



# ANNUAL CONFERENCE 2016

**6–7 SEPTEMBER 2016  
JEJU ISLAND, REPUBLIC OF KOREA**

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# OVERVIEW

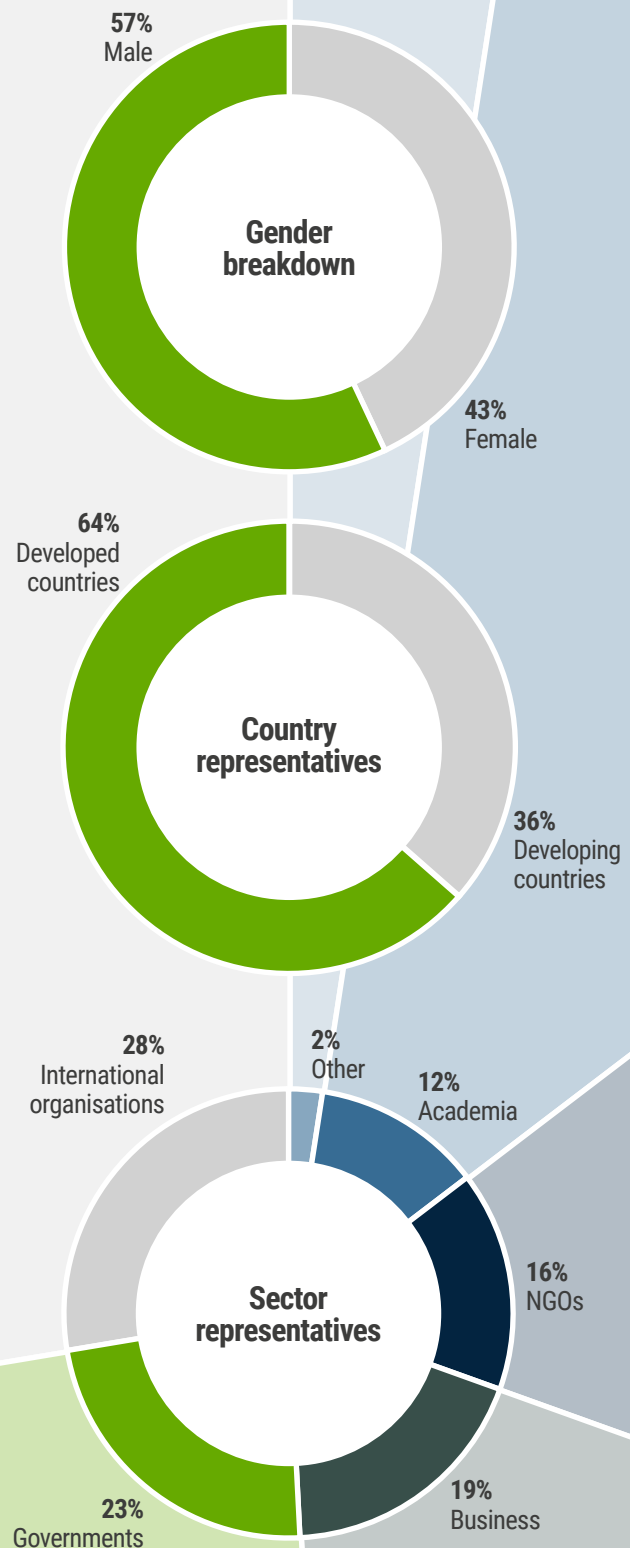
The **Fourth Green Growth Knowledge Platform (GGKP) Annual Conference** was held from 6 to 7 September 2016 at the International Convention Center in Jeju Island, Republic of Korea, on the theme of "Transforming Development through Inclusive Green Growth". Leading academics, policymakers, green growth advocates, and practitioners gathered at the conference, where they:

1. Delivered the latest findings on policies and practices that stimulate inclusive green growth;
2. Defined future research, knowledge sharing, and opportunities to promote pro-poor inclusive green growth for collaborative action; and
3. Identified priorities for action by stakeholders to pursue the most promising policies and practices.

The GGKP Annual Conference was one of the main events of Global Green Growth Week (GGGW) 2016. GGGW is an annual event designed to generate innovative solutions, leverage green growth opportunities, and promote the delivery of pro-poor, inclusive, and environmentally sustainable development. The Global Green Growth Institute (GGGI), as the main organizer of the GGGW, was the host of the conference, with the Environment for Development initiative as the co-host. The Organisation for Economic Co-operation and Development (OECD), the United Nations Environment Programme, and the World Bank, as GGGI's co-founding partners of the GGKP, helped in organizing the event and participated actively in the conference activities.

With this conference, the GGKP reached an important milestone in its efforts to deliver pro-poor, socially inclusive green growth through collaborative knowledge development. It also strengthened the strategic alignment of its efforts with partners and other international organizations.

**A total of 266 registered participants attended the conference.**



# SESSION FLOW, MAIN THEMES, AND KEY INSIGHTS

The conference focused on both approaches, including strategies, policies, participation, gender, capacity building, and empowerment, and themes, including finance, energy, water, green cities, and value chains. The event opened with messages from top officials of the four GGKP founding partners followed by 6 plenary sessions and 16 parallel discussions.

**Participants keenly reacted to key questions, presentations, and views during the parallel sessions. The topic of each session was framed with the presentation of one or two research papers. In total, 30 papers were presented across all sessions. Additionally, 13 country presentations complemented the research presentations and, in some sessions, selected Discussants further stimulated the discourse.**

Two special recognition awards were given to researchers before the official closing of the conference: one for the Best Young Researcher Paper and the other for the Best Overall Paper.

Key insights that emerged from the conference include the need to:

- Create an enabling environment for inclusive green growth that includes a policy framework and support;
- Increase research and analysis on the relationship between the terms inclusive, green, and growth;
- Re-emphasize the important role of collaboration and partnerships, including the private sector;
- Invest in human capital and capacity building;
- Ensure empowerment in the pursuit of inclusive green growth;
- Harness the market in scaling inclusive green growth;
- Strengthen the role of knowledge management and data;
- Ensure financing and mobilize resources;and
- Learn from best practices and replicate them.

# CONFERENCE PROGRAM AT A GLANCE



**6 September**

## **Welcome and Opening Remarks**

**Panel:** Understanding the Challenge of Inclusive Green Growth

**Panel:** Can Economic Growth Be Inclusive and Green?

Perspectives from policymakers, the private sector, and the research community

**Panel:** The Role of Collaboration and Knowledge in Scaling Inclusive Green Growth

## **Parallel Sessions A**

### Strategy and Policy

Session A1: Managing Distributional Impacts from Green Growth Transitions Sector Focus: Water

Session A2: Promoting Inclusive, Community-Based Water Management

### Energy

Session A3: Exploring Impacts of New Energy Policies

### Strategy and Policy

Session A4: Ensuring Gender- Balanced Participation and Empowerment (1)

## **Parallel Sessions B**

### Strategy and Policy

Session B1: Exploring the Climate Change and Poverty Nexus

Session B2: Investing in Ecosystem Services

### Energy

Session B3: Developing Rural Electrification

### Inclusive Business Models

Session B4: Greening Industry and Value Chains



## 7 September

### **Keynote: Fast-Forwarding the Inclusive Green Growth Agenda**

#### **Parallel Sessions C**

##### Strategy and Policy

Session C1: Ensuring Gender- Balanced Participation and Empowerment (2)

