

Unlocking the inclusive growth story of the 21st century

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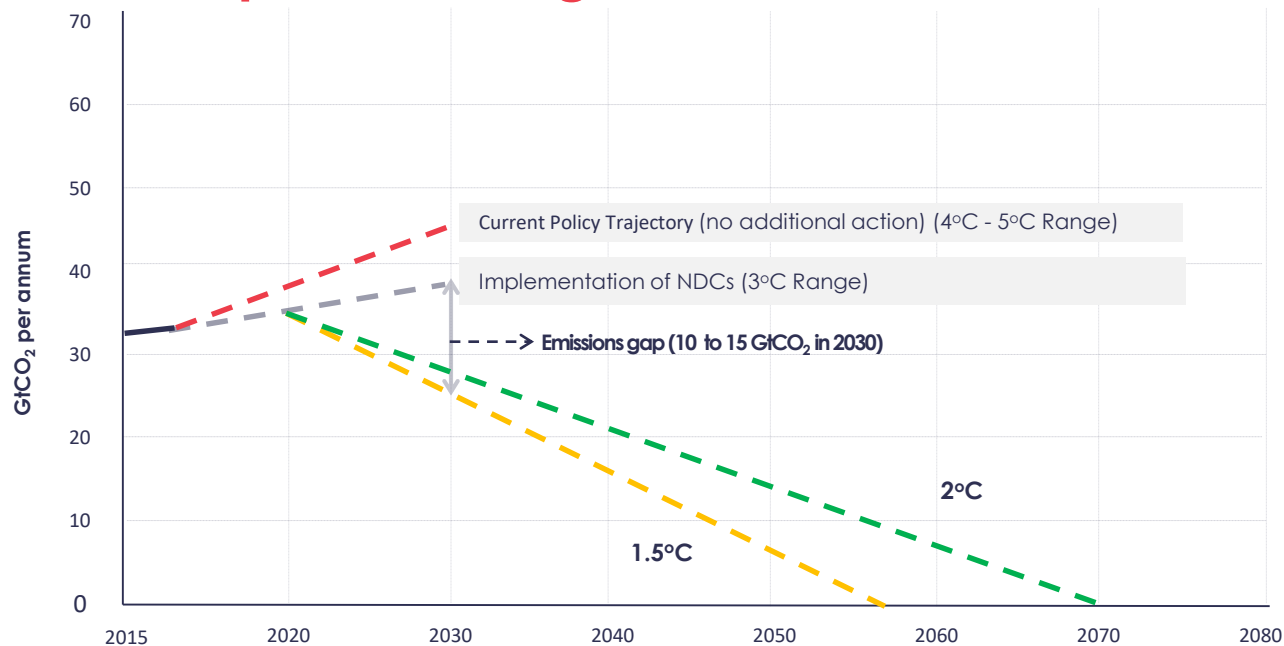
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Structure

- **Urgency and scale**
- Inclusive growth
- Fostering and managing an inclusive transition

