



SUMMARY OF THE GREEN GROWTH  
AND SUSTAINABLE DEVELOPMENT  
FORUM 2013

HOW TO UNLOCK INVESTMENT  
IN SUPPORT OF GREEN GROWTH?

SUMMARY OF THE GREEN GROWTH AND SUSTAINABLE DEVELOPMENT FORUM 2013

**“HOW TO UNLOCK INVESTMENT TO SUPPORT GREEN GROWTH?”**

## Acknowledgements

Justine Garrett from the OECD Green Growth Unit prepared this summary of proceedings under the supervision of Nathalie Girouard, Green Growth Unit Head, based on drafting inputs from consultant Anna Nemanic. Colleagues Robert Youngman, Osamu Kawanishi, Christopher Kaminker and Geraldine Ang of the Climate, Biodiversity and Water Division of the Environment Directorate; Nils-Axel Braathen of the Environmental Performance and Information Division of the Environment Directorate; and Juan Casado Asensio of the Global Partnerships and Policies Division of the Development Co-operation Directorate provided useful comments and revisions, as did Florian Egli, Green Growth Unit intern. Public Affairs and Communications assistant Reka Mazur provided assistance with document layout.



## *Table of Contents*

<b>Acknowledgements</b> .....	<b>3</b>
<b>Executive Summary</b> .....	<b>7</b>
<b>Introduction</b> .....	<b>9</b>
<b>Opening remarks</b> .....	<b>10</b>
<b>Session 1: How to unlock private investment in support of green growth?</b> .....	<b>13</b>
Keynote presentation: Green growth and sustainable development policy in Costa Rica.....	13
Panel discussion.....	14
Plenary discussion.....	18
Session 1 conclusions .....	20
<b>Session 2: How to attract affordable long-term finance?</b> .....	<b>21</b>
Roundtable discussion .....	21
Plenary discussion.....	24
<b>Session 3: How to mobilise investment in the transport sector?</b> .....	<b>27</b>
Keynote presentation: a European Investment Bank perspective.....	27
Panel discussion.....	28
Plenary discussion.....	30
<b>Parallel sessions and GGSD Forum conclusions</b> .....	<b>31</b>
Supporting investment in clean energy infrastructure .....	31
The role of local banks in engaging SMEs in green growth.....	33
Directing investment in the environmentally sustainable land transport sector.....	34
<b>Closing remarks</b> .....	<b>37</b>



---

## Executive Summary

The second annual OECD Green Growth and Sustainable Development Forum (Forum) was held in Paris on 5-6 December 2013. The theme of the Forum was unlocking investment in support of green growth.

Day 1 comprised three plenary sessions, to: introduce key challenges and opportunities in unlocking private investment in green infrastructure projects; explore policy options and innovative financial mechanisms to support green infrastructure investment; and address specific options to mobilise investment in the land transport sector. Three parallel sessions on Day 2 provided an opportunity to address aspects of these issues in greater detail, with a focus on knowledge gaps and priorities for future work.

The Forum was established in 2012 to facilitate knowledge exchange and exploitation of potential synergies across different policy fields and disciplines, aid detection of knowledge gaps and help shape OECD Committee and individual government work programmes. This document sets out key outcomes and knowledge gaps identified during the 2013 Forum, for the benefit of Committees, member countries and key stakeholders.

**Greening infrastructure investment may be more a matter of making smarter investment choices than unlocking enormous amounts of additional capital.** The shift may require additional spending, but may alternatively result in net savings if systematic investment in the right kind of infrastructure enables system-wide efficiency gains to be effectively captured. Further work is needed to evaluate the financial implications of a shift to green investment.

**The investment policy environment matters.** It is critical to channelling private investment away from fossil fuel- and resource-intensive networks and towards “clean” infrastructure. Government cannot assume that capital will simply flow in the quantities needed and in the timeframe required to achieve the green transition on its own; support of public action is an essential part of the business case to invest green.

**Current government policy is generally not supportive of green private investment.** Key barriers include lack of strong, consistent carbon pricing mechanisms and uncertainty over their future stringency; government support for exploration, production and consumption of fossil fuels, which actively encourages carbon emissions and sends signals that conflict with carbon pricing; and lack of smart, targeted policies to complement pricing, including support for RD&D.

**Green policies must be sufficiently “long, loud and legal” to provide stability and reduce uncertainty for investment.** Governments require further guidance on improving the investment environment for private green investment and designing the most cost effective policies.

**Green value chains are increasingly global, which means that measures such as local content requirements have the potential to act as an impediment to investment and growth.** Improved tracking of trade and investment restrictions, analysis of their economic implications and work to further measure foreign direct investment in green infrastructure spending is essential.

**Innovative financing approaches will be important to improving the risk-return equation for the private sector, including small-to-medium enterprises, and mobilising public equity markets to finance green projects.** Integrating extra-financial criteria such as carbon risk into business models, strengthening the pipeline of bankable projects, identifying suitable financing vehicles and finding mechanisms to aggregate small-scale projects are key challenges.

**Further clarity is required on what exactly green infrastructure entails on a sectoral basis.** In the transport and energy sectors, for example, there is no clear international consensus on relevant indicators. These are required for effective policy development, to increase investment in the right kind of projects and to enable progress to be measured across sectors.

**To help governments encourage green infrastructure investment, relevant OECD Committees are urged to review their work programmes for 2015-2016 to ensure that they adequately reflect the key points outlined above.** These include the Investment Committee, the Environment Policy Committee, the Committee on Industry, Innovation and Entrepreneurship, the Development Assistance Committee and the Insurance and Private Pensions Committee.



## Introduction

The OECD held its second annual Green Growth and Sustainable Development Forum (GGSD Forum) in Paris on 5 and 6 December 2013. The theme of the 2013 GGSD Forum was “encouraging and leveraging private investment for green infrastructure and technologies, including through innovation policies”. The aim was to explore how governments can improve their investment policy frameworks to reduce risk and attract long-term private financing in support of green growth.

Day 1 comprised three plenary sessions. The first session introduced key challenges and opportunities in unlocking private investment in green infrastructure projects; the second session explored policy options and innovative financial mechanisms to support green infrastructure investment; and the last one addressed specific options to mobilise investment in the land transport sector. Three parallel sessions on Day 2 provided an opportunity to address aspects of these issues in greater detail, with a focus on knowledge gaps and priorities for future work.

The GGSD Forum was established in 2012 to provide a dedicated space for multi-disciplinary dialogue on green growth and sustainable development. It is intended to facilitate the exchange of knowledge, ease the exploitation of potential synergies across different policy fields and disciplines, and assist detection of knowledge gaps, to help better target OECD Committee and individual government work programmes. This document summarises proceedings at the 2013 Forum.

## Opening remarks

OECD Deputy Secretary-General Rintaro Tamaki opened the GGSD Forum by stressing that scaling-up green investment is an issue that lies at the heart of greening growth. An economy-wide transition will require substantial investments across green infrastructure sectors such as renewable energy, energy efficiency, sustainable transport, water supply and sanitation, and buildings. Current levels of *green* investment – as opposed to traditional investment – are simply not enough.

Deputy Secretary-General Tamaki reported that approximately USD 2 trillion is currently invested annually in infrastructure, including transport, energy and water. This figure, which excludes transportation vehicles and buildings, represents about 4% of global GDP, and is based on average annual expenditure over the past 18 years. To support development and growth while maintaining current levels of infrastructure capacity and service relative to GDP, an additional USD 1.2 trillion will be required annually to meet global infrastructure needs in these sectors to 2030.<sup>1</sup> This figure does not take into account environmental constraints.

A shift to green investment in transport, water and energy may require additional spending – an upper-end estimate puts this in the order of 11%, or around USD 350 billion per year.<sup>2</sup> However, it could also result in net annual savings of USD 450 billion, or around 14%,<sup>3</sup> due to: more efficient utilisation of electrical systems through full deployment of smart grids; and a shift to increased use of rail and port infrastructure for passenger and goods transport, once capacity is freed up through decreased fossil fuel trade. Interestingly, these numbers do not include fuel savings. One study by the International Energy Agency (IEA) estimates that every additional dollar invested in clean energy today can generate 3 dollars in future fuel savings by 2050.<sup>4</sup>

Deputy Secretary-General Tamaki observed that the challenge may therefore be less about unlocking enormous amounts of *additional* capital in the coming decades, but rather ensuring that the right policies are put in place today to shift infrastructure investment toward “smarter” choices, *i.e.* investments in the *right kind* of infrastructure.

