



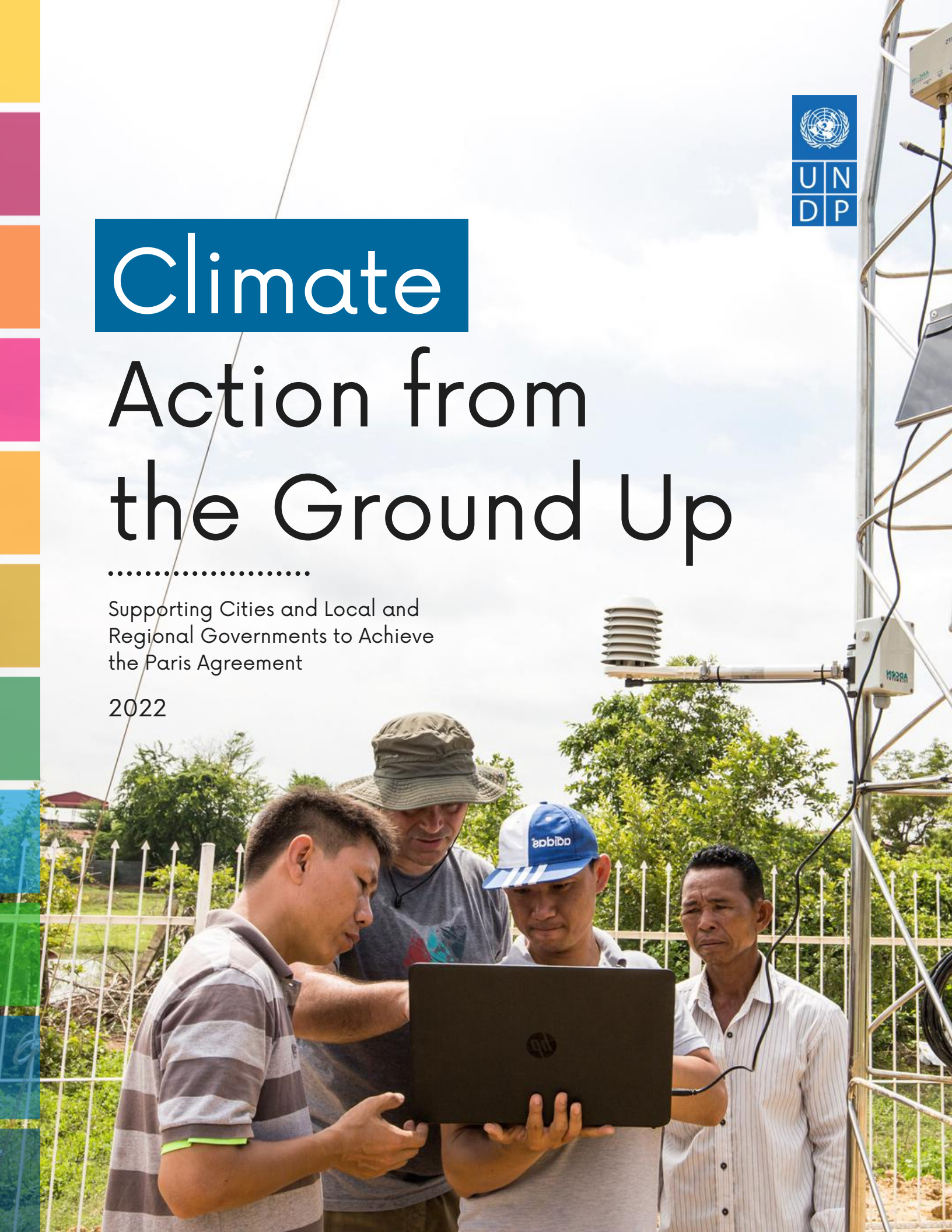
Climate

# Action from the Ground Up

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Supporting Cities and Local and  
Regional Governments to Achieve  
the Paris Agreement

2022



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## Authors

James Vener (UNDP), Diana Lopez Caramazana (UNDP), Maria Eugenia Di Paola, Carolina Robles and Nuria Zanzottera (UNDP Argentina), Sladjana Bundalo and Raduska Cupac (UNDP Bosnia and Herzegovina), Pinreak Suos (UNDP Cambodia), Esteban Diego A. (UNDP Chile), Richemond Assie and Dissahonon Marie-Sylvie Liade (UNDP Côte d'Ivoire), Evelyn Alicia García Bastidas (UNDP Ecuador), Leslie Smith (Energy Division, Ministry of Finance, Grenada), Verania Andria, Diah Ratna Pratiwi, Agus Prabowo, Made Dwi Rani and Abdul Situmorang (UNDP Indonesia), Heather Maseko-Msyale and Jane Swira (UNDP Malawi), Oumar Tamboura (UNDP Mali), Rassu Manandhar and Pragyajan Yalamber Rai (UNDP Nepal), Usman Manzoor (UNDP Pakistan), James Leslie (UNDP Peru), Immaculee Uwimana (UNDP Rwanda), Theophile Dusengimana (Ministry of Environment, Rwanda), Miroslav Tadic and Ana Seke (UNDP Serbia), Tanzila Watta Sankoh and Andrew Katta (UNDP Sierra Leone), Anchidtha Roonguthai (UNDP Thailand), Merve Elibirlik, Diren Ertekin and Nuri Ozbagdatli (UNDP Türkiye), Florencia Etulain (UNDP Uruguay)

## Technical advice

Catherine Diam-Valla, Lorenzo Eguren,  
Nataly Olofinskaya

## Peer review

Gonzalo Pizarro, Minerva Novero, Rishi  
Chakraborty, Lisa Baumgartner

## Copy editor

Kate Jean Smith

## Layout and graphic design

Omer Kavuk

## Cover photo

Manuth Buth, UNDP Cambodia

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Under the global Climate Promise, UNDP is privileged to be helping countries raise – and realize – their ambitions for a more resilient, more just, low-carbon future.

## Contact

For more information on UNDP's Climate Promise support to the local, regional, and city levels, please contact James Vener at [james.vener@undp.org](mailto:james.vener@undp.org).

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UNDP's Climate Promise is the largest global offer on NDC support, covering over 120 countries and territories, representing 80 percent of all developing countries globally – including 40 least developed countries, 28 small island developing states, and 14 high emitters – to enhance their Nationally Determined Contributions under the global Paris Agreement. Delivered in collaboration with a wide variety of partners, it is the world's largest offer of support for the enhancement of climate pledges. Learn more at [climatepromise.undp.org](http://climatepromise.undp.org) and follow at @UNDPClimate.

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## Glossary

AR	Assessment Reports prepared by IPCC on climate change
C40	C40 Cities Climate Leadership Group
COP	Conference of the Parties
GDP	Gross domestic product
GHG	Greenhouse gases
GIZ	German Agency for International Cooperation
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
ICLEI	Local Governments for Sustainability
IPCC	Intergovernmental Panel on Climate Change
MRV	Monitoring, Reporting, and Verification
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
SDG	Sustainable Development Goal
UCLG	United Cities and Local Governments
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

# Work Areas

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**Targeting climate action through economic measures and innovation**

.....  
Bosnia and Herzegovina  
Ecuador  
Grenada  
Indonesia  
Peru  
Serbia

**Ensuring local and regional action is a key component of newly revised NDCs**

.....  
Argentina  
Mali  
Nepal  
Sierra Leone  
Thailand  
Uruguay

**Developing and promoting local policy tools for climate planning**

.....  
Chile  
Côte d'Ivoire  
Pakistan  
Türkiye

**Enhancing data management systems to better track progress**

.....  
Cambodia  
Malawi  
Rwanda





Part 1:

# Introduction

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# Introduction

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From hotter temperatures and more extreme weather to rising sea levels and declining water supplies, climate change is already impacting people, ecosystems, and livelihoods worldwide. Every person, plant, and creature on this planet is affected.

We now have a narrow path to avoiding climate catastrophe. Already, human-induced warming has reached [about 1.1°C above pre-industrial levels](#).<sup>1</sup> To avoid dangerous warming of more than 1.5°C, we must take decisive action, enacting rapid and large-scale cuts to greenhouse gas (GHG) emissions.