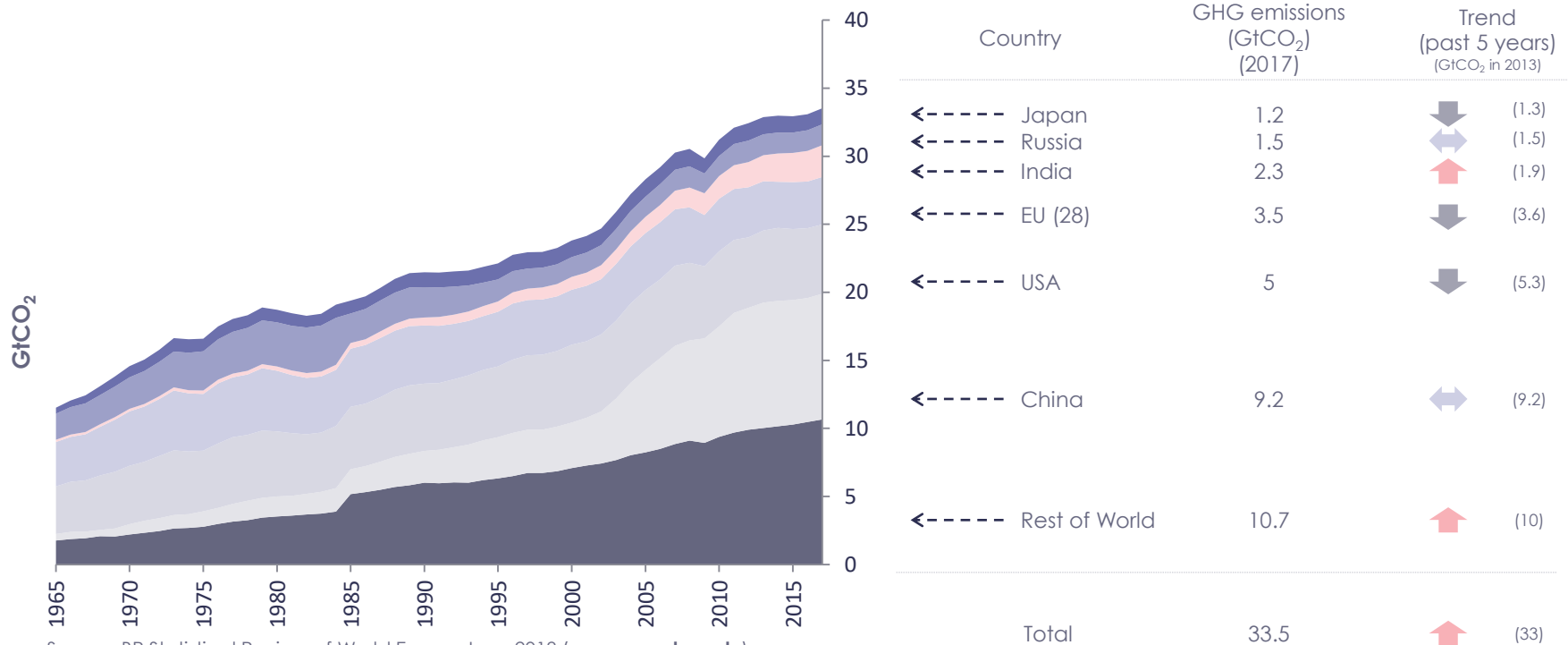
Large gap between current COP21 NDCs and what is required to reach the Paris temperature targets



Source: authors based on UNEP (2017) and Le Quere (2017)

The challenge is now to accelerate action to 2030 to close the gap. Requires immediate action across whole economy. Must peak emissions in next few years and go to “net zero” in next 50-60 years.

Global emissions are slowing down, but not fast enough

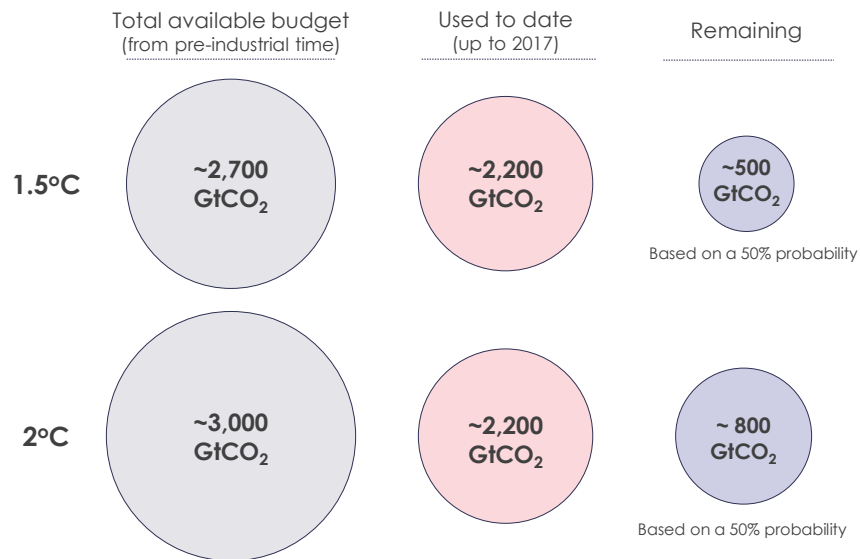


Source: BP Statistical Review of World Energy June 2018 (energy sector only)

Worrying increases in 2016 and 2017, EU, US falling, China plateauing.

