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Summary Report

Inclusive solutions for the green transition: Competitiveness, jobs and social dimensions



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Inclusive solutions for the green transition

Global momentum toward sustainable development has been renewed by the success of the 2030 Sustainable Development Agenda and Paris Agreement on climate change. The latest findings by the UN Intergovernmental Panel on Climate Change (IPCC) warn that current efforts to tackle rising temperatures are dangerously off track, while a growing body of evidence shows that accelerating climate action can bring strong, sustainable and inclusive growth. [OECD work](#) indicates that if we combine growth enhancing policies and climate action, global GDP in 2050 could be nearly 5% higher from boost in investment and avoided climate damage. Recent work by [New Climate Economy](#) and [ILO](#) suggest that bold climate action could yield direct economic gains.

At the same time, political priorities have placed inequality, living standards and the fate of ‘left-behind’ communities at the top of the global agenda. While macro average figures point to a positive growth story of an innovative green future, they mask the fact that there are pockets of society and regions that face real or perceived negative impacts on competitiveness, jobs and household budgets. Countries and regions need to proactively address such concerns and devise more socially inclusive solutions in order to accelerate the transition to a greener, low-carbon and circular economy.

The OECD held its 2018 Green Growth and Sustainable Development Forum on the theme “**Inclusive Solutions for the Green Transition: Competitiveness, jobs and social dimensions**”, in conjunction with the Annual Conference of the Green Growth Knowledge Platform (GGKP), a joint initiative of the OECD, Global Green Growth Institute (GGGI), UN Environment and the World Bank. The conference addressed the political economy of the green transition, by identifying distributional impacts and exploring inclusive solutions for workers, sectors, households and regions that may otherwise be hit hard in order to help them contribute to a greener future. It also considered the role of SMEs in this context.

The Forum aimed at creating a new narrative around green growth and national competitiveness, examining examples of successful “transition management strategies” that offer inclusive solutions for green growth. It consisted of panel discussions among policy makers, business, labour and civil society representatives and academia, as well as presentations of the latest research papers.

This Summary Report was written by Nicholas Evans of the OECD Environment Directorate, under the supervision of Jaco Tavenier and Enrico Botta, with layout and production by Lupita Johanson.



Opening Session

Rodolfo Lacy, Director, Environment Directorate, OECD.

OECD Environment Director **Rodolfo Lacy** opened the Forum by highlighting the urgency of advancing the green transition in a way that includes all parts of society. The OECD's own work underlines that climate-friendly policies can be combined with future prosperity: its 2017 report [Investing in Climate, Investing in Growth](#) estimates that climate-compatible policies can increase growth up to 2.8% on average across G20 countries by 2050. Yet, economic growth alone will not suffice: inequality, declining living standards and the fate of left-behind communities are at the top of the political agenda in many countries, and are central to the UN's Sustainable Development Goals. Against this backdrop, the 2018 Green Growth and Sustainable Development (GGSD) Forum, held in conjunction with the Annual conference of the Green Growth Knowledge Platform (GGKP), aimed to explore solutions for addressing the distributional impacts of low-carbon policies for workers, companies and households, and to examine how best to build public support for the green transition in an era characterised by increased scepticism towards evidence-based analyses.

The GGGI has invested, together with the OECD, UNEP and the World Bank, in the Green Growth Knowledge Platform (GGKP), the world's largest repository of green growth policy guidance, case studies and other resources. Mr. Ban expressed his hope for the GGKP to facilitate collaboration among different stakeholders, by breaking down 'silos' of narrow communities. The addition of UNIDO to the GGKP is a promising development.

Lord Nicholas Stern, Professor of Environmental Economics at the LSE, highlighted the necessity of reaching net zero emissions by mid-century in order to stabilise temperatures at 1.5°C. Since built infrastructure, urban populations and the global economy are on course to double over the next twenty years, choices made now will either lock us into high emissions or set us on an inclusive low-carbon growth path. Low interest rates, rapid technological change and international agreements provide the conditions for the green transition. However, a radical change in institutions, business models, processes and management is also required. Good low-carbon policies must counteract market failures: not only those of greenhouse gas externalities, but also challenges related to R&D, capital markets, networks and information, while enhancing co-benefits (e.g. air pollution reduction). "Predictable flexibility" is another essential element for incentivising green investment.

Lord Stern also highlighted that green transition strategies must be developed in conjunction with the response to other major economic trends such as the shift of economies to services (i.e. tertiarisation), diffusion of labour-saving technologies, and globalisation. This can be done by offering life-long learning, supporting new skills development and entrepreneurship, re-locating public sector services in the areas negatively affected by the transition, and boosting social protection measures. All these measures



Ban Ki-Moon, President of the Assembly and Chair of the Council of the Global Green Growth Institute (GGGI), highlighted the role of GGGI in promoting strong, inclusive and sustainable growth by campaigning for poverty reduction, social inclusion, environmental sustainability and economic growth.

are necessary to promote action of the scale and urgency required. Lord Stern concluded that an inclusive low-carbon growth path is the only growth story we have, since a climate-incompatible growth is self-destructive.

Montserrat Mir Roca of the European Trade Union Confederation (ETUC) noted that climate and labour policy specialists have often operated largely separately, but more collaboration is needed given the impacts of environmental policy on labour markets and vice versa. It is vital that workers be represented in the policy discourse; to this end, the ETUC has established a Just Transition Centre for advising and providing technical assistance to members on energy and climate issues. Significant work has been done by the international trade union movement to convince workers that the green transition is in their interests. For example, reducing air pollution improves health and reduces absenteeism, which in turn improves competitiveness. Ms. Mir Roca also spoke of trade unions' work ahead of COP24 to convince the Polish Presidency, Polish trade unions, and the United Nations to support the [Silesia Solidarity Just Transition Declaration](#). This addresses the impacts of the Paris Agreement on citizens, workers and companies.

As Senior Advisor at the International Organization of Employers (IOE), **Pierre Vincensini** offered insights into the green transition from a business perspective. Managed well, the transition will be a strong driver of job creation, new markets and new sources of income. However, businesses need a credible and predictably flexible policy framework to develop and deploy new technologies. Companies also need a key understanding of the proposed policies and possible risks, particularly in terms of the impact on jobs and competitiveness. It is necessary to find the right balance between economic, social and environmental aspects: growth and job creation create economic space for environmental protection.