In a time of fiscal restraint, ramping-up green infrastructure investment largely means finding ways to mobilise and leverage private sector finance and investment in favour of “clean”, rather than traditional polluting and resource-intensive infrastructure. To that end, it will be necessary to improve policy signals to the private sector. Governments cannot simply assume that private capital will flow towards green investment in the quantities needed and in the timeframe required to achieve the green transition. The policy environment matters. Deputy Secretary-General Tamaki highlighted three major barriers to investment that must be addressed:

- **The lack of strong, consistent carbon pricing mechanisms.** Carbon pricing – whether through an emissions trading system or a carbon tax – is the cornerstone of “investment-grade” green policy making. The absence of robust, coherent carbon pricing mechanisms in most regions today and political uncertainty over the future development or stringency of such prices hampers long-term, strategic investments in green infrastructure.

- **Inefficient fossil fuel subsidies.** In OECD countries, support for exploration, production and consumption of fossil fuels is estimated to be in the range of USD 55-90 billion annually.<sup>5</sup> For developing and emerging economies, the IEA estimates that fossil fuel consumption subsidies totalled USD 544 billion in 2012.<sup>6</sup> Fossil fuel subsidies and tax exemptions *encourage* carbon emissions, and thus send signals that conflict with carbon pricing. They can significantly undermine the effectiveness of green growth policies.
- **The lack of adequate, sustained and targeted policies.** The business case for investment in new green technologies and infrastructure requires smart, targeted policies to complement pricing, such as support for basic research and development (R&D) to harness green innovation and information campaigns to help consumers make greener choices. This is due both to today's low or non-existent carbon prices, and because such support can help address market and information barriers, and foster innovation. To attract investors, policy signals must be predictable and stable, and sufficiently long-term to match the long-term characteristics of new infrastructure. Mixed messages, “stop-and-go” policy decisions or retroactive changes in policy decision-making can seriously undermine investor confidence, as has recently occurred in the renewables sector.

Getting investment policies right today is crucial. A key reason is that the investment decisions made today will have lasting impacts at global and local levels. The estimated lifetime of a coal-fired power plant built today, for example, is 40-60 years. There is urgency to the green investment challenge, if we are to avoid “locking-in” unsustainable infrastructure and exposing sectors to assets that may become stranded in the future. Timely scale-up of green investment is also critical from an environmental perspective. Current growth pathways are unsustainable due to their impact on climate, human health and employment.

Deputy Secretary-General Tamaki concluded by emphasising that green growth can only be delivered if there is coordination across ministries and disciplines. Green growth policies will, of course, differ among countries due to their different states of economic development and different national circumstances. However, common to all is the need for a coherent and consistent set of domestic policies that are credible in terms of the scale of the transformation required. He urged attendees to capitalise on the GGSD Forum as a valuable supplement to the work undertaken in their respective countries and organisations, and as a means of shaping OECD Committee work priorities through identification of policy outcomes, best practices and knowledge gaps.

## Notes

- <sup>1</sup> OECD (2013), *Long-term investors and green infrastructure: Policy highlights*, OECD, Paris.
- <sup>2</sup> World Economic Forum (2012), *The Green Investment Report: The ways and means to unlock private finance for green growth*, WEF, Geneva.
- <sup>3</sup> Kennedy, C. and J. Corfee-Morlot (2013), *Past performance and future needs for low carbon climate resilient infrastructure – An investment perspective*, Energy Policy 59.
- <sup>4</sup> IEA (2012), *Energy Technology Perspectives 2012: Pathways to a Clean Energy System*, OECD/IEA, Paris.
- <sup>5</sup> OECD (2013), *Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels*, OECD, Paris.
- <sup>6</sup> IEA (2013), *World Energy Outlook*, OECD/IEA, Paris.

## Session 1: How to unlock private investment in support of green growth?

Manfred Schekulin, Chair of the OECD Investment Committee, chaired Session 1 on unlocking private investment in green infrastructure projects. Unlocking private investment in support of green growth will depend on the profit expectations of market participants and investors and on relative price developments. Until recently, it was believed that continued increases in fossil fuel prices would automatically make investments in green technologies and infrastructure profitable. In this context, the role for government was simply to ensure that it was not acting as an impediment or break on investment. Given the projected, ongoing availability of cheap fossil fuels, however, that calculation no longer holds. It is not sufficient for governments to “not get policy wrong”; governments must actively ensure that they are getting policy *right*, to direct investment flows into green, rather than traditional, infrastructure. This means putting in place the necessary enabling conditions and incentives to encourage green investment.

The Chair highlighted three key questions for the Session:

- What can governments do to increase and leverage private investment for green growth?
- What are policy priorities to improve the enabling environment for investment and what policy pitfalls should be avoided?
- What roles can international cooperation and international organisations such as the OECD play in this context?

### **Keynote presentation: Green growth and sustainable development policy in Costa Rica**

Irene Arguedas, Director of Investment and Cooperation at the Costa Rican Ministry of Foreign Trade, gave a keynote presentation on unlocking private investment in support of green growth and progress made by Costa Rica towards sustainable development.

Last September, during the International Day for the Preservation of the Ozone Layer, Costa Rica announced that it had eliminated metal bromide from the country's agricultural production. This achievement, which has led to increases in agricultural production volumes and quality, provides an example of how good environmental practices can reinforce growth.

Costa Rica has relied on five core instruments to shift its economic growth away from resource-intensive industries towards more sustainable practices:

- A national development plan that sets out the country's environmental goals.
- A climate change strategy that covers water, energy, agriculture, fisheries, human health, infrastructure and biodiversity.
- A national plan for sustainable tourism.

- A long-term national energy plan, aimed at increasing investment in renewable energy sources and diversifying Costa Rica’s energy mix.
- A 10-year national plan for forestry development.

Ms Arguedas provided further detail on green energy and sustainable tourism developments in her country. Costa Rica has been harnessing hydroelectric power since the 1950s. Electricity generation has been open to the private sector since the 1990s, and private sector investment has consequently been increasing. Close to 75% of wind generation projects, for example, are now led by the private sector. Foreign direct investment (FDI) in the energy sector is also increasing, and stood at USD 134 million in 2012, up seven times on 2011 levels. Despite this performance and legislative measures to facilitate investment, there are still restrictions that prevent private sector investment from developing its full potential. For example, there is a cap on the percentage of electricity that can be generated by the private sector. Nevertheless, more than 90% of Costa Rica’s energy supply is from renewable energy sources. The country is experiencing a 5% increase in electricity demand annually, which represents a key challenge.

Costa Rica has been deploying an eco-tourism approach for many years. Last year, tourism accounted for 5.1% of Costa Rica's GDP. Various mechanisms have been set up to promote sustainable tourism, including a certification system, an “ecological blue flag” information campaign, etc. The National Plan for Sustainable Tourism also makes provision for a “best environmental practices” code and environmental contingency plans. As a result of this work, Costa Rica was ranked 7 out of 140 countries for its performance in the conservation of natural resources in a recent global survey.

Costa Rica continues to explore innovative ways to conserve the environment while also pursuing growth. Its experiences may help other countries make the shift from traditional low productivity economic structures to new, high productivity structures. This is quite an ambitious challenge but one that can and must be achieved.

## **Panel discussion**

Costa Rica’s keynote presentation was followed by a panel discussion focussed on how governments can best leverage private investment in support of green growth and policy priorities to improve the enabling environment for investment in green infrastructure. The panel comprised: Cecilia Tam, Head of Unit, Directorate of Sustainable Energy Technology and Policy at IEA; Erik Solheim, Chair of the OECD Development Assistance Committee; James Beard, Economic Counsellor, New Zealand Treasury; Alex Bowen, Principal Research Fellow at the London School of Economics Grantham Research Institute; Norine Kennedy, Vice President, Strategic International Engagement at the US Council for International Business and OECD Business and Industry Advisory Committee (BIAC) representative; and Karim Dahou, Executive Manager, Investment Division, OECD.

IEA’s Cecilia Tam intervened first, providing an overview of energy sector trends relevant to green growth. There has been an increase in investments in low carbon energy technologies in all regions of the world. In 2011, investment in renewable power reached USD 270 billion, surpassing investments in fossil fuel power generation for the first time ever. This progress is extremely encouraging.

Yet, overall, there is need for significantly higher ambition in clean energy investment. The IEA's Energy Sector Carbon Intensity Index, shows that the considerable increase in renewable energy technology capacity investment has not resulted in an overall greening of the energy system. The amount of carbon emitted per unit of energy supplied has remained static over the past two decades, largely due to ongoing reliance on fossil fuels to meet incremental energy demand. In addition, while good progress has been made in renewable power and in other areas such as electric and hybrid-electric vehicles, significantly more progress is needed in other sectors such as the buildings and industry sectors, and in technologies such as carbon capture and storage.