Any further delay in decisive action is dangerous, the window for making the right choices is uncomfortably small

Global Carbon Budget for Paris Targets



Source: IPCC Special Report on 1.5°C (2018) and IPCC (2016)

- Any further delay in ambitious action is **a profound mistake**:
 - The “**ratchet effect**” from flows of GHGs to concentrations (CO₂ hard to remove).
 - Rapid urbanisation and building of infrastructure**, driven by middle income countries in the developing world.
 - Dangers of “locking in”** long-lived high-carbon capital/infrastructure. This involves either commitment to high emissions or early scrapping of capital/infrastructure.
 - Potential devastating impacts** on ecosystems, biodiversity, forests, water, air quality; possibility of reaching **irreversible tipping points**.

Delay increases reliance on unproven future technologies (e.g. negative emissions) or more ambitious action in future (politically feasible?)

Climate change differs from problems of the past and creates four major difficulties for public understanding and collective action

Immense scale of impacts

- Water inundation (sea level rise);
- Desertification.
- More frequent and intense extreme weather events (hurricanes, floods, heatwaves).
- Mass migration and conflict.

Redefines where people can live.

Large risk/uncertainty

- 3°C not seen for around 3 million years.
- 4 or 5°C not seen for tens of millions of years.
- Climate history tells us that major transformations are likely: where and how we can live.

Difficult to predict when and where impacts will occur.

Long lags in consequences

- Accumulation of emissions to GHG concentrations and effects on climate take time to appear;
- Gradual changes until tipping points reached (large-scale forest die-back, ocean currents shut down, melting permafrost...).

Tipping points are potentially irreversible.

'Publicness' of the causes and effects

- It is the sum of all emissions that matter, some are more responsible and some less.
- They all contribute irrespective of when or where they occur.

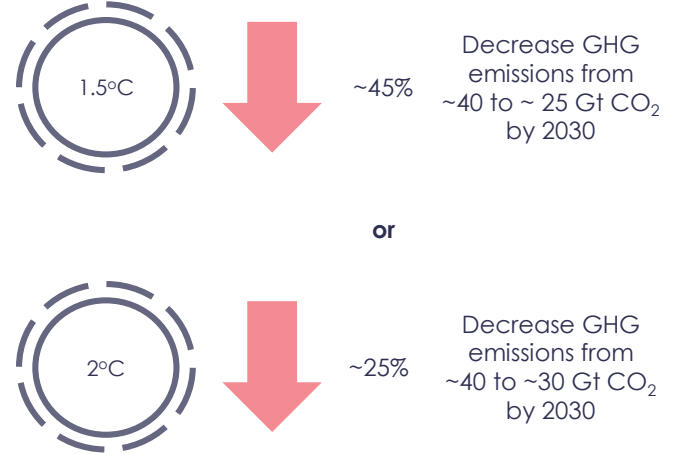
"greatest market failure the world has ever seen" (Stern Review, 2006).

Urgency: next decades are critical in establishing low-carbon development, growth and poverty reduction

Change in the next decades



At the same time (to meet Paris targets)