##### Water

Session C2: Innovation in Water Governance and Conservation Strategy and Policy

Session C3: Examining Environmental Pricing and Payment Schemes Participation and Empowerment

Session C4: Exploring the Role of the Informal Economy and Small-Scale Enterprises

#### **Parallel Sessions D**

##### Participation and Empowerment Session

Session D1: Developing Skills and Capacities

##### Strategy and Policy

Session D2: Measuring and Modeling Change

##### Energy

Session D3: Promoting Off-Grid Energy Systems

##### Cities

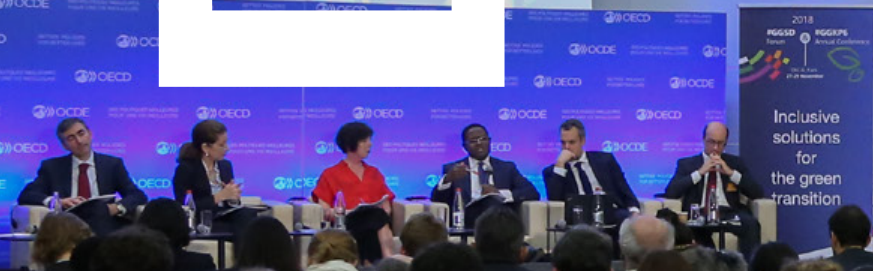
Session D4: Promoting Green Cities

**Panel:** Advancing the Sustainable Development Goals and Paris Climate Agreement through Inclusive Green Growth

**Panel:** Linking Knowledge-Sharing, Research and Policy-Making for Inclusive Green Growth

### **Presentation of Research Paper Prizes and Closing Remarks**

# DAY







## WELCOME AND OPENING REMARKS **MR. YVO DE BOER** DIRECTOR-GENERAL, GGGI

After warmly welcoming all participants, Mr. Yvo de Boer expressed his appreciation for how the GGKP has grown and expanded into a “robust platform for capturing and sharing knowledge globally on green growth.” He cited the critical role of the platform in advancing the goals of inclusive green growth and in exploring its distributional impacts on poverty reduction, employment, gender equality, and social inclusion. He stressed that green growth can lead to transformative and sustainable change only if it adopts an integrated and systemic approach to addressing poverty and social inclusion. Inclusive green growth should deliver the most benefit to poor, marginalized, and vulnerable communities. Among the solutions he offered to achieve green growth were to promote more stringent institutional and governance structures, provide people with access and opportunities, and make the transition from a brown to a green economy by focusing on simple and cleaner technologies, de-materialization, and a stronger service sector. Finally, Mr. de Boer noted that the poor should be engaged in greener business models such as renewable energy, integrated water management, eco-tourism, sustainable farming, and forest conservation.





# DR. CHRISTIAN KASTROP

## DIRECTOR OF POLICY STUDIES, OECD

In his message, Dr. Christian Kastrop stressed the urgency for policymakers to secure the well-being of present and future generations in the face of many interconnected global challenges. He stated that any impact, whether green or non-green, goes beyond physical and political boundaries; thus, even minor shocks and disruptions are quickly transmitted at a global level. Dr. Kastrop encouraged strong responses on macroeconomic and structural policies in view of the prevailing “low-growth trap”, where global demand lags, including for green growth, across the public and private sectors alike. Likewise, he emphasized inclusiveness where no one is left out and the benefits of growth and an improved environment are distributed equitably. He specified actions that are responsive to inclusive green growth, including the creation of well-designed environmental policies, such as carbon pricing, which deter against polluting. Furthermore, he encouraged policy innovation to galvanize the transition to green growth. To end his message, Dr. Kastrop affirmed that the GGKP Annual Conference should provide an effective venue to exchange views on the vital global process which is inclusive green growth.



## DR. MARIANNE FAY CHIEF ECONOMIST, SUSTAINABLE DEVELOPMENT, THE WORLD BANK

Dr. Marianne Fay spoke about inclusive green growth being smart and efficient. She cautioned that green policies should not only be equitable but must also actively help the poor. Such policies must be carefully designed to avoid unintended consequences. As an example, she pointed out that while fossil fuel subsidy reform is often a critical economic distortion that needs to be corrected, once the subsidy is removed, it can consequently result in an increase in prices of consumer goods. Without careful consideration, such actions can hurt the poor. Emphasizing the critical role of knowledge sharing in designing green growth, Dr. Fay stated that knowledge sharing should consider both opportunities and pitfalls as well as generate resources for the poor. She highlighted the role of the GGKP in bringing together its growing partnership, now exceeding

50 partners, and creating a platform that contributes to institutionalizing green growth as a means towards sustainable development.



# DR. LIGIA NORONHA

## DIRECTOR, DIVISION OF TECHNOLOGY, INDUSTRY, AND ECONOMICS, UNEP

Dr. Ligia Noronha highlighted that knowledge is an essential public good for enabling innovation and the transition to an inclusive green economy. It informs our policy choices, enables action, and brings about lasting impact. She called on the leading institutions to work together in this transition. According to Dr. Noronha, an inclusive green economy provides us with opportunities to address the development of the world's poorest, safeguard the Earth's resources for future generations, and ensure that these benefits apply to all, including marginalized groups. She emphasized the need to target our energies and actions which have a direct and positive impact on people. She stated UNEP's commitment to co-hosting the GGKP secretariat along with GGGI and to extending and enhancing this collaboration. She concluded by noting her hope that the conference will provide an important opportunity to discuss and debate many of the elements central to ensuring we can "transform development through inclusive green growth".



# PLENARY SESSIONS 1-3







# PANEL 1

## Panel Chair

**Dr. Paul Ekins**, Professor of Resources and Environmental Policy. Director of Institute for Sustainable Resources, University College London Deputy Director, United Kingdom Energy Research Centre

## Panelists

**Professor Mohan Munasinghe**, Founder and Chair, Munasinghe Institute for Development, Sri Lanka

**Dr. Kevin Urama**, Senior Advisor to the President African Development Bank

**Mr. Steve Bass**, Senior Associate, International Institute for Environment and Development

## Understanding the Challenge of Inclusive Green Growth

The first plenary panel of the conference examined the extent to which green growth has been inclusive. It discussed the progress made in inclusive green growth towards contributing to sustainable development and, if at all, how far it has supported advances on issues such as poverty, gender, economy, and accessibility. Participants identified the constraints that have caused green growth to make only limited headway and why the dimension of inclusiveness has remained an elusive target.

Accordingly, inclusive green growth requires a fundamental rethinking and not just tweaking. There is a need to restructure the economy from old to new and to link the three main words – inclusive, green, and growth. Whether the economy can be grown and up to what level without polluting the environment is a question that must be asked. The growth process should not be resource intensive.

The plenary underscored the importance of the policy community to focus on a common agenda and promote inclusive and integrated governance. The role of the private sector in strengthening capacities and boosting confidence was stressed as well.

The requisites of inclusive green growth as identified during the plenary are as follows:

- It requires a change in mind set;
- It involves human capital, which includes formalizing the informal economy and creating employment opportunities for the poor;
- It should make financing accessible and, in particular, locally available;
- It should provide for an incentive system;
- It should have strong political will since it is as political as much as it is behavioral or technical;
- It should be empowering, giving more attention to local organizations; and
- It should be clear on its messages. In most cases, governments lack clarity on their green growth policy.