Finally, **Alain de Serres**, Deputy Director of the OECD Economics Department, offered an overview of the joint work by the OECD Economics and Environment Directorates on the impact of environmental policies on economic performance. Recent work concluded that the increased stringency of environmental policies had a small positive impact on productivity for most technologically-advanced firms in OECD countries; however, less productive firms have seen their productivity fall further. Aggregate impacts on trade are small, though highly polluting producers were significantly



Lord Nicholas Stern, IG Patel Professor of Economics and Government, Chair of the Grantham Research Institute on Climate Change and the Environment, London School of Economics

affected. An additional study considered the impact of the European Emissions Trading System on employment and profits, concluding that the impacts were relatively neutral. Overall, the effects of environmental policies on economic outcomes have been small, indicating that competitiveness concerns have been overplayed. Nevertheless, there are winners and losers; decision-makers must consider how best to facilitate the green transition in an inclusive way.

In the panel discussion, both **Nicholas Stern** and **Pierre Vincensini** stressed the importance of regulatory clarity for creating suitable conditions for green investments. Professor Stern also suggested that there is a role for strong, decisive governmental action: for example, in Europe outright bans on incandescent light bulbs and leaded petrol catalysed rapid technological progress. Meanwhile, **Montserrat Mir Roca** expressed her expectation that a green transition will create good quality jobs especially for low-skilled workers in sectors such as construction. In response to a question on how to best convince Finance Ministries to engage with the green transition, Alain de Serres suggested underlining that environmental goals can be achieved without harming the economy beyond the natural churn resulting from other trends.

Montserrat Mir Roca, Confederal Secretary, European Trade Union Confederation (ETUC)



Session 1



Jobs and skills transition management: Strengthening green human capital

This session focused on the impacts of the green transition on workers and employment. Previous processes of large-scale structural adjustments, such as the UK coal mine closures of the 1980s, the winding down of certain industries, such as steel in the US and shipbuilding in Japan, or the ongoing change associated with digitalisation and automation have caused significant disruption to people's livelihoods. Speakers from academia, international organisations and labour unions considered possible impacts that greening the world economy will have on workers, and what policy solutions could preserve living standards throughout the process considering the lessons learnt from these previous structural adjustment experiences. **Steven Stone**, Chief, Resources & Markets Branch, UN Environment moderated the session.

Fabio Manca, economist at the OECD's Directorate for Employment, Labour and Social Affairs, provided a scene-setting overview of global labour market trends, drawing on the OECD Skills for Jobs database. He underlined that the green transition is happening in the context of a number of megatrends such as automation and rapid ageing of populations. In certain instances, a lack of transferable skills may pose problems for the reallocation of labour between certain sectors. Therefore, training programs should be designed in order to take into account the difference in skillsets between the previous and the potential future sector of employment of displaced workers. For example, the new skills needed by an average mining worker would vary considerably according to whether he is expected to find a new job in the construction or the business and financial sector. However, in other instances the data are positive: existing literature

shows that the skillsets of workers in "brown" industries are often transferable to several low-carbon sectors; for example, workers in the oil and gas industry may have many of the skills needed to switch to working in offshore wind.

Olivier Deschenes, Professor of Economics at the University of California, Santa Barbara, gave a second scene-setting presentation focused on the employment effects of renewable energy policies in the United States. By demystifying the most common statements concerning the green transition, Professor Deschenes first underlined that the green transition has long been on its way and that there has been an important improvement in the environmental performance of the economy. For instance, technological advances have brought declining energy intensity (energy usage per unit of GDP) while 90% of American jobs are now found in low energy-intensity sectors. Second, he argued that green policies can improve labour market opportunities. According to his recent research, States that were the first to introduce Renewable Portfolio Standard policies saw better labour market outcomes (in terms of employment rate, lower total hours worked, higher real wages, and declining wage inequality) than late adopters of such policies between 2000 and 2016. Moreover, while workers of all skillsets have benefited from green electricity policies, the biggest winners have been those with only a high school education.

Catherine Saget of the International Labour Organisation (ILO)'s Research Department underlined that her organisation's [Greening with Jobs](#) report estimated net creation of 18 million jobs as a result of implementing policies to meet the Paris Agreement's 2°C target. Despite this positive

macro picture, past crises such as the Asian financial crisis of 1997/98 underline the importance of social protection at times of major structural adjustment. Adequate health provision and pensions, combined with coordination between economic and social policies, are particularly important for an inclusive green transition. Furthermore, efforts to reskill workers currently suffer from a lack of data: just one-third of countries conduct regular surveys to identify skills gaps. In addition, Ms. Saget highlighted that ILO's future work will examine the impacts of heat stress on productivity, particularly for workers in agriculture and construction who will be particularly exposed to rising temperatures.

Hanna Finmo, Assistant Policy Director at the Swedish Confederation of Professional Employees (TCO), offered a perspective from a country that has often been considered a leader in effective labour market policies. Each year, 10% of Sweden's 5 million jobs are lost and slightly more are created; unemployment is fairly low, and some areas report labour shortages. She argued that both strong social safety nets and the presence of tools that allow workers to respond to the changes in the labour market are key elements of a just transition. In this context, she highlighted that today skills represent an important part of the social safety nets available: 44% of TCO members say they will need some training in the next 5 years; 60% see the university system as key to providing it. Additionally, collaboration among social partners has proved an effective way of guaranteeing workers' future prospects. Under the Swedish Job Security Councils, which are collective agreements between social partners, trade unions cede some power to employers, who in return devote resources to supplement employment benefits and provide training.

Samantha Smith, Director of the International Trade Union Confederation's (ITUC) Just Transition Centre, emphasised the importance of developing regional economies and guaranteeing the job prospects of those workers unable to relocate.

Coordination between stakeholders has often proved crucial in building consensus behind green policies: California's 100% emissions-free energy target relied on the support of labour unions to pass. Similarly, Canada's push to phase out coal by 2030 has incorporated a dialogue with trade unions and affected communities; New York State's efforts to develop offshore wind and retrofit publicly-owned buildings has been largely driven by trade unions. Ms. Smith also underlined that the backbone of these transition programmes includes bridge pensions for workers nearing retirement, accessible retraining programmes, income security and social protection for workers facing redundancy.

In the open discussion, speakers discussed why green transition has attracted relatively little buy-in from governments and the wider public, despite positive figures on green job creation. **Olivier Deschenes** underlined that, in the scheme of entire economies, the figures in question represent relatively small effects: a 1% increase in

employment rates amounts to the net creation of 250,000 jobs. In the context of a labour market incorporating over 50 million workers, this positive story may be difficult to communicate to the wider public. Additionally, immediate negative impacts such as job losses are far more visible than long-term positive trends.

Samantha Smith argued that broader socioeconomic inequalities have made citizens pessimistic about the future and are making it harder to communicate the positive messages around the green transition. **Fabio Manca** echoed this, highlighting that many citizens are concerned about the future of work and that access to mid-career retraining remains relatively limited, particularly among low-skilled and older workers. Expanding reskilling opportunities will be essential for building support for the green transition.



