Introductory speech

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Greener Finance for **Sustainable Future**

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Introductory speech

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Greener Finance for **Sustainable Future**

Climate Risk, Growth Opportunities, Public Policy and Finance

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Greener Finance for **Sustainable Future**

Climate Risk, Growth Opportunities, Public Policy and Finance

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October 2019

Grantham Research Institute on Climate Change and the Environment

Centre for Climate Change Economics and Policy

THE NEW CLIMATE ECONOMY
The Global Commission on the Economy and Climate

E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

The Grantham Foundation for the Protection of the Environment

UNIVERSITY OF LEEDS

LSE THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

Structure

- **Why climate change is different: scale of risks, magnitude of change, and dangers of delay**
- Unlocking the growth opportunities of the 21st century
- Finance challenge: shifting the financial system to focus on sustainability
- Policy challenge: moving beyond incremental action to fundamental transition
- Conclusion: The next 10 to 20 years are of critical importance

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

Immense scale of impacts	Large risk/uncertainty	Long lags in consequences	'Publicness' of the causes and effects
• Water inundation (sea level rise); • Desertification. • More frequent and intense extreme weather events (hurricanes, floods, heatwaves). • Mass migration and conflict.	• 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.	• 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…).	• 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.
Redefines where people can live.	**Difficult to predict when and where impacts will occur.**	**Tipping points are potentially irreversible.**	**"greatest market failure the world has ever seen" (Stern Review, 2006).**

Uncertainty and 'publicness' of the causes might suggest delay to learn more, this would be a profound mistake. Delay risks locking us in to future high emissions (e.g. infrastructure), it increases reliance on unproven future technologies (e.g. negative emissions) or requires more ambitious and urgent action in future (politically feasible?)

The impacts could be devastating, many are being felt now

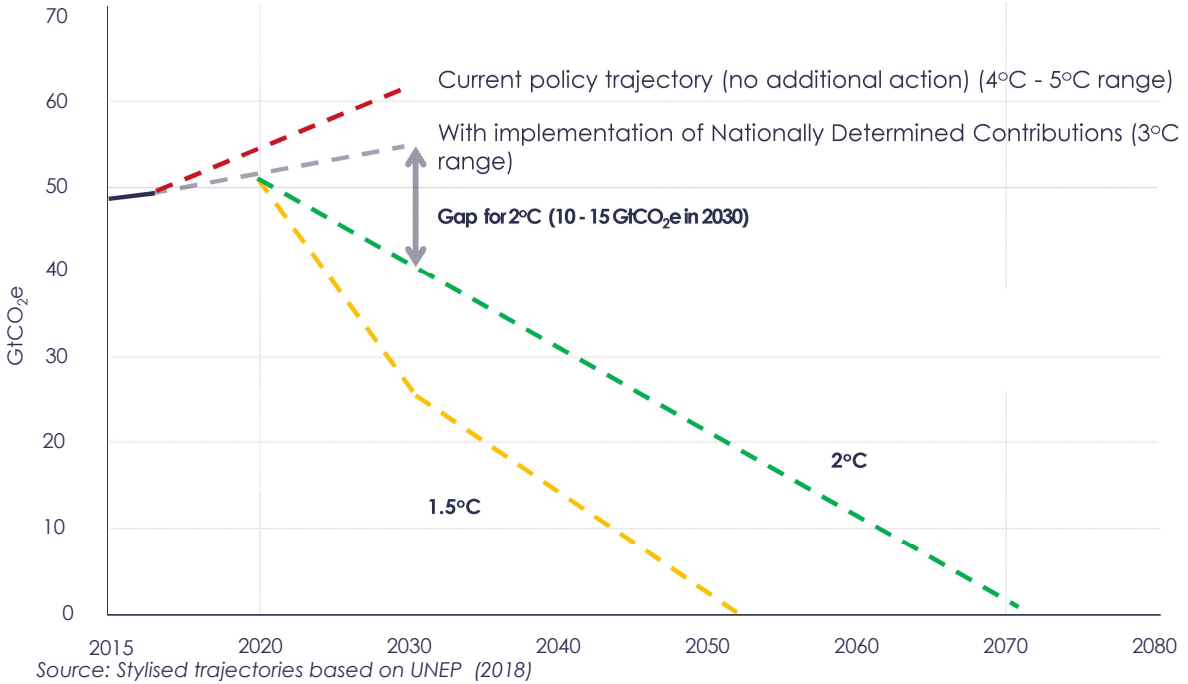
	1.5°C	2°C
Extreme Heat (Global pop. exposed to severe heat at least once every 5 years)	14%	37%
Frequency of rainfall extremes (land)	17%	36%
Average drought length (months)	2	4

Source: IPCC (2018) and WRI (2018)

Differences between 1.5°C and 2°C are major. Current Paris COP21 plans for 2030 look like paths headed for 3°C and above over the next century or so.

