity building, alongside leveraging digital tools and mapping to reduce the impact and to better respond to major environmental risks.

### *Muğla Metropolitan Municipality*

Aylin Giray, Head of Climate Change and Zero Waste Department, Muğla Metropolitan Municipality, spoke on how better water management is part of responding to more severe wildfires, drought and reversing forest degradation and subsistence. Muğla is working to reuse wastewater for irrigation, reduce mining impacts on the water table, and target tourism-related sea pollution.



## Session 3. Climate Financing and Investing in Green Urban Infrastructure

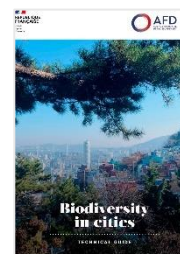


Left to right: Joanna Masic, Global Lead for Cities and Climate Change, World Bank (standing); Zeren Erik Yaşar: Sovereign Climate and Environment Manager, Agency France of Development (AFD); Erdem Sezer, Head of Sectoral Research, Development Investment Bank of Türkiye; Drazen Kucan, Senior Investment Operations Specialist, Asia Infrastructure and Investment Bank (AIIB); Caroline Vexler Principal, Nature Finance and Policy, European Bank for Reconstruction and Development (EBRD); Muhammed Sayed, Climate Finance Specialist, Development Bank for Southern Africa (DBSA); Diego Andrés Arcia, Housing and Urban Development Senior Specialist, Inter-American Development Bank (IDB).

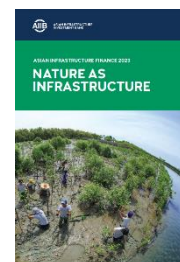
### Financial Institution Slides

Joanna Masic, Global Lead for Cities and Climate Change, World Bank, opened the final session on Climate Financing and Investing in green urban infrastructure, followed by a panel with representatives from Agency France of Development (AFD), Development Investment Bank of Türkiye, Asia Infrastructure and Investment Bank (AIIB), European Bank for Reconstruction and Development (EBRD), Development Bank for Southern Africa (DBSA), and Inter-American Development Bank (IDB).

Zeren Erik Yaşar, Sovereign Climate and Environment Manager, AFD, said that 30% of the AFD's climate budget (i.e. €1bn) is dedicated to biodiversity. AFD is developing a project with a Turkish city to modernize existing wastewater treatment facilities to improve the marine environment and protect wetland biodiversity and using blue and green corridors with NbS to restore a polluted area. AFD sees nature and education as the only investments that keep growing, address several human needs, and preserves the future, using nature-based *design* to target the city as an ecosystem. [Biodiversity in Cities](#) is a technical guide to quantifying the value of biodiversity in urban projects and public policies financed by AFD.



Drazen Kucan, Senior Investment Operations Specialist, AIIB, added that there are about 80 secondary cities in Türkiye alone that need financial support to invest in green urban infrastructure. In many cases smaller cities require both a national guarantee and additional capacity. Nature is a key concept of AIIB's commitment to finance sustainable infrastructure. The [Inner-Mongolia-Ulanhot Green and Climate Resilient Urban Development Project](#) and [Guangxi Beihai Lianzhou Bay Marine Ecological Restoration and Protection Project](#) are two examples from China where NbS has been used with multiple social, economic and sustainability benefits.

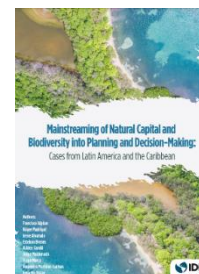


Erdem Sezer, Head of Sectoral Research, Development Investment Bank of Türkiye, suggested that climate finance is growing rapidly, but not nearly quick enough, with stronger evidence needed to highlight the impacts of investment in topics like biodiversity. Illustrating opportunities for scaling and replication are also key to accelerating investment into green and blue infrastructure. The bank has recently concluded an energy storage loan finance for local projects in partnership with an international bank.

Caroline Vexler Principal, Nature Finance and Policy, EBRD, shared that the bank has invested in their first NbS project on the back of a Green Cities Actions Plan (GCAP), and were exploring opportunities to expand finance for

green and blue infrastructure projects. Projects based on developing new models and more innovative solutions to nature conservation may help accelerate this ambition.

Diego Andrés Arcia, Housing and Urban Development Senior Specialist, IDB, spoke on the importance of national city networks and local banks to help more cities access climate finance, with only 4% of the largest cities able to access international financing markets directly. This is problematic given that 80% of total disaster losses originate from cities, making investment in climate resilience key to global resilience. An umbrella loan sponsored by São Paulo, for example, and then spread out to smaller cities based on achieving specific impacts, including climate action, is one example of localizing climate finance. Between 2013 to 2022, IDB has increased its climate-related financing 10-fold to \$150 billion. NbS was among the tools used to reduce flooding in vulnerable areas in Asunción, Paraguay with initiatives to restore ponds, wetlands, and green infrastructure. [Mainstreaming of Natural Capital and Biodiversity into Planning and Decision-Making](#) provides case studies from Latin America and the Caribbean.



Muhammed Sayed, Climate Finance Specialist, DBSA, shared on how the southern African bank is working to increase the role of sustainability and nature-positive impact across key sectors of investment: ICT, water and sanitation, transport, energy, education, and health. The bank intentionally targets initiatives aimed at secondary cities or with pilots with solutions able to scale across a range of cities. Partnerships with the insurance industry, including projects to establish gaps in climate data to enable the sector to invest in mitigation measures to reduce insurance costs, are being developed. Growing interest from commercial banks to support NbS and conservation projects, as well as philanthropic investors, is increasing the need to clearly communicate compliance, reporting and de-risking. In developing contexts, currency fluctuation represents a significant risk, increasing the need to finance projects in local currency.

Joanna Masic closed the session by encouraging cities to engage with financiers as early as possible to explore what is possible as projects are populated in climate action plans.

## Closing remarks and end of workshop



*Left to right: Orhan Solak, Ministry of Environment, Urbanization and Climate Change; and Xueman Wang, GPSC Program Manager, World Bank.*

Orhan Solak, Ministry of Environment, Urbanization and Climate Change and Xueman Wang, GPSC Program Manager, World Bank closed the National Workshop, highlighting the importance of a coordinated approach between local and national governments and strong international partnerships for accelerating climate action. Cities are helping countries achieve their national climate goals, including leveraging green and blue infrastructure to increase resilience to climate risks. Many cities are introducing green and blue infrastructure alongside traditional gray infrastructure to increase their capacity to adapt to more regular extreme climate events. The co-hosts thanked the important contribution from national government, cities, financial institutions, and experts to building climate-smart and resilient cities in Türkiye and beyond.