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THE SUSTAINABLE INFRASTRUCTURE IMPERATIVE:

FINANCING FOR BETTER GROWTH AND DEVELOPMENT

Key Messages and Executive Summary

Key Messages

Investing in sustainable infrastructure is key to tackling the three central challenges facing the global community: reigniting growth, delivering on the Sustainable Development Goals, and reducing climate risk in line with the Paris Agreement.

A comprehensive definition of infrastructure includes both traditional types of infrastructure (everything from energy to public transport, buildings, water supply and sanitation) and, critically, also natural infrastructure (such as forest landscapes, wetlands and watershed protection).

Significant investment is needed over the next 15 years: around US\$90 trillion, which is more

than the entire current stock. These demands are driven by ageing infrastructure in advanced economies and higher growth and structural change in emerging market and developing countries, especially rapid urbanization.

The global South will account for roughly two-thirds of global infrastructure investment (or about US\$4 trillion per year). This new infrastructure offers a great opportunity to “leapfrog” the inefficient, sprawling and polluting systems of the past.

Transformative change is needed now in how we build our cities, produce and use energy, transport people and goods, and manage our landscapes.



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The challenge is urgent. The window for making the right choices is uncomfortably narrow because of lock-in of capital and technology and because of a shrinking carbon budget. The next 2-3 years will be crucial in bringing about a fundamental change of direction. We can build cities where we can move, breathe and be productive, we can foster ecosystems that are robust and resilient, and we can avoid the potential displacement of millions of people.

We have a historic opportunity to deliver inclusive economic growth, eliminate poverty and reduce the risk of climate change. Now is an opportune time to act because of record low interest rates, large available pools of finance and rapid technological change.

More money alone won't do the job. A range of barriers must be tackled to raise the quantity and the quality of infrastructure investment. Concerted action in four inter-linked areas can together help us overcome these barriers and build the sustainable infrastructure of the 21st century:

1. We must collectively **tackle fundamental price distortions** – including subsidies and lack of appropriate pricing especially for fossil fuels and carbon – to improve incentives for investment and innovation, to drastically reduce pollution and congestion, and to generate revenue that can be redirected, for instance, to support poor people.

2. We must **strengthen policy frameworks and institutional capacities** to deliver the right policies and enabling conditions for investment, to build pipelines of viable and sustainable projects, to reduce high development and transaction costs, and to attract private investment.
3. We must **transform the financial system to deliver the scale and quality of investment needed** in order to augment financing from all sources (especially private sources such as long-term debt finance and the large pools of institutional investor capital), reduce the cost of capital, enable catalytic finance from development finance institutions (DFIs), and accelerate the greening of the financial system.
4. We must **ramp up investments in clean technology R&D and deployment** to reduce the costs and enhance the accessibility of more sustainable technologies.

Multilateral and other DFIs can support countries and catalyse a virtuous circle of action on sustainable infrastructure. Public investments continue to be essential. Private finance will need to significantly scale up to meet our infrastructure requirements.

The Global Commission has identified a number of priority actions to rapidly shift investments toward sustainable infrastructure. A number of their previous recommendations are also relevant to this agenda.

Figure A

Action areas to scale up and shift public and private investments to sustainable infrastructure



Tackle fundamental price distortions



Strengthen investment policy frameworks and capacity



Transform the financial system to deliver the scale and quality of investment needed



Boost investments in clean technology R&D and deployment

TO ACHIEVE THIS, THE GLOBAL COMMISSION CALLS ON:

- Governments to phase out subsidies for fossil fuels and agricultural inputs and incentives for urban sprawl.*
- Governments, including through the G20, to set a deadline for fossil fuel subsidy phase-out of 2025 at the latest.
- Government to introduce strong, predictable carbon prices as part of good fiscal reform;* with all developed and emerging economies, and others where possible, committing to introducing or strengthening carbon pricing by 2020.†
- All countries to develop transition plans to accelerate a scale-up of clean and resilient energy solutions and a phase-out of coal, in a way that delivers fully on energy access goals and facilitates a just transition for workers.
- The G20 and other countries to adopt key principles ensuring the integration of climate risk and climate objectives in national infrastructure policies and plans; these principles should be included in the G20 global infrastructure initiative, as well as used to guide the investment strategies of public and private finance institutions, particularly multilateral and national development banks.†
- Cities to commit to developing and implementing low-carbon urban development strategies by 2020, prioritising policies and investments in public, non-motorised and low-emission transport, building efficiency, renewable energy and efficient waste management.†
- Multilateral and other DFIs – via their shareholders – to enable the doubling of their investments in financing sustainable infrastructure as quickly as is feasible, and scale up further as warranted.
- Governments and investors to agree on common standards for and scale up green bonds as an instrument to enhance liquidity in financial markets and unlock capital for investment.
- Countries, especially those in the G20, to build on the Task Force on Climate-related Financial Disclosures' work to move toward appropriate mandatory disclosure standards as a matter of corporate governance.
- Governments, multilateral and bilateral finance institutions, the private sector and willing investors to work together to scale up sustainable land use financing, for halting deforestation and putting degraded farmlands and forests into restoration.†
- Governments and the private sector to scale up innovation in key low-carbon and climate-resilient technologies, tripling public investment in clean energy R&D and removing barriers to entrepreneurship and creativity.*
- Governments and businesses to substantially increase investments in R&D and deployment, and calls on governments to develop genuine research partnerships, across countries and with the private sector.