Have not seen temperatures above 3°C for around 3 million years; hundreds of millions, perhaps billions, would have to move. Risks of severe and extended conflict.

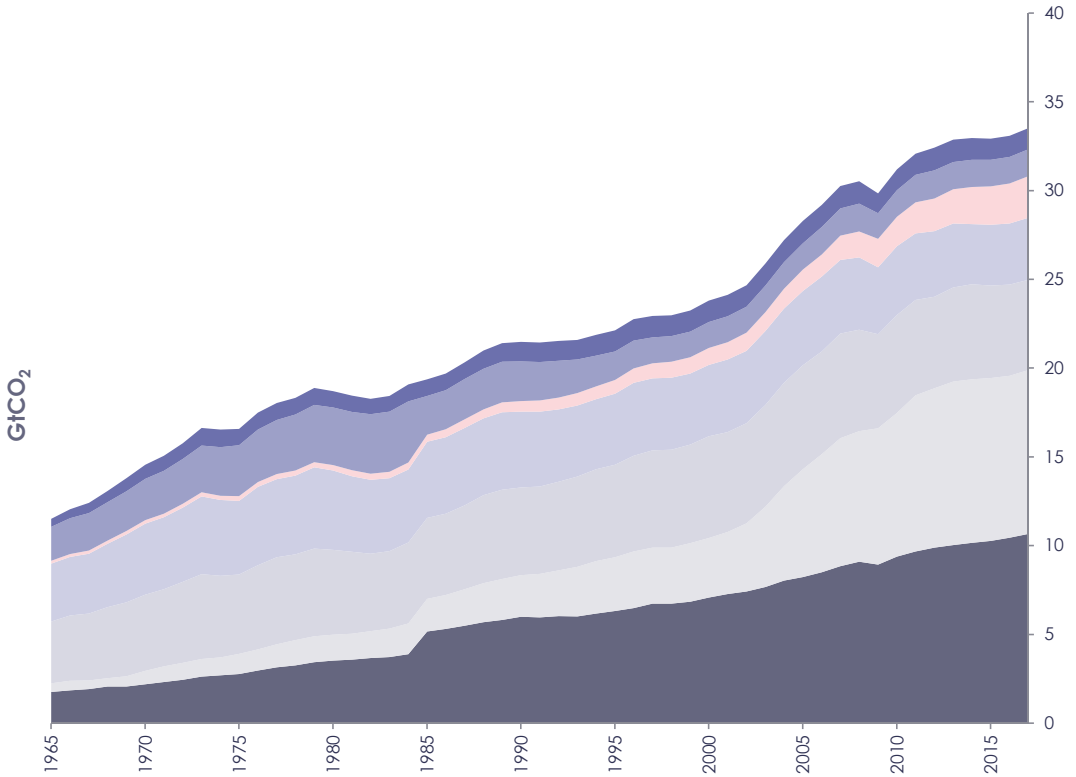
Currently a large gap between current COP21 NDCs and what is required to reach the Paris temperature targets



Source: Stylised trajectories based on UNEP (2018)