The Issue Note “[A review of “Transition Management” strategies: Lessons for advancing the green low-carbon transition](#)” was prepared as an input to this session.

Related parallel sessions

Session A. Effects of green growth policies on labour markets

- The session discussed innovative approaches to measure green jobs and the implications of the green low-carbon transition for labour markets.
- Indices based on text mining algorithms can be useful to measure the greenness of jobs but this requires a clear understanding of which tasks can be described as 'green'.
- Analysis of tasks-content shows that green jobs vary in 'greenness', with very few jobs only consisting of green tasks. Furthermore, non-green jobs generally exhibit limited difference from their corresponding green occupations, thus suggesting that re-training can mostly happen on the job.
- Discussed evidence suggests that climate policies are likely to have distributional implications: more stringent environmental policies increase the demand for high skilled workers (e.g. engineering and technical skills) and decrease the demand for low-skilled workers.

Moderator: Tomasz Kozluk, OECD

Presented papers:

["The greening of jobs in Germany: First evidence from a text mining based index and employment register data"](#) by Markus Janser, German Institute for Employment Research.

["Characterising green employment: The impacts of 'greening' on workforce composition"](#) by Eileen Tipoe, University of Oxford, UK.

["Climate Policies and Skill-Biased Employment Dynamics: Evidence from EU countries"](#) by Francesco Vona, OFCE Sciences Po, and Giovanni Marin, University of Urbino, Italy.

Session E. Jobs and Green Growth

- This session focused on the opportunities and challenges that the green transition generates for employment.
- The discussed evidence suggests that the impact of climate policies on employment is either neutral or positive. However, low-skilled workers (e.g. blue collars) are the most likely to be negatively affected.
- As several developing countries lack the capacity to assess the domestic potential for green jobs, programs led by GGGI and ILO aim at building in-country analytical capacity in fields such as quantification of existing green jobs, green jobs potentials and overall impact of green policies on employment.
- The barriers to exploit the green job potential of the forestry sector have been also explored, including: limited awareness of the existing and emerging green jobs, lack of data consistency across countries and skill gaps in the workforce.

Moderator: Andres Fuentes Hutfilter, OECD

Presented papers and presentations:

["Impacts of Green Growth Policies on Labour Markets and Wage Income Distribution: A General Equilibrium Application to Climate and Energy Policies"](#) by Jean Chateau, OECD.

Presentation by [Moustapha Kamal Gueye](#), International Labour Organization (ILO) and [Stelios Grafakos](#) Global Green Growth Institute (GGGI).

["Green Jobs in the Forest Sector / Trends in Green Forest Jobs: An analysis of green forest jobs' trends and their implications for the sector"](#) by Alicja Kacprzak, UNECE, Food and Agriculture Organization.

Session I. Green Transition Strategies and Employment / Skills Impacts

- The session focused on the impact of the green low-carbon transition on employment and policies that can facilitate workers' sectoral reallocation.
- A shift to a circular economy is likely to entail a process of job creation and destruction. In the case of Flanders, a recent analysis suggests that the transition would result in a net jobs creation for low-skilled employees.
- Collective agreements among social partners can facilitate the reallocation of displaced workers. The Swedish Job Security Councils are often considered a best-practise in this regard.
- The session also discussed the need for governments to target a large group of stakeholders and to appropriately consider the "barriers to change" when implementing green growth policies.

Moderator: Alice Kaudia, GGKP Advisory Committee

Presented papers:

"Employment Protection, Collective Bargaining, and Labour Market Resilience - The Swedish Transition Agreements" by [Samuel Engblom](#), Swedish Confederation of Professional Employees (TCO).

"Green industrial path development in Swedish regions: Case of bio-economy initiatives in Skåne and Värmland" by [Suyash Jolly](#) and [Teis Hansen](#), Lund University, Sweden.

"Employment impact of the transition to a circular economy in Flanders" by Kris Bachus, KU Leuven, Belgium.



Identified knowledge gaps and suggestions for future work

- Since workers are not as mobile as capital, more efforts are needed to create new employment opportunities in the same regions where jobs are lost. There is limited literature on the extent of spatial divergence of declining and growing industries. More focus on upscaling and reskilling communities is needed, as many industries have imploded in the past without a just transition for workers.
- The effect of heat stress on productivity and decent work needs to be better understood; ILO plans to address this.
- Further research is needed on the economic impact of other environmental policies, such as those promoting a shift towards a more circular economy.
- The evidence highlights that a large share of the workforce affected by the low-carbon transition are men. The possible implications of this gender-specific impact, including possible second round consequences on female employment, present an interesting avenue for further research.



Session 2

Green growth and competitiveness: firms who win, firms who lose

This session, moderated by **Rodolfo Lacy**, Director of the OECD Environment Directorate, examined the impact of the green transition on business. Critics of green policies have often argued that environmental policies reduce firms' competitiveness and hold back economic growth. Speakers from academia, policy analysis and the private sector intervened to consider ways of accelerating the green transition in industry while safeguarding and enhancing competitiveness.

Carolyn Fischer, professor of environmental economics at the Free University of Amsterdam, delivered a scene-setting presentation addressing the competitiveness impacts of carbon pricing. Existing literature finds little negative impact of the EU Emission Trading Scheme (EU ETS) on competitiveness; many have actually found positive impacts on profits and employment. However, we must remember that the carbon prices delivered by the EU ETS have been low and that the scheme has been operating for a relatively short period. Though economists agree that carbon taxes are a flexible and efficient mechanism for accelerating decarbonisation, addressing the issue of carbon leakage is essential. The potential solutions all come with considerable problems: for example, border carbon adjustments are politically fraught, since many energy-intensive sectors are among the most disputed in international trade. The competitiveness concerns raised by carbon taxes may be eased if these were accompanied by international sectoral agreements on minimum carbon prices. Other complementary measures include support for R&D, funds for retraining, green public procurement and reforms of building codes.

As Director of the UN Industrial Development Organisation's (UNIDO) Environment Branch, **Stephan Sicars** offered insights into possible strategies for accelerating the transition in industry. UNIDO is examining the situation in developing countries, where regulatory approaches are often insufficient to drive decarbonisation. In this context,

supply chain approaches are a possible solution – that is, impose restrictions on the environmental footprint of final products and let this drive changes in the whole supply chain. Transfer of green technologies is another important element. In developing countries, the benefits for firms are clear: adopting new technology can boost competitiveness as well as reducing environmental impacts. Green procurement by governments, possibly in the fast-growing green construction sector, and changes in consumer behaviour are also needed.