The IEA estimates that USD 24 trillion will have to be invested in the power generation, transport, buildings and industry sectors to 2020 to achieve the green transition. This represents an additional USD 5 trillion compared to a business-as-usual scenario. However, these investments will pay off: the transformation of the energy system will lead to USD 100 trillion in reduced spending on fossil fuels out to 2050, with every USD 1 spent on clean energy investments yielding an estimated USD 3 in fuel savings. To achieve these goals, there are three principal messages for governments:

- For too long, governments have supported – directly or indirectly – the wasteful use of energy, because the price of energy does not reflect its true cost. Governments must get prices and policy right, including by imposing a meaningful price on carbon and phasing out fossil fuel subsidies.
- It is necessary to take a systems perspective and long-term view of investments in the energy system – governments and industry must go beyond thinking of individual technologies, electoral cycles and short-term profits.
- It is important to capitalise on easy wins such as energy efficiency, which should be considered as the global first fuel. Since 1990, more energy has been saved through energy efficiency measures than have been used in any other fuel.

OECD Development Assistance Committee Chair Erik Solheim started his intervention by noting that the need to green growth stems largely from the success of humans in driving economic growth and reducing poverty over the past few decades. What is at stake now is how to effectively support that growth within the parameters of global environment constraints. It is necessary to unleash private capital if we are to continue to advance. There are three main ways forward.

First, governments have a key role to play in framing markets and providing incentives for green growth to happen at the national level. Ethiopia provides an example of a country whose government is showing leadership on green growth. It launched a low-carbon growth strategy with the aim of becoming a middle-income country in 15 years' time, without increasing emissions. Brazil has proved that deforestation rates can be reduced significantly. The country has reduced its deforestation rate by around 80% in the last ten years. Too many governments are still sending the wrong policy signals to the private sector, by directly or indirectly subsidising fossil fuels. Indonesia, for example, currently spends more money on fossil fuel subsidies than it does on education and health combined. The aim for governments should be to make funding available to promote positive actions now, instead of trying to undo negative actions later.

Second, global action is required to determine how private finance will support international development assistance for the green transition in developing and emerging economies, building on the Copenhagen agreement of USD 100 billion by 2020.

Third, an important role is to be played by “coalitions of the willing”: those governments, civil society organisations and businesses who are prepared to show leadership and act early on greening growth, rather than wait for concerted and coordinated international action.

New Zealand’s James Beard focused on the wider policy environment necessary to support private investment in green growth, starting out with two points. First, investment is clearly important for growth, and OECD research has shown that investment in infrastructure has positive impacts that go beyond the immediate benefit of adding to productive capital, such as diffusion of technology and providing access to bigger markets. Second, environmental costs are often not appropriately priced into investment decisions.

Some important policy challenges result. First, improving the enabling conditions for private investment in green infrastructure; and second, ensuring that investment occurs in the right places, using the right technologies.

Further it is the view of the government of New Zealand that green growth should not be seen as a separate policy agenda but as part of the government's broader economic growth policy, cutting across infrastructure, skills, innovation, capital market and natural resource policy areas. The creation of an environment for investors that provides stability and reduces uncertainty is a priority. If green investments are seen as higher risk, investments may go towards safer, more traditional (*i.e.* polluting or resource intensive) opportunities and the government has a role to play to avoid that situation.

The design of regulation policies is key to promote green investment. The legal framework must ensure that resource-use decisions are made on the basis of environmental considerations and that regulation does not delay investment or represent a barrier to new entrants. Regulations around foreign investment are also important: as capital needs are significant and the technologies involved quite novel, foreign investment will be an important source of capital and ideas. Pricing negative externalities associated with resource consumption and use, limiting polluting practices through regulation, and policies to promote research and development all contribute to the attractiveness of green investment.

However, having the right regulatory framework is not sufficient in itself, because there can be negative “spill overs” from other policy areas. Policy coherence is therefore required, and getting policy right across a range of different policy areas is essential. All of those policies must be mutually reinforcing. Often, though, the responsibility for different policy areas lies with different agencies and government departments. This implies that a high level of coordination is needed to promote private investment in green growth, including through the designation of a lead agency.

Grantham Research Institute’s Alex Bowen highlighted five principal recommendations for a supportive public policy environment. First, private investment has to be stimulated in general as the recession has slowed down investments in plants and equipment, given business sector uncertainty on demand prospects. Weakness in infrastructure investment generally is the biggest factor holding back investment in green growth. On the positive side, low real interest rates mean there is no real constraint on the funds available. However, finance needs to be guided into green investments through the right incentives. Emerging economies such as China and India have shown that, where there is a will, private sector investment can change very rapidly over time.



Second, the credibility of green policies has to be increased. Policies need to be "long, loud and legal". The United Kingdom has some good examples of such policies, for instance as implemented by the *Climate Change Act* of 2008 or the Independent Committee on Climate Change. However, there is also room for improvement: aspects of the electricity market reform process remain uncertain; small-scale feed-in tariffs have been arbitrarily changed, leading to legal challenges; and there is still too much overlap in policies. These factors act as a disincentive to private sector investment.

Third, it is essential to get carbon prices right. Increasing carbon prices induces more investment in energy efficiency and low carbon energy sources and provides a clear signal to households and firms to direct investment decisions. The UK climate change levy has been shown to have had a very positive impact, with no adverse effects on employment or economic growth. Today, prices are very uneven across sectors, resulting in significant cost inefficiencies, and EU ETS prices have been in a downward trajectory. Studies suggest that ETS prices would need to increase four-fold and be seen to be likely to steadily increase in the future if the private sector was to have an incentive to invest in low carbon technologies.

Fourth, low carbon innovation has to be promoted. It is necessary to support innovative firms, including radical new start-ups. Europe has perhaps paid insufficient attention to support for early stage R&D. In the United Kingdom, spending on R&D in the energy sector is much lower than it should be. In contrast, Korea and China have significantly increased their spending on green innovation.

Fifth, financial intermediation must be improved. Financing infrastructure requires some sort of social pact on the level of infrastructure needed. Society-wide decisions have to be made and a clear public framework is very important. Issues about the capital intensity of infrastructure also need to be addressed. One way to deal with this issue is through the development of specialised financial intermediaries such as the UK Green Investment Bank, which was set up in 2012. Even though it does not lend at subsidised rates, the Bank has succeeded in filling one-sixth of the green financing gap in only one year.

Norine Kennedy of USCIB/ BIAC noted that there has been a proliferation of terms related to private sector investment in green growth over the past year, highlighting the increasing importance attributed to the issue: private sector investment should be "unlocked", "unleashed", "mobilised", "leveraged", "catalysed", etc. The question of how to open green investment up to business goes beyond climate change and the energy sector: many other sectors require investment.

The Green Economies Dialogue,<sup>1</sup> led by the United States Council Foundation and United States Council for International Business (USCIB) and supported by BIAC, is an initiative aimed at bringing a business perspective to the ongoing discussions on green growth and drawing out successful policies in countries where BIAC companies are functioning. A key message is that if policies are not well-designed, they will not necessarily lead to growth. The entire economy has to be brought into a greener mode of operation, and all industry sectors have to be involved. To ensure that this is not only about corporate image and "green washing", a real business case has to be demonstrated in terms of customer demand, returns on investment, etc. This requires governments to provide clear regulatory signals and timeframes for the transition.

Investment in support of green growth objectives has to have a positive impact on the entire economy, *i.e.* be a growth-orientated effort. For these policies to work, they have to

function in globalised markets, and encompass developed, developing and emerging countries. Multilateral approaches will therefore be important and dialogue between governments can help to direct private sector investment. Importantly, there are many things that the private sector already knows how to do and that have measureable benefits. Dialogue between business and governments will be important to unleashing this potential. Rather than referring to "coalitions of the willing", we could talk about private-public partnerships, which are a promising avenue for the future.

OECD's Karim Dahou emphasised that governments have a key role to play in strengthening the enabling environment for green infrastructure investment. First, setting stable domestic policy frameworks for green investment by addressing country-specific policy bottlenecks is a key priority. A second priority for governments is to address barriers to international trade and investment to optimise green value chains. In a post-crisis recovery context, several governments appear to have adopted policy measures that aim at protecting domestic green manufacturers. Today, however, two-thirds of goods traded worldwide are intermediate goods. This means that restrictions on international trade may also restrict international investment and hinder the optimisation of green value chains.

Carbon pricing is also key; a fundamental message can be sent to the market via this mechanism. Overall, long-term predictability is also necessary for an industry that is both risk- and capital-intensive and governments will need to take this into account in designing support policies.

Key research gaps and priorities for future work include: providing further policy guidance on design and implementation of sound policy frameworks for green investment; assisting host countries in channelling investment towards clean energy infrastructure; tracking and monitoring of trade and investment restrictions in green sectors; and enhancing international co-operation to optimise green value chains at the global level.