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 need start decreasing now



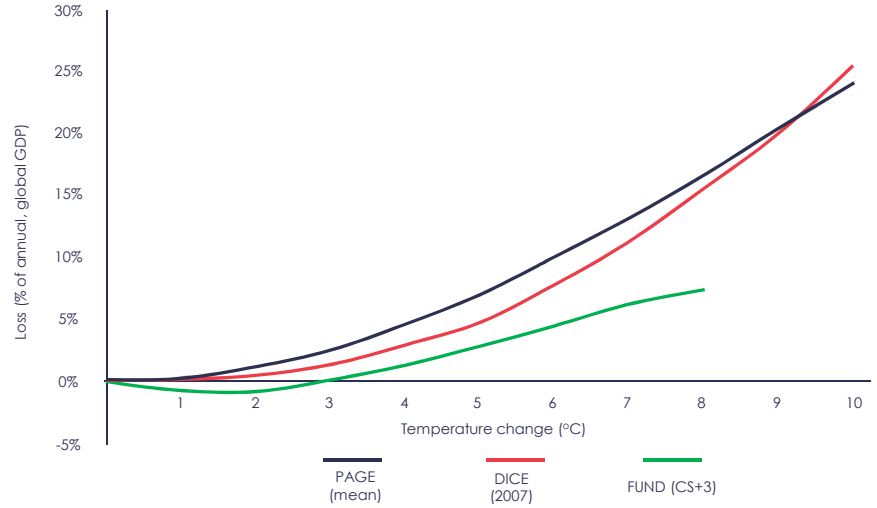
Country	GHG emissions ($GtCO_2$) (2017)	Trend (past 5 years) ($GtCO_2$ in 2013)
Japan	1.2	(1.3)
Russia	1.5	(1.5)
India	2.3	(1.9)
EU (28)	3.5	(3.6)
USA	5	(5.3)
China	9.2	(9.2)
Rest of World	10.7	(10)
Total	33.5	(33)

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

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

Current models of climate change misrepresent the scale, urgency and opportunities of climate action

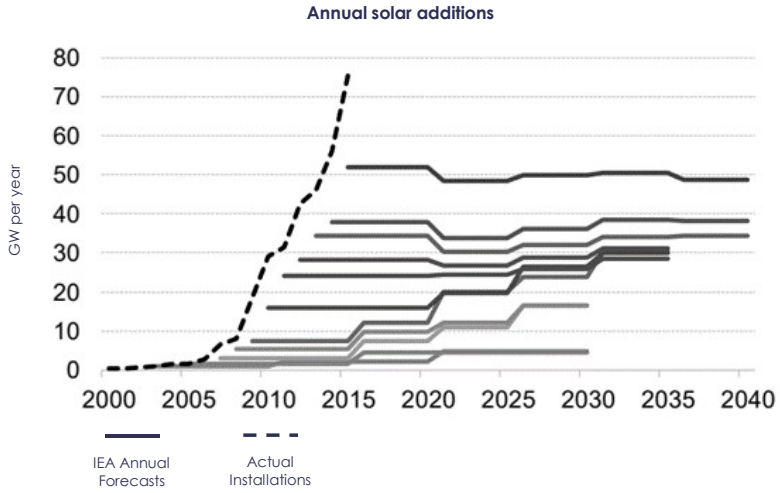
Damage functions



Source: Recreated from the Interagency Working Group on Social Cost of Carbon, United States Government (2010)

Potential impacts and risks (e.g. submergence of large areas, desertification of others, migration, conflict…) are at a scale not before seen and not consistent with long-run, continuous growth or current economic structure. They are rarely included in current impact assessment models.

Dynamic effects of systemic change



Source: BNEF (2018)

This under-estimation of the pace of technology advancement, costs reductions, co-benefits, positive spill overs leads to an over-estimation of the 'costs of action'.

The missing risks, assumptions or shortcomings result in the downplaying of the immense shocks climate change, as well as underplaying the enormous benefits, to lives and livelihoods. Contributes to a delay in action from policy makers, or suggestion of marginal changes.

Structure

- Why climate change is different: scale of risks, magnitude of change, and dangers of delay
- **Unlocking the growth opportunities of the 21st century**
- Finance challenge: shifting the financial system to focus on sustainability
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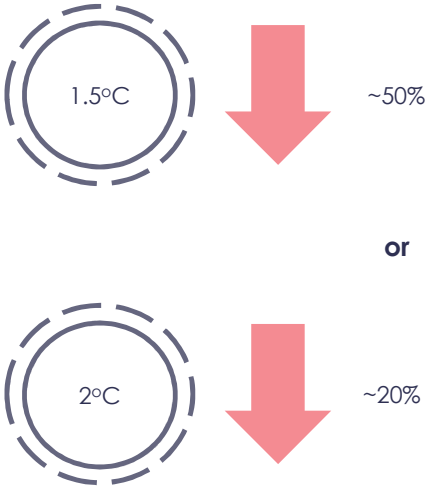
- Conclusion: The next 10 to 20 years are of critical importance

Urgency of the next decades, decisions made now are critical in establishing low-carbon development, growth and poverty reduction

Change in the next decades

15 years	Infrastructure		2x	Investment of approximately US$ 90 trillion.
20 years	GDP		2x	Growth of approximately 3% per annum. Led by emerging and developing countries.
40 years	Urban Population		2x	Urban population will double in 40 years, Towns and cities shaped in the next 20.