Tilman Altenburg, Head of Sustainable Economic and Social Development at the German Development Institute (DIE) and chair of the Green Growth Knowledge Platform (GGKP) Research Committee on Competitiveness, underlined the uncertainties inherent in quantifying the employment impacts of the green transition. He argued that environmental policies are not particularly ambitious today, and that we may be underestimating their impacts on jobs. Furthermore, he highlighted that optimistic forecasts of green job creation are often based on CGE models (i.e. economy-wide). Given the scale of the transformation underway in sectors such as energy, automotive and agriculture, it is unclear if these models are sufficiently rigorous. Other models consider the impact of one policy on one sector, producing a more reliable but also more negative picture.

Norbert Kurilla, State Secretary at the Slovak Republic's Ministry of Environment, gave an overview of his government's approach to navigating the challenges and seizing the opportunities of the green transition. He highlighted that increasing resource efficiency is a strategy for boosting Slovakian competitiveness, not only for protecting the environment, since industry represents 27% of the country's GDP including energy-intensive sectors such as iron and steel, chemicals, paper

and cement. To this end, he sees the EU ETS as governing the national vision for a future low-carbon economy. Though a global carbon price is unforeseeable for the time being, linking the ETS to similar schemes in other countries is a possible way forward in accelerating decarbonisation at an international level. Furthermore, Mr. Kurilla announced that the Slovakian government, in partnership with the World Bank, is producing a low-carbon study with a vision to 2050. In addition, a forthcoming environmental policy 'vision' will establish concrete objectives for 2030.

The cement industry accounts for 7% of global emissions and is among the most difficult and expensive sectors to decarbonise. **Donal O'Riain**, founder and Managing Director of the low-carbon cement firm Ecocem, explained that the raw materials and high temperatures required to make cement mean that high levels of emissions are embedded in the production processes: there are currently no solutions that would allow the industry to reach zero emissions. The ETS has had little impact on the industry; far higher prices will be required to incentivise a shift to greener technologies and production methods. Carbon capture and storage, green public procurement policies, more resource-efficient technologies and a higher carbon price will all be required to drive change. Mr. O'Riain also recommended expanding the discussion on sustainable cement to concrete production, arguing that more resource-efficient technologies could halve the carbon footprint of concrete production by 2030 at no extra long-term cost.

Open discussion focused on strategies for accelerating the greening processes while enhancing competitiveness. **Carolyn Fischer** and **Norbert Kurilla** both emphasised the need for more comprehensive carbon pricing, placing particular importance on long-term predictability and clear targets to provide a signal for firms and investors to act. **Tilman Altenburg** added that differentiating between sectors is key: higher carbon prices would probably be sufficient to drive change in the cement sector, but more complex industries require a coordinated mixture of policies.

Speakers also addressed how to better calibrate policy actions to accelerate green innovation. On this topic, **Donal O'Riain** explained that although more efficient technology could reduce the cement sector's carbon footprint, addressing the industry's irreducible core of emissions would require carbon capture and storage, which may need policy support before it becomes economically viable.



Stephan Sicars stressed that, while large firms with established business models may contribute incremental improvements, game-changing innovations that challenge norms are more likely to originate with outside disrupters. Policy should focus on fostering these innovations. **Norbert Kurilla** highlighted the Modernisation Fund and Innovation Fund, both components of the EU ETS, as important sources of support for disruptive technologies.

Identified knowledge gaps and suggestions for future work

- Decarbonising energy-intensive, trade-exposed (EITE) sectors is difficult; these areas are also where the risk of carbon leakage is greatest if policies are too restrictive or badly designed. Future research is needed to assess policy options available to prevent adverse impacts on trade and investment without dampening the incentives to develop cleaner processes and products.
- Efforts by supply chain leaders, regulatory incentives, green procurement by governments (possibly in the fast-growing green construction sector), or changes in consumer behaviour are possible solutions for driving change.
- Carbon pricing schemes, including the EU ETS, are not sufficiently ambitious today, thus we may be underestimating their future impacts on jobs. Further research is needed to accurately measure and monitor the competitiveness effects of environmental regulations to help ensure that policy is based on robust evidence.
- The cement industry is among the most difficult sectors to decarbonise. Further research is also needed to identify the combinations of innovation and environmental policies that best encourage innovation in green technologies while boosting firm productivity.

The Issue Notes "[Green policies and firms' competitiveness](#)" and "[SMEs: Key drivers of green and inclusive growth](#)" were prepared as an input to this session.

Related parallel sessions

Session D. Green Growth Strategies for firms

- The session focused on the link between the adoption of greener production technologies and firms' performance.
- While there is limited literature on the impact of investing in green technologies on business performance in developing countries, evidence from the Nigerian pulp and paper industry points to a positive relation between these two variables.
- A recent study, based on data from 47 countries and 60 sectors, suggests that larger sales of green products/services (measured as share of total sales) is positively linked to a higher return per unit of production.
- The session also discussed the evidence from a recent survey of managers of Nordic companies. The results show that managers believe there is a positive relation between investment in more environmentally friendly business practices and company performance due to -for instance- reduction of resource and energy costs or green marketing. However, it remains unclear to what extent businesses engage in green activities.

Moderator: Antoine Dechezleprêtre, OECD

Presented papers:

[“Green Investment and Organizational Performance: Evidence from the Nigerian Pulp and Paper Industry”](#) by Joseph Adelegan, University of Venda, South Africa.

[“Nordic businesses on climate transition, competitiveness and growth: An interview study among leading businesses in the Nordics”](#) by [Nils Westling](#), Haga Initiative.

[“How does going green affect firms' profitability and valuation? Evidence from a global firm level dataset”](#) by Tobias Kruse, LSE, UK.



Session F. SMEs and the Green Transition

- This session discussed the role of SMEs in enabling green growth and what policy frameworks can help them to adopt more environmental friendly business practises.
- Several data highlight the importance of SMEs for the green low-carbon transition: SMEs account for a large proportion of employment and between 50% and 60% of value-added in OECD economies. Collectively they are also responsible for a large share of ecological footprint.
- SMEs can also be an important driver of integrated development solutions, enabling job creation, poverty reduction, environmental sustainability and resilience building.
- The barriers that constrain SMEs investments in green technologies include low perceived priority of environment and resource issues and unclear business case for greening, limited access to knowledge and financing, a focus on marketing and growth rather than process optimization, and perceptions that green investments are complex. Poor infrastructure and business service provision, weak regulatory framework and unfavourable taxation, also constrain SMEs' greening.
- A comprehensive approach is needed to foster SMEs' green transition: support mechanisms to attain international standards (e.g. ISO 14001), platforms for international exchange of best-practices and a better link between financing models and funding opportunities are possible strategies to promote SMEs' greening in developing countries. Better evidence is needed on policy effectiveness and on how SMEs' green transition can translate in job creation and inclusive growth.