## PANEL 2

### Panel Chair:

**Ms. Mahua Acharya**, Assistant Director General, Investment and Policy Solutions Division Global Green Growth Institute

### Panelists:

**Dr. Fatima Denton**, Director, Special Initiatives Division, United Nations Economic Commission for Africa

**Mr. George Varughese**, President, Development Alternatives, India

**Mr. Simon Upton**, Director, Environment Directorate Organisation for Economic Co-operation and Development

**Mr. Raouf Dabbas**, Senior Advisor, Ministry of the Environment, Jordan

**Mr. Pavan Sukhdev**, Founder and Chief Executive Officer GIST Advisory

## Can Economic Growth be Inclusive and Green?

Perspectives from policy makers, the private sector, and the research community

The plenary debate gathered high-level panelists who shared their thoughts and ideas on green growth based on their expert knowledge and practical experience. Despite their differences in priorities and approaches, the panelists agreed that green growth and economic growth are compatible. The challenge is how to keep both inclusive, keeping in mind conditions and barriers. One suggestion was to address the basic structural problems of the economy in order to promote access to jobs, financing, and wealth creation.

The panel identified actions in support of inclusive green growth, including:

- Policy development, including full-cost accounting and reporting practices;
- Simultaneous engagement of private, financial, and government sectors with a dedicated institution to advance on-the-ground implementation;
- Transcending the current practice of entrenched political economy as well as short-term government planning; and
- Recognition that key regulations do not yet exist in many countries.



## PANEL 3

### Panel Chair

**Mr. Benjamin Simmons**, Head, GGKP

### Panelists

**Dr. Ligia Noronha**, Director, Division of Technology, Industry, and Economics, UNEP

**Dr. Gunnar Köhlin**, Director, Environment for Development, Sweden

**Ms. Lisbeth Jespersen**, Head of Secretariat, GGGF

**Mr. Oliver Greenfield Convener**, Green Economy Coalition

## The Role of Collaboration and Knowledge in Scaling Inclusive Green Growth

The discussion in this plenary panel revolved around three main ideas—scaling, partnerships, and market. Green growth that is inclusive can sometimes happen at scale and speed simultaneously. However, scaling has to be tailored to each country and is done with regulation, replication, knowledge sharing, and empowerment. Knowledge sharing of best practices for the purpose of scaling is strategic. Other factors for scaling inclusive green growth are the level of political leadership and human capital. Political will is critical for creating the correct market framework for green growth. Only when such a framework is created will the private sector actively participate. In the long term, there is a need to build human capacities while investing in technology. It is crucial to organize knowledge in a way that enables people to understand the complexities as well as the benefits of inclusive green growth.

A partnership that is well thought of is a way to achieve scale and address the complexity of inclusive green growth. It creates venues for dialogue and opportunities among stakeholders. Such a partnership should promote collective action rather than work

in silos, and should demonstrate how different systems can work together in an integrated manner. It has to properly consider scale and design to avoid the pitfalls of engaging in partnerships just for the sake of partnering.

The market will determine the speed and scale of inclusive green growth. However, government must create an enabling environment and the market will respond accordingly. One way of doing this is to jump start investment through public financing of the green economy. Additionally, there is a need for metrics to indicate whether the market is doing well or not.

Specific to the GGKP, there is a need to identify what knowledge is required at every level. This could be addressed by encouraging the different stakeholders to talk to each other and identify the necessary solutions and opportunities for scaling. Learning can occur through research and maintaining as well as sharing best practices. It is important for the GGKP to develop specific information for more narrow target audiences, with different pathways to information based on geographical areas, sectors, and themes.





# PARALLEL SESSIONS A&B



# A1.

## Managing distributional impacts from green growth transitions

### Session Chair

Dr. Gunnar Köhlin, Director, Environment for Development, Sweden

### Paper presenter

Mr. Sebastian Muñoz-Amezcu and Mr. Emiliano Iturriaga, Instituto Tecnológico y de Estudios Superiores de Monterrey, Mexico

### Country presenter

Dr. Chuluun Togtokh, Director of Institute of Sustainable Development National University of Mongolia, Mongolia

### Discussant

Dr. Byela Tibesigwa Research Fellow, Department of Economics, College of Arts and Social Sciences, University of Dar es Salaam, Tanzania

The key challenges addressed during the session was how to ensure that benefits of green growth are extended to every member of the global community and not just a select few or the elite.

The paper presented on “The Transition to a Low-Carbon Economy and its Effects on Jobs and Welfare: A Long-term Scenario for Brazil” focused on the economic and social transformation that Brazil is presently undergoing as an emerging economy. Brazil has a booming middle class with an increasing purchasing power, and the country has reduced emissions from energy and electricity generation, deforestation, agriculture, cattle-raising, and road transport. The paper looked at three income classes and several factors, including monetary and physical flows in jobs, household assumptions, and sectoral prices in the energy, industrial, agriculture, transport, and services sectors in the period 2005-2050. Results show that green growth mitigation does not jeopardize job creation.

Complementing the paper was the country presentation “Inclusive Green Growth and Distributional Impacts under China’s Green Growth in the 13th Five-Year Plan”. The presentation highlighted that despite China’s decreasing consumption intensity in energy and water as well as lower carbon dioxide (CO<sub>2</sub>) emissions from 2001 to 2013, green growth adoption is still slow, especially compared with other large economies. Under the plan, China has set targets on economic, environmental, and social dimensions from 2016 to 2020. However, worsening groundwater and air pollution, rising energy and water consumption, increasing CO<sub>2</sub> emissions, the absence of decoupling of economic growth and environmental resource use, and uneven regional development are posing challenges in meeting the targets.

Recommendations resulting from the session called for the following actions:

- Decoupling of greenhouse gas emissions and economic growth;
- Merging of social and environmental agendas in emerging countries;
- Adjusting the structure of the economy and industries;
- Greening entire economic and industrial chains;
- Driving green growth with innovation;
- Improving market mechanisms for green growth;
- Establishing a global green value chain and trade policy;
- Setting up a financial system for green growth;
- Building human capital and information management capabilities for green growth; and
- Strengthening mechanisms for environmental regulations, standards, supervision, and enforcement for advancing green growth.

## A2.

# Promoting inclusive, community - based water management

### Session Chair

Dr. Bruno Oberle, Chair for Green Economy and Resource Governance École Polytechnique Fédérale de Lausanne, Switzerland

### Paper presenters

Dr. Yang Liu, Policy Analyst, International Energy Agency

Mr. Andreas Marcus Roehlig, Researcher, Research Center Siegen and Hamburg Institute of International Economics, Germany

### Country presenter

Dr. Zhanfeng Dong, Associate Director, Department of Environmental Policy Chinese Academy for Environmental Planning, China

### Discussant

Dr. Pranab Baruah, GGKP Research Manager and Senior Knowledge Manager

The featured paper presentation "Information Technology for User-based Water Rights Enforcement" assessed the present groundwater usage in Mexico as unsustainable and noted that the implementation of water legislation is characterized by poor monitoring and weak enforcement of the concession system. The paper suggested that an information technology platform be made available that would provide data such as water bills, water pump efficiency, and depth of the water table which the community could use to take action on water-use-related concerns. In Mexico, the community of users is composed of a groundwater technical committee, citizen observatories, affected communities, farmers, and eco-conscious firms. Eventually, the use of

better information technology could result in aquifer sustainability, groundwater extraction monitoring, community mobilization, law enforcement, and optimized water use, leading to effective groundwater management and inclusive green growth.