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.

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

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

By 2030

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

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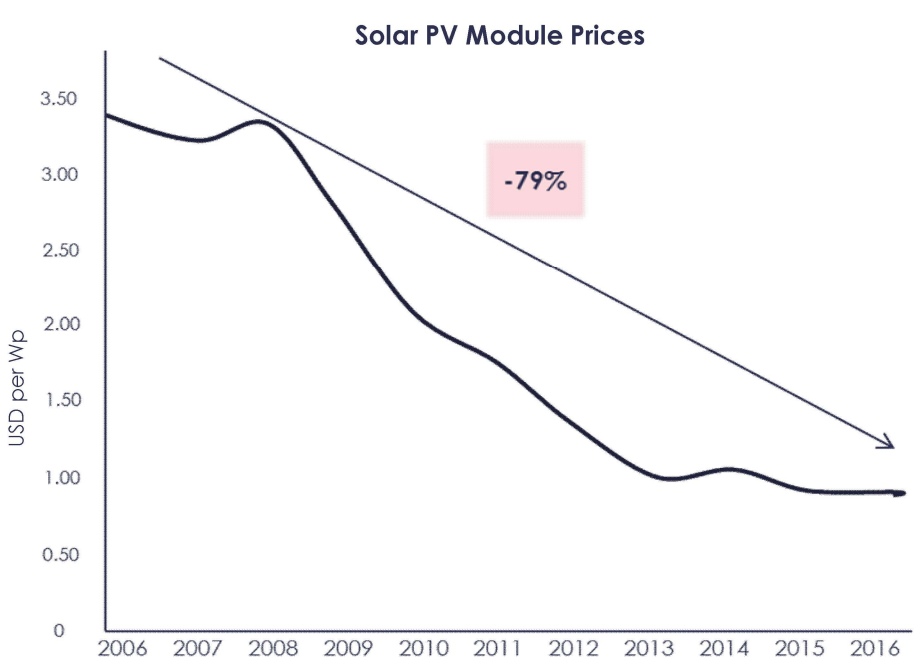
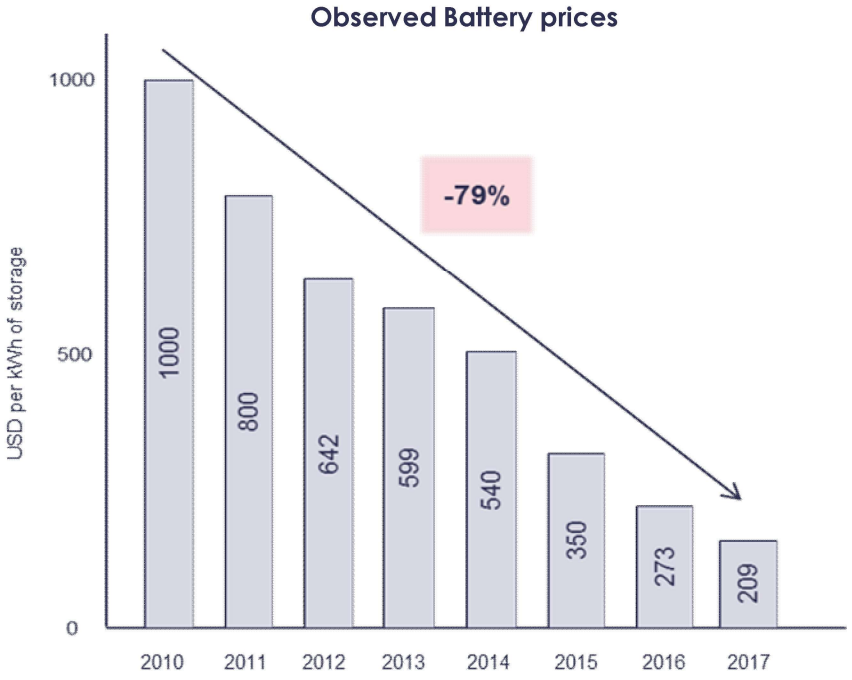
The notion “costs of action” is being transformed by rapid technological advances and cost reductions