This agenda will help translate the ambitions of the 2015 development and climate goals into effective delivery in countries and key economic systems.

Note: * - recommendations from the 2014 Global Commission report; † - recommendations from the 2015 Global Commission report.

Executive Summary

Investing in sustainable infrastructure is key to tackling three simultaneous challenges: reigniting global growth, delivering on the Sustainable Development Goals (SDGs), and reducing climate risk. Following the milestone achievements of 2015 – including the ambitious global goals set for sustainable development and its financing in Addis Ababa and New York, and through a landmark international agreement on climate action in Paris – the challenge is to now to shift urgently from rhetoric into action.

Infrastructure underpins core economic activity and is an essential foundation for achieving inclusive sustainable growth. It is indispensable for development and poverty elimination, as it enhances access to basic services, education and work opportunities, and can boost human capital and quality of life. It has a profound impact on climate goals, with the existing stock and use of infrastructure associated with more than 60% of the world's greenhouse gas (GHG) emissions. Climate-smart, resilient infrastructure will be crucial for the world to adapt to the climate impacts that are already locked-in – in particular, to protect the poorest and most vulnerable people. Ensuring infrastructure is built to deliver sustainability is the only way to meet the global goals outlined above, and to guarantee long-term, inclusive and resilient growth.

A comprehensive definition of infrastructure includes both traditional types of infrastructure (everything from energy to public transport, buildings, water supply and sanitation) and, critically, also natural infrastructure (such as forest landscapes, wetlands and watershed protection).

Sustainability means ensuring that the infrastructure we build is compatible with social and environmental goals, for instance by limiting air and water pollution, promoting resource efficiency and integrated urban development and ensuring access to zero- or low-carbon energy and mobility services for all. It also includes infrastructure that supports the conservation and sustainable use of natural resources, and contributes to enhanced livelihoods and social wellbeing. Bad infrastructure, on the other hand, literally kills people by causing deadly respiratory illnesses, exacerbating road accidents and spreading unclean drinking water, among other hazards. It also puts pressure on land and natural resources, creating

unsustainable burdens for future generations such as unproductive soils and runaway climate change.

The challenge is urgent: the investment choices we make even over the next 2-3 years will start to lock in for decades to come either a climate-smart, inclusive growth pathway, or a high-carbon, inefficient and unsustainable pathway. The window for making the right choices is narrow and closing fast, as is the global carbon budget. The time is ripe for a fundamental change of direction. Today's low interest rates and rapid technological change mean that this is an especially opportune moment for sustainable infrastructure-led growth, and for investing in a better future.

The world is expected to invest around US\$90 trillion in infrastructure over the next 15 years, more than is in place in our entire current stock today. These investments are needed to replace ageing infrastructure in advanced economies and to accommodate higher growth and structural change in emerging market and developing countries. This will require a significant increase globally, from the estimated US\$3.4 trillion per year currently invested in infrastructure to about US\$6 trillion per year. The Global Commission has found that it does not need to cost much more to ensure that this new infrastructure is compatible with climate goals, and the additional up-front costs can be fully offset by efficiency gains and fuel savings over the infrastructure lifecycle. But many of these solutions require higher up-front financing, with the savings and other benefits accruing later. To deliver these solutions at scale, financing and investment have to be mobilised and better deployed from a multitude of different domestic and external sources, including national and local governments, multilateral and other development banks, private companies and institutional investors. International financing will be particularly important to support this transition in developing countries.