Unfortunately, based on the national climate pledges ([Nationally Determined Contributions, or NDCs](#)) submitted in the lead-up to COP-26 in November 2021, the world is well off course. Based on best estimates provided in the Intergovernmental Panel on Climate Change (IPCC) [Sixth Assessment](#) Report released the same year, looking at very low to very high GHG emission scenarios, the world is expected to reach 1.5-1.6°C of warming by 2040. The consequences for human health and livelihoods, food security, water supply, human security, and economic growth will be severe.

## The role of local, regional, and urban actors

With precious little time remaining, countries worldwide must use every tool at their disposal to pivot to a low-carbon future while building the resilience and adaptive capacity of all their citizens.

National governments have a particular responsibility to drive decisive action. However, every region, city, and village also play a fundamental role. It is at the local, regional, and urban level where the closest interaction between people and authorities occurs. It is at the local level where countries find the 'know how' to get things done and implement climate policy. It is at the local level that people or whole communities, including vulnerable and

marginalized populations – can engage in climate action in sustained and meaningful ways.

Just as local and regional governments are direct providers of services and information that people rely on for their lives and livelihoods, these leaders also serve as important sources of influence in their communities, and so play a prominent role in introducing important courses of action and innovative approaches.

Civil society and private sector partners at the city, state, and regional levels also play an essential role in achieving ambitious emissions reduction, adaptation, and resilience targets.



# Introduction



Ultimately, for countries to realize and raise their climate ambition, countries must take an all-in, whole-of-government, cross-sectoral approach with integration between the local, national, and global levels and inclusion of all sections of society. This includes women and youth, indigenous groups, the elderly, persons with disabilities, and the private sector.

Local actors must be represented in climate planning at all levels, and their contributions fully captured in the NDCs, as well as NDC implementation and financing strategies.

At the same time, NDCs must be integrated into local and subnational development

plans. It is through sustained collaboration and coherence across all levels of government that countries will achieve effective, context-specific policy design, and implementation, tied to a unified vision.

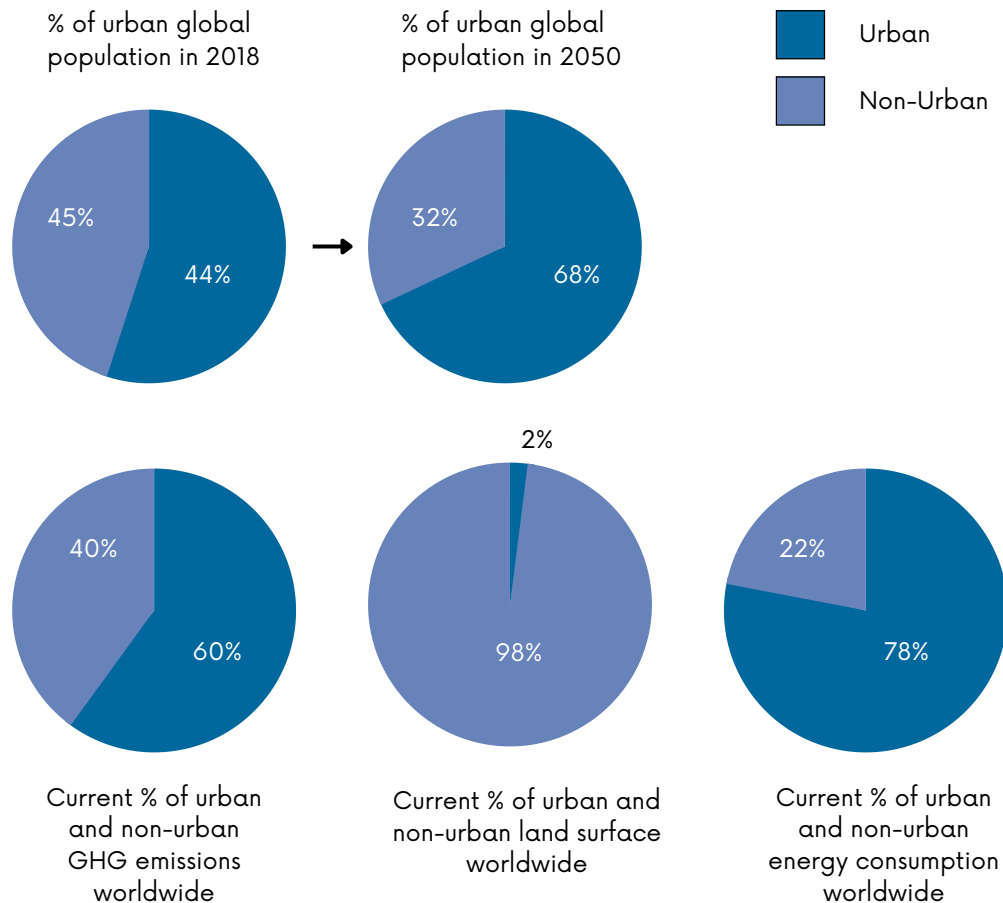
As the world builds back better from COVID-19, we now have an opportunity to prepare a more resilient, inclusive, and sustainable recovery.

And as the [UNFCCC's NDC synthesis report](#) in 2021 indicated, there is a growing movement in which local, regional, and other subnational governments are stepping up and playing key roles in climate change strategies.<sup>2</sup>

Concrete examples of climate action that can be accomplished at the local level include efforts to make buildings more energy-efficient, increased access to clean and affordable energy, and low-carbon public transport. Communities and cities can scale up sustainable waste management, produce more food locally, make cities greener with parks and gardens, and leverage nature-based solutions. Cumulatively, these efforts can have an enormous impact on national, and therefore global, efforts to cut emissions, while also providing a significant boost to local economies.

# Introduction

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With their outsized populations and energy consumption, cities' contributions are crucial to climate action. More than [half of the world's population now lives in cities](#), and about two-thirds of the world's population will be urban by 2050. Cities consume about 80 percent of the world's energy and emit more than 70 percent of the world's GHGs. They also are [home to over 800 million people at risk](#) from the impacts of rising seas and storm surges. How we manage and build our cities, then, will be critical in the decades ahead.

# Local action under the Climate Promise

Around the world, UNDP supports climate action across levels of government and from the national to community level, helping countries to take bold action to reduce greenhouse gas emissions, increase resilience and adaptation to climate impacts, and advance sustainable development as a whole.

In 2019, UNDP launched the [Climate Promise](#) to help ensure any country wishing to increase the ambition of their NDC was able to do so. UNDP supported 120 countries, representing 80 percent of developing countries globally, including 40 Least Developed Countries, 28 Small Island Developing States, and 47 in fragile contexts, to enhance their climate pledges and raise ambition to reduce their GHG emissions and meet the challenges of climate change. Since its inception,

the Climate Promise has emphasized the role of subnational actors in meeting the climate challenge.

At COP26 in Glasgow in November 2021, UNDP launched the second phase of the initiative, **'From Pledge to Impact'** to scale up support to turn NDC targets into concrete action. This latest iteration of Climate Promise support will allow countries to accelerate inclusive action to meet their targets, while continuing to push for greater ambition. Local action will be key.

This report offers snapshots of 19 countries around the globe where central, regional, and local governments have come together under the Climate Promise to work towards a unified national climate strategy.

**54** Climate Promise countries feature aspects that focus on urban, subnational, or local climate action

**81 percent** of updated NDCs include an enhanced level of subnational ownership and inclusion<sup>6</sup>

# Introduction

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Photo: UNDP Tanzania

The areas of support in the 19 countries are categorized into four work streams, each of which are critical to effectively and sustainably design and implement NDCs and NDC systems:

- i. **Developing and promoting local policy tools for climate planning** to enhance the capacity of local experts and facilitate innovative approaches to inform decision making;
- ii. **Targeting climate action through economic measures and innovation** to increase the flow of climate finance and improve climate change resilience, adaptation, and mitigation;
- iii. **Ensuring local and regional action is a key component of newly revised NDCs** through multilevel and cooperative action from the state to local communities and ensuring NDC systems are developed in an inclusive, cooperative manner that engages key actors across diverse backgrounds – from local communities to large cities to the national level – taking care to actively involve climate-vulnerable populations, women, youth, elderly, indigenous populations, and those with disabilities; and
- iv. **Enhancing data management systems to better track progress** to strengthen climate data in support of enhanced transparency, stocktaking, and evidence-based decision making.