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
1	Reducing demand for carbon-intensive products and services (circular economy and model shifts/logistics)	A more circular economy can reduce CO_2 emissions from four major sectors (plastics, steel, aluminium and cement) by 40% globally
2	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
3	Deploying a range of decarbonisation technologies across sectors: • 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: • 85 – 90% from renewable energy • 10 – 15% biomass or fossil fuels (with CCS)

Source: Energy Transition Commission (2018)

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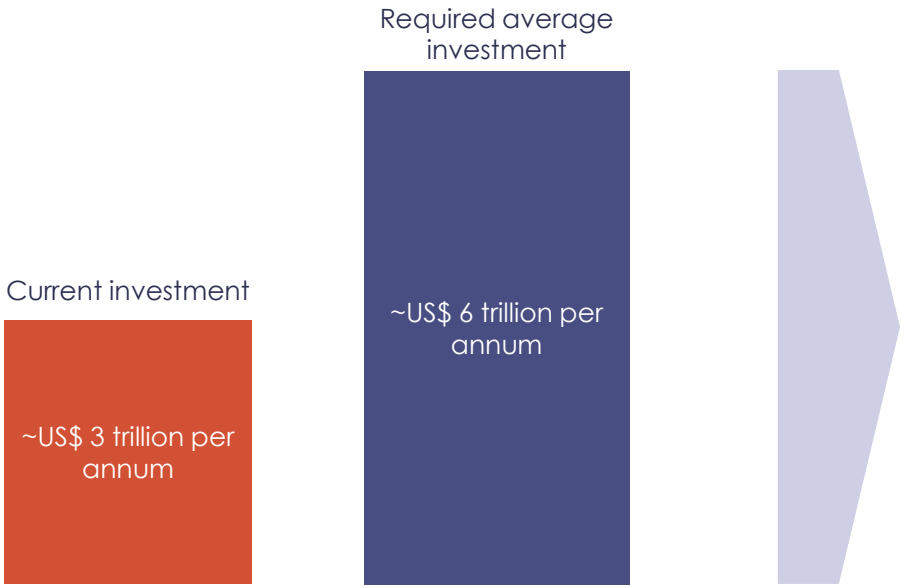
Unlocking and financing the necessary infrastructure investment for development and the low-carbon transition will be a major challenge: scale and nature

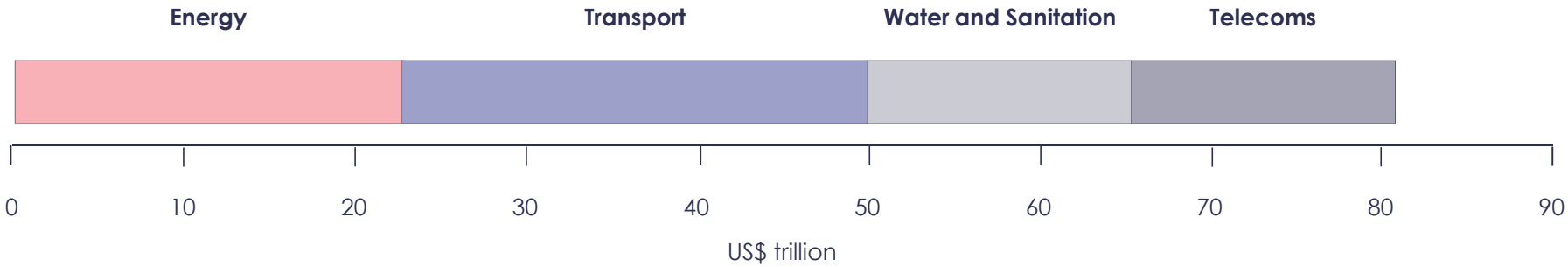
Infrastructure investment rises from around US$ 3 trillion per annum to US$ 8 to 9 trillion in next 15 years



If we are to meet the SDGs and the Paris Climate goals ***all infrastructure*** has to be sustainable:

SOURCES:
1. Global Commission for the Economy and Climate (2014) *Better Growth, Better Climate*.
2. World Economic Forum (2014) *The Global Infrastructure Gap*.

The realisation of infrastructure investment requires strong policy to turn investment opportunities into real projects, and the right kind of finance, at the right scale, at the right time.



