The European University Institute
Climate Adaptation Symposium

Adaptation to Climate Change

Financing and Delivery at the Local Level

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Acknowledgement

This presentation draws in the main on official documentation prepared by the EU, EIB and supporting agencies, which are too numerous to list. Key prevailing policy documents that I have attempted to paraphrase and condense, albeit at times somewhat clumsily, are identified and/or cited in the main body of the presentation. Supplementary reference material is then listed in the bibliography. Notwithstanding, it should be noted that any opinions expressed are my own and the usual disclaimers therefore apply.

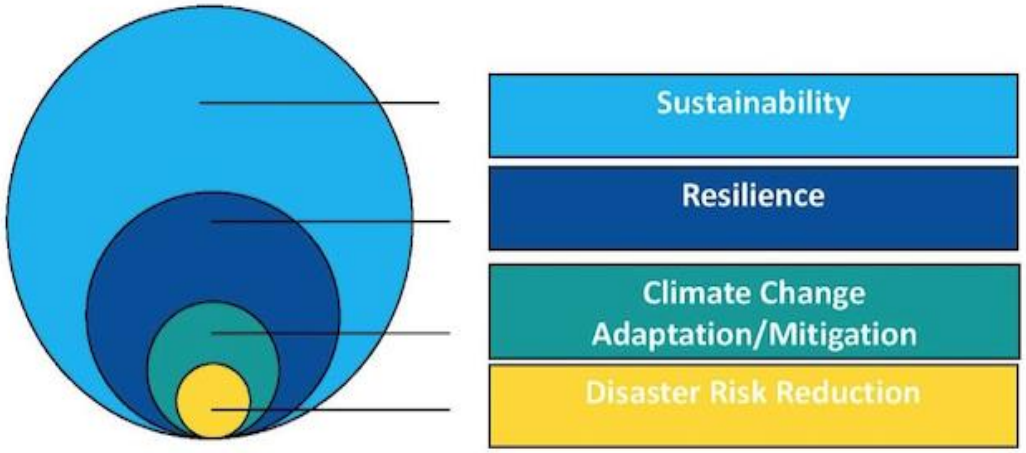
The Urban Condition

- **It is hardly hardly surprising that towns and cities have become the focus of so much attention. The most recent statistics from the United Nations Department of Economic and Social Affairs (UN DESA) suggest that 56 per cent of the world's population currently live in urban areas, a proportion that is expected to increase to more than 68 per cent by 2050, adding another 2.5bn urban dwellers.**
- **Although cities are in essence a positive manifestation of economic progress and development, because of their population concentrations they are also a significant source of contamination, pollution and waste, and therefore pose a significant environmental threat unless the pace and patterns of urbanisation are controlled and channelled appropriately.**

Risks and Vulnerabilities

- **Given current rates of urbanisation, cities will account for an increasingly large proportion (fast approaching 80 per cent) of global energy use and CO_2 emissions, providing an obvious rationale for focussing on cities in energy management and climate change mitigation and adaptation.**
- **Cities must necessarily play a pivotal role in the pursuit and delivery of more sustainable development and, to this end, improving the resilience of urban settlements and supporting infrastructure is seen as the pathway to sustainability (see Figure 1). The adoption of climate friendly planning regulations and the embedding of adaptation standards and resilience protocols is therefore a priority.**
- **Although policy makers appear to be most concerned with carbon emissions and extreme weather events, it is also important to consider resource scarcities in energy, water and food etc., as well as the need to safeguard natural habitats and biodiversity that are similarly threatened by the climate crisis.**

From Resilience to Sustainability



"Any money invested on risk reduction saves between 5 to 10 times the amount in economic losses from disasters" *Eric Schwartz, UN Secretary General's Deputy Special Envoy for Tsunami Recovery*

Source:
ICLEI
Local Governments for Sustainability

Figure 1. The Pathway to Sustainability is through Resilience

The Urban Challenge

- **The unfettered pursuit of economic growth and the more considered stewardship of our natural environment often make for uncomfortable bedfellows (see Figure 2). How do we address this perceived dichotomy and reconcile the need for economic progress and poverty alleviation with the need to avoid irreversible, costly, and potentially catastrophic environmental damage. As was suggested by the Club of Rome more than 50 years ago, there are limits to growth (see Figures 3).**
- **“Grow first and tackle environmental risks later” is no longer an option, given global population pressures, accelerating rates of urbanisation and natural resource depletion.**
- **Building resilience is about developing the capabilities of cities to respond to an almost perfect storm of the risks associated with depleting resources, damage to eco-systems and climate change.**

Growth and Environment

Source: The Economics of Ecosystems and Biodiversity (TEEB) (2010), 'Prevailing patterns of threat to human water security and biodiversity,' Nature (2010), Millennium Ecosystem Assessment (2005), Chris Skrebowski, 'Joining the Dots,' Energy Institute Conference (2004)

Figure 2. Uncomfortable Bedfellows

Source:

Atkins in partnership with

The Limits to Growth

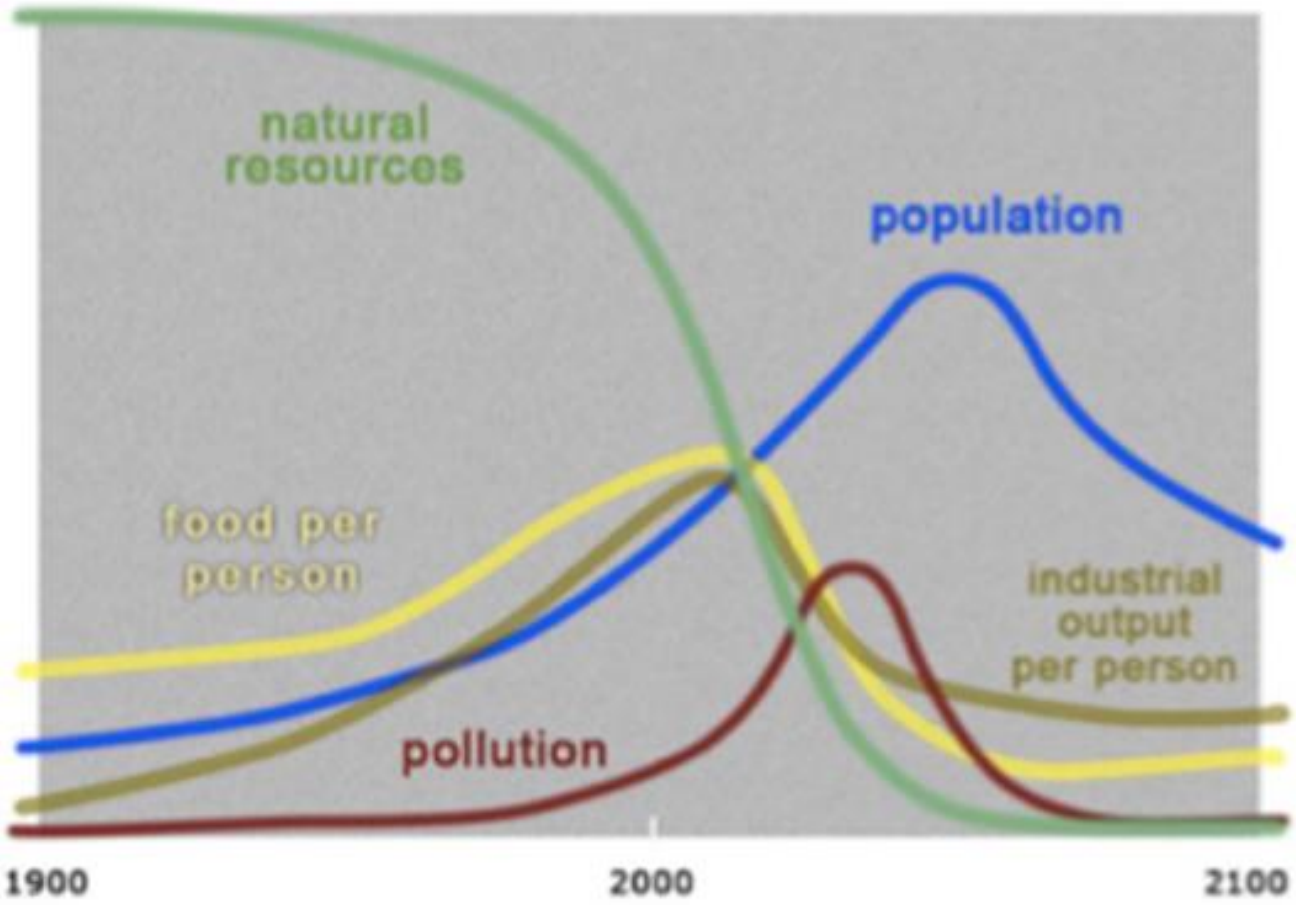


Figure 3. The Business-as-Usual Scenario

Source: The Limits to Growth after 50 Years, Club of Rome, Winterthur, Switzerland, 2022.

Cities as Systems

- As someone once said, “everything affects everything else”, and spatial planners have long promoted the idea that a “systems approach” should be deployed when addressing complex urban problems and issues.
- A system comprises a set of interconnected elements that interact and/or interrelate to a particular end. For a simple mechanical system, the nature and substance of such interaction is both known and measurable. For complex systems, however, outputs are not so easily predictable, although analysts can often make reasonable forecasts within defined boundaries.
- A city is a prime example of a very complex system that comprises numerous sub-systems such as transport, education, etc, and can be thought of as a system of systems, a term which itself can be expanded and pluralised to “system(s) of systems” to reflect the settlement pattern as a whole and the more general interactivity at the interface of the built and natural environments (see Figure 4).

System(s) of Systems

Figure 4. Interactivity of the Built and Natural Environments

Source: Stephan Passmore, The Ecological Sequestration Trust (extracted from an introductory lecture by Stephan to MSc students in the Bartlett School of Planning at University College London, 2023).

Integrated Planning

- **Viewing cities through the prism of systems dynamics reflects the broader emergence of a nonlinear way of understanding complex phenomena of many sorts and has obvious merit, not least because it obliges spatial planners and other public policy makers to deploy complexity theories and methods in their analytical endeavours.**
- **Disciplinary silos have long passed their sell-by date, and a systems approach necessitates more holistic and integrated assessment of risks, vulnerabilities and the resilience building capacities of cities in different urban settings.**
- **To enhance resilience and affect improvement in the socio-economic conditions of cities and communities, a more integrated approach to spatial development not only requires identification of the co-operating elements of infrastructure investment, but also better understanding of the interactivity with the social and human capital that should be developed simultaneously in the localites where applied. This is systems methodology.**