The snapshots reflect the breadth of UNDP work underway. They also demonstrate the power of local governments and multi-level governance to accelerate climate action, as well as the benefits of each level working in concert.



# References to Local, Regional, and Urban Climate Action

There are numerous references in climate policy and literature concerning the critical role to play by local, regional, and city actors in climate change action, covering GHG emission reductions, resilience building, and adaptation:

The [Paris Agreement](#) (2015) highlights “the importance of the engagements of all levels of government” in addressing climate change.

The [Talanoa dialogue process](#) and the local government-led [Bonn-Fiji Accord](#) (2017) recognize that integrated local action is critical to address the gap between national commitments and the goals of the Paris Agreement.

The [Katowice Climate Package](#) (2018) reaffirmed the key role that a broad range of stakeholders, including regions and cities play in ensuring “Action for Climate Empowerment.”

The [Glasgow Climate Pact](#) (2021) notes it is vital that national responses to climate change incorporate “multilevel and cooperative action,” including an emphasis on the role of local communities.

The [IPCC 2018 Special Report](#) emphasized, “Pathways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems.”

As highlighted in the [2021 UNDP Global Outlook Report: The State of Ambition](#), 81 percent of updated NDCs included enhanced levels of subnational ownership and inclusion, and 24 percent of NDCs mainstream targets in subnational development plans and/or budgets (another 29 percent indicated mainstreaming was underway).

The 2022 [Working Group II](#) contribution to the IPCC 6th Assessment Report made clear, “Future human vulnerability will continue to concentrate where the capacities of local, municipal and national governments, communities and the private sector are least able to provide infrastructures and basic services.” The report further indicated, “Climate change risks to cities, settlements and key infrastructure will rise rapidly in the mid- and long-term with further global warming, especially in places already exposed to high temperatures, along coastlines, or with high vulnerabilities.”

The 2022 [Working Group III](#) contribution to the IPCC 6th Assessment Report focuses on GHG emissions and emission reduction, ominously highlighting urban emissions are on the rise from 25 GtCO<sub>2</sub>-eq (about 62 percent of the global share) in 2015 to 29 GtCO<sub>2</sub>-eq (67-72 percent of the global share) in 2020.





Part 2:

# Country Experiences

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### A. Developing and promoting local policy tools for **climate planning**

#### Innovative approaches informing local decision making

From region to city to village, there can be no sustainable development without contributions at the local, regional, and urban levels. Multi-level governance mechanisms and those connecting wide-ranging stakeholders across society are needed for a participatory climate response beyond what national governments can advance on their own. Focus must be placed on providing innovative tools and other resources to local partners to support local climate policymaking.



*"...regional, national, and international climate goals are most impactful when local governments are involved alongside higher levels, rendering urban areas key foci of climate governance more broadly... Increasingly, subnational actors are also influencing their national and international governments through lobbying efforts that call on them to adopt more ambitious climate goals and provide more support for subnational GHG mitigation effort."*<sup>7</sup>

- Climate Change 2022, IPCC, 2022

A woman wearing a green raincoat and a black hood is pushing a green wheelbarrow. The wheelbarrow is filled with several large, rectangular concrete blocks. She is standing on a gravel path. In the background, there is a white fence, a red roof, and some greenery. The image is part of a report on climate action in Chile.

Country Experiences .....

## Chile: a strategic alliance to strengthen subnational climate action

..... In Chile, rainfall shortages and extreme heat have led to an unprecedented 'mega-drought' – with consequences for agricultural livelihoods, food security, and the health of rural communities.



## Background

In April 2020, Chile became the first Latin American country to share its updated NDC with the international community. In it, they set an unconditional absolute target – to not exceed 95 MtCO<sub>2</sub>eq by 2030 – and a commitment to peak emissions in 2025.

To raise climate ambition at the national and subnational levels, the Chilean Government has emphasized the enhancement of local action, including growing municipalities' technical capacity; improving information exchange between local and regional levels; developing a more efficient legal and regulatory framework; further decentralizing public decision-making; and securing greater private sector input.

## Local action

To this end, the Government of Chile established a strategic alliance to create the basis for a Subnational Agenda for Climate Action.

The alliance – consisting of the Ministry of Environment, Secretariat for Regional Development, Chilean Association of Municipalities and Association of Municipalities for Environmental Sustainability – now plays a key role in analyzing policies, plans, and legal initiatives related to climate action and proposes action to bring innovation and transformation into national climate policies in a way that is inclusive,

gender-responsive, and integrating different levels of national administration.

The alliance and Subnational Agenda have been invaluable tools to identify gaps and challenges in implementing effective and inclusive climate action at the local level.

The work has included delivering a postgraduate training course on climate change resilience with the Center for Climate and Resilience Research for over 100 professionals from municipalities nationwide. More than 1,300 representatives (60 percent of them women) from more than 150 municipalities have taken part in regional workshops.



*"Chile is aiming for cohesion in multilevel planning in the face of climate change, with instruments at three levels (national, subnational, and local) forming the basis for mitigation and adaptation action throughout our territory."*

– Carolina Schmidt, Environmental Ministry of Chile, 2020

## Côte D'Ivoire: Thinking globally, acting locally through territorialized NDC implementation



*"I intend to share what I learned (during a workshop in Yamoussoukro Autonomous District) with my colleagues and bring our council to consider climate action in our triennial programme planning."*

– Bouabré Mahi Jeanne, Director of Development and Planning, Hautassandra region, 2021

## Background

In Côte d'Ivoire, there is a disconnect between the acknowledgment of climate change as an urgent national issue and its practical incorporation into national, sectoral, and local planning. One obstacle is the absence of territory-specific aspects in national policy, in part due to a lack of effective transfer of technical competency from the national government to local governments.

The government has recognized that for climate action to be effective, it must be initiated at the local level, in a comprehensive approach that is region-specific. It has identified strengthening the role of local authorities as a priority.

## Local action

To address the issues, the government piloted the development of a Territorial Climate Plan for the region of Bélier, one that considers local specificities and serves as a blueprint for other regions nationwide.

The result is a planning and investment tool that includes mitigation and adaptation targets, vulnerability assessments, as well as identification of priorities for sustainable development action.

Coupled with capacity-building workshops for local authorities, the plans will help Côte d'Ivoire refine and disaggregate national climate policy at the regional and