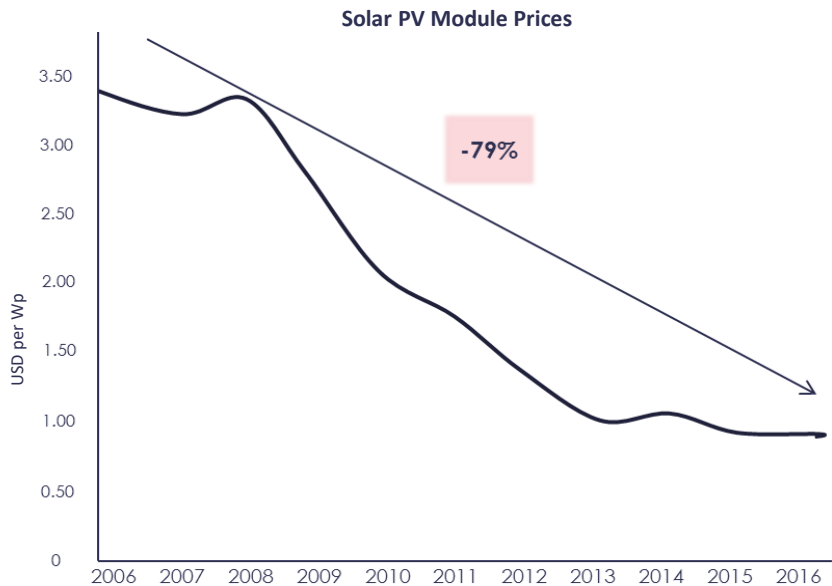


The next decade is critical. Choices made on infrastructure and capital now will either lock us in to high emissions, or set us on a low-carbon growth path which can be sustainable and inclusive. Cities are central.

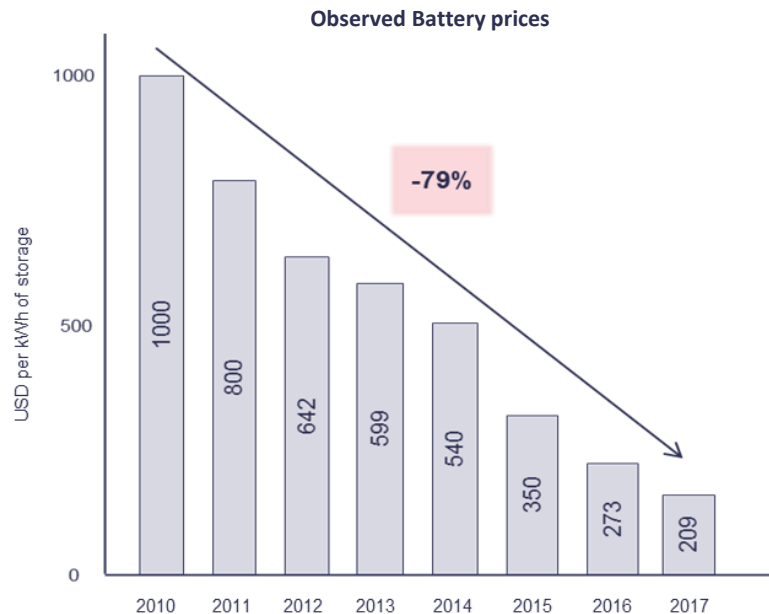
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The notion “costs of action” is being transformed by rapid technological advances and cost reductions



Source: EIA, 2017



Source: Bloomberg New Energy Finance, 2017

Renewables with storage now competitive in power in many parts of the world.
Capital costs for renewables continue to fall much faster than those for conventional technologies.