Urban Dynamics

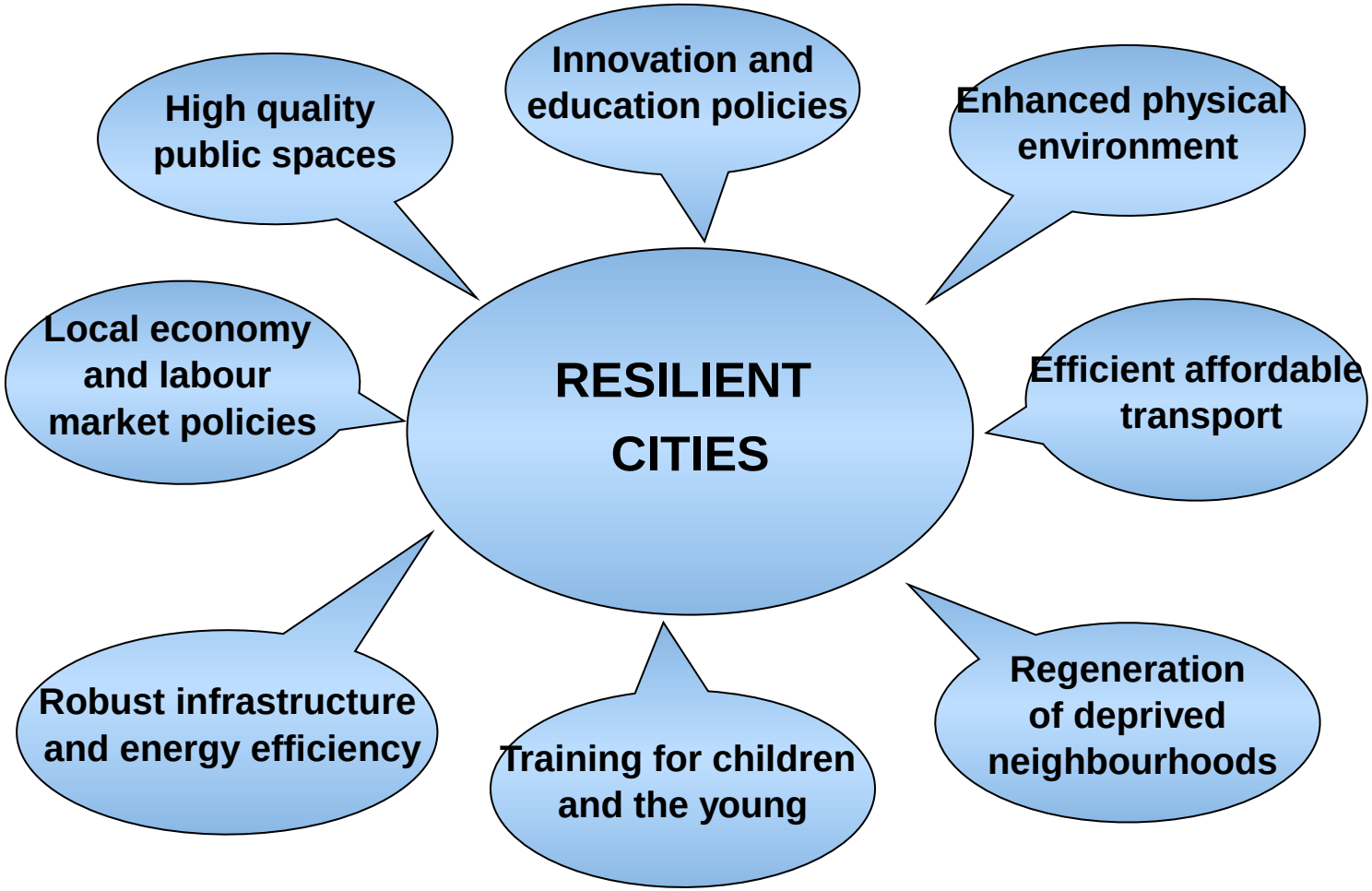


Figure 5. A Resilient City Schematic

Resilient Cities

- **Because the various risks that we face are multiple, interlinked and intensifying, they should not be looked at in isolation. Moreover, they are also manifest at different levels from the global to the regional and local. Only collective action that reflects such interconnectivity, and addresses the complexity of the associated systems dynamics at all spatial scales, will adequately deal with the catalogue of risks that amount to nothing less than a planetary emergency.**
- **At the urban level, there is clearly need for more detailed scrutiny and evaluation of the complex patchwork quilt of risks, vulnerabilities and capacities of different city types, as the building of more resilient cities has become something of a panacea. Not surprisingly, urban risk assessment and management has therefore developed into an important discipline in-its-own-right.**
- **Notwithstanding the call for more holistic analysis, the climate crisis perhaps poses the most important threat and addressing the ramifications of anthropogenic climate change is now at the forefront of the public policy agenda. Against this backdrop, climate change adaptation has become the most important instrument at our disposal in pursuit of the resilient city paradigm.**

EU Climate Policy

- **European Community climate policy was relatively modest in both scope and substance in the 1980s and early 1990s, but the EU started to make its presence felt following the signing of the Kyoto Protocol in December 1997, albeit that the latter only entered into force in February 2005 owing to the complexities of its ratification process.**
- **The Protocol sought to implement the United Nations Framework Convention on Climate Change (UNFCCC) objective to reduce the onset of global warming by reducing greenhouse gas concentrations in the atmosphere to a level that would prevent dangerous anthropogenic interference in the climate system. It was an essentially voluntary agreement based on common but differentiated responsibilities.**
- **In the absence of any legal obligations and/or sanctions for non-compliance, the Protocol's achievements were not surprisingly relatively modest. But it did serve as an important catalyst for more concerted action by the EU, which entered a more dynamic phase in climate policy at the beginning of the new millennium.**

EU Climate Policy cont.