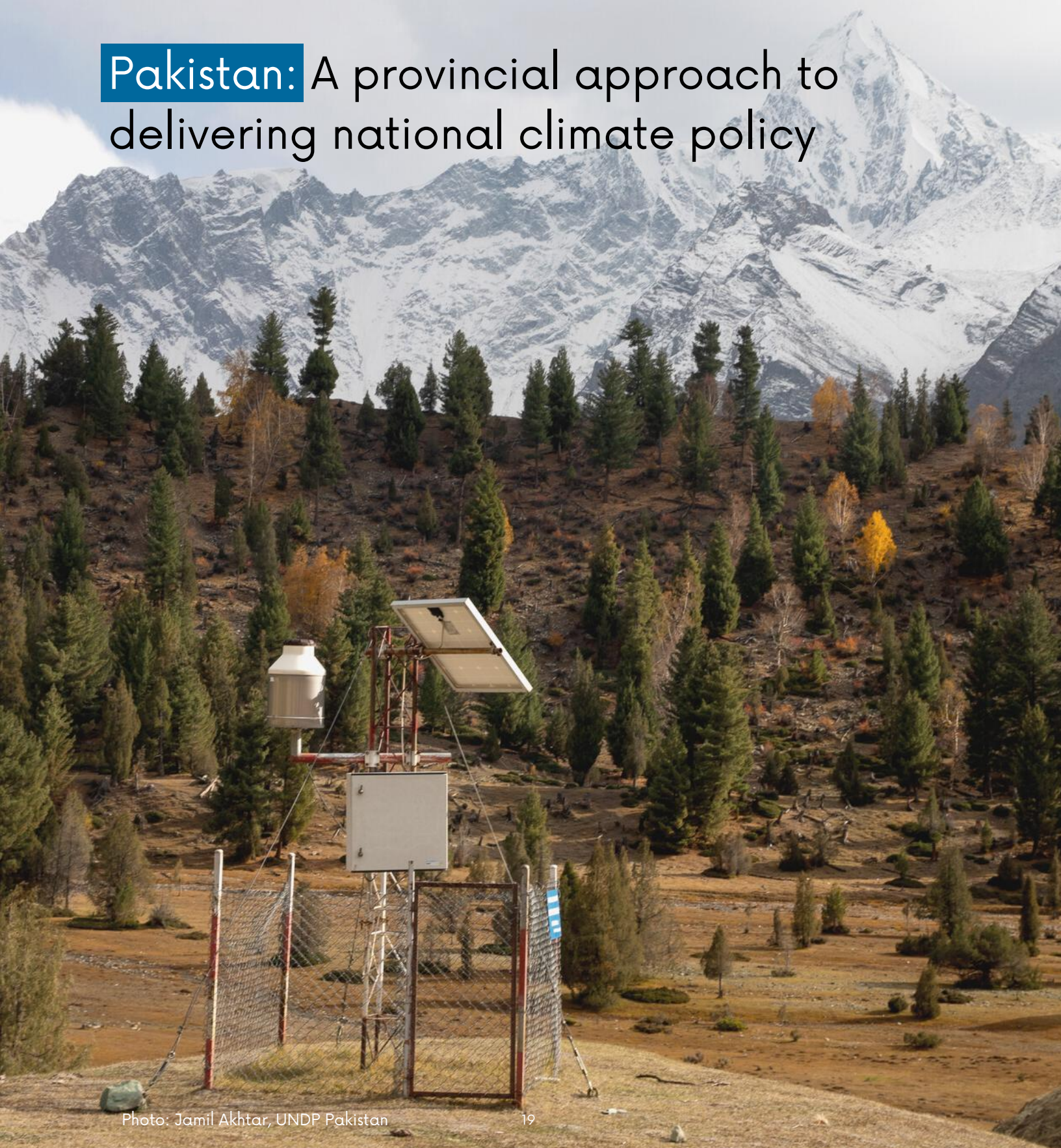
local levels with the goal of amplifying implementation of its NDC.

Through the process to design the Territorial Climate Plan, an inclusive framework of consultation was established in Bélier that is now the main tool of the local government for the implementation of all local development activities. This plan will be used by the Ministry of Planning and Development as a model and reference document for integrating climate change in future Local Development Plans – for example, a territorial climate plan for the Autonomous District of Abidjan is being developed with support of C40, building off the Bélier experience.

In Côte d'Ivoire, rising sea levels are exacerbating coastal erosion, flooding, and inundation. Coastal flooding is already extremely damaging in the west African nation, costing US\$1.2 billion each year.<sup>8</sup>



## Pakistan: A provincial approach to delivering national climate policy





## Background

Over the past two decades, Pakistan has witnessed a significant increase in the frequency and intensity of climate-induced disasters, with more than US\$3.8 billion in losses directly attributed to climate change according to the [2021 Global Climate Risk Index](#).<sup>9</sup> The Index ranks Pakistan 8th in the list of most vulnerable countries to climate change.

The central goal of Pakistan's updated NDC is to realize the vision of a sustainable, low-carbon, and climate-resilient Pakistan. By 2030, the government aims to cut projected emissions by up to 50 percent.

## Local action

Under the leadership of the Ministry of Climate Change, the federal government aims to work closely with all provinces to develop prioritized Provincial Action Plans, thus ensuring NDC implementation at the local level.

Expected to be integrated with commitments related to the Sustainable Development Goals, and with gender considerations in mind, the objective of the plans is to build climate resilience and adaptive capacity, reduce GHG emissions, and increase economic opportunities. It is critical to ensure they align with Pakistan's

updated NDC targets, as well as financing and building the capacity of provincial government departments.

The development of the plans complements efforts to update Pakistan's National Climate Change Policy and provides a framework for provinces to maximize adaptation, resilience, and mitigation actions across sectors, from agriculture and water resources, to forestry, health, waste, and energy.

Work has begun to develop provincial action plans for four provinces and the Gilgit-Baltistan region.

Pakistan faces rates of warming markedly above the global average with a potential rise of 1.3°C–4.9°C by the 2090s, above the 1986–2005 baseline, with consequences for health, livelihoods, and ecosystems.<sup>10</sup>

A large crowd of people is walking down a city street in Turkey. The street is lined with buildings and trees. In the background, there are more buildings and a tram. The crowd is diverse in age and appearance, and many people are wearing face masks. The overall atmosphere is busy and urban.

Country Experiences .....

## Türkiye: A new online climate portal to deliver climate action in Türkiye's cities

## Background

Over the last two decades, climate change-related hazards in Türkiye – notably, heatwaves, drought, floods, storms, and forest fires – have grown more frequent and severe, impacting livelihoods and threatening to undermine gains in poverty reduction and development.

Dependent on natural resources, and with limited capacity to cope with climate variability and extremes, local populations are especially at risk.

Already considered highly vulnerable to drought, land degradation and desertification, Türkiye is projected to see a strong drop in rainfall in the coming decades.<sup>11</sup>

## Local action

To enable municipalities to address climate change impacts and mainstream concerns into development planning, Türkiye has prioritized the development of Local Climate Change Action Plans (known as YİDEP).

To date, 11 metropolitan municipalities have YİDEP while an ambitious national target aims to have 30 in place by 2023.

One significant step towards delivery of the plans has been the development of a tool (YSGEA), based on the Global Protocol for Community-scale Greenhouse Gas

Emission Inventories, which allows municipalities to calculate and report local emissions.

An online climate change portal (e-YİDEP) and regional vulnerability assessments have also been developed to help local partners enhance their access to data, strengthen monitoring and transparency, and create consistency across e-YİDEP. Complementary support includes assessing the social, economic, and environmental impacts and benefits of proposed climate actions at the subnational level.



## B. Targeting climate action through economic measures and innovation

### Creative approaches to raising climate finance

Countries worldwide are already allocating national resources towards climate change mitigation, adaptation, and resilience-building as an important investment in safety and future prosperity. Providing support to partner countries via climate-smart economic measures and international finance is critical to improve the cost-effectiveness of climate action, create good-quality jobs, and stimulate relevant investment to foster transition to a low-carbon economy.



*"Building urban resilience is expensive and often requires funding over and above business-as-usual expenditures. Cities have limited funds, and often are confined in their ability to raise/access funding due to their ineligibility for international climate finance, their lack of creditworthiness, or their lack of autonomy over their own budget and revenue generation. Investment in resilience from the private sector can be leveraged, but without proper policies or incentives, businesses are hesitant to pay for resilience measures."*<sup>12</sup>

– UNDP, Urban Climate Resilience: Issues Brief, 2020



Country Experiences .....

## Bosnia and Herzegovina: Protecting urban centres from flooding



## Background

With climate change impacts accelerating, increased flooding is a primary concern for the government of Bosnia and Herzegovina. To date, however, national investment in flood risk management has been relatively scarce and mainly focused on the maintenance of very old flood defence structures, while a lack of funds has limited investment by communities and cities.

Based on the recently completed pilot project “Vrbas”, which applied a “basin approach” to flood risk management, new climate adaptation initiatives are under development. However, many municipalities are not able to access finance directly from the donors or allocate their own funds.

## Local action

To address the issue, Bosnia and Herzegovina is in the process of elaborating a finance strategy for the country’s National Adaptation Plan.

The finance strategy aims to improve the ability of local municipalities to access funds – including from the global Green

Climate Fund – to protect communities from climate change impacts and provide states with a guide to scale up adaptation finance. A key focus is the combination of green bonds and lending by Development Finance Institutions, supported by local budgets with public and private investments.