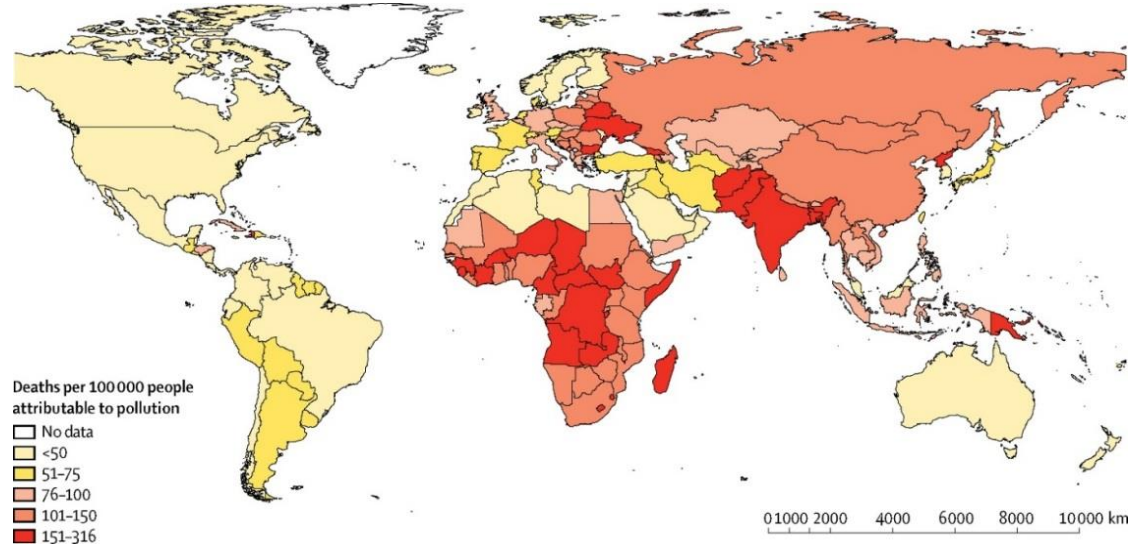
It is now technically possible to decarbonise all sectors (including hard-to-abate), at a reasonable cost, to reach net-zero emissions in time for Paris commitments; combine three routes

Route	Decarbonisation option	Example
	Reducing demand for carbon-intensive products and services (circular economy and model shifts/logistics)	A more circular economy can reduce CO2 emissions from four major sectors (plastics, steel, aluminium and cement) by 40% globally
	Improving energy efficiency across the economy	A combination of greater logistics efficiency and modal shift (trucking to rail, short haul aviation to high speed rail) could lead to 20% reduction in CO2 emissions
	Deploying a range of decarbonisation technologies across sectors: <ul style="list-style-type: none">• Increase electrification using renewable energy sources• Deployment of CCS for industrial sectors• Use of alternative fuel sources where cost effective and sustainable (biomass and hydrogen)	Increase electrification to account for ~65% of final energy demand, supplied by: <ul style="list-style-type: none">• 85 – 90% from renewable energy• 10 – 15% biomass or fossil fuels (with CCS)

Source: Energy Transition Commission (2018)

Air pollution is one key side-effect of burning fossil fuel emissions - it costs millions of lives and more than 5% of GDP per year

- Air pollution is responsible for 6.5 million (72%) of 9 million deaths per year from all types of pollution (The Lancet, 2018).
- Pollution-related diseases are highly concentrated among infants and young children, reflecting the many years of life lost with each death and case of disabling disease of a child (Ibid.).



Source: The Lancet (2018)

Moving beyond 'the costs of action'. The growth story of the 21st century is strong, sustainable, and inclusive

5 - 10 years



Investment in sustainable infrastructure can boost shorter-run demand and growth, sharpen supply, reduce poverty and support sustainable development.

>10 years



Spur innovation, creativity and growth in the medium term, unleash new waves of innovation and discovery.

>20 years



Low-carbon is the only feasible longer-run growth on offer; high carbon growth self destructs.

The next 10-15 years are a unique "use it or lose it" moment. Seizing the benefits will only be possible if we act boldly over the next 2-3 years.

We have in our hands a new and very attractive way forward, the growth story of the 21st century.

Structure

- Urgency and scale
- Inclusive growth story
- **Fostering and managing an inclusive transition**

Three forces present us with a special opportunity to deliver on the global agenda and seize the growth opportunities



Historically **low interest rates**
and no shortage of global
savings.
Search for growth.



Rapid technological change
and falls in cost
(digital, materials, biotech...)



International agreements have
provided political direction and
evidence that collaboration is possible
and will continue

Seizing the opportunity requires a radical change. Most of what we currently do will have to be done differently (technologies, institutions, business models, city planning processes, natural resource management...)