Further enriching the session was the country presentation "Green Development Opportunities for Mongolia: Community-Based Water Management", which addressed the question of whether it is possible to enable inclusive green growth in pastoral social-ecological systems. It suggested that Mongolians could apply their traditional system of pastoral social-ecological management characterized by strong cooperation, cultural landscape use, robust ecosystem services, and subsistence in addressing the effects of climate variability such as land degradation and landscape fragmentation. For policy support, Mongolia has the Green Development Policy of 2014 where the strategic objectives include a population settlement plan, the building of green cities, introducing technologies for recycling, reuse and retreatment of wastewater, and improving the riparian ecosystem management. The application of green technology for improved livestock production and for education, for example distance learning, is also a proposed solution.

Engaging and empowering local stakeholders ensures sustainable water management. Both Mexico and Mongolia are taking community-based approaches integrated with the adoption of green growth measures, in addressing their water-related challenges. Mexico will use information technology to enable community involvement while Mongolia will strengthen its one-river communities. Towards the end of the session, it was suggested that community-level success stories in Asia, Africa, and Latin America could be collected and disseminated to serve other communities and provide policy support to legislators.

# A3.

## Exploring impacts of new energy policies

### Session Chair

Dr. Fatima Denton Director, Special Initiatives Division, United Nations Economic Commission for Africa

### Paper presenters

Dr. Bipasha Baruah, Canada Research Chair in Global Women's Issues Western University, Canada

Ms. Shruti Sharma, Associate and India Project Coordinator, International Institute for Sustainable Development, India

### Country presenter

Professor Alfred Bizoza, Director of Research Institute of Policy Analysis and Research, Rwanda

### Discussant

Dr. Sarwat Chowdhury, Policy Specialist United Nations

The presentations during this session focused on the uptake of renewable energy, particularly in developing countries, comparing sources, adoption strategies, and impacts.

The paper "Macroeconomic Impacts of Energy Efficiency Improvement: A General Equilibrium Perspective" included a comprehensive analysis of the macroeconomic effects on gross domestic product (GDP) of energy use. A recursive dynamic global computable general equilibrium (CGE) model was used, covering the period 2015-2040, and applied to various electricity sources, including coal, gas, oil, hydro, nuclear, biomass, solar, wind, and other renewables. The model was applied to an optimistic scenario and a negative scenario. As a policy implication, the paper showed that energy efficiency has different economic impacts across sectors and regions and that policies on energy efficiency need to align with renewable and climate targets. Energy efficiency increases economic growth and reduces the demand for renewables but may not lead to absolute emission reductions.

The paper "The Impact of Renewable Energies on Regional Value-added in Developing Countries" addressed the macroeconomic impact of renewable energy in economic development. Among

other matters, it assessed the effects of renewable energy in the value chain production as well as its added value to stakeholders and how it is distributed among them. The presentation concluded that: (a) having renewable energy generally has a positive regional economic impact; (b) there are technology- and region-specific results; (c) local ownership and adequate support is crucial; (d) recurring effects generate continuous income; (e) local manufacturing can increase effects but is not a prerequisite for positive impacts; (f) small-scale installations mean that local ownership has a larger share; (g) there are regional effects among developing countries, particularly in system management; (h) large-scale installations mean fewer inter-regional actors; and (i) regional labor input becomes more important.

The country presentation "Green Growth Strategy and Energy Policy Innovation in China" featured China's actions to adopt green development as a development strategy and how it is harnessing its potential for alternative energy. Since 2004, carbon emissions intensity in China has been decreasing, and economic growth has started to be decoupled from the growth of coal consumption. The commitment is to lessen the proportion of coal consumption by 60 percent under the 13th Five-year Plan, from 2016 to 2020. It will result in the decoupling of China's economic growth from overall fossil energy consumption by 2030. Air pollution is being tackled by implementing atmospheric pollution prevention, giving special attention to energy structure adjustment, and increasing clean energy supply. Challenges to the goal include relatively low energy utilization efficiency, an unreasonable energy consumption structure, the need to strengthen innovation capability, an imperfect supervision and legal system, lack of a long-term incentive policy, the need to fully utilize market mechanisms, and the need to promote international cooperation. As a counter-action, China will implement stricter coal control, establish energy efficiency benchmarking, promote energy conservation using market-based policy and energy structure adjustment, create a regionally differentiated energy development policy, deepen energy market regulation and supervision, promote the healthy and sustainable development of the energy market, strengthen the construction of an energy legal system, promote scientific and technological innovation, and foster innovation and the development of new power.

# A4

## Ensuring gender-balanced participation and empowerment (1)

### Session Chair

Dr. Fatima Denton Director, Special Initiatives Division, United Nations Economic Commission for Africa

### Paper presenters

Dr. Bipasha Baruah, Canada Research Chair in Global Women's Issues Western University, Canada

Ms. Shruti Sharma, Associate and India Project Coordinator, International Institute for Sustainable Development, India

### Country presenter

Professor Alfred Bizoza, Director of Research Institute of Policy Analysis and Research, Rwanda

### Discussant

Dr. Sarwat Chowdhury, Policy Specialist United Nations, Development Programme, Seoul Policy Center

An overview of the employment situation of women in the renewable energy sector was provided in the paper presentation "Creating and Optimizing Employment Opportunities for Women in Renewable Energy". It reviewed occupational patterns, opportunities, and constraints for women. The paper discussed the huge potential for women's employment in the renewable energy sector and concluded that: (a) there are global similarities and differences in employing women in the renewable energy sector; (b) women's performance and advancement are optimized if structural constraints in social policies are considered; (c) transformative shifts in the attitude of society with regard to gender roles is crucial; and (d) there is an urgent need to collect sex-disaggregated data on employment so that policymaking is information- and evidence-based.

The paper presentation "Gender and Fossil Fuel Subsidy Reform" dealt with the question "do fossil fuel subsidies have gender impacts?", with a view to finding out whether half of the world's population is impacted differently by fossil fuel subsidies, bearing in mind that many countries have increased subsidized prices for fossil energy over the past two years. A framework on welfare, productivity and empowerment was used as a guide.

The research concluded that clear linkages exist between energy access policies and gender empowerment and that fossil fuel subsidies and reforms create: (a) income effects with unfair economic impacts on women; (b) energy use effects that may mean more free time for women, improve their respiratory health, and create income-generating and educational opportunities for them; and (c) energy supply effects that have the potential to create an income or energy use effect and in turn impact on the income, time, savings, and health of women. The paper noted that there should be gender-sensitive energy policies to increase energy access.

In Rwanda, extreme weather events such as flooding and drought affect the agriculture sector but there are no agricultural adaptation measures with climate change and gender equity perspectives. The country presentation "Agricultural Adaptive Strategies in the Context of Climate Change and Gender Equity in Rwanda" was based on a study which assessed whether women and men in Rwanda are affected differently by climate change impacts and whether there are significant differences in their ability to adopt adaptation measures. The findings showed that effects on gender are mixed at the micro and macro levels and further analysis should be done to explore whether land tenure security increases the probability of successful adaptation to climate change effects; and whether the participation of community-based organizations as well as plot-level characteristics such as size and location has an effect on adaption when using bench terraces. For similar country studies, it was suggested that appropriate data should be made available for gender-based analysis of climate change vulnerability and that historical, institutional, and restrictive cultural practices should be taken into consideration to ensure a comprehensive understanding of gender effects on climate change vulnerability.