On 5 November 2021, heavy rainfall resulted in widespread flash flooding across central, eastern, and southern parts of Bosnia and Herzegovina, closing schools, prompting evacuations, and causing power outages. Climate projections indicate flood risk is on the rise.<sup>13</sup>



Country Experiences

## Ecuador: Territorial economic planning across three layers of government

In 2019, Ecuador became the second country in the world to receive financial resources from the Green Climate Fund for having successfully reduced emissions from deforestation.<sup>16</sup>



## Background

Between 2000 and 2009, deforestation levels in Ecuador amounted to 109,000 hectares per year, with over 99 percent of deforested land being transformed into agricultural areas.<sup>14</sup> It has been further estimated that 4.7 percent of nationwide tree cover was lost between 2000 and 2021.<sup>15</sup>

Recognizing the value of its “green lungs”, the government has since been promoting efforts to conserve forests and increase the resilience of communities to cope with the effects of climate change. Through initiatives such as the [PROAmazonía](#) programme, bold steps have been taken to transform traditional production systems into sustainable agro-production systems that are free of deforestation. These include Agricultural Schools where specialists provide support to farmers to boost productivity and a [deforestation-free certification](#) for sustainable production, currently under development.

## Local action

In Ecuador, local planning is performed at three levels of government – provincial, municipality, and parish – and their actions related to the environment and agro-productive sectors are coordinated with the central government. Climate planning is strengthened through subnational Development Plans that include socio-economic elements and Territorial Plans that address physical planning.

To support the elaboration of these plans, Ecuador developed [guidelines](#) for the three levels, providing recommendations on how to incorporate climate change into local planning instruments. Topics covered include climate change management, financing climate action, sustainable use of natural resources, and preventing and reducing risks.

A new [toolbox](#) addressing the integration of climate change criteria in Development and Land Management Plans (Plan de Desarrollo y Ordenamiento Territorial or PDOT) has also been developed.



*“The achievement of social, environmental, and economic objectives in the Amazon requires the inclusion of criteria for sustainable production and conservation in local planning instruments, as well as working closely with local communities. This is exactly what PROAmazonia has been doing, aiming at transformational impact at the local as well as national levels.”*

– Matilde Mordt, UNDP Resident Representative of Ecuador



## Country Experiences

# Grenada: Refrigeration and air conditioning moves the needle



*"By utilizing alternative energy sources and low-GWP (global warming potential) refrigerants, District Cooling is a game changer for delivering centralized comfort cooling to buildings. District Cooling must be part of the global solution to reducing the direct and indirect GHG emissions associated with air conditioners."*

– Leslie Smith, Ozone Officer, Energy Division, Ministry of Finance, Grenada

## Background

In recent years, Grenada has experienced increasing demand for refrigeration and air conditioning, linked to steady economic growth and increased average temperatures.

With a recent GHG inventory revealing that the refrigeration and air-conditioning sector accounts for about 29 percent of total national GHG emissions, refrigeration and air conditioning have become a focus in Grenada's new NDC and National Cooling Action Plan.

A projected increase in Grenada's mean annual temperature, and the intensity and frequency of heat waves, will result in a greater number of people at risk of heat-related medical conditions.<sup>17</sup>

## Local action

In 2021, Grenada formulated its Cooling Action Plan, a strategy document for the implementation of climate-smart and energy-efficient cooling systems, in alignment with the NDC emission reduction targets. Work is underway to develop financial costing for its implementation, to be completed in 2022.

The government is now developing its District Cooling potential as a long-term solution to phasing out ozone-depleting gases, as well as phasing down other fluorinated gases including hydrofluorocarbons (HFCs).

District Cooling is a more efficient way to run air conditioning by using a network of buildings with centralized cooling plants. With increased support from the government for the use of centralized air conditioning systems on the island, District Cooling could be an important part of the national climate mitigation strategy.



A woman wearing a pink hijab and a red and white striped long-sleeved shirt is shown from the chest up, harvesting cotton in a field. She is holding a cotton plant with white bolls in her hands. The background is a clear blue sky with some clouds and green cotton plants. The image is part of a report cover or page, with text overlays in the top left and a blue box on the left side.

## Country Experiences

# Indonesia: Provinces leading in a green economy transition

Indonesia is among the top-third of countries in terms of climate risk, with exposure to all types of flooding and extreme heat. The intensity of these hazards is projected to grow.<sup>20</sup>

## Background

Around the world, climate change poses a major threat to growth and prosperity. For Indonesia, the economic impact is projected to be vast. One study estimated the cost – in the areas of agriculture, health, and gradual sea level rise alone – to be 132 trillion Indonesian rupiahs in 2050<sup>1</sup> or about US\$9.8 billion.<sup>2</sup>

In response to the crisis, Indonesia is aiming to transform its economy into a driver of sustainability and social inclusion, as well as a catalyst for action to address environmental challenges.

To this end, the Ministry of National Development Planning (BAPPENAS) launched the Low Carbon Development Initiative (LCDI) in 2017.

## Local action

To accelerate the transition to a green economy, in 2018, Indonesia joined the Partnership for Action on Green Economy (PAGE) comprised of five UN agencies (UN Environment, ILO, UNDP, UNIDO, and UNITAR), with UNDP as the coordinating entity on the ground.

PAGE-Indonesia has focused on strengthening LCDI outcomes at the subnational level, including building stakeholders' capacity, extending communication and outreach, increasing private sector engagement, and driving low-carbon policy implementation.

In West Java Province, PAGE-Indonesia has developed macroeconomic models (used to inform the 2018-2023 regional development plan), formulated a Regional Low Carbon Development Plan, conducted food loss and waste assessments to inform sectoral policy, and carried out environmental assessments to encourage private sector investment in green projects.

In Central Java and Bali, PAGE-Indonesia is supporting training on systems thinking and system dynamics modelling as a holistic planning tool that considers economic growth, environmental sustainability, and social inclusion.



*“Economic activities in West Java Province are dominated by industry, construction, and agriculture. It has caused high use of fossil fuels and reduction of land cover. The Low Carbon Development Initiative is a solution to achieve economic growth and reduce poverty without compromising environmental sustainability.”*

– M. Taufiq Santoso, Head of West Java Provincial Development Planning Agency (BAPPEDA)



# Peru: Enhancing water security for a city in the desert



*"We have installed a "fog-catcher" in the upper part, at a distance of 800 meters from the community. From there, the water flows down to the tanks that are placed at the bottom of the hills, and then water flows to the plants we have sown in the buffer zone of the hills."*

*– Ascensio Vasques, Villager and President of the Ecological Association of Lomas de Primavera*

## Background

In Lima, one of few megacities located in a desert, water is a scarce resource. Shortages are not just an issue impacting the Peruvian capital – 8 million people across the country currently lack access to drinking water, with rising access inequalities.

To address the overarching climate challenge, the government has pledged action to reduce GHG emissions by up to 40 percent by 2030, as well as to adapt to the impacts. Ensuring reliable access to clean water is a key focus.

## Local action

To help tackle the water crisis, the government in Lima has been successfully piloting a method of water harvesting in unique ecosystems with dense concentrations of fog, known as fog oases.


Under the pilot, fog catcher technology and an automated irrigation system distribute water to a nursery where communities plant native tara trees. The trees are then used to reforest the fog oases, currently threatened by land traffickers and illegal miners. A system of climate monitoring stations alerts authorities of illegal activities that could put fog oases and water availability at risk.

The project works with local governments to better inform local stakeholders on the value of fog oases. To ensure local ownership and protection of the fog oases, local communities are included in decision-making processes surrounding the initiative.

The initiative highlights how solutions to the climate crisis and other development challenges may be found in nature. It also shows that local stakeholders are crucial actors.

Climate change has already melted 51 percent of glaciers in Peru, diminishing an importance source of water for millions of people downstream.<sup>21</sup>





## Country Experiences

# Serbia: Local climate solutions through creativity and innovation



*"The growth of the company, the constant expanding of plantations and the search for affordable and clean energy at the same time made us start experimenting with biomass. After our first analyses showed that our bio-pellet had a high calorific value, everything started to come together. Our plan for the annual production is to reach 3,000 tons of bio-pellet by 2023. In terms of energy generation potential, this is equivalent to the amount of 700 tons of coal and 200 tons of diesel fuel."*

– Novica Šutić, founder and owner of Sanicula Ltd.