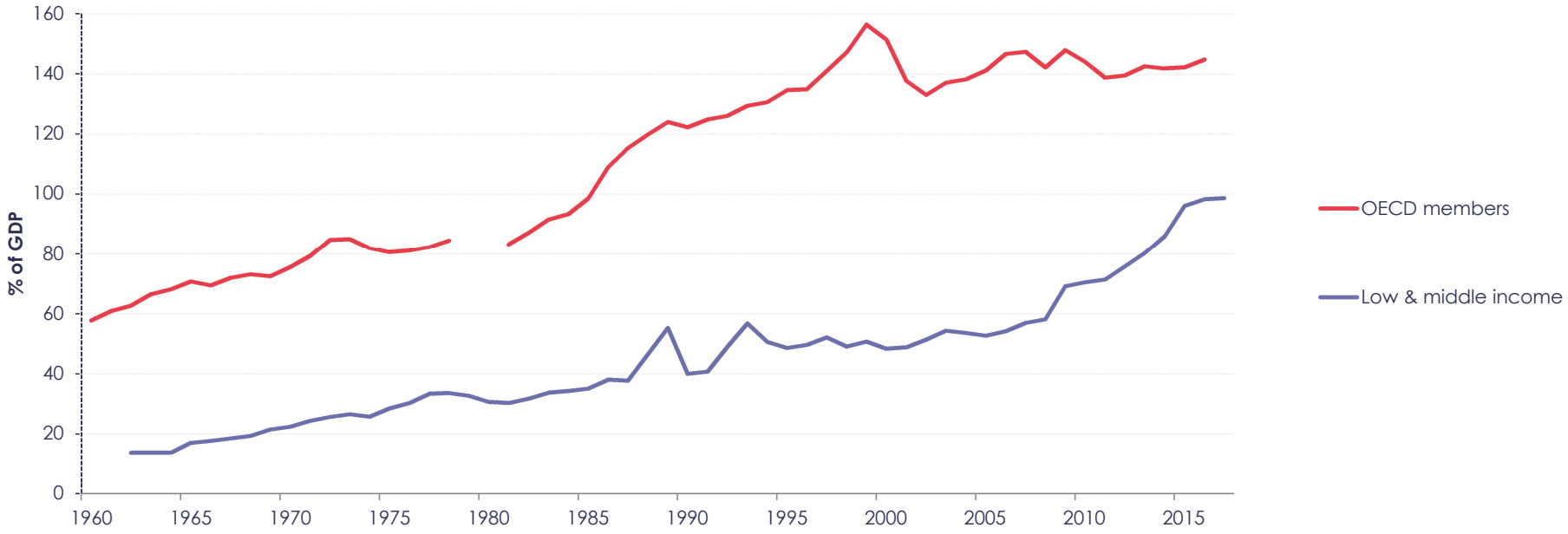
Projected cumulative infrastructure demand (2015-2030) Source: Bhattacharya et al (2016)

Note: Projections based on mid-point of range estimates. Excludes fossil fuel extraction and use, expenditure to enhance energy use efficiency, and operation and maintenance costs.

Altogether infrastructure investments that are required over the next 15 years or so are more than the current existing stock. The bulk of new infrastructure investment will be in emerging/developing countries. Incremental life-time costs of making infrastructure sustainable are small.

There are huge and attractive investment opportunities; good policy turns them into real projects. The world is awash with savings seeking good returns.

In recent decades the finance sector has become divorced from the real economy



Domestic credit to private sector (share of GDP; source: World Bank, 2018)

The diversion of finance from "real investment" fosters asset bubbles and a focus on short-termism. Have to bring the finance sector back towards the real economy. Central role for regulators and development finance institutions.

All financial sector stakeholders have to play a role to realise the objectives of the Paris Agreement and reorient the financial system