The global South will account for roughly two-thirds of global infrastructure investment (or about US\$4 trillion per year) and can lead in building new sustainable infrastructure that “leapfrogs” the inefficient, sprawling and polluting systems of the past. Developing countries, such as those in Asia and Africa, need infrastructure to improve access to basic services, drive development and meet the needs of rapidly-

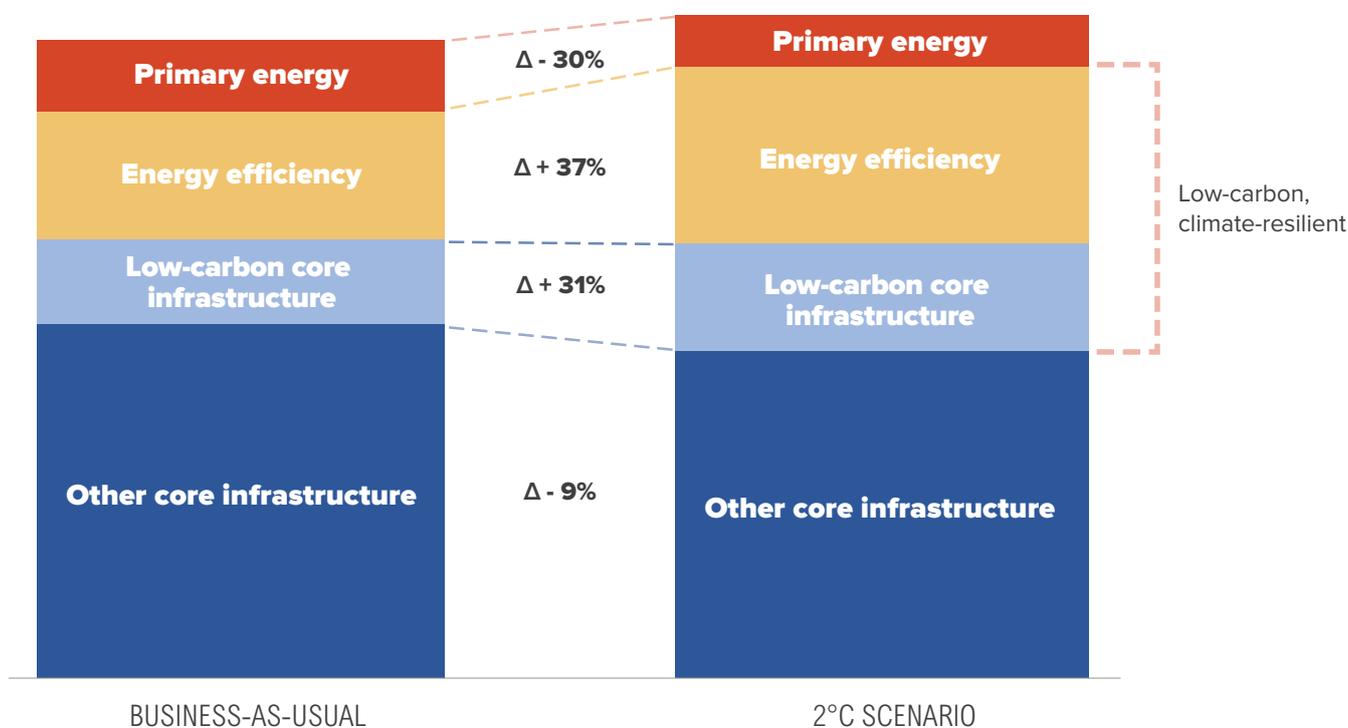
urbanising populations and an expanding middle class. Resource-rich countries that rely on natural capital need to manage, maintain and enhance ecosystem goods and services. Many advanced economies, meanwhile, have to replace and upgrade power transmission and distribution systems, long-neglected bridges, water and sewerage pipelines, mass transit systems and other infrastructure.

Transformative change is needed now in how we build our cities, transport people

and goods, produce and use energy, and manage our landscapes. Globally, at least 60% of infrastructure investment over the next 15 years will be made in the energy and transport sectors.ⁱ To transform the energy sector, it is estimated that investments in oil, coal and gas must decrease by about one-third by 2030, while investments in renewables and in energy efficiency must increase by at least a similar proportion if we are to keep global average temperature rise below 2°C (see Figure B).

Figure B

**Change in infrastructure spending required for a 2°C scenario
(percentage change in expenditure over 2015-2030 compared to Business-as-usual)**



- Primary energy: extraction of oil, gas and coal
- Energy efficiency: buildings, energy and transportation
- Low-carbon core infrastructure: renewable energy, nuclear, CCS, low-carbon transport (e.g. light rail and Bus Rapid Transit systems), climate-proofed water and sanitation including some adaptation infrastructure (e.g. sea walls and flood protection)
- Other core infrastructure: standard water/sanitation, high-carbon transport (e.g. roads), energy production, and telecommunications

Note: Δ is the mathematical symbol for change.