Actions in five key sectors can unlock investment, growth and sustainable development

Energy

- Raising revenue by pricing carbon and eliminating fossil fuel subsidies
- Saving energy through greater energy productivity
- Supporting energy access through distributed renewable energy

Cities

- Well managed densification to revitalise cities
- Sustainable and affordable housing for urban poor
- Shared, electric, low carbon transport

Food and land use

- Avoiding deforestation and degradation of forests
- Scaling up landscape restoration
- Implementing climate-smart agricultural approaches
- Supporting better food consumption patterns and reducing waste

Water

- Sustainable and equitable water allocation
- Target investment in resilient water and sanitation infrastructure

Industry, Innovation and Transport

- Focus on energy efficiency, resource efficiency, and decarbonisation in heavy industry
- Reduce emissions from the plastics value chain
- Develop low-carbon solutions for heavy-duty transport
- Increased support for innovation and deployment



Generate over
65 million
additional low-carbon
jobs



Make available
US\$ 2.8 trillion
from carbon pricing
revenues and removing
fossil fuel subsidies



Avoid
700,000
premature deaths
from air pollution

Source: New Climate Economy, 2018

Quality and quantity of investment required will be determined by sound policy and government direction

Market Failure	Description	Policy Options
Greenhouse gasses (GHGs)	Negative externality because of the damage that emissions inflict on others.	Carbon tax/ cap-and-trade/ regulation of GHG emissions (standards)
Research, development and deployment (R,D&D)	Supporting innovation and dissemination.	Tax breaks, support for demonstration/deployment, publicly funded research.
Imperfection in risk/capital markets	Imperfect information assessment of risks; understanding of new projects/technologies.	Risk sharing/reduction through guarantees, long-term contracts; convening power for co-financing.
Networks	Coordination of multiple supporting networks and systems.	Investment in infrastructure to support integration of new technologies in electricity grids, public transport, broadband, recycling. Planning of cities.
Information	Lack of awareness of technologies, actions or support.	Labelling and information requirements on cars, domestic appliances, products more generally; awareness of options
Co-benefits	Consideration of benefits beyond market rewards.	Valuing ecosystems and biodiversity, recognising impacts on health

Different market failures point to the use of different instruments, but the collection should be mutually reinforcing.

Government-induced policy risk is the biggest deterrent to investment worldwide. Policies must be credible over time; 'predictably flexible'

Carbon pricing revenues can play a key role to support and finance the transition

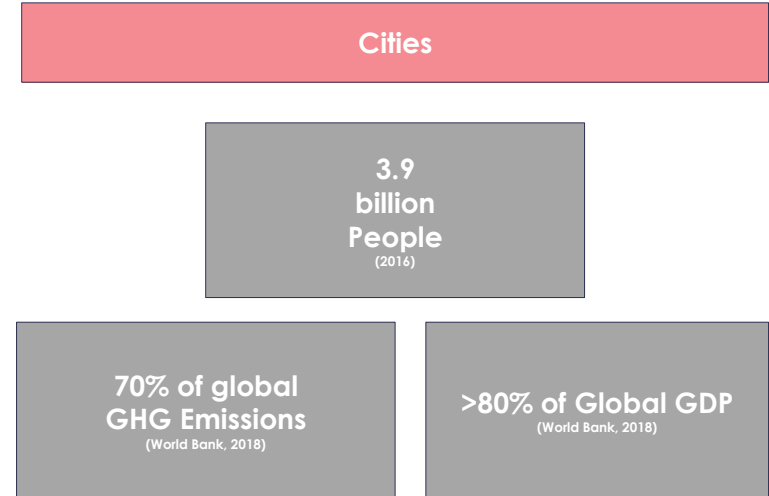
Option	Description
General government budget	Raises additional revenue for government policy priorities (e.g. education, health, security, social benefits...)
Revenue neutral– households	Reduce burdens for households/consumers through reducing income taxes, sales taxes or direct returns of revenue (including lump-sum transfers).
Revenue neutral – firms	Reduce costs for firms exposed to price effects, for example support for emission-intensive sectors or trade exposed firms (e.g. grandfathering, free tax allowances) or provide support for firm activities (e.g. energy efficiency, new technology, process improvements...)
Allocation for 'green' purposes	<ul style="list-style-type: none">• Finance 'green' initiatives, e.g. recycling/re-using; land rehabilitation; housing retrofits etc.• Support for research and development• Investment in sustainable infrastructure (e.g. public transport, renewable energy), including programme design, project preparation and risk management.
Support for developing countries	Provide additional support for developing countries to finance sustainable development (SDGs) and climate action (Paris Agreement). Could be via either bi-lateral development institutions or multilateral development banks (MDBs). See High-level Panel on Climate Change Finance (2010).