The presentations in the session highlighted the importance of having gender-disaggregated data in studying gender-balanced participation and remembering that equity and access policies are not linear. For the GGKP partners, Agenda 2030 provides a significant opportunity to work on gender equality implementation and later to expand to other related goals. Various tools are already available which the GGKP partners could use, such as the Mainstreaming Acceleration Policy Support process.



# B1

## Exploring the climate change and poverty nexus

### Session Chair

Dr. Jan Börner, Senior Researcher, Center for Development Research University of Bonn, Germany

### Paper presenters

Mr. Ricardo Morales Trosino, Chief, Department of Environment and Spatial Economics, National Institute of Ecology and Climate Change, Mexico

Dr. Christina Wong, Researcher, Research Center for Eco-Environmental Sciences Chinese Academy of Sciences, China

Mr. Jonathan Quartey, Senior Lecturer, Department of Economics, Kwame Nkrumah University of Science and Technology, Ghana

### Discussant

Ms. Marialuisa Tamborra Deputy Head of Strategy Unit, Climate Action and Resource Efficiency Directorate, DG Research and Innovation

The paper presentation "Shockwaves: Managing the Impacts of Climate Change on Poverty" had three main messages as it analyzed the impacts of climate change on poverty and welfare. The first message was that "climate-related shocks and stresses, already a major obstacle to poverty reduction, will worsen with climate change" and that poor people are the most exposed and vulnerable to these shocks. The second message was that "rapid, inclusive, and climate-informed development can prevent most consequences of climate change on poverty until 2030", where more than 100 million people could end up in extreme poverty, especially in Sub-Saharan Africa and South Asia, if sufficient action is not taken to address the situation. The third message was that "immediate mitigation is required to remove the long-term threat that climate change creates for poverty eradication." Mitigation need not threaten short-term progress on poverty reduction provided that policies are well designed and international support is available. There port prescribes actions that address both short-term and long-term impacts of climate change on poverty. Actions for short-term impacts would include "rapid, inclusive, and climate-informed development, with social protection as well as universal health coverage" and "targeted adaptation interventions such as flood management infrastructure and more heat-tolerant crops." Actions for long-term impacts would include immediate and pro-poor emission reduction policies that protect poor people against negative impacts and international support to prevent the trade-off between poverty reduction and emission reductions.

The paper presentation "Impact of Multiple Climate Smart Practices in the Climate Resilient Green Economy: Empirical Evidence from the Nile Basin of Ethiopia" sought to find answers as to why, despite the efforts of the government and NGOs in Ethiopia, the adoption by farmers of the Climate Resilient Green Economy (CRGE) strategy remain slow and uneven and climate-smart practices (CSA) are preferred. It presented evidence of how climate change affects the choice of portfolio of CSA and the synergies of multiple strategies in farm income. The Ethiopian government has launched its vision of a CRGE by 2025: a middle-income, resilient population and no net increase in GHG emissions. So far, the CRGE for the agriculture sector has taken the lead by improving crop and livestock for 'triple wins', disseminating adaptation strategies, and identifying 41 adaptation options. According to the study, food production in a changing climate is a scientific and policy challenge and there is a need to strengthen institutions in order to hasten and sustain climate change adaptation. The approach should be integrated rather than on a piece meal basis.

The country presentation "Socio-Economic Impacts of Climate Change in Colombia" addressed the impacts of climate change in the country. Poverty in Colombia has been decreasing during the last 10 years, but is higher in rural areas compared with urban areas. Natural disasters during La Niña in 2010–2011 related to hydro meteorological hazards increased by 71 percent. The damage resulting from La Niña affected 7 percent of the population and is equivalent to 2 percent of GDP, resulting in 1,374 casualties and affecting 552,000 houses, 3,000 schools, and 514 hospitals. Climate change will have multiple impacts but the most severe economic effect will be in the agriculture sector with loss of fish captures, road closures, loss of live stock, and reduction of yields. Each year Colombia loses 0.5 percent of GDP as a result of losses in productivity associated with climate change. In addition, household consumption has dropped by 2.9 percent because of higher food prices associated with productivity loss of agricultural products. Given the impacts of climate change in Colombia, the insights gained with regard to ensuring responsiveness and effectiveness in green growth and climate change policies include: (a) the importance of understanding the experiences and motivation of those targeted by a policy; (b) the need for an integrated collaboration across institutions to improve the design and efficiency of a policy; and (c) the need for a short- and long-term policy package and approaches, and to encourage innovation from the bottom of the pyramid or at the community level.

# B2

## Investing in ecosystem services

### Session Chair

Dr. Jan Börner, Senior Researcher, Center for Development Research University of Bonn, Germany

### Paper presenters

Mr. Ricardo Morales Trosino, Chief, Department of Environment and Spatial Economics, National Institute of Ecology and Climate Change, Mexico

Dr. Christina Wong, Researcher, Research Center for Eco-Environmental Sciences Chinese Academy of Sciences, China

Mr. Jonathan Quartey, Senior Lecturer, Department of Economics, Kwame Nkrumah University of Science and Technology, Ghana

### Discussant

Ms. Marialuisa Tamborra, Deputy Head of Strategy Unit, Climate Action and Resource Efficiency Directorate, DG Research and Innovation

The paper presentation “Poverty and the Environment in Mexico” noted that 60 percent of people in the 2,457 municipalities in Mexico live in extreme poverty. Compounding the situation is a physical environment beset with waste management problems, a high deforestation rate, overexploited aquifers, and air and water pollution. Solid waste management is largely through disposal in open pits or burning. Deforestation is high in municipalities with a high poverty rates and where there is road construction as well as land conversion. Overexploitation of aquifer occurs more in wealthier cities and irrigation districts and affects largely the poor who do not receive sufficient water supply. Challenges associated with governance and electricity subsidies for agriculture aggravate the situation. Air pollution is worse in larger cities while poorer municipalities have better air quality due to a lower level of industrial activities, but water pollution in those areas is largely due to agricultural chemicals and lack of wastewater treatment. Suggested solutions to address the situation and gaps include: (a) balancing profitability with forest conservation; (b) establishing water monitoring systems; (c) developing a research agenda that identifies causes of local government failures; (d) developing combined indicators on air and water pollution, waste management, deforestation, groundwater depletion, and poverty; (e) developing a research agenda to identify the causes of local government failures; and (f) developing a policy agenda that balances environmental and social development.

The paper presentation “Implementing Ecosystem Services for Inclusive Green Growth Transitions” outlined China’s analytical framework for measuring and evaluating how ecosystem services address human needs. The framework responded to the need for institutions to have credible ecosystem values that will guide investments through the Yong-ding River Ecological Corridor of Lakes and Wetlands, a park network program to

advance socioeconomic conditions and urban livability. The program’s objective is to enhance five ecosystem services, including through an increase in groundwater storage, regulation of the local climate to improve cooling for human comfort, water purification and improvement in the drinking water quality, reduction of PM10 emissions to improve air quality, recreation, and economic development. China is learning from the program that ecosystem service assessment is critical to promoting inclusive green growth. The framework shows how ecosystems contribute to diverse human needs and promotes cooperation as well as wiser decisions that minimize trade-offs and unequal distribution effects. Presently, there is a need for increased capacity to carry out ecosystem assessments, such as how to determine connections between issues and to identify strategic actions.