- It has since established a policy framework, incrementally building a broad portfolio of measures and governance tools that have focused in the main on climate change mitigation, including targets to reduce greenhouse gas emissions, and policies addressing emissions trading, renewable energy, energy efficiency etc..
- Climate adaptation only entered the fray in any meaningful way in 2013, when the European Commission introduced the EU Adaptation Strategy. In the wake of increasingly frequent and extreme weather events, it set out mechanisms for taking EU preparedness for current and future climate impacts forward in a three-pronged strategy that sought to scale-up the Commission's adaptation response, whilst simultaneously improving the efficiency of its interventions by making them smarter and more targeted. The EU had clearly recognised its responsibility for mainstreaming adaptation measures to climate-proof EU action. Meanwhile. Member States were also encouraged to adopt National Adaptation Strategies.
- The European Council ratified the strategy, and in 2014 in anticipation of CoP21 also agreed to a revision of its emission targets for 2030.

EU Climate Policy cont.

- The Paris Accord was agreed by the Conference of the Parties at CoP21. It not only seeks to avoid dangerous climate change by limiting global warming to well below 2^0C and pursuing efforts to limit it to 1.5^0C, but for the first time the revised agreement also attributes the same importance to adaptation to climate impacts as it does to mitigation of climate change, including climate finance.
- In 2019, the European Commission published the European Green Deal (EGD), which seeks to push European climate policy beyond the incremental post-millennium interventions by establishing an overarching policy framework to achieve the goal of climate neutrality by 2050. Becoming climate-neutral means that EU Member States will have to drastically reduce their greenhouse gas emissions and find ways of compensating for any remaining and unavoidable emissions.
- Whilst the European Green Deal sets out the road map to achieve climate neutrality, the revised strategy also establishes legally binding targets that are enshrined in the EU's Climate Law, which includes the intermediate target of reducing net greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels. The concrete legislative arrangements for implementing the strategy are set out in the European Commission's 2021 publication "Fit for 55".

EU Climate Policy cont.

- In January 2020, the Commission presented the ambitious "Sustainable Europe Investment Plan" which aims to attract €1 trillion of public and private investment before the end of the decade to finance the Green Deal. Under the investment plan a "Just Transition Fund" has been incorporated to support regions and communities that are/will be most adversely affected by the green transition.
- The EU adaptation strategy was also revised and updated when in February 2021, the Commission adopted the communication "Forging a Climate Resilient Europe – the New EU Strategy on Adaptation to Climate Change", which outlines the long-term vision for the EU to become a climate-resilient society, fully adapted to the unavoidable impacts of climate change and its ramifications.
- In September 2021, the Commission set out its blueprint for reaching the 55% emissions' reduction target by 2030 and said at least 30% of the EU's €1.8tn (£1.64tn; $2.2tn) long-term budget would henceforth be spent on climate-related measures, including both mitigation and adaptation.

Leading by Example

The EU has undoubtedly played an influential role in the global development of climate policy, characterised by good example and soft leadership. Since the millennium, it has consistently been the pre-eminent force amongst the major international players pushing for the most far-reaching measures to mitigate climate change and, more recently, to encourage significant investment in adaptation and the building of more resilience to climate impacts.

Europe's Climate Bank

- The European Investment Bank (EIB) is the lending arm of the European Union, created by the Treaty of Rome. It is a not-for-profit organisation with its own legal personality, and although it is a European Union body it is not an EU institution per se. It is not under the jurisdiction of the European Commission and none of its funds come from the European Union budget. It is financially autonomous, has its own resources and raises funds independently through international capital markets.
- However, like any other business the EIB is beholden to its shareholders who just happen to be the Member States of the European Union. Its role is therefore to invest both through equity and debt solutions in eligible projects that achieve the policy aims of the European Union, and it does so through loans, guarantees and technical assistance.
- In November 2019, and in line with the political ambition behind the European Green Deal, the EIB Board decided to increase its climate and environment investment and support. Such ambition has far-reaching implications for the EIB Group, effectively transforming it from "an EU bank supporting climate action" into "the EU Climate Bank".

Two Key Dimensions

- **The decision of the EIB Board comprises two key dimensions. Firstly, the EIB will increase its level of support to the climate action incorporated in the Paris Agreement and the complementary environmental sustainability imperatives embodied in the UN's Sustainable Development Goals (SDGs) to exceed 50% of its overall lending activity by 2025 and beyond. This will help to leverage €1 trillion of investment by the EIB Group over the critical decade ahead, a level of commitment designed to accelerate the transition to a climate-neutral, climate-resilient and sustainable economy. Importantly, this includes a commitment for the proposal regarding a just transition.**
- **The second key dimension of the EIB Board decision is to ensure that "all financing activities are aligned to the goals and principles of the Paris Agreement by the end of 2020". As the EU Climate Bank, the EIB Group cannot support the Agreement with 50% of green finance if, at the same time, it undermines the goals with the remaining 50%. In line with the principles of sustainable finance, the EIB Group needs to ensure that all of its activities do no significant harm to the low-carbon and climate-resilient goals of the Agreement.**
- **A climate bank roadmap breaks down how the EIB Group intends to deliver on this commitment into four core workstreams as illustrated in Figure 6.**

The Climate Bank Roadmap

Figure 6. Four main workstreams of the Climate Bank Roadmap

Source: EIB Group Climate Bank Roadmap 2021-2025, European Investment Bank, Luxembourg, 2020.