Relevant OECD work includes: the OECD *Policy Guidance for Investment in Clean Energy Infrastructure*, a non-prescriptive tool to help governments – particularly in developing and emerging countries – identify ways to mobilise private investment in clean energy infrastructure;<sup>2</sup> OECD Investment Policy Reviews<sup>3</sup> that contain a chapter on green investment; the *Policy Framework for Investment*; and a current project on "Achieving a level playing field for international investment in green energy".

## Plenary discussion

The panel discussion was followed by a moderated plenary discussion. Key points arising from the discussion include:

Policy framework conditions, competitive discipline, and removal of barriers to entry are key to ensuring that investment in green growth occurs in the right place at the right time. Investors respond to profit opportunities, and those opportunities depend on costs and potential gains. Government action is critical to counter path dependencies that act to push investment towards traditional technologies and projects.

It is essential to involve the general public in the green growth debate. There is greater awareness of the need for both governments and the private sector to engage all relevant stakeholders in greening the energy sector in particular. Cecilia Tam noted that the IEA explicitly addresses stakeholder engagement in its *Technology Roadmaps*, which

set out how to reach deployment goals necessary for the green transition across clean energy technologies. The IEA is also undertaking work to demonstrate the benefits of these technologies to the public, such as on the co-benefits of energy efficiency, (e.g. health benefits). At the end of the day, it is the public that has to adopt clean technologies in certain sectors, such as the transport and building sectors. This fact underscores the importance of stakeholder engagement.

While action to improve the current situation is critical, perhaps the focus should be on where the world needs to go, determining clear targets to ensure that environmental constraints are respected, and using those targets to assess investment plans. Essentially, the question is whether green growth should be an independent variable or the yardstick in investment decision making processes.

Institutional investors such as pension funds will be critical to financing the shift to a green economy, but are traditionally extremely cautious in their investment decisions. Infrastructure investments in general pose significant challenges for such investors. Credible, long-term government plans will be essential. The United Kingdom is an example of a country that has been looking at how best to drive infrastructure investment, including through their green investment bank.<sup>4</sup>

An effort by the international investment policy community, with global objectives – as opposed to isolated efforts – is likely to assist individual countries in achieving green growth. For example, a reduction in global tariffs on environmental goods, as discussed as part of the 2013 WTO trade negotiations in Bali, would provide incentive to investors to put more money into green projects. There seems to be a disjunction between the current focus in international climate negotiations on defining and allocating targets for emission reductions, and consideration of the instruments and measures that should be implemented to achieve those targets. How can we achieve concrete results – such as a global carbon tax and phasing out of fossil fuel subsidies – as part of international climate change negotiations and the post-2015 Development Agenda? Much may depend on what *national* governments decide, as opposed to what the multilateral system can achieve. There are some reasons for optimism. The business community, for example, is taking steps to contribute to new, greener systems. For example, the Green Climate Fund<sup>5</sup> can play a role in catalysing private sector investment, and the business community has demonstrated its appetite to be part of that initiative. On the post-2015 Development Agenda, some of the partnerships already in existence are a model for other non-negotiated outcomes that can actually deliver results.

Climate change issues tend to be a focus of international dialogue on green growth, given the huge capital requirements in this area. Yet, other aspects of green growth, such as biodiversity and water – and the broader question of how to integrate natural capital into investment decisions – are also extremely relevant. The OECD has undertaken some work to support the mainstreaming of green growth into economic analysis, such as work on environmental policies and productivity growth, the development of green multifactor productivity measures and of a natural resource use index. Further work will also be undertaken as part of 2015/2016 programme of work and budget.

Companies are often quick to support an increase in protectionism and during past crises, governments have felt they had to protect domestic jobs and economies. It has now been shown that such protectionist policies are extremely detrimental and should be avoided. There is a role for the OECD in demonstrating the negative impact of protectionist policies, including in other sectors of the economy, and building up a constituency for reform.

## Session 1 conclusions

Session 1 Chair Manfred Schekulin made six concluding remarks to sum up the session:

- First, all the interventions highlighted the key role for government policies in getting the underlying framework for green growth right. Getting the public on board with these issues through good communication efforts will be important to provide support for the work of government and politicians.
- Second, it is critical to look “far and wide”, as opposed to thinking in silos. Green growth cannot be achieved by ecologists or economists only: everyone must be brought to the table.
- Third, when governments intervene, they must do so without distorting markets. If governments provide the wrong financial incentives, they will get the wrong results.
- Fourth, governments must be in it for the long run: there is a huge difference between short-term effects and long-term impacts, and predictability is important to enable companies to make the right investment decisions.
- Fifth, the problems we currently face are of a global magnitude and have to be approached through global means. The OECD will have an important role to play in this respect.
- Sixth, innovative financial mechanisms will be important to direct financing to the right kind of projects.

## Notes

<sup>1</sup> See [www.green-dialogue.org/about-us/](http://www.green-dialogue.org/about-us/)

<sup>2</sup> OECD (2013), *Policy Guidance for Investment in Clean Energy Infrastructure: Expanding access to clean energy for green growth and development*, An OECD report to the G20, with contributions by the World Bank and UNDP, [www.oecd.org/daf/inv/investment-policy/CleanEnergyInfrastructure.pdf](http://www.oecd.org/daf/inv/investment-policy/CleanEnergyInfrastructure.pdf).

<sup>3</sup> See [www.oecd.org/investment/countryreviews.htm](http://www.oecd.org/investment/countryreviews.htm)

<sup>4</sup> [www.greeninvestmentbank.com/](http://www.greeninvestmentbank.com/)

<sup>5</sup> See <http://gcfund.net/home.html>

## Session 2: How to attract affordable long-term finance?

Michael Liebreich, CEO of Bloomberg New Energy Finance (BNEF), chaired Session 2 on attracting affordable long-term finance for green investment. He reported that investment in the clean energy sector grew very quickly between 2004 and 2012. Growth initially stalled slightly during the financial crisis, but continued to ramp up based on green stimulus programmes until 2012, when it stagnated as stimulus funding dried up. 2013 has seen clean energy investment levels actually drop, reflecting in part cost reductions in certain technologies. The current investment environment is clearly very challenging, even in traditionally strong markets such as China.

North-South flows for clean energy grew to about USD 10 billion in recent years but have also recently stalled. Nevertheless, gigawatts of installed renewable capacity continue to grow. In addition, the amount of money being invested by development banks has increased dramatically: approximately 40% of all investments in clean energy are being made by the world's development bank community.

Following the Global Green Growth Forum<sup>1</sup> in Copenhagen, it is clear that green infrastructure investment is happening and that there is a range of models and best practices that can be drawn on. A fundamental rethink in the investment landscape will be required to increase the order of magnitude of these investments, however, by bringing green infrastructure opportunities to mainstream investors; and mainstream investors to green infrastructure investment.

Key issues for discussion include:

- The role that governments can play in improving the risk-return profile of green investments for the private sector and drawing capital market investment and institutional investors into projects supporting green growth.
- How governments can improve domestic financial markets, address barriers to private investment in green infrastructure and provide efficient financial instruments to effectively reduce the green investment gap.

### Roundtable discussion

Session 2 took the form of a roundtable discussion on how to improve the risk-return equation for the private sector and draw capital market investment into green infrastructure projects. Participants included: Jochen Harnisch, Climate Change Policy Coordinator at Germany's KfW Development Bank; Dominique Dron, Supervisor of France's *White Paper on Financing the Ecological Transition*;<sup>2</sup> Karsten Löffler, CFO/COO at Allianz Climate Solutions, Germany; and OECD's Robert Youngman, Principal Policy Analyst, Climate, Finance and Investment Division.

KfW Development Bank's Jochen Harnisch began by stating that, in his view, it may not be necessary to reinvent the investment environment to encourage green investment; it may be just a matter of running current systems differently. The future may lie more in the reallocation of investment between different types of assets, but whether a step-

change in the level of investments can be effectively based on the current system will depend in part on the mandate that governments give to international development banks. In 2012, 40% of KfW's USD 94 billion in new commitments was focused on climate and the environment, and the bank's 2014 programme will have a focus on green infrastructure and sustainable cities.

A key challenge is to strengthen the development of bankable projects. There are huge uncovered investment needs and a wealth of ideas for climate-related projects in developing countries. At the same time, there is a scarcity of bankable climate projects due to weak regulatory frameworks (mixed messaging through fossil fuel subsidies, lack of enforcement, etc), poor economic viability (including due to lack of sustainable business models), weak project implementation standards, and the absence of appropriate partners. Dedicating resources to assist with project development and capacity building in relevant institutions in developing countries could go some way to resolving this.

Long-term finance and development banks have a key role to play in increasing flows of climate finance, as they can help compensate for market failure and for the unintended consequences of financial sector regulation. They are able to provide affordable long-term finance due to their strong equity base, their reduced required return on equity, their reduced risk margins, and their partial exemption from financial regulations such as Basel III.