The country presentation “Assessing the Efficiency of Forestry Policy for Inclusive Growth in Ghana” addressed how the prospect of tropical forest endowments is driving inclusive growth and development. Despite 100 years of forestry policy implementation, Ghana is rapidly losing its forests. The aim of the assessment is to evaluate Ghana’s forestry policy as a driver of inclusive green growth and how efficiently it has been implemented in the country. The findings were that the forestry policy in Ghana has not been efficient since it distorts revenue and costs in the sector, subsidizes external consumption against local consumption, and taxes domestic forestry sector operators excessively. The forestry policy resulted in net welfare loss that depicts non-inclusive growth. On lessons learned, Ghana has realized that: efficiency must be consciously targeted when formulating and implementing forestry policies; it is necessary to ensure economic sector representation; and a holistic model must be applied in an integrated manner in the policy process, including local and external expertise.

Insights and critical success factors from the session include the following:

- Frameworks and tools exist to measure ecosystem services but research and on-the-ground experiences suggest that more work is needed to understand the drivers and determinants of changes in ecosystem service provision;
- The interface between science and policy is crucial;
- Scaling up pilot experiences requires demand-oriented research and mechanisms to communicate research results to decision makers;
- Business models should be developed across sectors to facilitate investments in ecosystem services;
- Transfer of methods, tools, and knowledge should be included in the ecosystem services assessment; and
- There should be further knowledge sharing on how to institutionalize approaches and how to apply ecosystem service assessments for different policy options and outcomes for environmental, social, and economic development conditions.

# B3

## Developing rural electrification

### Session Chair

Dr. Todd Johnson, Energy Sector Coordinator, The World Bank – China and Mongolia

### Paper presenters

Mr. Andrès Estèvez, Researcher, Centro de Energía y Recursos Naturales of Instituto Tecnológico Autónomo de México, Mexico

Ms. Daye Eom, Independent Researcher, Republic of Korea

### Country presenter

Mr. Mohd. Sahil Ali, Research Scientist, Center for Study of Science, Technology and Policy, India

### Discussant

Dr. Pranab Baruah GGKP Research Manager and Senior Knowledge Manager, Global Green Growth Institute

The presentations in this session emphasized the importance of involving local communities as part of the inclusive green growth equation and looking at affordability issues to ensure the success of rural electrification. Mexico has a great potential for wind generation as an energy source but faces several constraints in realizing this potential. Investors and technology owners have to negotiate with private and collective land owners in a complex economic, social, and political environment. The property rights structure in rural areas is complex as a result of decades of agrarian reform. The practice of combining lots to form social properties such as Ejidos (communal lands) and comunidades (indigenous agricultural lands), and organizing such properties under collective governance structures before sale or lease, sometimes results in increases in transaction costs. Communal assemblies have to approve selling, leasing, and buying of properties, which require collective action on property concerns. The institutions are weak and do not guarantee security and enforcement of property rights. Investments are fixed and long term in nature. There is political instability and social conflict. The property acquisition process promotes opportunistic behaviors. It was these circumstances that led to the paper “Wind Farms in Oaxaca, Mexico: Complex Contracting and Spatial Effects”. The paper came to the following conclusions: (a) institutional variables can strongly reduce the likelihood of observing the full realization of the projects; (b) investment patterns surge following their potential profitability; (c) contractual agreements are hard to reach and maintain because of high transaction costs associated with the complexity of property rights and collective governance structures as well as information asymmetries; (d) positive spatial effects support a learning-by-watching hypothesis; (e) potential economic and social benefits for the region and its population might be at risk; and (f) new policy options are needed to reduce transaction costs and ensure economic and social benefits.

People are deprived if they do not have access to electricity; this was the core message of the paper presentation “Comparison of Financing Mechanisms in Promoting Rural Electrification in Tanzania Using Agent-Based Modeling”. In Sub-Saharan Africa, 70 percent of the population has no access to electricity—mostly in rural areas, but the challenge is not simply solved with rural electrification. The paper showed that simple electrification efforts are simply not affordable, sustainable, or profitable. To be effective, policies need to account for both electricity consumption and rural income generation. Policies should also take into account the social effects of technology adoption and support long-term, dynamic planning. The Integrated Rural Electrification Planning Model, a decision support tool for rural electrification in Tanzania, was used to find out the impacts of two financing rural electrification mechanisms: capital subsidies and micro credits. Results showed that: (a) providing a capital subsidy can rapidly increase the adoption rate of decentralized systems in the beginning, but without micro loans users cannot sustain the desired electricity demand in the long term; (b) lowering up front cost barrier cannot be a long-term solution; (c) electrification potential will be maximized if a microloan product is tailored to enhance productivity and responds to varying local needs, such as a crop micro loan and a solar energy micro loan; and (d) needs assessments should be done on the desired productive use based on the period of electrification, occupation type, and seasonal income cycle.

The country presentation “Building Sustainability into the Goal of Universal Energy Access” provided recommendations on how to address lack of, or access to, energy as a critical factor in achieving the SDGs. Recommendations included: (a) identifying interdependencies between goals and systems; (b) mainstreaming analysis of SDG-related data; (c) building closer coordination between data departments and ministries; (d) streamlining the data generation process; (e) building capacity for training and infrastructure; (f) establishing legal and regulatory provisions; (g) revising norms for electrification; and (h) developing a long-term strategy for statistics and monitoring and verification. Since energy is a complex dynamic system and access to it is key to development, the presentation emphasized the need for more robust measurements of access, having a sustainability framework and a planning approach, a long-term strategy for government to improve access and related monitoring and verification.

# B4

## Greening industry and value chains

### Session Chair

Mr. Kurt Lonsway, Manager, Environment and Climate, African Development Bank

### Paper presenters

Dr. Maria Angela Zafra, Graduate School Faculty, School of Business and Governance, Ateneo de Davao University, Philippines

Mr. Eduardo Bianchi, Main Researcher Red LATN, Argentina

Mr. Azhan Hasan, Lecturer and Researcher, Universiti Teknologi, PETRONAS, Malaysia, and Environmental Policy Research Centre, Freie Universitaet Berlin, Germany

### Discussant

Mr. Jaco Tavenier, Green Growth Coordinator, Environment Directorate, Organisation for Economic Co-operation and Development

The paper presentation “Green Growth: Industrial Sectoral Strategies for the Pulp and Paper Industry in Brazil” looked into positive and negatives aspects of Brazil’s paper industry. The paper analyzed the policy Implications and gender impacts of different strategies. An assessment of Brazil’s policies, which include the Brazilian National Solid Waste Policy, the National Policy for Water Resources, the Brazilian Forestry Law, the National Climate Change Policy, and the Environmental Rural Registry, showed that there are clear mechanisms for implementation of green growth. Enforcement and compliance are also key issues. The presentation concluded with the following recommendations:

(a) further promoting planted forests as a worthwhile investment; (b) developing policies that will promote research and development, especially in the bio-refinery process; (c) increasing female employment through training, scholarships, and policy interventions for fair wages; (d) instituting transformative corporate social responsibility that embraces circularity; and (e) utilizing local communities as social cultivators.