Source: Bhattacharya et al., 2016; Global Commission on the Economy and Climate, 2014

ⁱ Note that this does not include investment needs for natural infrastructure, for which reliable estimates are lacking.

We need to increase both the quantity and the quality of infrastructure investment, but major barriers persist. These include unfavourable policies and investment regulations, a lack of transparent and bankable project pipelines, inadequate risk-adjusted returns, a lack of viable funding models and often high transaction costs. Unlocking finance for sustainable infrastructure will require coordinated reforms across policies, institutions and practices in financial markets.

More money alone won't do the job. Concerted action in four, inter-linked areas can together help us overcome these barriers and build the sustainable infrastructure of the 21st century.

Governments will play a leading role in shaping and directing action across these areas. The Global Commission emphasises the particularly catalytic role that multilateral, regional and bilateral development finance institutions, as well as national development banks, can play in supporting countries and enabling a virtuous circle of action on sustainable infrastructure. In order to reach the scale of investments needed, however, the private sector will have an increasingly significant part to play in infrastructure investment.

First, we must collectively tackle fundamental price distortions – including subsidies and lack of appropriate pricing which leads to poor infrastructure investment decisions – to improve incentives for investment and innovation, and to generate revenue. The Global Commission on the Economy and Climate has repeatedly emphasised the importance of phasing out fossil fuel subsidies (which amounted to around US\$550 billion in 2014ⁱⁱ) and other distorting subsidies and tax breaks, such as those for water use, company cars and parking, and access to natural resources. Evidence is building of how successful reforms can free up scarce government revenues for other priorities, such as protecting poor households and managing the transition for affected sectors. For example, these savings can be channelled into programmes that benefit poor people, through better targeted income support and social safety nets, through investments in pro-poor infrastructure such as off-grid renewable energy solutions and energy efficiency, etc.

In the last three years, almost 30 countries have initiated or accelerated reforms of their fossil fuel

subsidies, with many taking advantage of low oil prices to do so. Egypt, for instance, raised fuel prices by 78% in 2014 and plans to double them over the next five years; Canada has phased out several subsidies to oil, gas and mining, including ending targeted support to tar sands production; Indonesia raised gasoline and diesel prices by 33% in 2013 and another 34% in 2014; and India eliminated diesel subsidies in October 2014 after incremental hikes. Given that subsidies to energy and fuel often particularly benefit middle- and high-income households, reforms can be progressive and channelling the savings into the right areas can benefit the poorest and most vulnerable in society.

While there is momentum, further reform is needed in both developed and developing economies. Both the G7 countries and North American leaders recently set a deadline of 2025 to phase out their fossil fuel subsidies. Other countries, including the G20, should follow suit. Many international institutions (such as the IMF, OECD, World Bank and IEA) have shown important leadership on this and are supporting progress in countries around the world.

The Global Commission also continues to emphasise the fundamental importance of strong, effective and rising carbon prices as a necessary condition for inclusive and low-carbon growth, in line with the Paris Agreement. Current pricing schemes collectively cover only about 12% of global GHG emissions, but a number of countries and companies have recently stepped up action, including through energy pricing reforms that effectively send a price signal to shift to cleaner energy solutions. Around 40 countries have implemented or scheduled carbon pricing. China, for example, will establish a national emissions trading system in 2017, expected to be the largest in the world. France adopted a carbon tax on transport, heating and other fossil fuels in 2014, and Vietnam took action in 2015 to adjust taxes, including on transport fuels, to better reflect their carbon content. Similarly, over 1,000 companies have now adopted an internal carbon price or plan to do so soon. Corporate leaders with pricing already in place include major consumer staples companies, such as Nestlé and Unilever; car brands, such as Mazda and General Motors; energy companies, such as Shell and BP; and financial giants, such as Barclays.

ⁱⁱ This number is based on IEA and OECD data and includes direct subsidies and other support for the exploration, production, and consumption of fossil fuels in developed and developing countries. When the IMF adds non-internalised externalities (e.g. air pollution, traffic congestion, climate change), the estimates rise to US\$4.9 trillion in 2013, or 6.5% of global GDP.

The Global Commission welcomes the emerging coalitions of governments, investors and businesses that have the potential to accelerate action globally on carbon pricing and fossil fuel subsidy reform, including by highlighting evidence of good practice and building multi-stakeholder partnerships for reform.

The Carbon Pricing Leadership Coalition, launched at COP21 in Paris, for example, is helping to build the evidence base on effective carbon pricing systems and share lessons learned. It brings together leaders from the public and private sectors, including from 26 governments, over 90 businesses, and more than 30 other strategic partners.