Moderator: Lucia Cusmano, OECD

Presented papers:

[“Role of SMEs in the green and ‘inclusive’ transition in Africa”](#) by Alice Kaudia, Eco-Entrepreneurs Ltd.

[“Scaling up and Mainstreaming Resource Efficient and Cleaner Production in Small and Medium Enterprises: achievements and lessons learned in the European Union's Eastern Partnership Region”](#) by Stephan Sicars, UNIDO.

[“Micro and Small Enterprises - Striving towards a greener economy”](#) by Anshul Bhamra, Development Alternatives Group.



Session G. International Competitiveness

- This session discussed the extent to which environmental considerations are included in international trade agreements and the barriers to trade in environmental goods that exist.
- Environmental provisions in preferential trade agreements (PTAs) are growing in terms of both their number and variety.
- The analysis of the impact of environmental provisions on trade is made particularly intricate by concerns over their possible usage as protectionist measures.
- The evidence discussed during the session highlighted that higher tariffs have a similar negative impact on the intensity of bilateral trade for both environmental and non-environmental goods.

Moderator: Joe Grice, GGKP Advisory Committee

Presented papers:

[“The Effect of Environmental Provisions in Trade Agreements on International Trade”](#)

by Clara Brandi, German Development Institute.

“Is an accelerated mitigation strategy compatible with a competitive and equitable transition?”

by [Arpad Cseh](#), Climate Moonshot Initiative.

[“Barriers to Trade in Environmental Goods: How Important they are & what should developing countries expect from their removal”](#)

by Jaime de Melo, Geneva University, Switzerland.



Session K. Country Case Studies on Green Transition

- This session discussed the experience of different countries in implementing policies to promote the green low-carbon transition.
- Recent findings on the Vietnamese market suggest that the adoption of environmental management standards (EMSs) can reduce SMEs resource intensity, defined as the intensity of water, fuel, and electricity use per unit of output. Identified important drivers of adoption included firms' size, technological sophistication and network effects (adoption of the EMSs by peer firms).
- In the case of Kenya, a policy that supported crop-growing inside forest reserves was found to have a positive impact on income and the environment. However, the scheme was estimated to have benefited mostly the richer groups in the community.
- Domestic energy demand in Saudi Arabia is expected to double by 2030: the role that energy productivity, instead of energy efficiency, as an economic planning tool to inform industrial strategies has been discussed.

Moderator: Kevin Chika Urama, GGKP Advisory Committee

Presented papers:

[*“Welfare and Environmental Impact of Incentive Based Conservation: Evidence from Kenyan Community Forest Associations”*](#) by Bosco Okumu, University of Cape Town, South Africa.

[*“Greening Industry in Vietnam: Environmental Standards and Resource Efficiency in SMEs”*](#) by Dalia Fadly, Philipps University of Marburg.

[*“Growth Through Diversification and Energy Efficiency: Energy Productivity in Saudi Arabia”*](#) by [Nicholas Howarth](#), King Abdullah Petroleum Studies and Research Center (KAPSARC).

Session L. Firms and Green Industrial Strategy

- The session focused on the impact of environmental policies on firms' investment in tangible and intangible assets.
- A country-level study for OECD and G20 economies suggests that a higher degree of state-ownership in the power sector leads to more investments in renewables. Possible explanations include lower financing costs and a higher responsiveness to public policy objectives, including the green transition.
- Recent studies on the European firms suggest that environmental policies and demand-side factors promote eco-innovations targeting resource efficiency technologies and that firms covered by the EU Emission Trading Scheme (EU ETS) increase their fixed assets more than to those not included in the Scheme, possibly adopting climate mitigation measures.
- More granular and higher quality data across countries is needed to better study the effects of different eco-innovations on economic and environmental outcomes. Important areas of research are SMEs and the effects of the third phase of the EU ETS.

Moderator: Stephan Sicars, UNIDO

Presented papers:

[*“State-Owned Enterprises and the Low-Carbon Transition”*](#) by Dirk Röttgers, OECD.

[*“Resource Efficient Eco-Innovations for a Circular Economy: Evidence from EU Firms”*](#) by Massimiliano Mazzanti, University of Ferrara.

[*“Multinational Corporations and the EU Emissions Trading System: Asset Erosion and Creeping Deindustrialization?”*](#) by Nils Aus Dem Moore, RWI - Leibniz Institute for Economic Research.



Social impacts of the green transition

This session was moderated by **Marianne Fay**, the World Bank's Chief Economist for Climate Change. It dealt with the distributional effects of the green transition on different social groups. Disadvantaged sections of society bear the brunt of pollution and the effects of climate change, yet also risk being hardest hit by economic disruption associated with the shift to a more sustainable model. Speakers from the IMF, European Parliament, African Development Bank, City of Paris government and King Abdullah Petroleum Studies and Research Centre (KAPSARC) shared insights on how to encourage the green transition while mitigating negative impacts on households.

Ian Parry, Principal Environmental Fiscal Policy Expert at the IMF, set the scene by outlining the potential social impacts of reforming fossil fuel subsidies. A carbon price of \$35 per tonne for G20 countries, which could help meet their Paris Pledges, would lead to a 5-15% increase in energy prices. Though richer households would disproportionately bear the costs of such reforms, measures to protect the vulnerable would be essential. Targeted subsidies and investments such as expanded public transport, subsidies for rooftop solar, and electric vehicle charging stations can help reduce the energy needs. Energy price reform should also be accompanied by a communication strategy to explain the necessity and utility of the policy, perhaps specifying how the additional revenues will be used. Finally, energy pricing reforms must be gradual to allow households and firms the time to adjust and to enable the strengthening of social safety nets.

'Families shouldn't have to choose between heating and cooking', said **Theresa Griffin**, Member of European Parliament for the North West of England. She underlined the struggles facing her poorest constituents: higher energy bills, coupled with poorly-insulated housing, intensify the economic burden on those who are least able to cope. Energy efficiency is part of the solution: for every 1% increase in energy efficiency, 3 million homes can be properly renovated and 7 million people lifted out of energy poverty. The European Commission estimates that almost 11% of European citizens (over 54 million people) suffer from energy poverty. The EU Energy Poverty Observatory, of which Ms. Griffin is a member, is collecting data to establish where action is needed to address the issue. Additionally, more efforts are needed to set out a common definition of energy poverty: currently, institution and EU Member States use their own definitions and metrics.