A key message is that, if long-term finance for green infrastructure remains an uphill battle due to cumbersome financial regulations, everyone will lose out. It is therefore necessary to have a prudent, multi-dimensional regulatory framework for the financial sector. Loans and guaranteed instruments should be used for climate finance where possible, in preference to grant finance. The use of long-term government guarantees for project bonds and credit enhancements could be expanded. The role of development banks as an anchor to investors in co-financing arrangements should also be expanded.

Dominique Dron spoke about France's *White Paper on Financing the Ecological Transition*, written by the French Ministry of Finance in conjunction with the Ministry of the Environment. The paper is currently under consultation on these ministries' websites. The two ministries agreed on three principles in developing the paper:

- The world's economy is in a new phase of major investments, as existing infrastructure comes to the end of its lifecycle.
- The world's natural resources are in a critical state that will not be resolved by the current economic model or regulatory system.
- Climate adaptation and mitigation actions are becoming vital.

The existing financial framework is not able to address these issues; nor is it able to deal with flat growth. The only information that is currently available for making investment decisions is financial return, and that is clearly insufficient. It will therefore be necessary to change the financial framework in the light of global warming and resource depletion, to facilitate an ecological transition (ET). 2050 is only just around the corner! A diversity of investments and means of financing will be necessary to effect all required changes.

The White Paper is organised around 4 principles, 14 recommendations and 63 measures. In particular, it emphasises that better signals and new tools are needed to channel public and private resources to facilitate the ET. The non-financial dimensions of the ET must be strengthened, through for example governments providing advantages for

the production of non-financial benefits. Concepts, tools and models used as part of the financial system also have to be updated. Investors require high returns because they face high risks. If guarantees can be provided by different players provided finance is channelled to green projects, that may change investor perception of risk.

The White Paper proposes that ET information be associated with goods and services, including financial services. ET conditionality should be mainstreamed into public support and procurement, and in public financial institutions. ET reporting requirements should be extended to all institutional investors. Finally international financial reporting standards should be adapted to long-term investment for ET.

Karsten Löffler began by stating that regulation is part of the game – clearly much more could be done if investors were forced to do things differently through more rigorous intervention in the financial system. Allianz is one of the largest renewable energy investors and it is clear that institutional investors are interested in low-carbon technologies. However, 91% of the company's investment portfolio is represented by fixed income instruments. It therefore invests cautiously and conservatively, taking a low-risk, low-return approach. Given the nature of the company's investment appetite, Allianz has only invested 0.3% of its portfolio in the renewables sector. Investment depends on attractive, profitable projects, and this rate of investment reflects a lack of available projects – it is much like someone sitting in a restaurant and finding “nothing they like on the menu”. In order to move further in this direction, Allianz would need a reliable regulatory framework and familiar financial instruments such as covered bonds or funds to invest in. It is also a challenge to find projects that are significantly large-scale for investment. Finally, the most significant measure would be to see the cost of carbon emissions reflected in investment portfolios. Clean investment will not be taken seriously without a credible, sufficiently-high price on carbon. Most major investors are locked into benchmark-linked investments, and some of those benchmarks are heavily tilted to fossil fuels. A key challenge is how to integrate extra-financial criteria such as carbon risk into the business model. Translating such criteria into monetary amounts is extremely difficult.

OECD's Robert Youngman noted that a recent OECD paper, *Institutional Investors and Green Infrastructure Investments: Selected Case Studies*,<sup>3</sup> estimates that USD 83 trillion in assets were managed by institutional investors in OECD countries in 2012. Only 1% of pension funds' assets surveyed by the OECD were invested directly in infrastructure projects, and only 3% of that 1% went into green infrastructure. What must be done to get conservative pension funds and other institutional investors interested in green investment? There are many barriers to institutional investment in green infrastructure that must be addressed in order to see a step change in the rate of investment.

First, weak, uncertain or counterproductive environmental, energy and climate policies hamper investor trust and confidence in green infrastructure projects. “Stop-and-go” policymaking, fossil fuel subsidies and a lack of adequate climate pricing are all part of the difficulty. Second, some regulatory policies have unintended consequences. For example, pension funds are often tax exempt in countries where tax instruments are an important tool in incentivising investment in certain areas. Third, there is a lack of suitable financial vehicles that meet the expectations of institutional investors. Green bonds could be an answer here but their use remains limited. Finally, there is a shortage of objective data in these areas that would enable the assessment of transactions and underlying risks.

There are a number of actions that governments could take to address these barriers to investment. Notably, they can ensure a stable and integrated policy environment and address market failures (for example, by introducing carbon pricing). They can facilitate the development of appropriate financing vehicles, and reduce the transaction costs of green investment. Finally, they can promote public-private dialogue on green investments.

Michael Liebreich asked whether barrier removal will be sufficient here or something else is needed over and above that. For Robert Youngman, barrier removal will not itself be enough; proactive action is also needed, including mandates, incentives, eliminating fossil fuel subsidies, avoiding retroactive changes, and so on. Regulatory barriers also have to be removed. This is clearly a complex, multi-dimensional issue and there are no easy answers, although progress is being made. Institutional investors are showing increasing interest in this type of investments when they can deliver the risk adjusted returns they need.

## Plenary discussion

Key points arising from the moderated plenary discussion that followed the roundtable discussion include:

- With respect to the aggregation of small-scale energy projects to facilitate investment for institutional investors, this has been done many times in the past and the necessary mechanisms, such as green credit lines, combined small-scale energy efficiency projects, etc. do exist. Private or development banks can be relied upon to aggregate projects, or alternatively local solutions could also be envisaged. Historically development banks have not done much in the area of small projects and it could be useful to look at alternative models such as leasing, pre-paid or franchise. Valuable lessons on aggregation could also potentially be gleaned from other sectors, such as housing.
- The financial sector acts in an opportunistic fashion: companies invest when they see potential for returns, not because it is good for the economy or the environment. What matters is the relevant regulatory framework: the financial sector is unlikely to resolve issues associated with the green transition without government direction, and it is therefore government, rather than individual investors, that must move first.
- Given that, globally, there are substantial amounts of capital that are available for investment, and the costs of solar photovoltaic and wind energy are competitive with traditional generation technologies in some countries, policy risk appears to be the biggest inhibitor to enhanced investment. Investors are extremely wary of the risk of retroactive regulatory changes, for example. BNEF was recently informed by major Asian debt investors that they would not currently invest in infrastructure in Southern Europe due to the risk of retroactive policy changes. This demonstrates that policy risk is very much a live issue.
- Despite perceived policy risk, there are examples of situations where factors have come together to enable green deals, which can provide lessons for governments in terms of what combination of conditions is likely to make investment possible. The OECD's 2013 *Institutional Investors and Green Infrastructure Investments: Selected Case Studies* publication<sup>4</sup> sets out a number of examples.



- Multilateral development banks can play a key role in reducing risk, both through their very presence, and through innovative financial tools.
- Green technology investments are currently perceived as high risk and this is a major barrier to investment. However, fossil fuels could also be considered as very risky, if action on climate change and broader environmental constraints is seen to be likely. The reality is, however, that the financial industry at large does not currently believe that governments are serious about addressing climate change. Major policy change on climate is not seen as a credible threat to oil and gas industry interests and fossil fuel investment therefore remains high.
- BNEF has launched a risk assessment tool that allows investors to evaluate investments on the basis of different scenarios, including a strong carbon pricing scenario, to try to increase the information flow on the potential impact of carbon pricing.

## Notes

<sup>1</sup> See <http://gsgi.org/green-growth-plan-implementationinvestment-plan-design/>

<sup>2</sup> Livre blanc sur le financement de la transition écologique: [http://www.developpement-durable.gouv.fr/IMG/pdf/Livre\\_blanc\\_sur\\_le\\_financement\\_de\\_la\\_transition\\_ecologique.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/Livre_blanc_sur_le_financement_de_la_transition_ecologique.pdf)

<sup>3</sup> OECD (2013), *Institutional Investors and Green Infrastructure Investments: Selected Case Studies*, OECD, Paris.

<sup>4</sup> OECD (2013), *Institutional Investors and Green Infrastructure Investments: Selected Case Studies*, OECD, Paris.



### Session 3: How to mobilise investment in the transport sector?

Stephen Perkins, Head of Research at the International Transport Forum, chaired Session 3 on mobilising investment in the transport sector. A key aspect of attracting investment to the transport sector is being capable of defining exactly what green transport infrastructure actually is. There is currently no clear international consensus on relevant indicators for greening of the transport sector. A further challenge is that even traditional transport infrastructure investments are considered risky and perception of risk is enhanced for green investment. Session 3 considered what kind of government support would help raise capital for investment in the sector and how long government support for transport markets is likely to be required for market development in “alternative” land transport.