EIB & Climate Adaptation

- In both reaction to the 2013 EU Adaptation Strategy and in anticipation of CoP21, the EIB launched its own relatively cursory adaptation plan, but its impact and results were less than impressive.
- Despite identification of the building of greater resilience to climate change as a key pillar of the Bank's Climate Strategy in 2015, an evaluation of EIB support for climate adaptation covering the period 2015 to 2020 by the Bank's own Evaluation Division concluded that "EIB's relatively low level of support for adaptation does not mirror the vision of the EIB as the EU Climate Bank as set out in the Climate Bank Roadmap".
- The key factors that can explain such an outcome are numerous and include both demand and supply-side considerations but, more importantly, the evaluation concluded that to achieve any meaningful increase in EIB adaptation activity requires changes in the Bank's business model and implies greater investment in its skills base, upstream engagement, and access to concessional finance or grants, as illustrated in Figure 7.

Evaluation Report Conclusions

Figure 7. Key Findings of the EIB Evaluation Report

Source: Evaluation of EIB Support for Climate Change Adaptation (2015-2021), European Investment Bank, Luxembourg, 2021.

EIB Climate Adaptation Strategy

- **In response to the Evaluation Report criticism and to more accurately reflect its "Climate Bank" ambitions, the EIB made significant amendments to its earlier documentation and published "The EIB Climate Adaptation Plan" in 2021, a revised version of the initial plan that more overtly supports both technically and financially the latest iteration of the EU Adaptation Strategy to enhance resilience to the impacts of the changing climate.**
- **As noted in the Plan's introduction: it builds on the previous five years of implementation of the EIB's 2015 Climate Strategy; it responds to the evaluation report's criticism of its adaptation activities and lays out the new ambition, goals and focus areas to ensure that EIB can fulfil its new commitments under the Climate Bank Roadmap; and it explains the steps envisaged for the period 2021-2025 to strengthen EIB's approach to supporting investment in adaptation and resilience both in the EU and globally.**

The Financial Commitment

- **Delivery of the EU Adaptation Strategy requires acceleration in the financing for adaptation, which in turn reflects the need to scale-up the level of finance per se. It also highlights the need to invest in a way that has most impact, addresses the most vulnerable sectors of the economy, and is equitable in providing benefits to those that have the least ability to adapt.**
- **In order to support this goal, the EIB has committed that it will by 2025:**

  - grow the share of EIB climate action for adaptation to 15% of the Bank's overall climate financing;

  - ensure high impact and both monitor and measure the results of adaptation finance through a series of dedicated and transparent indicators.

- **The 15% represents a significant increase in ambition. Over the 2012-2019 period, the average share of adaptation within overall EIB climate action financing was 4-5%. This increased significantly to reach 10% in 2020, reflecting stronger EIB internal capacity to screen projects for physical climate risk. The 15% target locks in the 2020 performance and extrapolates the trend in such improvement to 2025.**

Financial Commitment cont.

There are three points to note about the commitment:

1. **Adoption of the 15% target – a share within the Bank's overall climate action – does not change the EIB climate action target set out in the Climate Bank Roadmap. The adaptation target also doesn't necessarily imply less support for mitigation, given the possibility for projects to contribute simultaneously to both climate mitigation and adaptation. In any event, mitigation will remain the largest portion of EIB climate action.**
2. **The EIB will continue to track adaptation finance using the framework defined by the EU Taxonomy Regulation, which requires that all operations contributing to adaptation do no significant harm to climate change mitigation and to other environmental objectives described within the Regulation. In other words, EIB will only be providing support for assets that are consistent with the green transition pathway.**
3. **The Bank's objective to increase the impact of its adaptation support entails focusing on investments that offer the highest potential for reducing climate vulnerability and build greater resilience inside the EU and outside the Union (see Figures 8 & 9, and Figure 10 that focuses on investment priorities in the urban sector).**