In the paper presentation “The Greening of the Dairy Value Chain in Argentina” the state of dairy production in Argentina was described, including its impact on the country’s environment, especially in light of the sector’s greening initiative. The greening of the dairy value chain is distinguished by governance, reactive actions to environmental regulations as well as proactive actions on voluntary strategy, and motivated by market considerations and business opportunities for both large and small enterprises. On the one hand, the dairy value chain is marked by both industrial and commercial milk production which, aside from milk, produces yogurt, cheese, and butter. Primary production is in large dairy farms but there are small and medium-sized enterprises (SMEs) and cooperative producers. Both national and

multinational companies practice industrial production while commercial production is concerned with distribution through big supermarkets. The environmental impacts of the industry include contamination of air and water, production of GHG emissions (primarily methane) and other wastes, and intensive use of water and energy. Since dairy primary production generates the highest negative environmental impacts and presents the most complicated challenge in green reforms in Argentina, the presentation recommended that environmental management in the industry should include different measures and treatments such as reuse of liquid and solid waste, bio gas production, recycling of feces in primary production, recovery of solid waste, efficient use of energy in industrial processes, and setting of environmental standards on suppliers, especially for large dairy manufacturers. In addition, there is a need to address the lack of resources, skills, and information in SMEs both in primary production and in manufacturing since it is an important job-generation sector. There is a need for government policies, including better payment for raw milk.

The paper presentation “Innovative Environmental Policy in Promoting the Green Concept of Japanese Electronics Industry” demonstrated how a responsive policy framework and formulation process can promote eco-friendly design and stimulate technology development for better resource recycling at low costs. Various mechanisms have been introduced and enforced in Japan that will motivate and facilitate the best behavior of its citizens. The Japanese have shown that they have the right attitude and a clear understanding of the importance of environmental protection and preservation. The Japanese government has built the appropriate facilities and other infrastructures to ensure the effectiveness of its environmental regulations. The objective of the research is to examine and investigate the relationship and influence of environmental regulations, performance, and competitiveness.

The challenges and opportunities in greening value chains which were underscored in the presentations are as follows:

- Involving the right stakeholders from the outset;
- Improving implementation and compliance through appropriate policies;
- Taking into account the role of consumers in the value chain, especially with the global market;
- The notion of conducting life cycle analyses or moving toward a circular economy approach;
- Lessons learned from experiences of SMEs in overcoming challenges could be applicable across sectors; and
- The need to emphasize the role of integrated forest management, which is crucial in overcoming challenges for the paper and pulp industry value chain.



# DAY 2



# KEYNOTE: FAST-FORWARDING THE INCLUSIVE GREEN GROWTH AGENDA

The Honorable Mary Robinson, President, Mary Robinson Foundation - Climate Justice. Former Prime Minister of Ireland United Nations Secretary-General's Special Envoy on Climate Change

The second day of the conference opened with the keynote address of Mrs. Mary Robinson. She issued a call for the active involvement of stakeholders so that the gains achieved in 2015 with the signing of major international agreements, would not go to waste. These included the Addis Ababa Action Agenda in July, the Sustainable Development Goals (SDGs) in September, and the Paris Agreement in December. She drew attention to questions that have arisen in implementing these agreements, including financing, legal measures, the continuing rise in global temperatures, and the fragile foundations of the agreements. In commending the inclusive green growth focus of the conference, Mrs. Robinson emphatically pointed out that the event echoes and adds value to the SDG agenda, which "calls for reaching out to the furthest behind first" as well as to the Paris Agreement's commitment to "prioritizing the most vulnerable countries and people".

Mrs. Robinson left the participants with challenges and potential solutions to ponder on. She emphasized the need for a people-centered leadership, especially in developing nations, to ensure inclusive green growth. She mentioned investing in infrastructure that utilizes "low-carbon energy while pursuing sustainable agriculture and forestry practices". She stressed how decisions related to development financing, including climate financing, is often made from a political perspective amidst increasingly limited funding for development assistance. In closing, Mrs. Robinson urged everyone to engage in an inclusive and pro-poor approach, as the best way to turn the aspirations of today into the reality of 2030 and beyond.

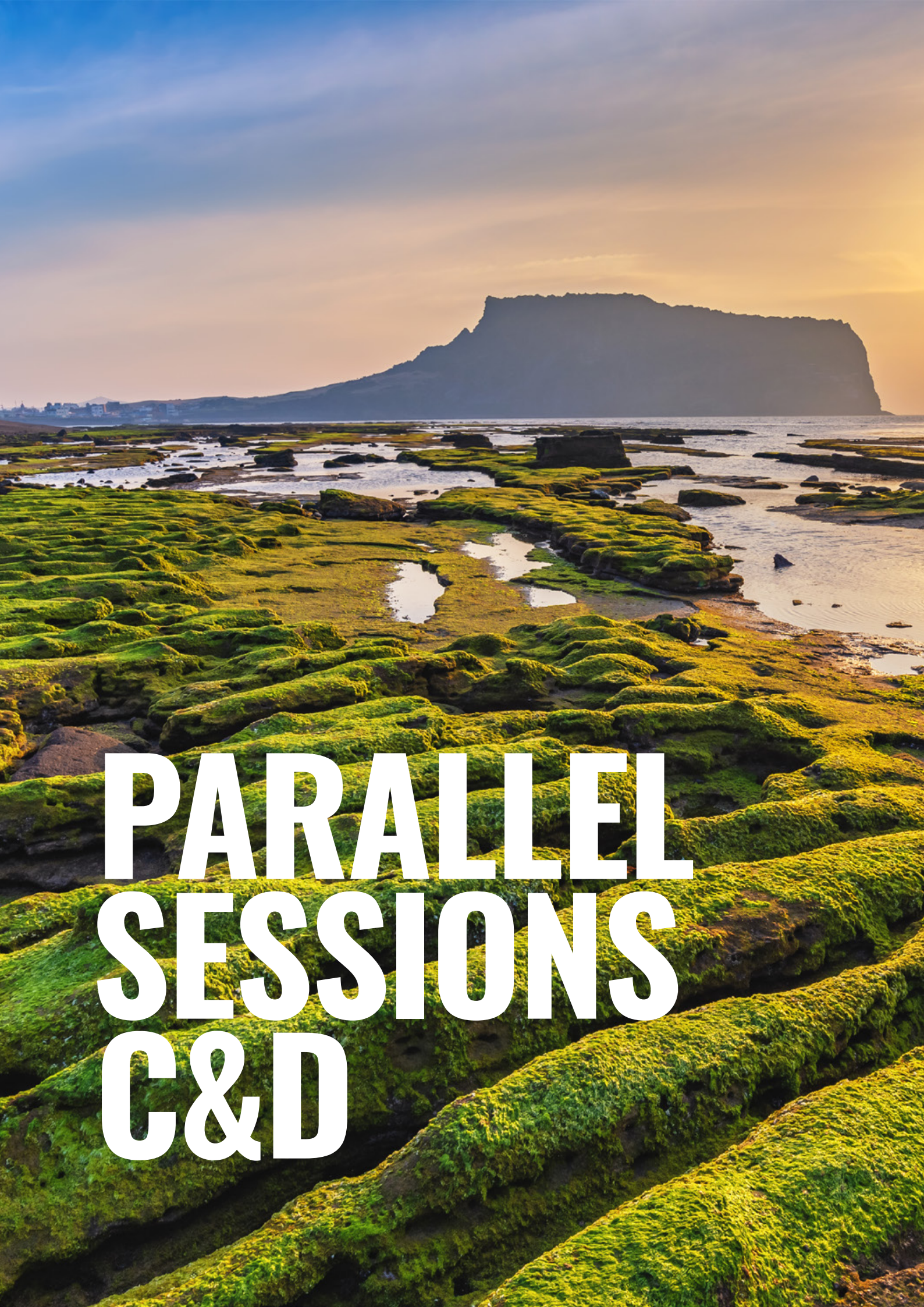


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**“The solutions will only come once we recognize the leadership that is coming from people everywhere, and especially from the peoples and governments of the developing world.”**