#### Keynote presentation: a European Investment Bank perspective

Matthew Arndt, Head of Division, Environment, Climate and Social Office at the European Investment Bank (EIB) provided an EIB perspective on mobilising investment in the transport sector. Sustainability and environmental policies are key to the bank, with 25% of its lending devoted to climate action.

He reported that 90% of all EU transport emissions are generated by road transport. In addition to transport by rail and inland waterways, therefore, sustainable transport solutions must also necessarily encompass road transport. Demand for transport continues to rise, particularly in emerging economies such as China and India, implying an associated increase in greenhouse gas (GHG) emissions. It is still not clear which vehicle technology will win out in the future (electric vehicles, biofuels, etc). At the same time, planning decisions are being made in a context of increased uncertainty about ecosystem functioning, in terms of how much ecosystems can take in supporting transport from both an emissions and physical imprint perspective. Finally, the question of what are the right tools to be put in place has still not been answered satisfactorily. Cost-benefit analysis in infrastructure investment decisions could be improved, for example, by adding shadow carbon prices, or stress tests for resilience of infrastructure to high fuel costs, and so on. The EIB is already using a shadow price of around EUR 30 per tonne of CO<sub>2</sub>.

Sustainability is not only about carbon; robust due diligence processes imply a well-developed, multi-dimensional framework that goes beyond GHG emissions. Social aspects are one element. New types of transport will require changes in human behaviour, which can be difficult to achieve. Participatory planning systems may be one way of addressing this. It is also necessary to consider biodiversity impacts, notably by expanding the concept of economic evaluation. The EIB has been involved in many public-private partnerships in the transport sector. However, attracting private finance to sustainable transport modes remains difficult at the project level. This could be resolved through a credible and stable regulatory system that reduces the cost of private capital. The reform of pricing would also boost cost recovery across urban and regional transport sectors, but this is clearly a politically sensitive area. Finally, finance for R&D and innovation is a fundamental part of this equation.

The EIB sells green bonds but is unable to include transport in these instruments due to a lack of clear criteria on the meaning of sustainable transport.

In summary, the question of how to ensure that all transport sector investments made are sustainable investments is an extremely difficult one. Conditional credit enhancement backed by public funds is one potential option and EIB is involved in a project bond initiative.

In discussion following the presentation, it was noted that making transport more expensive would send a strong message to the market. Is the aim here to improve transport, or reduce transport? The notion of decoupling growth from transport flows is an uncomfortable one, and it is difficult to envisage how less transport can be compatible with growth. This notion is yet to function in practice. What is clear is that some transport flows intuitively make less sense than others in a green growth paradigm. The aim should be to decouple the environmental impact of transport from transport volumes.

A further point made was that a substantial amount of support has been given to public transport in Europe, but that the impact of such investments from a sustainability perspective is not clear. In addition, it is rare that a systems perspective is taken in planning such infrastructure and it is not always evident that investment makes sense within the larger, integrated framework.

## **Panel discussion**

Session 3's panel discussion comprised Andreas Schäfer, Professor in Energy and Transport at University College London; Per Kågeson, Professor of Environment Systems Analysis at the Royal Institute of Technology Stockholm's Centre for Transport Studies; John Farrow, Chairman of LEA Group Holdings Inc; Simon Wilde, Head of Energy and Utilities at Macquarie Capital London; and Philippe Schulz, Expert Leader, Environment, Energy and Strategic Raw Materials at Renault, France.

UCL's Andreas Schäfer emphasised that a green economy necessarily requires green components, including a green transport sector. It also requires both green technology and "green behaviour", which implies demand side management. The time dedicated to transport has remained largely unchanged over the years and stands at approximately 1 hour per day per person. At the same time, there is a strong link between income and transport and the richer the world is getting, the more the world is travelling. There has been a corresponding increase in the speed of travel, which essentially means a shift away from modes that are most compatible with a green economy – public transport modes – to greater use of personal, light-duty vehicles and aircraft. Current trends in infrastructure investment match these trends in modal shift. While Europe and North America have seen a peak in car travel, the remaining 85% of the world's population is only just beginning to embark on car transportation. Even in situations where public transport infrastructure investments have been increased, their mode share continues to decline. This indicates the need for additional, coordinated policies that modify human behaviour.

In terms of green transport technology, there are very few success stories. The role for government action to promote R&D, provide subsidies and set up predictable, long-term policies to enable the transition is clear. The vehicle industry is highly capital intensive and it is evident that greening the industry will be a significant challenge.

Per Kågeson of the Royal Institute of Technology Stockholm noted that, in addition to sharing success stories, highlighting mistakes and failures can also assist in

determining what the focus of greening the transport sector should be. Climate change policy is urgent, and policy mistakes can cause lock-in effects and long-term dependency on subsidies. Often, such mistakes can be the result of undue influence from special interest groups; a sense of urgency leading to ill-considered policy design; and a desire to avoid unpopular measures.

An example is the rise and fall of ethanol as a fuel for Swedish cars. Ethanol (E85) cars were subsidised and exempted from a number of charges and parking fees. The fuel itself was exempt from taxes. The ethanol fuel fleet reached a level of 5% of all Swedish cars. Use of these vehicles have not resulted in demonstrable, net environmental benefits and today, certain subsidies have been reduced or removed, and annual sales of these cars have fallen from 58,000 to 6,000. In the meantime, the number of gas stations in Sweden has dropped by 30%, as businesses have sought to avoid the mandatory requirement of bringing a remote fuel to the market. NGOs are now calling for a repeat of such policies with respect to biogas fuelled cars.

Another example of a potentially poor investment decision is the promotion of high speed rail to increase freight capacity. High speed rail is being promoted as a way of reducing air travel and freeing up capacity for freight. However, it may in fact generate new traffic rather than diverting traffic from air traffic or cars, and it is hardly able to offset embedded CO<sub>2</sub> emissions. It will also not be a viable option in sparsely populated areas. Alternatives are available to increase freight capacity, such as the use of longer trains or the electrification of motorway corridors.

LEA Group Holdings Inc's John Farrow provided a Canadian investor perspective on mobilising green investment in the transport sector. Canadian pension funds, with assets of over CAN 700 billion, have very robust governance structures with demanding benchmarks in terms of risk, return, and performance. Many factors discourage them from investments in transport infrastructure generally abroad: inter-country risks (in particular with respect to taxation, given that pension funds often will not be required to pay taxes in their country of origin); national risks, including issues regarding the rule of law, property rights and dispute resolution; region/city risks; and project risks.

There are many factors that could enhance prospects for greener transport infrastructure investment. First, implementing bilateral tax and trade agreements could resolve many aspects of country risk. Second, establishing arm's length government agencies to develop long-term infrastructure plans and build government expertise in negotiating and managing public-private investment in transport infrastructure. Third, city-private development corporations could be set up to develop high-density, transit-oriented projects. This would also improve the transit modal split. Finally, sustainability indicators could be defined for urban transport projects. These indicators would have to be robust, clear, concrete and widely accepted.

Macquarie Capital London's Simon Wilde began with a definition of infrastructure investment, a concept that was developed around 15 years ago. Infrastructure investment means directly investing in physical assets that represent key, economic infrastructure. Transport infrastructure investment means investment in aviation, road and rail infrastructure. Infrastructure projects are often considered as potentially low risk/high return projects but the reality is that they involve high levels of potential risk that are sometimes passed on to others. Similar to the energy sector, a lot of current transport investment is not green. Historically speaking, the transport sector has proven to be much less resilient than other infrastructure sectors to crisis periods. As a result, investors drew away from the sector for some time during the recent financial and economic crisis. Since

2010, the financial industry has been rediscovering its appetite for transport, but investors nevertheless remain cautious about the sector. Aggregating projects can reduce risks and this type of mechanism will be key in the future.

Green investment is a higher cost investment than traditional investment and is currently generally not affordable, which is why investment levels are low. Green investment will therefore generally require subsidies to attract investors. Some governments have included environmental compliance as part of public-private partnership conditions, but this has the potential to increase project costs. Nevertheless, making environmental and social costs explicit can have a positive effect in itself, as people can then start working on trying to resolve the problem.

Renault's Philippe Schulz gave a perspective on the risks of investment in non-conventional technology in transport, as an electric vehicle (EV) producer. The EV market is a new, fast-growing market: the global market has doubled every year since 2011, the first year of widespread market introduction. Countries have launched various levels of incentives for EVs, with subsidies of up to EUR 6,300 in France, compared to zero subsidies in Germany. Incentives are necessary to avoid creating a niche market only, as the business model for EVs depends on mass production.

Renault and Nissan have to date invested USD 4 billion in developing the vehicles. This is very clearly a long-term investment. EVs are likely to prove a key technology to dissuade users away from conventional gasoline or diesel fuels for road transport.