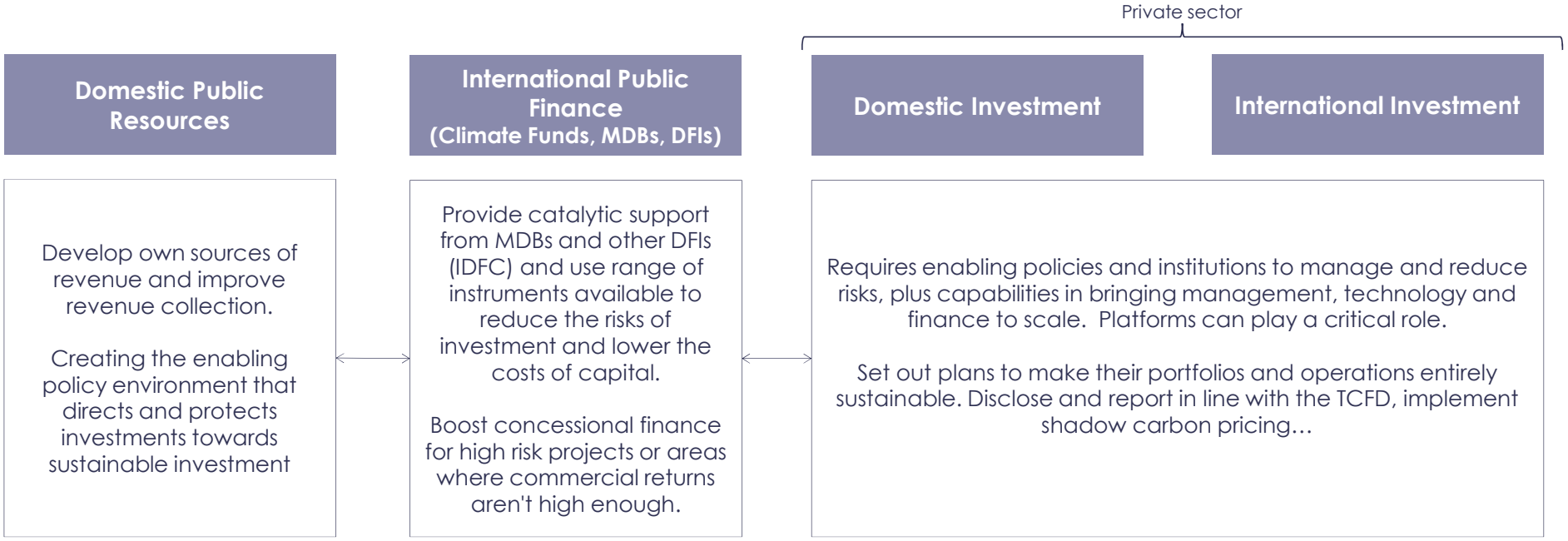
Article 2.1 (c) of the Paris Agreement:

"Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development."

	Policy	Financial Sector	Development Finance
Objectives	Establish a credible policy framework that redirects investment towards sustainability/climate action	Embody sustainability and climate in all financial actions.	Lay the foundation for a more robust climate finance architecture
Actors	National governments Finance ministers	Private sector Central banks/ regulators	MDBs, IDFC Climate Funds
Tools	• Carbon pricing • Remove fossil fuel subsidies • Support networks (grids, charging points, public transport, broadband) • Support R&D	• Remove obstacles to sustainable investment (e.g. NGFS / FSB) • Encourage transparency and set regulation on risks and exposure (TCFD) • Establish investment platforms/funds	• Align portfolios with Paris agreement and SDGs. • Increase private sector multipliers by carrying risks to crowd in long-term finance. • Deliver additional and urgent concessional financing to the multilateral climate funds.
Examples	• Coalition of Finance Ministers on Climate Action • Carbon Pricing Leadership Coalition	• Network of Central Banks and Supervisors for Greening the Financial System (NGFS) • Financial Stability Board (FSB)/ Task Force on Climate-related Financial Disclosures (TCFD)	• Replenishment of the Green Climate Fund. • High Level MDB Statement at UN Climate Summit

Ambition depends on finance. Finance follows ambition.

Mobilizing the required capital for sustainable investment requires unlocking a number of finance pools to work together



Given the scale of investment required a significant increase of finance is needed from all sources — domestic public, international, private — and the links between them made stronger.

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Quality and quantity of investment and shape of the transition 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 action

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	• 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 tax adjustments if pollution remains unpriced.

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

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

Enabling a 'Just Transition'

"Leave no-one behind"

Life-long learning	Support local skills and investment	Re-locate public sector services	Social protection measures
Offer education and training to support life-long learning	Support new skills and entrepreneurship through finance. Collaboration between local government, universities, business	Locate public services/activities in affected areas to boost local economies (shift government employment hubs)	Boost social protection measures for the most vulnerable members of society (lump sum transfers, welfare support, housing subsidies…)

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.

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Three forces present us with a special opportunity to finance 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…)

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

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MINISTRY OF FINANCE

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