Offering a new perspective on energy poverty, **Kevin Chika Urama**, Senior Advisor to the President of the African Development Bank, argued that surveys are failing to properly measure the impacts on the poor. Across Africa, over 600 million lack access to power and so are excluded from several studies, meaning decision-makers lack the information to ensure the vulnerable are protected. At the same time, the green transition is an opportunity to alleviate poverty as well as to protect the environment. For instance, over 500 000 Africans die each year from ailments related to the use of charcoal and other fuels for cooking; accelerating the diffusion of clean stoves could improve health outcomes as well as reduce emissions. Another key priority is to reform education systems to emphasise the skills that will be required in a green economy. Above all, green growth policies should be tailored to the development agenda of the country in question. We should pursue development goals in a climate-resilient way, rather than pursue our climate goals in a development-resilient way.

Benjamin Gestin, Director General of Water for the City of Paris, highlighted an important paradox at the centre of the inclusive green growth agenda: natural resources such as water are precious and scarce, and their costs should reflect this to discourage waste; equally, these resources can be seen as a basic right that should be available and affordable to all. Then, he suggested that a possible strategy to reconcile these two elements is to consider that cost is technical but price is political. As such, water utilities should aim to reduce costs as much as technically possible. Possible strategies to this end include using less water since this reduces supply costs by reducing the energy needed to produce it; losses throughout the supply network should be minimised and consumers should be helped to reduce consumption. Polluting less lowers

The open discussion covered numerous topics, notably strategies for combining economic, social and environmental aspects of sustainable development. **Benjamin Gestin** argued that preserving resources is itself a job creation strategy: his own organisation estimates that each job it adds results in the creation of three elsewhere. Speaking from the floor, **Tilman Altenburg** of the German Development Institute (DIE) cited an initiative in the Philippines that pays fishermen not to fish during spawning periods. **Marianne Fay** highlighted a scheme in Brazil that pays local communities for monitoring forest health; she stressed that, while these initiatives can be effective in maintaining ecosystem services, disruption to livelihoods as a result of green transition is likely in certain sectors. Managing these changes is an essential challenge for decision-makers.



the cost of treating water, and therefore lowers supply costs too. Building partnerships between dense urban centres that consume water and more remote territories from where it originates can also help to control supply costs. However, agriculture is a key stakeholder and its interests must be carefully considered.

In Saudi Arabia, energy price reform is embedded in a broader programme of economic, social and environmental transition. **Nicholas Howarth**, specialist in Energy Transitions and Environment at the King Abdullah Petroleum Studies and Research Center (KAPSARC), explained that Saudis have long considered cheap energy as integral to the social contract, a mechanism for distributing the country's oil wealth. Price reforms in 2016 and 2018 increased energy costs by 80% for high-volume users and 268% for low-volume users. Meanwhile, gasoline prices have doubled since 2016. To offset the social impacts of these rapid increases, the government has adopted two key measures. First, a so-called 'citizen account' programme has been established to offer direct cash payments to poorer households. Second, the salaries of government employees – who make up around 65% of the workforce – are supplemented by a compensatory cost of living allowance.

Identified knowledge gaps and suggestions for future work

- Communication on the green transition has to be designed in a way that touches people's everyday lives, demonstrating that there is a connection between the policy and their quality of life.
- Consider how to ensure a social safety net for those who are not included in discussions on green policies, so that they are not left behind.
- 'Price is political, cost is technical': while energy and water pricing is often a highly politicised issue, regulators should focus on reducing costs of supply in order to promote inclusiveness.
- The debate on energy poverty is often understood as heating affordability. However, as climate change progresses, cooling affordability is likely to become increasingly important.
- Rethinking tariffs and social safety nets is needed; an average-cost pricing mechanism (and cross-subsidisation) can help avoid negative impacts on low-income households.
- Better data is needed to allow a more comprehensive understanding of the patterns and drivers of inequality. Empirical assessment is necessary to identify the existence and severity of any environmental inequalities on a case-by-case basis.

The Issue Note "[*The distributional aspects of environmental quality and environmental policies: Opportunities for individuals and households*](#)" was prepared as an input to this session.

Related parallel sessions

Session B. Policies for Regional Resilience and Distributional Impacts

- This session focused on the link between national and regional climate change mitigation and adaptation policies.
- Risks to coastal property and infrastructure are increasing. Corrective actions are hindered by misaligned incentives and unclear allocation of responsibilities.
- The technical challenges are relatively easier to address than the political and communication barriers. Effective engagement, based on inclusive and transparent communication, is key.
- National mitigation and adaptation strategies must be aligned with regional issues. There is a need to bridge this gap to ensure that local stakeholders have the capacity to implement policies and that policies actually address local needs.

Moderator: Marianne Fay, World Bank /
Jaco Tavenier, OECD

Presented papers:

["Distributional consequences of coastal risk management policies under sea-level risk: a survey of OECD country approaches"](#) by Lisa Danielson, OECD.

["Climate Change Adaptation in the Philippines: Case and Policy Analysis of the People's Survival Fund"](#) by Maria Angela Zafra, Ateneo da Davao University, Philippines.

["The Social and Environmental Dimensions of China's Spatial Planning System"](#) by Christina Wong, Chinese Academy of Sciences, DRC.

Session C. Energy Pricing and Distributional Impacts

- The session discussed the distributional implications of environmental policy reforms and which political economy factors can ease (or complicate) their introduction.
- Analysis of the social impacts of energy taxes need to consider the heterogeneity of affected agents (e.g. income, living area, household type). An example is the French PROMETHEUS programme that is based on household survey data.
- Several political-economy features favour or hinder the adoption of climate policies. For instance, a diffuse awareness of climate change impacts and the presence of effective institutions ease the introduction of carbon pricing while a large reliance on fossil fuels in electricity generation discourages it.
- Increases in fossil fuel prices have been estimated to have a positive effect on productivity in Indonesia, possibly because they created incentives to invest in modern production equipment.

Moderator: Kurt Van Dender, OECD

Presented papers:

["Political Economy Determinants of Carbon Pricing"](#) by Sebastian Levi, Free University of Berlin, Germany.

["Too Much Energy: The Perverse Effect of Low Fuel Prices"](#) by Giorgio Presidente, World Bank.

["Energy pricing and competitiveness: Firm level evidence from Indonesia"](#) by Jun Rentschler, World Bank.

["Social effects of carbon taxes on households: impacts, consequences, solutions"](#) (original paper in French) by [Mathilde Clément](#), Ministry for Ecological and Inclusive Transition of France.

Session H. Social Impacts of Climate Policies

- This session investigated the factors that contribute to determine the distributional consequences of climate policies.
- The existing literature suggests that high levels of poverty, corruption, strong economic and social inequalities increase the risk of negative social effects of climate policies.
- Discussed evidence highlights that the sector and the country where climate policies are implemented are good predictors of their distributional implications: progressive distributional outcomes are more common in lower income countries and in the transport sector.
- The consequences of climate-change adaptation strategies on the food security of pastoral communities in semi-arid zones was also discussed. Evidence from Senegal suggests the presence of a positive and significant impact on the food security and income of households.