## Background

More than half of Serbia's population resides in cities, with more and more people migrating from rural to urban areas. Faced with this expansion, cities face a multifaceted set of challenges – how to deliver the required infrastructure, jobs, and services, while also ensuring green growth and equal access.

In 2017, the Ministry of Environmental Protection launched the **Climate Smart Urban Development Challenge** to drive creative ideas and community engagement around reducing GHG emissions, creating green jobs, and improving public services related to urban development.

In 2014, some of the heaviest rainfalls and floods on record affected more than 20 percent of Serbia's population and caused US\$ 2 billion in damages.<sup>22</sup> Flood risk is projected to increase.<sup>23</sup>

## Local action

The ongoing competition focuses on new technologies, new business models, long-lasting change, inclusive stakeholder involvement, and robust responses to social issues such as gender equality, unemployment, and opportunities for marginalized groups.

Winning projects from civil society, academia, the public sector, and business communities have offered a wide range of benefits beyond reducing emissions, from reduced pollution and waste to new green jobs, including in rural and isolated communities.

Thus far, the initiative has raised blended finance to decrease 500,000 tons of GHG emissions in cities.

One winner receiving support is public utility company Toplana-Šabac which established a new control system architecture (SCADA) for oversight and management of heat distribution in the city of Šabac, increasing energy efficiency in district heating systems using smart data. Another winner was an essential oils manufacturer, Sanicula, which achieved carbon-neutrality by replacing fossil fuels in production with pellets from plant residues.

### C. Ensuring local and regional action is a key component of newly revised **NDCs**

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#### Forging multilevel and cooperative action, from the state to local communities

Experts at the local, regional, and urban levels offer unique insights and capacity to strengthen NDC planning and implementation. These experts play key roles as implementers of climate policies at the technical level – they are also plugged into local communities as institutions of trust, provide vital services, and generate valuable on-the-ground climate data that is critical to informing national and global climate policy. Multilevel, cooperative action needs to be central in national NDC implementation strategies.



*“Subnational governments and local stakeholders are key implementers of national policies and have access to critical climate data, allowing them to identify and address local contributions to adaptation and mitigation, local GHG emissions, and the local impacts of climate change. The importance of subnational governments in the climate arena has been increasingly recognized over the past several years, most notably in the Paris Agreement itself. However, coordinating the actions of subnational governments with the national level—or receiving formal recognition in international fora—can remain a challenge.”<sup>24</sup>*

– NDC Partnership, Insight Brief, 2020



## Argentina: Training and engagement at the heart of a provincial approach to climate planning



## Background

Since 1980, extreme rainfall events have increased threefold in Argentina; by the end of the century, the northeast of the country is likely to experience increased rainfall while the southern regions could experience the opposite.<sup>25</sup>

In Argentina's enhanced NDC the government has committed to cap emissions at 359 metric tonnes of carbon dioxide equivalent by 2030. The government has also pledged to increase Argentinians' awareness of climate change, and to increase adaptation and resilience. A total of 35 adaptation measures are to be carried out, prioritizing vulnerable communities.

## Local action

With Argentina's 24 provinces playing a prominent role in developing national climate policies, and leading the articulation of subnational action plans, their sustained commitment is critical to climate action.

Provincial climate change authorities meet twice annually as part of a roundtable in support of the National Cabinet for Climate Change to define and revise relevant plans. Bi-monthly meetings bring together a **diverse array of provincial technical teams** to share progress, challenges, and lessons learned in the preparation of Provincial Climate Change Response Plans.

Progress has been made in the identification of subnational measures in the energy, forestry, and agriculture sectors.

A training course has been developed to strengthen the technical capacity of local experts in areas including adaptation and resilience strategies, monitoring and reporting, building GHG inventories, mitigation alternatives, legal frameworks, governance, and communications and participatory aspects of climate policy.

The projected rise in temperatures in Argentina will likely exacerbate existing tensions around water usage, especially during the dry seasons.



## Mali: Decentralization as a key factor in NDC design



*"Climate change is a sad reality for Mali, ... threatening key sectors for the country's development, aggravating environmental degradation and calling into question ... efforts to reduce poverty. I invite local actors to get involved in the fight against the effects of climate change and to take ownership of local adaptation measures and strategies."*

– Colonel Lamine Kapory Sanogo,  
Governor of Koulikoro region, translation  
from French



## Background

Mali has recognized that climate change adaptation and resilience is not the sole responsibility of the national government. Rather, the country has adopted a holistic approach involving a diversity of stakeholders, including civil society and local authorities, the private sector, and development partners.

Historic climate variability has resulted in an extensive migration from Mali's north to Sikasso and Bamako in the south.

## Local action

While the national government has been promoting decentralization – including local governments initiating their own social, cultural, and economic development plans – implementation of climate action at the local level has been limited to date.

In response, Mali has looked to strengthen the participation of regional and local representatives in climate-related decision-making.

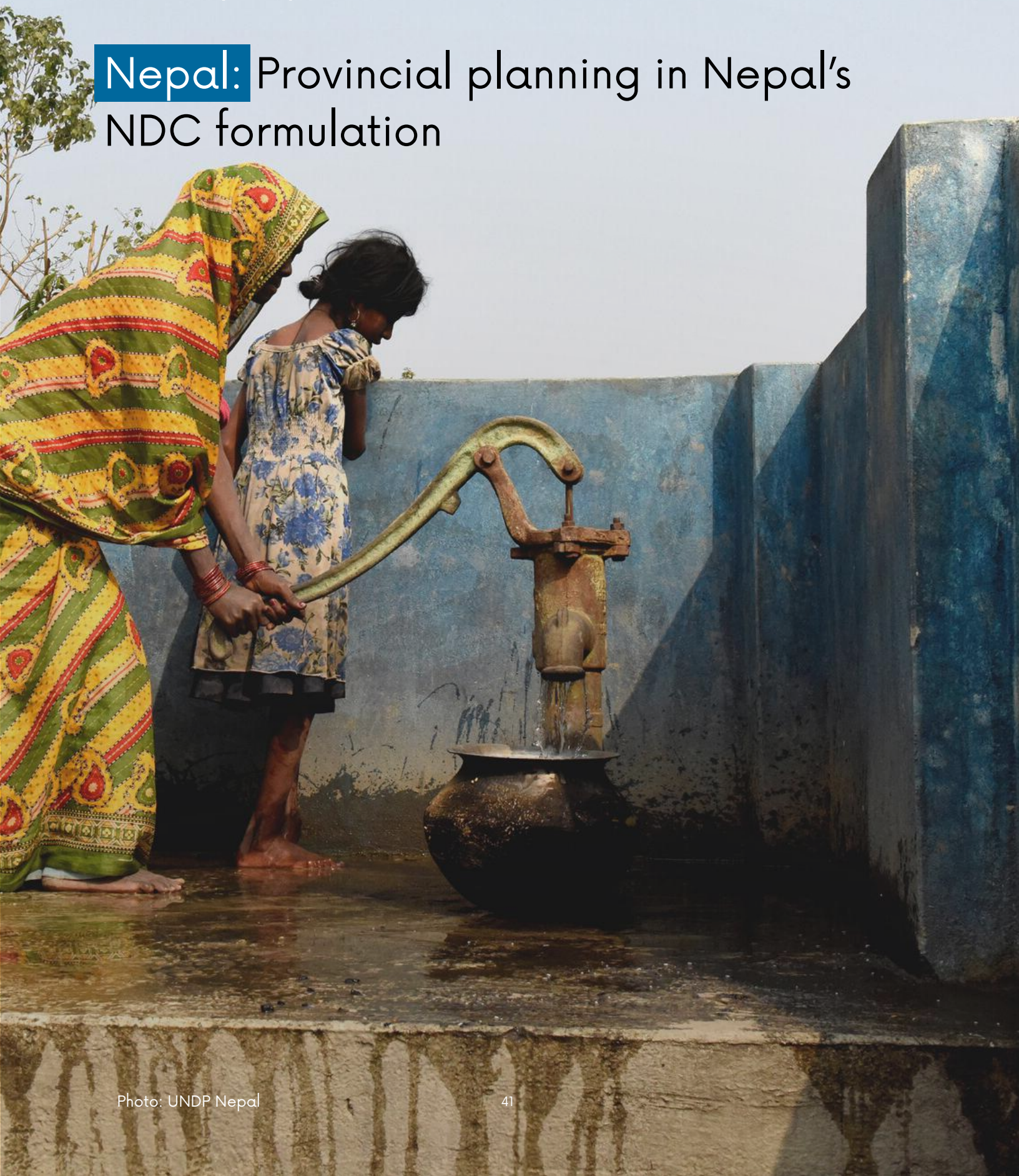
In the development of the revised NDC, in-person dialogues were conducted with over 400 participants including representatives of regional technical services (agencies from national ministries located in the regions), local elected officials, subnational governments, civil society organisations, private sectors, women's groups, and youth groups. It was a major departure from the 2015 NDC development process that did not substantially involve regional and local stakeholders.