More broadly, pricing of infrastructure services should reflect the full costs of their provision, including where possible the social and environmental externalities. Lack of proper user charges for built infrastructure is a major impediment to attracting private investment, as private investors and operators require predictable and robust revenue streams to recover their costs. For public-managed infrastructure, lack of appropriate pricing limits the availability of funds for properly maintaining the existing infrastructure or for extending service to those without access (e.g. to water, energy, roads and public transport). Overall, poor pricing leads to reduced service provision and quality. This can turn into a vicious circle, whereby infrastructure users are dissatisfied with the services, and thus reluctant to pay for them. For energy and urban systems, pricing is essential to reflect the social costs of externalities, for example the costs of air pollution from fossil fuel use as well as of congestion from urban vehicle use. For natural infrastructure and ecosystem services, pricing to reflect the value of these services can ensure efficient use, for instance, by reducing wasteful use of water or timber, and help secure finances to support local communities to invest in restoration and maintenance of the ecosystems.

Second, we must strengthen policy frameworks and institutional capacities to deliver the right policies and enabling conditions for investment, to build pipelines of viable and sustainable projects, to reduce high development and transaction costs, and to attract private investment. Countries need a well-defined and appropriately designed pipeline of bankable, sustainable projects. But the capacity

to develop and implement projects is low because of underlying issues such as poor planning, lack of mandate, skills shortages, inadequate regulatory frameworks for public-private partnerships and implementation, and weak enabling policy environments. Governments and development finance institutions are already working to expand capacity, but much more is required, including increased concessional finance for project preparation, and strengthened support for implementation within a broader policy reform process (such as measures to tackle inefficiencies, improve governance and combat corruption) which reaches beyond central government agencies to cover subnational and local-level entities.

Overall, governments have to make a greater effort to “invest in investment” – to improve public infrastructure planning, management, governance and policies. At the same time, to ensure sustainability over the long term, investment plans and project selection must better reflect environmental and social sustainability criteria. Governments should develop and implement procurement processes that incorporate sustainability criteria and are systematic and consistent in approach.

A stable and predictable policy and regulatory environment can attract investment in infrastructure, supported by stronger enabling environments for business, for example by enhancing competition, trade policies and corporate disclosure. Of particular importance is the need to strengthen governance frameworks, including anti-corruption measures. Public-Private Partnerships (PPPs) can help, if implemented well, to secure private engagement in sustainable infrastructure investment. Improving the institutional and regulatory frameworks for PPPs – including the transparency and credibility of processes for selection and agreement on projects, consistency of policy and implementation, and standardisation of contracts and documents – is essential to boost investor confidence and attract the scale of investment needed.

Clear national, subnational and sectoral development strategies, with accompanying infrastructure and investment plans, are essential to guide long-term public and private investments. Leadership will be needed to monitor progress and ensure that these plans promote low-carbon and climate-resilient development, reflect the financial realities of each country, and are aligned with their Nationally Determined Contributions to achieve the 2°C goal in the Paris Agreement.



Photo credit: Flickr:Dana Smillie/World Bank

A number of countries are starting to take steps in the right direction. For example, Colombia is working to mainstream climate action across its national development plan and, amongst other pro-active measures, has established a focused programme on public-private collaboration, with priority attention to investment in infrastructure and achieving environmental sustainability. It has also put a range of fiscal incentives in place for investment in low-carbon technologies and environmentally resilient practices, such as in the forestry sector. In the area of resilience, Zambia has received US\$1.5 million to support a sustainable investment strategy based on its development priorities through the Pilot Program for Climate Resilience, and is making good progress to broadly integrate resilience objectives into its national development planning.

In addition to national strategies, governments must also develop and implement sectoral plans that align with climate goals. Building support for these will not always be easy, especially given potential resistance from powerful incumbents who benefit from business-as-usual. The rapid transformation needed in the energy sector to meet climate goals is particularly challenging.

The Global Commission calls on all countries to develop transition plans to accelerate a scale-up of clean and resilient energy solutions and a phase-out of coal, in a way that delivers fully on energy access goals and facilitates a just transition for workers.

These transition plans should include both measures to ensure that clean energy solutions are economically attractive and affordable, and those that will better reflect the true costs of coal and other fossil fuels. The Global Commission welcomes the establishment of a Just Transition Centre that is initiated by the International Trade Union Confederation (ITUC) with emerging partnerships with business and civil society, focused on dialogue between governments, employers, workers and civil society around how to ensure a “just transition” towards including at national and sectoral levels.