EIB Support to Adaptation

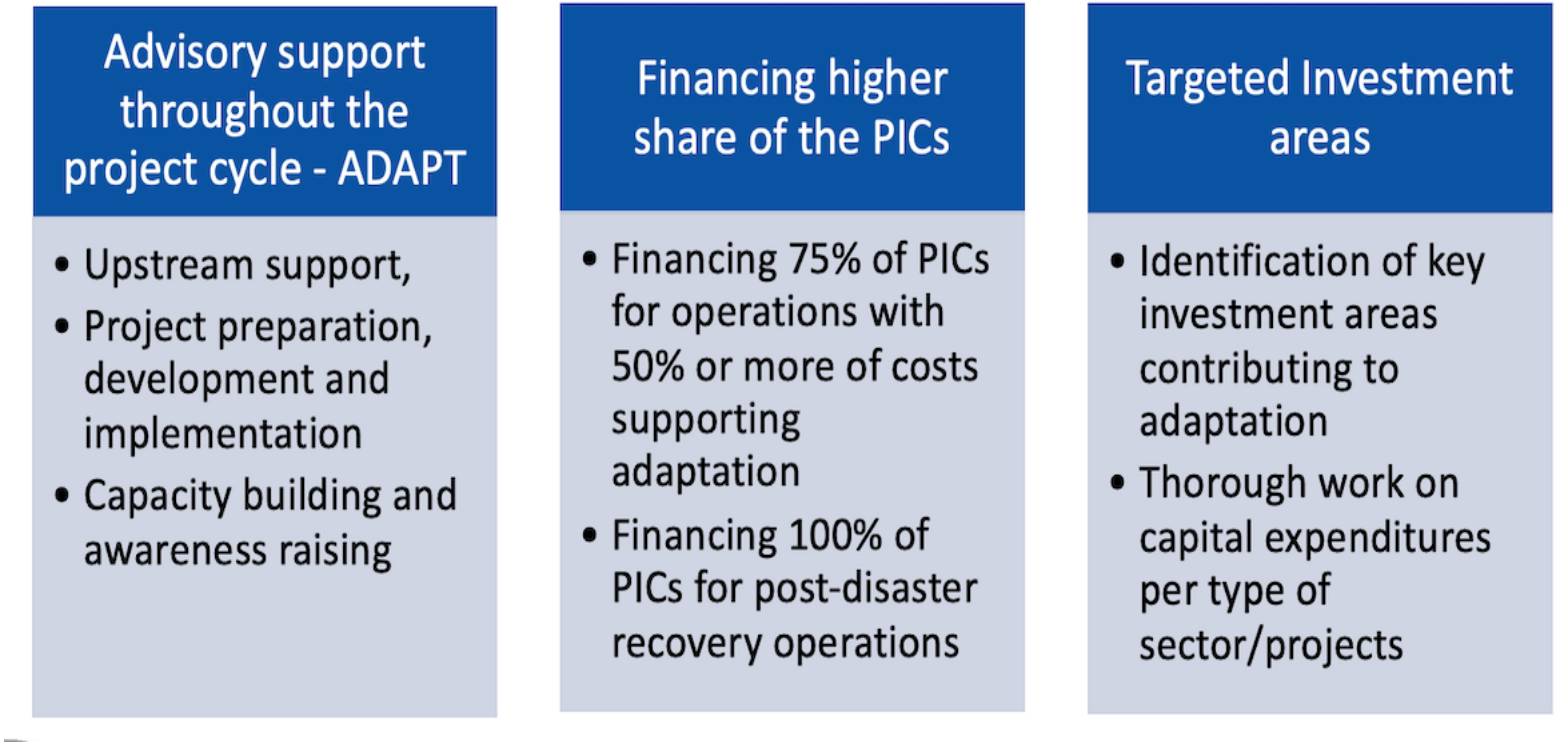


Figure 8. Value Added of EIB Support to Adaptation

Source: EU Missions – Adaptation to Climate Change, European Union, Brussels, 2022.

EIB Financing Instruments

Instrument	Key Features
Investment Loans	• Direct loan for a specific investment project or programme • Project cost usually > EUR 50m • All investment components appraised up front
Framework Loans	• Loan to a city or regional government usually > EUR 100m • Finances a 3-5 year investment programme • Multi-sector investments meeting defined criteria but not finally prepared at time of signing the loan
Intermediated Loans	• Implemented through a Financial Intermediary (FI) based on financing criteria agreed with the EIB • Option for financing smaller municipalities
Mandate management Financial Instruments	• Combining EIB resources and third party funds, including ESIF21-27 and RRF • Set-up and management of financial instruments (mandates) with EU and other funds

Figure 9. Key Features of EIB Financing Instruments

Source: EU Missions – Adaptation to Climate Change, European Union, Brussels, 2022.

EIB Investment Priorities in Urban Areas

1. Urban regeneration, water & stormwater management
   - Urban drainage
   - Water treatment and water supply infrastructure
   - Flood protection
   - Water efficiency and retention
   - Water regulation structures (levees & interconnected storage lakes)
   - Protection against salinity intrusion in water reservoirs
   - Measures to reduce urban heat island effects and exposure to waterborne diseases
2. Protecting urban infrastructure and buildings
   - Climate-informed urban design
   - Integrated urban planning,
   - Nature-based solutions: Rainwater gardens and harvesting, artificial lakes, permeable pavement, retention ponds, green corridors
   - Ventilation, shading and adaptation-sensitive infrastructure
3. Disaster risk management for anticipating and responding to extreme weather events
   - Prevention and preparedness for wildfires
   - Flooding and other extreme weather events
   - Forecasting, monitoring & warning systems
   - Facilities for training
   - Facilities for emergency management
   - Emergency services equipment

Figure 10. Investment Priorities in Urban Areas

Source: EU Missions – Adaptation to Climate Change, European Union, Brussels, 2022.

Current Status and Emerging Trends

- **Notwithstanding the rhetoric, the scale and substance of EIB's support for the EU's Climate Strategy is impressive, but is it enough? The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report released in 2022, with a final synthesis report published in March 2023, suggests that it might not be.**
- **Given an estimated climate sensitivity of 3^{o}C for each doubling of carbon dioxide in the atmosphere, the report develops a series of scenarios, so-called Shared Socioeconomic Pathways (SSPs), to determine warming thresholds (see Figure 11) and some of their possible consequences (see Figure 12).**
- **The report did not speculate on the probability of the respective scenarios, but SSP2-4.5 is considered the most likely. Unless there are drastic and more immediate cuts in greenhouse gas emissions than currently pledged, this suggests that the 1.5^{o}C threshold will be breached before 2040 and the 2^{o}C threshold before 2060, with warming at 3^{o}C or thereabouts by the end of the century.**

Current Status…cont.

SSP	Scenario	Estimated warming (2041–2060)	Estimated warming (2081–2100)	Very likely range in °C (2081–2100)
SSP1-1.9	very low GHG emissions: CO_2 emissions cut to net zero around 2050	1.6 °C	1.4 °C	1.0 – 1.8
SSP1-2.6	low GHG emissions: CO_2 emissions cut to net zero around 2075	1.7 °C	1.8 °C	1.3 – 2.4
SSP2-4.5	intermediate GHG emissions: CO_2 emissions around current levels until 2050, then falling but not reaching net zero by 2100	2.0 °C	2.7 °C	2.1 – 3.5
SSP3-7.0	high GHG emissions: CO_2 emissions double by 2100	2.1 °C	3.6 °C	2.8 – 4.6
SSP5-8.5	very high GHG emissions: CO_2 emissions triple by 2075	2.4 °C	4.4 °C	3.3 – 5.7

Figure 11. Shared Socioeconomic Pathways

Source: IPCC Sixth Assessment Report, 2022 (extracted from Wikipedia).