Notably, the consultations shone a light on the socio-economic impacts of climate change in each region, areas with natural resource fragility, and vulnerabilities in agriculture and infrastructure.

They also identified gaps in technical capacity and management structure, critical for a more participatory process and more effective local planning going forward.

Country Experiences

## Nepal: Provincial planning in Nepal's NDC formulation



## Background

In support of its ambitious pledge to achieve net-zero GHG emissions by 2050, Nepal has been seeking buy-in from all relevant stakeholders.

The approach is crucial in the context of Nepal's transition to a federal system of governance and ensuring enhanced national ownership of the NDC process.

## Local action

To raise awareness of the NDC enhancement process, take stock of provincial priorities, and collect inputs from provincial and local government stakeholders, the government conducted a series of provincial consultation workshops.

A total of 280 representatives from provincial and local governments, sectoral directorates, district coordination committees, provincial federations, civil society organizations, academic institutes, private sectors, youth groups, and the media took part in consultations in Biratnagar of Province 1, Janakpur of Madhesh Province, and Pokhara of Gandaki Province.

Engagements also enabled identification of provincial plans based on provincial development priorities and climate targets with reference to provincial approach papers, budgets, annual plans, and municipal level plans.

In consultation with provincial governments, the government is now finalizing the Provincial Climate Change Strategy and Action Plan for all seven provinces of Nepal.

If the world does not dramatically reduce emissions, Nepal faces losing 2.2 percent of annual GDP due to climate change by 2050, rising to 9.9 percent by the end of the century.<sup>1</sup>



A close-up photograph of a woman with a warm smile, wearing a vibrant, multi-colored knitted headwrap and a matching floral-patterned shirt. She is waving her right hand towards the camera. The background is slightly blurred, showing a building with a corrugated metal roof and some greenery.

## Country Experiences

# Sierra Leone: Localizing the national response to climate change

More than three quarters of Sierra Leone's rural population depend on farming for their primary livelihood, leaving them vulnerable to climate variability and shocks.<sup>27</sup>

## Background

Due to climate change and deforestation, Sierra Leone is increasingly at risk of severe floods and storms, with impacts on agriculture, fisheries, infrastructure, and biodiversity.

To mitigate these challenges and build climate resilience, Sierra Leone has been promoting community forest development and alternative livelihoods for groups of women and youths who heavily rely on charcoal for their livelihoods. Another priority is strengthening the capacity of local government and stakeholders to tackle wildfires, deforestation, and other challenges at the community level.



*"Fighting climate change is the responsibility of every Sierra Leonean citizen and that [battle] collectively we will win."*

*– Masayeli N'than, Paramount Chief, Gbanti Chiefdom, Bombali District, Northern Province*

## Local action

The vision of Sierra Leone's 2015 NDC was to create harmony between the economy, environment, and social priorities, including a shift to a greener economy. In its enhanced NDC, the government made a concerted effort to take the NDC dialogue to the grassroots level and to raise the ambition of mitigating emissions by 2030.

Consultations with local Council and Chiefdoms, communities, civil society, and the private sector sought to deepen conversations and strengthen ownership of the new NDC and corresponding climate actions at national and subnational levels.

Regional awareness-raising workshops in Makeni, Kenema, Bo, and Freetown included sector-specific dialogues and discussed how to enable local actors to act on climate change.

Feedback from the discussions were fed into the revised NDC.



## Thailand: Integrating gender into local climate action

Projections indicate the number of people in Thailand affected by extreme river floods could increase by more than 2 million by 2035-2044, and coastal flooding could affect a further 2.4 million people by 2070-2100.<sup>29</sup>





## Background

Between 2009 and 2013, more than 50 of Thailand's 77 provinces were affected by natural disasters – nearly 1,500 lives were lost, primarily due to floods. Heat-related deaths are on the rise too, especially among farmers and people aged over 60, as well as general laborers and school children under 15, with heat deaths expected to further increase among the elderly population over the next several decades.<sup>28</sup>

One of Thailand's priorities in addressing the climate crisis is the greater incorporation of gender and social inclusion into subnational public climate investments and project and budget formulation.

One mechanism for this shift is the scaling-up of institutional capacity to assess the dimensions of climate change impacts and vulnerabilities (including sex, age, level of education, health, livelihood, and employment).

## Local action

To facilitate the shift, a handbook for Integrating Gender and Social Inclusion in Climate Change Budget Formulation was developed and piloted in two provinces – Maha Sarakham and Uthai Thani.

In Maha Sarakham alone, 240 households were surveyed and focus group discussions conducted to assess climate impacts and vulnerabilities. Community leaders, women, youth, and elderly participants provided valuable feedback on issues related to climate policy, including local concerns of repeated droughts and floods.

Provincial consultations were conducted with government agencies and community representatives in August 2021 on proposed community projects. A national workshop was conducted in March 2022 as well.



*"I wish there were reservoirs and check dams to ensure water supply all year round. Then there would be no need to buy water from elsewhere."*

*– Amornrat Jignhok, Farmer*

An aerial photograph showing a flooded landscape. A large, rectangular house with a bright red roof is partially submerged in muddy brown water. A small, white boat is nearby. The surrounding area is filled with green trees and shrubs, some of which are also partially underwater. The water appears to be quite deep, reaching up to the roofs of some structures. The overall scene depicts a significant flooding event in a rural or semi-rural area.

Country Experiences

Uruguay: National adaptation planning  
in cities

## Background

With around 95 percent of Uruguay's population residing in urban areas – and expected to grow in coming years – the impacts of climate change on its cities are of utmost concern.

Reducing the vulnerability of cities and infrastructure is a key priority for the government and features prominently in the country's National Adaptation Plan for Cities and Infrastructure.

The primary extreme climate events in Uruguay are floods and droughts. Severe floods in 2019 saw more than 17,600 Uruguayans evacuated from their homes.<sup>30</sup>

## Local action

Launched in May 2018, the NAP-Cities project is focused on building the adaptive capacity and resilience of cities and their infrastructure while integrating adaptation into policies, programmes, and activities that apply to city and local planning.

To this end, NAP-Cities developed a guide on incorporating adaptation into local land use plans, completed an evaluation of climate hazards in urban areas, and provided technical support for city plans.

The involvement of technicians at the national, departmental, and local levels, as well as representatives of organized civil society organizations, is considered essential in achieving its goals. Annual plans were developed to equip local actors with resources to make contributions to the NAP and gather local data.

A wide diversity of actors was involved in the formulation of the NAP itself. More than 1,700 participants from the public and private sectors, academia, and civil society – including children, young people, and teachers – took part in workshops and consultations. A postgraduate university course was also designed for professionals, covering climate change in cities.



### D. Enhancing **data management** systems to better track progress

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Strengthening climate data in support of enhanced transparency, stocktaking, and evidence-based decision-making

Data management at the local, national, and global levels enables the understanding and forecasting of policy alternatives to support mitigation, adaptation, and resilience-building. Data marks damage caused by the climate crisis thus far, tracks our progress, and maps climate ambition, but also models future climatic conditions and assesses the viability of potential solutions to the crisis.