Third, we must transform the financial system to deliver the scale and quality of investment needed in order to augment financing from all sources (especially private sources such as long-term debt finance and the large pools

of institutional investor capital), reduce the cost of capital, enable catalytic finance from development finance institutions (DFIs), and accelerate the greening of the financial system.

The scale of financing requirements for sustainable infrastructure calls for a strengthening of resources from all sources: public and private, domestic and external. It will involve regulatory action, policies, better governance frameworks and business practices to harness capital markets and the financial system to deliver sustainable development.

Public finance, whether through domestic resources or through development finance, will remain fundamental to the provision of infrastructure, including by playing a catalytic role in attracting private finance. In developing and emerging economies, about 60–65% of the cost of infrastructure projects is financed by public resources, while in advanced economies this figure is around 40%.

National budget allocations to support sustainable infrastructure investment are essential and should increase. This will often include the use of revenues that countries raise themselves, for example through taxes, or other finance they are able to raise, including through bonds, loans, or through development finance institutions. Fossil fuel subsidy reform and carbon pricing, emphasised above, can also be important sources of capital for sustainable infrastructure. And whatever the source of financing, ensuring effective public spending, including through strong, transparent and green public procurement practices, can allow scarce public resources to achieve more.

Beyond public financing, there is real need to significantly scale up private financing to meet our infrastructure requirements. But there are real challenges in tapping adequate private investment and in bringing down the high costs of finance. Banks and local financial institutions are well suited to provide long-term debt finance in the construction phase. There is also much greater scope to attract institutional investors through equity offerings and the development of local capital markets, including for “take-out” finance (where securitisation of initial debt occurs to make it long-term and attractive to institutional investors). Take-out finance can also help free up capital for more projects over time, since banks are able to sell a part of their loans to a third party and reinvest the money as projects become operational.

DFIs, including Multilateral and Bilateral Development Banks, can play a pivotal role in pioneering and scaling up financing models for sustainable infrastructure that

can crowd in private finance. This is especially true in developing countries and in emerging economies, which often face prohibitively high costs of capital due to high perceived risks. For example, interest rates are as high as 18% in India for off-grid renewable energy financing through domestic capital markets. This must change, and can be facilitated through the use of innovative measures, such as more extensive use of guarantees, insurance and other de-risking instruments. In addition to the development and wider deployment of risk mitigation instruments, DFIs can play a role through the use of blended finance more generally (including concessional and non-concessional finance, and dedicated climate finance), and help create more viable and replicable financing models and tools (e.g. for credit enhancement and risk mitigation). Successful instruments and platforms should be replicated and scaled-up. There is also a need to emphasise the “development” role of DFIs, paying particular attention to the needs of less developed countries for whom the challenges of preparing, financing and executing sustainable infrastructure projects are particularly acute, rather than operating like commercial banks when assessing infrastructure investment risks.

Recognising their important catalytic role, the Global Commission calls on multilateral and other development finance institutions – via their shareholders – to enable the doubling of their investments in financing sustainable infrastructure as quickly as is feasible, and scale up further as warranted.

A number of DFIs are stepping up their investments already, including through measures to expand their capital base, blend finance from different sources and leverage private and other investment in sustainable infrastructure. They are also partnering with countries to strengthen policies, institutions and capacities to reliably deliver domestic resources and ensure a solid pipeline of bankable projects tailored to national priorities. The New Development Bank (BRICS Bank), for example, has recognised the imperative around sustainable infrastructure and is demonstrating initial leadership in this area. In April 2016, it launched its first four investments, worth US\$811 million, all for clean energy projects. In July 2016, it announced its plans to issue green bonds worth approximately US\$450 million. Other important steps are being taken by a number of DFIs, in particular to help

crowd in other sources of finance. The European Bank for Reconstruction and Development (EBRD), for example, has played a significant role in accelerating energy efficiency. Since 2006, cumulative EBRD financing of Sustainability Energy Financing Facilities has reached more than €3.4 billion (US\$3.7 billion) in over 100,000 sub-projects, involving more than 100 partner financial institutions in 24 countries, including large international banks and small banks in Central Asia and the Caucasus.

There is increasing potential to mobilise green finance to bolster support for low-carbon and climate-resilient infrastructure through new tools and approaches like green bonds and green infrastructure. The green bond market reached US\$42 billion in 2015. HSBC, working with the Climate Bonds Initiative, predicts that the amount could more than double this year. With the right approach, green bonds can be powerful instruments and play a tremendous role in facilitating sustainable infrastructure investment and growth. For example, the Philippines issued the first climate bond for a geothermal project in an emerging economy, as form of credit enhancement. The US\$225 million-equivalent local currency bond comes in addition to a direct Asian Development Bank local currency loan of US\$37.7 million equivalent. Such credit-enhanced project bonds offer an attractive alternative to bank financing, and can mobilise long-term capital to help close the region's infrastructure gap. Applying global standards can ensure that the proceeds are used to finance projects with ~~demonstrable climate or other environmental benefits.~~

The Global Commission calls on governments and investors to agree on common standards for and scale up green bonds as an instrument to enhance liquidity in financial markets and unlock capital for investment.