Prices should reflect costs, not pricing something that is damaging is a subsidy. Potential for carbon border adjustments if pollution remains unpriced.

Potential to utilise a mix of revenue-use options to promote a mixture of policy goals and objectives.

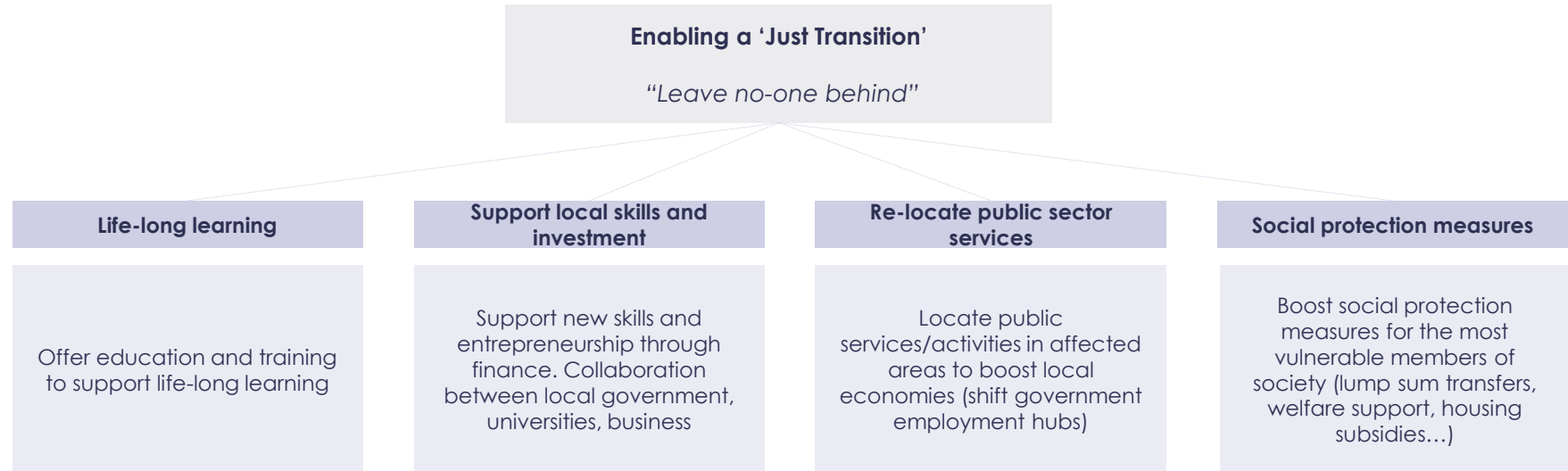
Cities are a prime source of emissions and key to enabling a just transition

- **By 2050, an extra 3 billion people could live in cities.** Well placed to implement and benefit from strong action:
 - Dynamic source of the spread of ideas and innovation (accumulation of knowledge, ideas and skills, collaboration)
 - Physical shape of city determines behaviours, and efficiency of resource use (transport, waste, energy)
- If badly planned they can lead to congestion, waste and pollution, or increased exposure to climate change risks (floods, droughts, heat stress).



The direction and nature of economic development matters, and it makes sense to tackle climate risks in tandem with development planning and investment decisions.

How the zero-carbon transition is managed will be central to building the consensus for strong, sustainable action



A 'just transition' is about more than just managing a zero-carbon transition, it will be necessary for other large changes in economic structures: shift to services, labour-saving technologies, globalisation... all have to be managed together. The global financial crisis and inequality have made the problem more severe.