## Plenary discussion

Key points emerging from Session 3's moderated plenary discussion are as follows:

- While going green clearly involves additional upfront costs, in the case of advanced vehicles these costs can largely be compensated for by fuel savings made over the lifetime of the vehicle. Consumers typically expect an investment pay-back period of around three years, however, and therefore have difficulty amortising the additional costs of clean vehicles, despite future fuel savings potential. This is where the role for policy tools comes in. One difficulty is that so many different types of incentives are currently being used, with many different thresholds. In addition, there are currently no incentives for the efficiency of electric propulsion. We can expect to see these in the future.
- Developing countries – especially the poorest ones – face particular challenges in pursuing green transport infrastructure, including domestic pressure to prioritise spending on more immediate poverty-related issues. Developing countries have everything to gain by investing in clean technologies today, however, as they are crucial to their own futures.
- Current levels of investment in EVs are not cost-effective in terms of emissions reductions achieved. However, like all new technologies, it is anticipated that amounts invested to date will generate significant additional emissions reductions – and more cost-effective reductions – in the future as technology and markets mature.

## Parallel sessions and GGSD Forum conclusions

Day 2's parallel sessions focused on supporting investment in clean energy infrastructure (Group 1); the role of local banks in engaging small-to-medium enterprises (SMEs) in green growth (Group 2); and directing investment in the environmentally sustainable land transport sector (Group 3). Rapporteurs from the three groups reported back on key knowledge gaps identified and priorities for future work in a concluding plenary session, reflecting the GGSD Forum's objective of providing strategic input into OECD Committee and country-level work priorities on green growth. The concluding session was chaired by Simon Upton, Director of the OECD's Environment Directorate.

### Supporting investment in clean energy infrastructure

The key questions for consideration by Group 1 were:

- What makes clean energy investment different from investment in traditional, fossil-fuel based infrastructure?
- How does government policy and regulation, including carbon pricing schemes and other incentive mechanisms, influence the viability of clean energy investments?
- To what extent do general investment policy principles such as non-discrimination, investor protection and transparency encourage private investment in clean energy infrastructure?
- Do international investors face specific barriers to clean energy investment?

Brian Flannery, Chair of the International Business Green Economies Dialogue at BIAC chaired Group 1. Kimmo Sinivuori, Chair of the OECD Advisory Group on Investment for Development and Juan Casado, OECD Green Growth and Development Policy Analyst reported on the outcomes of the session, which included as speakers Tsutomu Sato, Director of the Global Environmental Issues Policy and Strategy Office for Financial Operations at the Japan Bank for International Cooperation; Vadim Ceban, Director in the Department of Energy Security and Efficiency in the Moldovan Ministry of Economy; and Ana Fernandes, Vice-Chair of the OECD Development Assistance Committee.

In introducing Group 1's rapporteurs, Chair Simon Upton noted that, as an organisation, the OECD views carbon pricing as a first-best policy option to support the transition to low-carbon energy infrastructure. If governments are generally unable or unwilling to implement such policies, which appears to be the case at the current time, it may be time for the OECD to start talking more frankly about how governments might proceed with more costly, second- or third- best policy options as principal drivers for reform, to try to increase investment flows in the right kinds of projects now.

Key points made in discussions of Group 1 include:

- There is clear consensus that reliance on fossil-based energy needs to be reduced to meet a 2 degree climate stabilisation scenario. Meeting this goal will require private sector engagement and investment in green energy.
- Enabling policy frameworks are pre-requisites for transformative change, because national frameworks ultimately determine the primary energy mix of a country, help attract foreign direct investment, etc.
- Policy action and reform are necessary to create incentives for green growth, including by: identifying barriers to investment, such as barriers related to technology, commercial viability, public controversy, political will, energy poverty and grid-interconnectedness; engaging with and integrating all stakeholders at the national level as part of the policy reform process, including the private sector and local-level stakeholders; internalising environmental costs into energy prices; providing stability and predictability for long-term investments; and controlling for all types of risks that could dissuade investors.
- Public resources need to be scaled up to complement private sources, and re-directed towards green objectives. There should be prioritisation among green energy technologies according to national circumstances, to ensure that financial resources are used in most efficient manner.
- In developing countries, poverty reduction requires economic growth. The difficulty is that business-as-usual growth is energy and carbon intensive. Additionally, the real cost of emitting carbon is not always reflected in energy prices, which makes it difficult for investors to ensure adequate returns on their investments in clean energy.
- Developing countries require support to be placed on a green and sustainable pathway. Development co-operation providers could support developing country efforts to reform by, for example: greening Official Development Finance and export credits (*e.g.* by revisiting their own operations and business models); ensuring FDI meets green standards; scaling-up future energy-related interventions; engaging with the private sector to scale-up finance, for example by promoting PPPs; using e-government and green public procurement; recognising different national contexts while promoting learning across countries, as well as at the regional and global level; integrating the social dimension into all stages of policy reform (*e.g.* health considerations, inequalities and energy price affordability); and ensuring that climate change and the environment are mainstreamed into their activities, in addition to country-level development goals.

Key knowledge gaps and priorities for future work include:

- Continuing work to provide concrete guidance on how to create policy investment frameworks that will enable and facilitate private green investments, such as investments in renewable energy and energy efficiency.
- Defining and working out a methodology to identify what constitutes a green investment will be an important aspect of getting investment policy frameworks in place. This should be performed at the sectoral level (*i.e.* targeted to the energy sector, amongst other sectors) and should be tailored to national contexts.
- Understanding how green investments contribute to economic growth. Green energy investments may help reduce reliance on aid and reduce subsidies. The



OECD could identify low-hanging fruit and how to ensure that growth is sustainable. Examples include: the social impacts of green investments (*e.g.* poverty reduction, social cohesion, health); the design of “smart subsidies” for clean energy that are time-bound and provide predictability for the investor; consideration of how to prioritise green investments among energy production, energy efficiency and transport, to achieve goals efficiently; determining trade-offs between sufficient returns for the investor and economic growth dividends for the recipient country; determining main risks facing investors; and looking into how clean energy investments impact on competition.

### **The role of local banks in engaging SMEs in green growth**

Group 2, chaired by GIZ Head of Financial Systems Development Roland Gross, considered challenges faced by financial institutions when dealing with SMEs.

- Is the political and legal framework appropriate to unleash the potential of SMEs to engage in green growth? What role do energy and environment policies play?
- Are there good practices in terms of instruments that are offered by institutions to SMEs?
- What role might development banks play in engaging developing country SMEs?
- What role do reporting standards and reporting mechanisms play to strengthen green investments among SMEs and their financial institutions?

Hélio Gurgel, President of Abema; Pauline D’Amboise, Secretary General and Vice-President of Cooperative Support at Caisses Desjardins; Thierry Téné, Director at Institut Afrique RSE; Huub Keulen, Rabo Groen Bank B.V. Chairman of the Board; and Nicolas Duhamel, Advisor to the Chairman of the Management Board of Groupe BPCE were speakers in Group 2. Fabian Barsky, Financial Systems Development Advisor at GIZ and Christina Martinez, Senior Policy Analyst in the OECD’s Local Economic and Employment Development (LEED) Programme were the rapporteurs for Group 2.

Key messages emerging from Group 2’s discussions include:

- As with green infrastructure investment generally, green SME finance will require a well-designed, coherent and consistent policy framework with sufficiently long time horizons and support from all levels of government, *i.e.* national, regional and local.
- Setting this framework is mainly the responsibility of government. There is nevertheless a need for an integrated and coordinated approach that includes other stakeholders such as financial institutions, local government entities, social partners, the research community, NGOs and business service providers.
- Many of the financial instruments that are already in place such as leasing, corporate social responsibility initiatives in banks or tax incentives can be adopted to foster green investments by SMEs. In particular, banks with strong local and regional ties are in an excellent position to engage SMEs because they understand the local business environment and partners. In developing countries, however, there is often a lack of bankable green projects.
- Local banks are taking steps towards building knowledge of green technologies through cooperation with local knowledge providers to perform risk assessment

of green projects undertaken by SMEs in countries such as France, Canada, the Netherlands and certain countries in Africa.

- Green financing skills can contribute to green project implementation by entrepreneurs and other regional organisations. They can also contribute to resilient business and economies in times of crisis.