A number of major investors, including pension funds and insurance companies, are already starting to shift their investments. For example, over 400 investors with US\$25 trillion in assets have joined the Investor Platform for Climate Actions, committed to increasing low-carbon and climate-resilient investments, including by working with policy-makers to ensure financing at scale. The Norwegian Sovereign Wealth Fund, the largest in the world, has taken steps recently to divest from companies with large coal assets. Attracting more institutional investors to finance sustainable infrastructure would be a big prize, as they

have in total an estimated US\$100 trillion in assets under management.

While these examples are promising, further action is required to shift the financial system to support investment in sustainable infrastructure, including through the use of equity offerings, appropriate risk mitigation and development of local capital markets to provide the large sums that will be needed for take-out finance. Establishing some forms of infrastructure as a **distinct asset class** could also help make it a standard part of investment portfolios and unlock access to large pools of capital, such as from institutional investors.

Investors and shareholders can play a critical role in **demanding that companies use environmental, social and governance (ESG) standards**, and in considering these as the bottom line for investments. Simplification and standardisation of reporting requirements are both essential for transparency and to ensure that the climate risks that affect financial performance, including the physical risk of climate change and the potential for stranding high-carbon assets, are **considered in investment decisions.**

An industry-led task force, established under the Financial Stability Board at the request of G20 finance ministers, is drafting recommendations for voluntary measures to disclose climate-related financial risks. The Global Commission welcomes the work of the "Task Force on Climate-related Financial Disclosures, and looks forward to its recommendations. Implementing such standards can help ensure that investors have all the information they need to assess whether a company's capacity and strategies can generate value over time, including whether medium- and long-term business strategies align with the policy direction reflected in the Paris Agreement.

A number of countries are leading the way already. France, for example, has introduced mandatory corporate disclosure of climate information, which includes financial risks from climate impacts and carbon reporting across the supply chain. The Chinese **central bank has proposed mandatory climate disclosure as part of a series of other reforms to help green its financial system.**

The Global Commission calls on countries, especially those in the G20, to build on the work of the Task Force on Climate-related Financial Disclosures to move toward appropriate mandatory disclosure standards as a matter of corporate governance.

The culture and incentives for financiers has started to change but should go further, for example to prioritise and value more sustainable long-term investments over a narrow focus on short-term gains. To enable this, we have to ensure that financial regulations such as capital and solvency rules do not inadvertently

act as disincentives to participation by banks and institutional investors. Revamping the financial system will also require a “greening” of banks and their practices or, where existing institutions are insufficient, establishing green investment banks.

The New Climate Economy in Action in Key Economic Systems: Energy, Cities and Land Use

This report outlines how this action agenda can be systematically applied in the real economy. It looks at this through the three key economic systems identified in earlier work of the Global Commission on Economy and Climate that are the major sources of economic growth and have the highest potential for reducing emissions – namely energy, cities and land use. It outlines specific opportunities and challenges in scaling and shifting finance for sustainable infrastructure investment.

Energy: The economic case for investing in clean energy is fast becoming clear, with the costs of renewable energy falling to levels that are increasingly out-competing fossil fuels, and with an increased awareness of the benefits of energy efficiency improvements. This case is particularly clear when we consider the health and economic costs to society of the roughly 4 million premature deaths that occur each year due to fossil fuel-related air pollution. Despite this, coal power capacity equivalent to about 1,500 plants is planned or under construction worldwide today. Close to US\$1 trillion worth of current energy assets are at risk of being stranded if markets fail to anticipate the transition to a low-carbon economy. Coal has the largest negative impacts on human health through the pollution that it causes, yet it receives significant tax breaks in most countries, and its export and development internationally continues to be supported by a number of governments. Given these challenges, the development of dedicated energy transition plans can dramatically accelerate the shift to a clean energy mix, in a way that delivers clean and resilient energy access. A wide range of stakeholders need to be engaged in formulating national and industrial plans to ensure a just transition for all those affected, as noted above.