Current Status…cont.

Name of event	Climate in 1850–1900	1 °C warming	1.5 °C warming	2 °C warming	4 °C warming
1 in 10 years heatwave	Normal	2.8 times more often, 1.2 °C hotter	4.1 times more often, 1.9 °C hotter	5.6 times more often, 2.6 °C hotter	9.4 times more often, 5.1 °C hotter
1 in 50 years heatwave	Normal	4.8 times more often, 1.2 °C hotter	8.6 times more often, 2.0 °C hotter	13.9 times more often, 2.7 °C hotter	39.2 times more often, 5.3 °C hotter
1 in 10 years heavy precipitation event	Normal	1.3 times more often, 6.7% wetter	1.5 times more often, 10.5% wetter	1.7 times more often, 14.0% wetter	2.7 times more often, 30.2% wetter
1 in 10 years drought	Normal	1.7 times more often, 0.3 sd drier	2.0 times more often, 0.5 sd drier	2.4 times more often, 0.6 sd drier	4.1 times more often, 1.0 sd drier

Figure 12. Increase in Frequency and Intensity of Extreme Events with Global Warming

Source: IPCC Sixth Assessment Report, 2022 (extracted from Wikipedia).

Current Status…cont.

- Climate change is already with us and appears to be accelerating as “new normal” climate conditions not only cause chaos in our cities, but also threaten biodiversity and the resource base for healthy living. As I deliver this presentation, the latest figures from meteorologists are already suggesting that this is likely to be the warmest year on record. The evidence for anthropogenic climate change is everywhere and confirmed almost daily by the lived-experience of a planet in trouble, and we haven’t yet reached the 1.5^{o}C threshold.
- To keep below 1.5^{o}C, the IPCC suggest that even a global carbon budget of 500 billion more tonnes of greenhouse gas would need the whole world to be net zero before 2050. Difficult and almost impossible to achieve, me thinks! Meanwhile, even before reaching this threshold, any future warming will henceforth result in “an increasing occurrence of some extreme events unprecedented in the observational record”.

More Needs to be Done

- **The need to do more is self-evident. Whilst the efforts of the EU and EIB are praiseworthy, the other major players in the international community need to show more urgency and follow suit. Only a genuinely collective effort on a global scale is likely to yield the necessary progress when it comes to climate change mitigation.**
- **But adapting to climate change is in a sense more pressing, because it deals with immediate problems rather than planning for future eventualities. It addresses the unavoidable impacts of climate change that we are already experiencing and that are only likely to intensify. By building more resilience to minimise both the built and natural environments' vulnerability to inevitable climate change, it also buys time to see what can be achieved by way of mitigation. But perhaps most importantly, adaptation initiatives are in most cases delivered locally, at the national, urban or neighbourhood level, where even modest interventions can make a big difference.**

A Coherent Climate Strategy

- **Mitigating climate change and adapting to its ramifications are complementary components of a coherent climate strategy.**
- **To survive and thrive, there is not only need to limit the amount of global warming by reducing greenhouse gas emissions to meet global climate targets, but also to adapt to protect communities and ecosystems as the climate changes by enhancing the resilience of our built and natural environments. The more we can mitigate the less we will need to adapt. Mitigation and adaptation are both therefore necessary as society responds to the climate challenge.**
- **As far as adaptation is concerned, all proposed interventions should be planning-led, and there are certain good practice guidelines that should be followed to inform the preparation of National Adaptation Strategies, and more local adaptation plans for different and sometimes atypical spatial settings.**

Good Practice Guidelines

- **Spatial planning regulations and building codes should be amended to formally embody climate change adaptation protocols within their regulatory frameworks as a matter of course.**
- **Planning systems need to focus on improvement in the efficiency of settlement patterns in their respective jurisdictions by adopting land-use policies that that seek to improve the spatial distribution of activities to minimise energy demand, as well as more effective land-management policies in climate sensitive locales, in both cases supported by better hazard planning in the event of extreme weather or a climate related disaster.**
- **There is no one-size-fits-all solution for all urban settings, and there is clear need for more bespoke and integrated assessment of the risks, vulnerabilities, and capacities of different types of city when preparing their respective climate change adaptation plans.**
- **The focus should not only be on interventions that enhance resilience by reducing vulnerability to prevailing climate impacts, but also on building the capacity to act, especially in emergencies.**

Good Practice…cont.

- **Cities need to pay particular attention to critical infrastructure, including increasing investment in both hard infrastructure to manage risks such as flooding and improving the resilience of existing infrastructure with appropriate adaptations in the transport, energy, water, health and buildings sectors, supported by appropriate investment in maintenance and facilities management. When addressing perceived infrastructure gaps, cities should avoid locking themselves into maladapted development pathways that simply follow business-as-usual practice and replicate the failed policies of the past.**
- **Cities can draw on multi-facetted solutions, because almost all policies that tackle carbon emissions and prevailing climate hazards invariably respond positively to natural resource and eco-system risks, so synergies with nature-based solutions such as biodiversity strategy and the restoration of natural areas should be exploited to maximum advantage. Interventions that are inspired and supported by nature not only help build resilience but can also simultaneously provide significant environmental, social and economic benefits (see Figure 13).**

Nature-based Solutions

Figure 13. Solutions Inspired by Nature

Source: Stephan Passmore, The Ecological Sequestration Trust (extracted from an introductory lecture by Stephan to MSc students in the Bartlett School of Planning at University College London, 2023).