Knowledge gaps and priorities for future work include:

- Providing tools and instruments for better knowledge sharing and green skills development in SMEs, banks and governments. The role of local banks in developing green financing knowledge not only stands to add value to individual SME clients, by assisting to build green financing knowledge, but also to embed this knowledge into the regional innovation system and local skills ecosystem, for the benefit of third-party organisations and social actors.
- Developing innovative governance models for green financing. Green financing necessitates innovative ways of operation. In a field that is rapidly evolving and dependent on technological innovation, it is not clear today what exactly will be required in terms of a “green investment mix”. Governments at different levels, banks and SMEs need to cooperate to ensure better coordination of projects and returns on their investments. Lending capital is the most traditional role of banks, but technical guidance and mentoring of entrepreneurs on financing green projects can also be essential.
- Evaluating the impact of green investment by SMEs. Indicators to measure green investments and ways of assessing the impact of green projects and green SMEs beyond balance sheets (*i.e.* in terms of their impact on their local area and their region) are also essential. Such indicators are also likely to provide valuable information to banks on their own knowledge gaps and on where more support is needed for greater returns on their investments.

### **Directing investment in the environmentally sustainable land transport sector**

Group 3 expanded on discussions in Day 1’s Session 3 on mobilising investment in the transport sector. Discussion points for the session included:

- What kind of government intervention is likely to facilitate investment in the transport sector?
- What kind of funding and pricing models are likely to foster investment in urban public transport most effectively?
- What kinds of incentives have proven effective to promote rail infrastructure investment?

Stephen Perkins, Head of Research at the International Transport Forum chaired the session. Andreas Schäfer, Professor in Energy and Transport at University College London; Per Kågeson, Professor of Environment Systems Analysis at the Royal Institute of Technology Stockholm’s Centre for Transport Studies; Simon Wilde, Head of Energy and Utilities at Macquarie Capital London; and OECD’s Kurt Van Dender, Head of Unit on Tax and Environment spoke in the session. John Farrow, Chairman of LEA Group Holdings Inc and Nils-Axel Braathen, Principal Administrator in the OECD’s Environment Directorate were Group 3’s rapporteurs.

Key messages from parallel session Group 3 include:

- A clear, long-term and predictable policy framework is essential to promote green transportation infrastructure investment, consistent with green infrastructure investment requirements generally. Currently, fossil fuel support remains; transport taxes are poorly aligned with external costs; abatement in the sector is sometimes very costly; and land-use and infrastructure policies are broadly supportive of, rather than discouraging of, car-orientated mobility development.
- A unique challenge in the transport sector is that transport needs are generally geographic-specific. In this context, it may be appropriate for national governments to set green targets for various cities and regions, while allowing long-term infrastructure and investment planning in terms of how to achieve those goals to be determined at the local level.
- There is not really a market in mobility. Market creation and user charges are important from a private investment perspective. Currently, private financing generally relies on contracts with government, which are subject to contractual risk and vulnerable to machineries of government change. Institutional and regulatory factors currently act as quite a strong impediment to charging users for various movements, based on timing of travel, etc. Therefore, the public sector will need to continue to bear most of cost for innovative infrastructure in transport. Nevertheless, there is a role for private entities in transport infrastructure investment. Government guarantees are likely to be needed to unlock private capital in the transport sector, due to development risk and other factors.
- Regulation has a clear role to play in effecting transport modal shifts – and corresponding investment shifts – in urban regions. Modal shift is a key requirement for greening transport systems.

Knowledge gaps and priorities for future work include:

- Support for more effective policy development, in terms of more long-term and strategic policies, is necessary to unlock private investment potential in the transport sector and ensure that investment is directed to greener infrastructure. This includes carbon pricing to steer energy consumption and use in the sector, and more effective policy to address other transport externalities. There is need for more careful assessment of costs and benefits of transport investment policies ex ante and ex post, given examples of ineffective or uneconomic policy making in the transport sector.
- Further work is required on the political economy aspects of road transport, for example with respect to possible introduction of more widespread and stringent road pricing to help manage demand. There is a clear case for introducing road pricing mechanisms in some regions; further use of parking pricing is another option to reduce road transport flows. Some regions have successfully managed to introduce aspects of road pricing, while other regions have not, implying that there are lessons to be drawn from various countries' experiences. Public-private partnerships may make it politically more feasible to introduce road tolls.
- Work is required to define exactly what “green” infrastructure investment means in the transport sector. It is currently impossible to give a universally agreed set of

indicators on greening transport; it may be that green investment needs to be defined at the national or local level.

## Closing remarks

OECD Secretary-General Angel Gurría closed the Forum. He emphasised that green investment provides an enormous opportunity to meet global infrastructure needs, while potentially creating net savings and protecting the long-term sustainability of the environment. Governments have recognised that policy action is needed to take advantage of this opportunity; the Forum has demonstrated, however, that there is still significant work to do in terms of attracting required levels of green investment.

Secretary-General Gurría reiterated three overarching messages on unlocking green investment emerging from the Forum. First, governments must get smart about the price signals they are sending to the private sector, and consider how they can encourage businesses to “invest green”. This means pricing carbon on a genuinely global basis, ideally across all countries and sectors, and eliminating market distortions and “mixed messaging”.

Governments must take a hard look at policy measures that subsidise or encourage the exploration, production and consumption of fossil fuels. Currently, governments worldwide are supporting fossil fuel production and consumption by about USD 600 billion, according to OECD and IEA estimates. This is sending policy messages that are driving investors and economies on a collision course with nature.

The recent OECD publication *Climate and Carbon - Aligning prices and policies*<sup>1</sup> provides a good overview of lessons learned from OECD analysis on carbon pricing and climate policies. Key lessons include the need to put an explicit price on carbon and identify other cost-effective policy instruments that put an implicit price on carbon. The paper further calls on governments to review broader fiscal policy, to ensure that it is coherent with stated climate goals, and to make sure that any undesired impacts of carbon pricing measures are alleviated through complementary measures and accompanied by a clear communication strategy.

In addition to strong carbon pricing mechanisms, adequate and well thought-out policies for new green technologies and infrastructure are also essential. This was the Secretary-General’s second point. Enabling policy frameworks are crucial to unlocking green growth and advancing investment in green infrastructure and technologies. To attract investors, targeted incentive schemes must be predictable and stable, and avoid the “stop-and-go” pattern to policy decision-making that has recently weakened investors’ confidence in the renewable energy sector. In addition, short-run incentives for R&D in green technologies and eco-innovation can help foster innovation, tackle barriers to technology and knowledge transfer costs, improve technology performance, ramp up production and address market barriers.

Third, to attract investment in green infrastructure, it is necessary to address a number of knowledge gaps. Secretary-General Gurría noted that the sessions had identified multiple knowledge gaps and areas for further work, and highlighted a number of them.

Further guidance on design and implementation of domestic policy frameworks for green investment is a clear priority. A lot of work has already been done across OECD Committees, but it is necessary to get into the detail of how governments can address barriers to green investment, and design policies to mobilise private investment from various types of investors, including institutional investors.

Getting policy frameworks right will also mean making sure domestic policies recognise the increasingly global nature of green value chains. Some governments have implemented measures such as local content requirements as part of financial crisis response measures. But these can constitute restrictions to trade and foreign investment along the global value chain and need to be carefully assessed and reformed as appropriate. A better understanding of what role foreign direct investment plays in green infrastructure spending is required.

Pinning down the exact financial implications of greening infrastructure will also be critical. It may be that, notwithstanding the multiple co-benefits already identified, the financial case for some green infrastructure does not stack up without supporting policy measures. It is necessary to get a very firm grip on the numbers – governments cannot afford unnecessarily costly policies, so understanding what the most cost-effective policy interventions are likely to be, and whether additional resources will be required, is vital.

Getting clarity around what greener infrastructure will entail – and what it will cost – will enable better tracking of progress. This is where indicators come in – they are the foundation of sound policy making. Without clear indicators to pin policy to and measure progress against across key sectors, the transition to a green economy simply will not happen.

Innovative financing mechanisms to support green infrastructure investment are also required. In particular, greater policy focus is required on mechanisms to engage SMEs in greening infrastructure. SMEs are responsible for a significant proportion of economic activity and emissions. Meeting their financing needs will be critical to achieving the transition. How, then, can we address challenges that financial institutions face in dealing with SMEs? Are there innovative practices currently in place that can be drawn on globally?

The Secretary-General urged relevant OECD Committees, including the Investment Committee, the Environment Policy Committee, the Committee on Industry, Innovation and Entrepreneurship, the Development Assistance Committee and the Insurance and Private Pensions Committee, to sit down, take account of the GGSD Forum's outcomes, and ask whether their proposed Programmes of Work for 2015-2016 adequately reflect the priorities identified. He noted that, after all, this was why the Council launched the GGSD Forum – to bring Committees together to discuss cross-cutting challenges, to better shape and inform their respective work programmes. He urged delegates to take back to their capitals and Committees the policy outcomes, best practices and knowledge gaps identified over course of the GGSD Forum, as a lens to focus ongoing work.

## Notes

<sup>1</sup> OECD (2013), *Climate and Carbon - Aligning prices and policies*, OECD, Paris.

[www.oecd.org/greengrowth](http://www.oecd.org/greengrowth)