Moderator: Sam Bickersteth, Oxford University

Presented papers:

“Impact of Adaptation to Climate Change on Household Food Security and Incomes in Ferlo Semi-arid Area, Northern Senegal”

by Saboury Ndiaye, Agriculture Development Project of Matam (PRODAM), Senegal.

“Social impacts of climate change mitigation policies and their implications for inequality”

by Sanna Markkanen, University of Cambridge, UK.

“Distributional Impacts of Climate Mitigation Policies - a Meta-Analysis” by Nils Ohlendorf, Mercator Research Institute on Global Commons and Climate Change (MCC).



Session 4



Green transition in a post-truth world: How to close the gap between perception and empirical evidence

This special panel discussion was moderated by **Roger Dungan**, New Zealand's Deputy Permanent Representative to the OECD. Featuring speakers from journalism, academia, and policy making, it considered ways of communicating the urgency of environmental issues at a time when scepticism towards experts and empirical evidence is an established element in political discourse.

The session was opened by **Cameron Hepburn**, Professor of Environmental Economics at the Smith School of Enterprise and Environment, University of Oxford. Mr. Hepburn described distrust of experts as a symptom of long-term structural changes linked to the digitalisation of information and shifts in related industries such as journalism and public relations. Carbon pricing provides an important example: though this policy has proven its worth as a policy measure (as demonstrated by the sharp decline in coal-based power production in the UK after the introduction of a 'carbon floor'), many voters remain sceptical that carbon pricing can change behaviour. Insights from psychology, behavioural economics, political science, and marketing will all be required to convey the need to address environmental issues. Finally, he argued that making environmental policy a bipartisan issue may also be essential: particularly in the US, carbon pricing may need support from the centre-right to be viable politically.

Edgar Gutierrez-Espeleta, who served as Costa Rica's Minister of Environment and Energy and president of the United Nations Environment Assembly (UNEA), reflected on the difficulties that governments encounter in motivating citizens to engage with climate and environment issues. He suggested that the public regards these issues as matters for the government and not for citizens. For this reason, communicating the challenges in understandable terms is essential. Mistrust of institutions is a major obstacle: a recent OECD study found that just 38% of citizens in OECD countries trust their governments, with particularly low figures in the countries most impacted by the 2008 crisis such as Greece, Portugal and Spain. In this context, the OECD could serve a key function in identifying and communicating best practices on teaching values such as solidarity and sustainability.

As Professor of Psychology and Public Affairs at Princeton University, **Elke Weber** offered an overview of the psychological predispositions that affect people's perceptions of the green transition. Climate change shares characteristics with social issues such as obesity and inadequate pension savings, where costs are felt today but benefits are long-term and uncertain. She further explained that humans have the capacity to make rational decisions but do not do so naturally or automatically; emotional responses and predisposition to act according to social norms are also strong motivators. Furthermore, we have a preference for the status quo, thus we should not be surprised that it is difficult to make change happen. However, opposition to change is not constant. For example, British Columbia introduced a carbon



tax in 2008 against huge opposition, but public sentiment became positive after only 15 months. In this instance, emphasising that the new policy was revenue-neutral and using it to fund payments to lower-income households were important factors in demonstrating the benefits to the general public. Labels also matter: a “carbon tax” implies a cost for the consumer; a “carbon dividend” is much easier to accept. Finally, it is necessary to introduce changes gradually: a carbon dividend can start low but gradually be increased.

Simon Kuper, a journalist for the Financial Times, added insights on communication strategies for the green transition. Upbeat campaigns can succeed: consider the campaign for gay marriage, which made a marginal issue mainstream within a decade. Adopting a more modernising and hopeful message can be effective in building consensus behind a policy action. Simplicity is essential, and scientific findings should be conveyed with reference to human stories. For instance, campaigns about emissions could focus on the impacts of poor air quality today, rather than the climatic impacts decades from now. Mr. Kuper echoed other panellists in recommending that carbon taxes be reframed as ‘dividends’ or ‘green tax reform’, and that the political right be included in efforts to drive change. Finally, he argued that advocates of environmental action should focus their attention not on climate change sceptics, but rather on engaging the majority of citizens who believe in climate change, but often pay little attention to it in their daily lives. To do this, they should ensure the debate is simple enough for public opinion to absorb, and communicate through human stories that link environmental issues to everyday experience.

Anthony Cox, Deputy Director of the OECD Environment Directorate, described the OECD’s reaction to these challenges as consisting of three elements. First, it must remain at the cutting-edge of analytical research on economics, and the social and environmental aspects of policy. To this end, the OECD is considering more frequently the social and distributional aspects of economic policy in its work. Second, it must carefully consider with whom to engage, and whose engagement counts the most in determining policy choices. Third, it must reflect on the way it communicates. A better communication strategy, using more visual arguments and narratives that speak to people’s lives can help to build momentum.

In the open discussion, speakers reiterated the importance of making the green transition a bipartisan project, and underlined that institutions such as the OECD must lead by example in working to reduce their own environmental footprints. They also discussed the issue that the general public does not get their information on climate change from scientific publications, thus messages needed to be disseminated beyond the policy community. **Anthony Cox** emphasised the OECD has undertaken important steps to engage with different groups, including local government networks, industry networks, trade union networks, and civil society.



Speakers also underlined the need for the benefits of policies to be made clearly visible. **Elke Weber** referred to the smoking ban introduced in New York City in 2002 as another example of a measure introduced in the face of opposition but that gained public acceptance rapidly due to the tangible benefits it brought. **Anthony Cox** cited the Australian carbon tax as an example of the importance of communication: although households were compensated for the carbon price, the opposition successfully re-labelled the measure as a tax, eroding public support. **Cameron Hepburn** reflected on the example of British Columbia’s carbon tax, noting that although modifying tax bands could have achieved the same results in terms of economic redistribution, sending cheques in the post was a far more effective way of demonstrating the benefits to voters.

Related parallel session

Session J. Perceptions of Green Growth Policies

- The session discussed how beliefs and socio-demographic features influence experts' and citizens' perception of climate mitigation policies and of existing barriers to their implementation.
- The reviewed evidence suggests that academic training, local experience and cultural background affect experts' perception of most difficult obstacles to meet the objectives of the Paris agreement.
- Attitudes towards taxation, trust in governments and awareness of consequences of climate change have emerged in a recent study as important factors in shaping people's perception of climate mitigation policies.
- Compensation measures for affected workers are often considered as a tool to ensure a just transition. However, attitudes and perceptions also matter and can determine the success of these compensation schemes. For example, evidence from a study conducted on compensation to coal miners in the US market suggests that the general public can be unwilling to provide social assistance to coalminers affected by the introduction of climate mitigation policies.
- Overall, the discussion highlighted the importance of taking into consideration perceptions and potential biases when designing strategies for gathering support for climate mitigation policies, including through pre-testing of some of the interventions.