*“Often the implementation of data collection and Monitoring, Reporting and Verification (MRV) (in the context of the transparency frameworks under the UNFCCC) falls on subnational government. Coordinated discussions are needed between city and national levels to ensure data collection and indicators are aligned and realistic... Many cities have already developed a GHG inventory or resilience tracking tools, however harmonising and standardising data collection is still not consistent, which makes aggregation at a national level challenging – although it is possible.”*

– UN-Habitat, Enhancing Nationally Determined Contributions through Urban Climate Action, 2020

## Cambodia: A multi-level approach to protect communities from droughts and flooding



*"My commune members came to me to tell me it was such a good thing because they received a warning from the Provincial Committee before the flood arrived! It alerted them to the impending disaster and helped them to prepare."*

- Try Teang, Boeng Pruol Commune Chief





## Background

In light of hotter temperatures, increasing variability in the monsoon season, and increasing severity and frequency of floods and droughts, Cambodia is committed to strengthening its climate resilience.

Working together with provincial authorities and communities, the country is setting up an automated nation-wide hydro-meteorological monitoring network, further implementing a centralized approach to water resources management, and establishing a national climate and flood early warning system, including a service centre and flood emergency response plans for all provinces by 2030.

## Local action

In partnership with local authorities and communities, Cambodia has installed 53 automatic hydrology and weather stations to digitize the collection of climate data (rainfall, water levels, and temperatures) and enhance capacity for early warning.

Real-time data from these weather stations is centralized in an online integrated water management system. When an event such as flooding is detected or predicted, a voice recording is sent to mobile phones of registered users in the areas at risk.

Meanwhile, to address drought risk, Drought Infohubs have been established in eight provinces. These Infohubs provide support to provincial authorities to predict droughts and coordinate early response to reduce losses, which will help approximately six million people that live in these areas.

Projected climate change trends indicate more severe floods and droughts in Cambodia, cutting GDP by nearly 10 percent by 2050.<sup>31</sup>



## Country Experiences

# Malawi: Strengthening its local climate response through financial data tracking



## Background

Malawi is highly vulnerable to climate change and has suffered from the increasing frequency of extreme weather events, in particular higher temperatures and erratic rainfall patterns.

In response, the country has put in place a comprehensive climate change management policy framework. However, mobilizing the finance required to implement climate change programmes remains challenging.

As one means of overcoming these challenges, the Environmental Affairs Department has prioritized the establishment of an online **climate finance management information system** to better track climate finance flows, both within the country and from partners abroad.

In Malawi, droughts and floods have increased in frequency, intensity, and magnitude over the past 20 years, with dire consequences for food and water security, energy resources, and livelihoods of rural communities.<sup>32</sup>



*"It's crucial for local and subnational officials to take the lead in implementing climate policy. To do so, they need tools to accurately monitor and report local climate action. This will prove crucial during implementation of the NDC."*

- Tawonga Mbale-Luka, Director,  
Environmental Affairs Department,  
Malawi

## Local action

More than 100 District Environmental Officers and other city government staff have been trained to collect and input data into the system using a standard template.

The new system serves to improve communication and cooperation among sectors – such as agriculture, forestry, and biodiversity – by standardizing data collection methods and setting nationwide guidelines.

It also allows users from the Central Government and District Councils to generate reports for a range of purposes, utilizing a vast array of datasets while feeding into project tracking to ensure efficient delivery. Meanwhile at the national level, the Environmental Affairs Department is more effectively able to back up data on District Level climate projects, with information available to inform policymaking, even when offline.





Country Experiences

## Rwanda: Data-driven NDC approaches at the district level



## Background

Led by the Ministry of Environment, Rwanda is taking a strong, data-driven approach towards analyzing GHG emissions and establishing NDC targets across a wide range of sectors.

One key aspect of the data management process has been an **online results-based monitoring and evaluation system** for tracking the performance of sectors and districts.

## Local action

Rwanda has recently upgraded the system's indicators and metadata to incorporate NDC indicators as they relate to national priorities – for example, the percentage reduction in GHG emissions from power generation, number of energy-efficient lights installed in buildings, number of electric vehicles, and percentage of households using off-grid and rooftop solar electrification.

With data collection and reports submitted at the sector and district levels, the Ministry of Environment has invested in training 42 District Environment Officers and Planners, from all 30 districts, in applying the new indicators and integrating the NDC into District Annual Action Plans.

For the first time, 2021-2022 District Annual Action Plans contain integrated NDC indicators.

In support of long-term sustainability, sectoral and thematic working groups have been established. The working groups convene regularly to validate district and sector data that is incorporated into key reporting to the UNFCCC, including GHG inventory National Communications reports and Biennial Update Reports.

Rwanda is highly vulnerable to impacts from climate change in part through its high dependence on rain-fed agriculture – the agriculture sector presently employing over 70 percent of the working population.<sup>33</sup>



An aerial photograph of a lush green mountain landscape. The foreground and middle ground are dominated by terraced rice fields, which are vibrant green and follow the contours of the hills. Several traditional wooden houses with dark, tiled roofs are scattered throughout the terraces. A narrow dirt path winds through the fields. In the background, a thick layer of white mist or low clouds fills the valley, partially obscuring the distant hills. The overall scene is peaceful and scenic, typical of rural Southeast Asian landscapes.

Part 3:

# Conclusion

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Photo: Ngoc Vuong



# Conclusion



Limiting the planet's warming to 1.5°C will remain beyond our reach unless we enact immediate and deep emissions reductions across sectors.<sup>4</sup> Unfortunately, in yet another dramatic call to action, the IPCC has highlighted that – based on an assessment of projected global GHG emissions in 2030 as referenced in the round of updated NDCs submitted ahead of COP26 – this 1.5°C goal is not likely to be achieved during the 21st Century.<sup>31</sup>

As the window of opportunity narrows, countries must explore all avenues to meet and continue to raise the ambition of their climate targets. They must maximize their potential and resources at all levels. And they must coordinate a whole-of-society response that integrates action from all quarters.

Incorporating a strong local, regional, and urban element in climate action offers many concrete benefits that are illustrated in the snapshots presented in this report. Notably:

1

Leaders at local, regional, and city levels play a critical role in connecting with and influencing their communities, often manifesting from a high level of trust.

2

Individuals and communities – including those most vulnerable to climate impacts and marginalized populations – can actively engage in climate action at a local level.

3

The NDC is a country's action plan to cut emissions and adapt and build resilience to climate impacts. NDCs cannot be a top-down process, rather they need to be integrated into local and subnational development plans to enable consistency, collaboration, and coherence across all levels of government for a more unified national vision.

4

Climate planning, including processes related to NDCs and NDC implementation strategies, must be inclusive and collaborative, capturing contributions from all levels including those most impacted by the climate crisis.

5

Cities, towns, and villages are complex systems where the changing climate can have cascading effects across sectors. An integrated, whole-of-government, whole-of-society approach to climate action maximizes the expertise and 'know-how' of local and regional experts.

6

Steering responses to the climate crisis with a strong data-driven foundation enables evidence-based decision-making, increasing transparency and accountability.



# Conclusion



From communities protecting fog oases for water harvesting in Peru, to provincial Drought Infohubs across Cambodia, to the piloting of Territorial Climate Plans in Côte d'Ivoire, some of the greatest sources of inspiration for bold climate action are coming from the local, regional, and urban levels. In partnership with a diverse group of partners – from governments, city authorities, local communities, and climate leaders at all levels – UNDP is supporting countries to more sustainably design and implement NDCs, striving to leave no one behind.

As highlighted in this report, countries and UNDP are working together to prioritize strengthening and integrating local expertise through the use of local policy tools for climate planning, to more impactfully inform decision-making. Climate-smart economic measures and technical innovation are taking center stage in the formulation of viable and ambitious climate strategies.

Local and regional action is a key component of newly revised NDCs with subnational governments working closely with their communities (inclusive of climate-vulnerable populations, women, youth, elderly, indigenous populations, and populations with disabilities) and joining forces with their respective national governments via meaningful consultation and strategic partnerships. Emphasis is also being placed on enhanced climate-related data management systems, providing a greater basis for evidence-based decision-making while enhancing transparency.

Under the Climate Promise, UNDP will continue to work with governments at all levels to unlock their potential.

**'From Pledge to Impact'**, there is no time to lose.

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