Good Practice…cont.

- To avoid accumulation of inappropriate and stranded assets, holistic action across multiple sectors that harmonises the adaptation policy response needs to strike a careful balance between long-term measures and those focused on more immediate climate hazards.
- Integrated spatial planning and land-use policies that channel development in ways that both contain and alleviate climate change impacts are clearly essential, and the deployment of more innovative financial instruments including the creative exploitation of public-private partnerships could unlock the necessary finance.
- Adaptation should not be seen as an end-state, but as a continuous process of improving our understanding and response to the impacts of climate change. The success of adaptation strategies and plans then depends on urban governance adopting a “whole city” approach to policy development and implementation of local adaptation processes, which in turn requires meaningful stakeholder engagement where local communities are afforded real opportunities to take ownership of their destiny (see Figure 14).

Managing Local Adaptation Processes

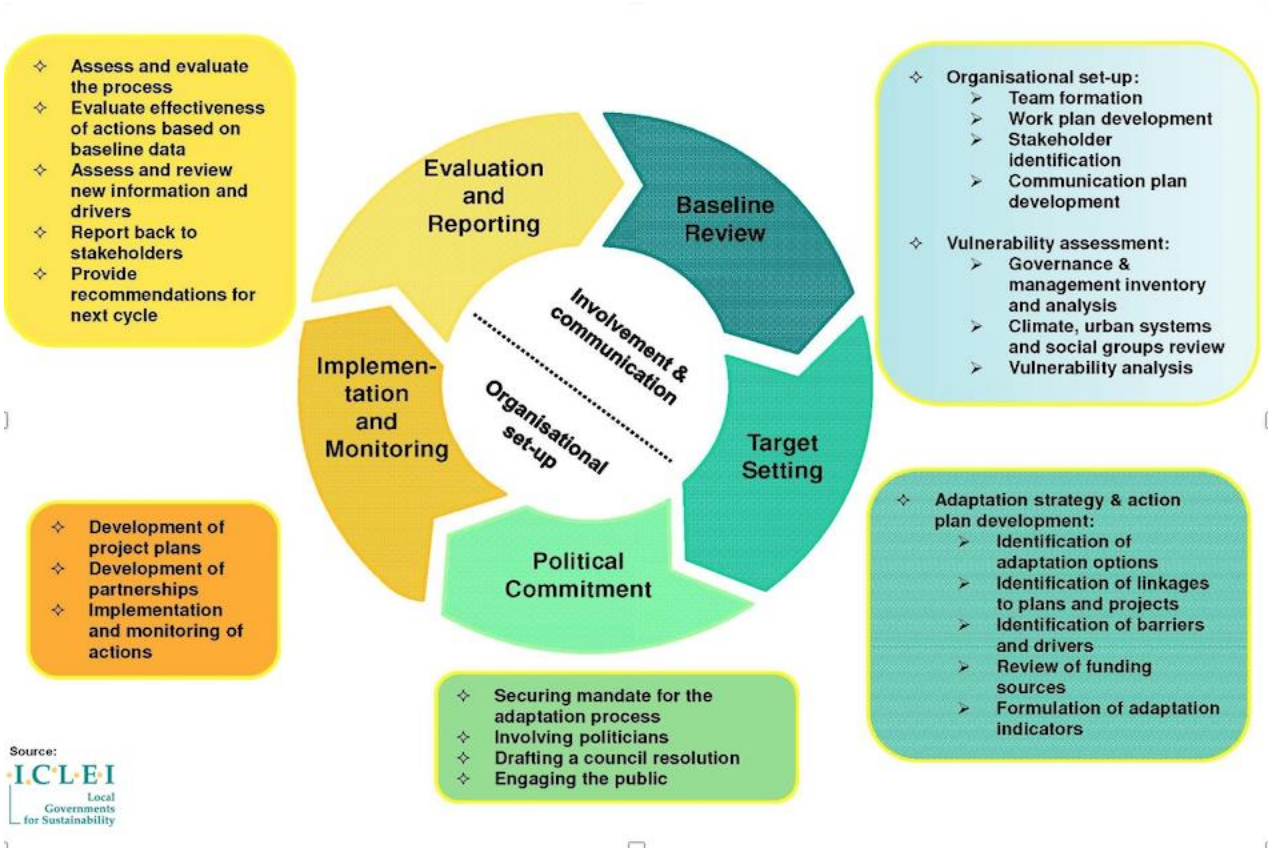


Figure 14. Integrated Management System for Local Adaptation Processes

Concluding Comment

Adapting to climate change has become a clear priority of EU climate policy, finally enjoying parity with the earlier mitigation focus on emissions reduction. Mitigation and adaptation are now viewed as complementary components of an integrated strategy designed to deliver a climate resilient Europe by 2050 that is fully adapted to the unavoidable impacts of climate change. But whilst mitigation addresses the root cause of the climate problem and clearly calls for action on a global scale, adaptation deals with the effects of climate change and vulnerability to prevailing climate impacts that are invariably experienced locally. Effective adaptation policies therefore depend on understanding the local context of vulnerabilities, which necessarily calls for more targeted and geographically-specific interventions in disparate urban settings. When it comes to climate change policy, rarely has the popular and oft quoted adage "think globally, act locally" seemed more appropriate.

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