Moderator: Filippo Cavassini, OECD

Presented papers:

[*"Should individuals who are adversely affected by mitigation be compensated? Evidence from a survey experiment in the United States"*](#)

by Brilé Anderson, OECD.

[*"Is prioritization possible? Experts' perceptions of obstacles and responses to staying below 2°C"*](#)

by Ulrike Kornek, Mercator Research Institute on Global Commons and Climate Change (MCC).

[*"Perceived effectiveness of climate change mitigation policies"*](#) by Eva Kyselá, Charles University, Czech Republic.

Identified knowledge gaps and suggestions for future work

- The green transition is made very difficult by the gap between perception and reality due to the digitalisation of information and associated power structures. Expertise (e.g. behavioural insights) can help to understand how beliefs are formed and propagate over social media and can also help by understanding how transitions can occur in complex systems
- Behavioural insights tell us that several psychological effects, such as status-quo bias and loss-aversion, play against change. Enhanced understanding of psychology could contribute to redesign policy-making processes.
- Policy research organisations such as the OECD must pay close attention to inclusiveness. In addition to economic effects, analyses of environmental policies should examine their effects on inequality and on specific sections of society.
- A better communication strategy, using more visual arguments and a campaign approach, is needed in order to build momentum and get the message across, while there are more voices than ever in political discourse. The OECD might consider whether it is institutionally set up for this.



Future collaboration under the GGKP

This final session provided the opportunity to review policy implications and possible future work for the OECD. The Organisation's Deputy Secretary-General, **Masamichi Kono** highlighted the need to focus on competitiveness and adoption of green policies; stressing that those policies will need to be credible, predictable and yet flexible. Mr. Kono also pointed out that accelerating green innovation through renewable energy could make firms more competitive. Finally, he stressed that in order to achieve a smooth green transition, social dialogue, social safety nets, worker re-skilling while also considering mitigating costs on households are crucial first steps.

To help address these and all other related issues discussed during the Forum, Mr. Kono concluded that it will be key for the OECD to develop a better communication strategy through positive messaging on our green policy recommendations, and continue to provide evidence-based and sound economic advice.

The future collaboration with GGKP will involve 5 partners as a foresight on their renewed collaboration and strengthening of the Green Growth Knowledge Platform. The GGKP Partners therefore signed a new Memorandum of Understanding to ensure the continuation of collaboration for the next 5 years, welcoming UNIDO as a new partner organisation.



From left to right: Marianne Fay, World Bank; Stephan Sicars, UNIDO; Ligia Noronha, UN Environment; Rodolfo Lacy, OECD and Orestes Anastasia, GGKI.

 **GREEN GROWTH**
Knowledge Platform



Speakers and Pannellists

Opening Session

Rodolfo Lacy, Director, Environment Directorate, OECD

Ban Ki-Moon, President of the Assembly & Chair of the Council of the Global Green Growth Institute (GGGI)

Nicholas Stern, IG Patel Professor of Economics and Government,
Chair of the Grantham Research Institute on Climate Change and the Environment, London School of Economics

Montserrat Mir Roca, Confederal Secretary, European Trade Union Confederation (ETUC)

Pierre Vincensini, Senior Adviser, International Organization of Employers (IOE)

Alain de Serres, Deputy Director, Economic Department, Policy Studies Branch, OECD

Session 1

Jobs & skills transition management:
Strengthening green human capital

Steven Stone, Chief, Resources and Markets
Branch
UN Environment, Geneva

Olivier Deschenes, Professor of Economics,
University of California, Santa Barbara

Fabio Manca, Economist, Directorate of
Employment, Labour and Social Affairs, OECD

Samantha Smith, Director, Just Transition Centre,
ITUC

Hanna Finmo, Assistant Policy Director, Swedish
Confederation of Professional Employees (TCO)

Catherine Saget, Chief of Unit, Research
Department, International Labour Organization
(ILO)

Session 2

Green growth and competitiveness

Carolyn Fischer, Professor of Environmental
Economics, Free University, Amsterdam

Norbert Kurilla, State Secretary,
Ministry of Environment, Slovak Republic

Stephan Sicars, Director, Environment
Branch, United Nations Industrial Development
Organization (UNIDO)

Tilman Altenburg, Head of Sustainable
Economic and Social Development,
German Development Institute (DIE);
Chair of GGKP Research Committee on
Competitiveness

Donal O'Riain, Managing Director,
Ecocem Materials Ltd, Ireland

Session 3

Social impacts of the green transition

Marianne Fay, *Chief Economist for Sustainable Development, The World Bank*

Ian Parry, *Principal Environmental Fiscal Policy Expert, International Monetary Fund (IMF)*

Theresa Griffin, *MEP for the North West of England;
EU Observatory on Energy Poverty*

Benjamin Gestin, *Director General, Eau de Paris, City of Paris*

Nicholas Howarth, *Energy Transitions & Environment, KAPSARC, Saudi Arabia*

Kevin Chika Urama, *Professor,
Senior Advisor to the President
of the African Development Bank (AFDB)*

Session 4

Green transition in a post-truth world:
How to close the gap between perception
and empirical evidence?

Roger Dungan, *Deputy Permanent Representative to the OECD, New Zealand*

Cameron Hepburn, *Professor of Environmental Economics, SSE, Oxford University, UK*

Edgar Gutiérrez-Espeleta,
*former Minister of Environment and Energy
of Costa Rica*

Elke Weber, *Professor of Energy
and Environment; Professor of Psychology
and Public Affairs, Princeton University, USA*

Simon Kuper, *Journalist, Financial Times, UK*

Anthony Cox, *Deputy Director, Environment Directorate, OECD*

Closing session

Future collaboration under the GGKP

Masamachi Kono, *Deputy Secretary-General, OECD*

Benjamin Simmons, *Head of Secretariat, Green Growth Knowledge Platform (GGKP)*

Stephan Sicars, *Director, Environment Branch, United Nations Industrial Development Organization (UNIDO)*

Ligia Noronha, *Director, Economy Division, United Nations Environment Programme (UN Environment)*

Marianne Fay, *Chief Economist for Sustainable Development, The World Bank*

Orestes Anastasia, *Deputy Head, Office of Thought Leadership and Head of Knowledge Sharing, Global Green Growth Institute (GGGI)*

Kumi Kitamori, *Head of Division, Green Growth and Global Relations, Environment Directorate, OECD*

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