Cities: Urban infrastructure decisions taken over just the next five years are likely to determine up to one-third of the remaining carbon budget at the global level and will also determine the vulnerability of city dwellers and urban infrastructure to climate impacts. Compact, connected and coordinated urban infrastructure can be low-carbon and resilient while also promoting equitable growth. This includes the development of bicycle infrastructure and affordable mass transport systems such as bus rapid transit to reduce congestion, and regulations and incentives to enhance energy efficiency in buildings. The scale of the investments required makes it difficult for cities to finance them alone, and thus national-local partnerships need to be strengthened. Cities also need to identify and scale up successful examples of how to package sustainable infrastructure into bankable projects and raise finance. National governments can support cities by ensuring that they have the mandate for action, and by working with them to find effective financing solutions.

Land use: The Commission has estimated that land use interventions have the potential to deliver about 30% of the reductions in GHGs needed by 2030. There is an enormous and still not fully realised opportunity for low-cost investments in technologies and practices that can increase agricultural productivity and resilience, protect and restore forests, enhance livelihoods for rural people and lower the required investment in built infrastructure. Such investments can contribute to growth, poverty alleviation and food security, while also delivering essential ecosystem services for adaptation and resilience. This includes increasing public and private investments in R&D and deployment for agriculture and forest solutions, such as climate-smart agricultural technologies and practices, which remains an area of relative under-investment globally at about US\$32 billion per annum. Governments and development finance institutions should also work together with the private sector and civil society, particularly local communities, to design and scale up partnerships, mechanisms and incentives to attract and shift private finance into sustainable land use.

Fourth, we must ramp up investments in clean technology research and development (R&D) and deployment to reduce the costs and enhance the accessibility of more sustainable technologies. Investing in new technologies and practices can make them significantly cheaper and accelerate deployment, reducing upfront financing needed for sustainable infrastructure in both advanced and emerging economies. It can also help overcome the advantages enjoyed by incumbent technologies and make investing in new technologies less risky.

Over the next 15 years, when key infrastructure systems will be built and locked in for decades, a pressing challenge is to deploy existing state-of-the-art technologies and business models or those that can rapidly be demonstrated at commercial scale, even as we also invest in next-generation technologies for the longer term.

The Global Commission welcomes the recent launch of several promising collaborative multi-partner global initiatives that aim to boost R&D and deployment with climate change as a central theme. Mission Innovation, launched at COP21 in Paris, brings together 21 members as of August 2016 — including the world's five most populous countries: China, India, the United States, Indonesia and Brazil — that have committed to doubling public investments in clean energy research over the next five years. Similarly, the new Breakthrough Energy Coalition brings together 28 major individual investors with a collective net worth of more than US\$350 billion to provide capital for research on high-risk but promising clean energy technologies. And the Low Carbon Technologies Partnership initiative brings together 150 companies and 70 partners to develop and implement concrete actions that go beyond business-as-usual to tackle climate change.

Better public and private support at scale, public-private initiatives and enhanced international cooperation including in the private sector will be essential to accelerate the innovations of the future and their rapid deployment. Time-bound public investment in the deployment of and access to new existing low-carbon and climate-resilient technologies

will be essential to open new markets and overcome incumbent technology and actor advantages.

The Global Commission calls on governments and businesses to substantially increase investments in R&D and deployment, and calls on governments to develop genuine research partnerships, across countries and with the private sector.

The four actions outlined here together set out the beginnings of a roadmap for financing sustainable infrastructure in the new climate economy.

A number of the Recommendations of the Global Commission on Economy and Climate agreed in 2014 and 2015 are still relevant today and essential to this agenda. In addition, as indicated above, the Global Commission has identified a number of further priority actions that can help to rapidly shift investments toward sustainable infrastructure.

Ramping up investment in sustainable infrastructure is the growth story of the future. The Global Commission finds that investing in sustainable infrastructure can boost growth and global demand in the short term, a priority for today's economic and financial decision-makers. Over the medium term, it can spur innovation, creativity and efficiency of energy, mobility and logistics. It can help to lay the foundation for sustainable industrialisation. And it underpins the only sustainable, long-term growth path on offer, bringing with it a means to increase living standards, promote inclusion and reduce poverty. While the challenges and opportunities vary in different parts of the world, investing in sustainable infrastructure is in the collective global interest as well as in the self-interest of individual countries, whatever their stage of development.

If we act now and act together to finance sustainable infrastructure, better growth, better development, and a better climate are within our reach.

The Global Commission on the Economy and Climate, and its flagship project The New Climate Economy, were set up to help governments, businesses and society make better-informed decisions on how to achieve economic prosperity and development while also addressing climate change. To read the full *The Sustainable Infrastructure Imperative: Financing For Better Growth and Development* report visit www.newclimateeconomy.report. For media and other inquiries, please email info@newclimateeconomy.net.