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# PARALLEL SESSIONS C&D



# C1

## Ensuring gender-balanced participation and empowerment (2)

### Session Chair

Ms. Kumi Kitamori, Head of Green Growth and Global Relations Division, Environment Directorate, Organisation for Economic Co-operation and Development

### Paper presenters

Ms. Soazic Elise Wang Sonne, PhD Fellow, United Nations University and Maastricht University, Netherlands

Dr. Byela Tibesigwa, Research Fellow, Department of Economics, College of Arts and Social Sciences, University of Dar es Salaam, Tanzania

### Discussants

Mr. Ari Huhtala, Deputy Chief Executive Officer Climate and Development, Knowledge Network, United Kingdom

Ms. Julia Wandke, Policy Advisor, Sustainable Economic Development Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH, Germany

Seventy-five percent of the three billion people who are dependent on traditional fuel live in Sub-Saharan Africa. The condition results in 4.3 million deaths per year, mostly women and children, due to indoor air pollution, which is the fourth risk factor for diseases such as lung cancer and pulmonary disease. The paper presentation "Stop the Killer in the Kitchen: Does Women's Intra-household Bargaining Power Trigger Clean Fuel Adoption in Senegal?" used fuel switching models to find out whether an increase in a woman's bargaining power in a Sub-Saharan African household would have an effect on the uptake of clean fuel or whether adoption of a modern fuel could have a reverse effect on a woman's intra-household bargaining power, and whether informal institutions have an effect on a clean fuel uptake and a woman's intra-household bargaining power. The findings show that: (a) households with more empowered women are more

likely to take up clean fuel, curbing the harmful health and environmental effects of traditional fuels; (b) suitable policies that enhance women's economic empowerment, especially those focused on rural areas, can help to stop the "killer in the kitchen"; and (c) empowering women fosters the adoption of clean technologies such as modern fuel, which is an effective response to climate change.

Most smallholder farmers are women or have female household heads with limited property rights, lower incomes and opportunities, and are highly dependent on common property resources. Given these present conditions, the women-headed households have lower capacities to adapt and mitigate. Yet the number of female-headed households is expected to increase. It is within this context that the paper "Small-holder Farming, Food Security and Climate Change in South Africa: Male-Female and Urban-Rural Differences" made the following findings, including: (a) the gender of the household head determines food security; (b) male-headed households have more food security overall; (c) the food security gap is higher in rural areas; (d) rural households are likely to report chronic food insecurity but urban households are likely to report break-even and surplus food; and (e) agriculture contributes more to household food security in female-headed households in rural areas. The study result supports the promotion of rural and urban agriculture as well as development policies.

The paper presentation "10 Things to Know: Gender Equality and Achieving Climate Goals" listed 10 reasons why climate change should be viewed with a gender perspective and how to do it. The paper concluded that gender-sensitive approaches recognize different needs, must address inequalities, bring more sustainable results, and include monitoring and evaluation.

This session highlighted that empowered women can be drivers of change for inclusive green growth. Nevertheless, there is a need for more disaggregated gender data as well as research on the critical factors to empower women.



## C2

# Innovation in water governance and conservation

### Session Chair

Dr. Oyun Sanjaasuren, Chair, Global Water Partnership and Former President of the United Nations Environment Assembly

### Paper presenter

Dr. Chandra Sekhar Bahinipati, Assistant Professor Gujarat Institute of Development Research, India

### Country presenter

Ms. Guillermo Chan, Finance and Operations Manager, Central Volcanic Mountains Development Foundation, Costa Rica

### Discussants:

Mr. Hussain Khansaheb Director of Green Development, Ministry of Climate Change and Environment, United Arab Emirates

Mr. Thomas Nielsen Policy and Strategy Advisor, Sustainability and Safeguards Unit, Global Green Growth

The paper presentation "Irrigation Capital Subsidies, Diffusion of Water Conservation Technologies and Resource Utilization: Evidence from Gujarat, India" examined the effect of an additional subsidy on the diffusion of micro-irrigation in water-scarce regions and evaluated the impact of micro-irrigation adoption on ground water extraction at the tube well level. Using a combination of survey and secondary data review, results showed that social learning has a greater impact than an additional subsidy in the diffusion of micro-irrigation and that adoption of micro-irrigation does not equate to reduced use of ground water. However, a metered connection reduces the use of ground water. As a policy suggestion, it is recommended that the subsidy be continued for the wide-scale adoption of micro-irrigation and metering be applied for sustainable water management.

The country presentation "Agua Tica, a Public-Private Mechanism for Enhancing Water Services Provision" described the first public-private water fund program with civil society in Costa Rica. It is a national-level PPP for water governance and inclusion to promote people's empowerment. It aims to expand the network of partners and allies with special focus on civil society, local governmental institutions, and private sector enterprises to assure ownership and appropriation as well as to guarantee transparency. The program was brought about by the challenges faced in the greater metropolitan area, such as population growth, lack of land use planning, land use change, and overexploitation of water resources which result in the degradation of natural resources, threats to renewability, rainfall regime variation, landslides, droughts, and floods. The primary concerns relate to which activities should be carried out and where investments should focus in order to produce greater environmental and socioeconomic returns for every dollar invested per cubic meter of water as well as which ecosystem benefits should be expected from investments. The final goal is to increase investment to targeted sites with greater impacts and highest benefits.

The session emphasized the need for governments to create integrated and evidence-based policies for sustainable water resource management. Such policies should place equal emphasis on economic development (production), conservation, and equitable access to water. The program showed the potential of using open-source tools to enhance collaboration and learning across green growth partners.

# C3

## Examining environmental pricing and payment schemes

### Session Chair

Dr. Steven Stone, Chief, Economy and Trade Branch, UNEP

### Paper presenters

Ms. Aya Naito, Consultant, Mizuho Information and Research Institute

Mr. Joydeep Ghosh Independent Researcher, India

### Country presenter

Ms. Silvia Rojas, Senior Program Manager of the National Forest Financing Fund and Interim General-Director of the Environmental Bank Foundation, Costa Rica

### Discussant

Ms. Stephanie Cairns, Director, Sustainable Communities, Sustainable Prosperity, Canada

The paper presentation “Latest Trends in the Greening of Tax Systems in Japan, Europe, North America, and Australia, and their Implications for Japan” compared environmental taxation in Japan with that of nine European countries, Australia, Canada, and the United States of America. The current seven energy-related and four vehicle-related environmental taxes in Japan served as the basis for comparison. The comparison and analysis showed that compared with the European countries, Japan has a lower fuel tax and smaller changes in tax burden based on environmental performance for vehicle tax, and that the standards for fuel efficiency as a criterion for vehicle tax rates are below European levels. Incentives to further technological development are also small in comparison. As a policy recommendation for Japan's energy sector, the government should carefully consider alternative ways of distributing carbon tax revenue. Japan has a huge potential for increasing energy and carbon taxes that could influence low-carbon behavioral models. Long-term price signals should be created to encourage low-carbon investment. For vehicle taxes, the tax structure should be changed to a CO<sub>2</sub> or energy efficiency basis to encourage consumers to purchase more environment-friendly vehicles. The fuel efficiency standard should also be re-examined.

The paper presentation “Analysis of India's Coal Cess Using an Economy-wide Framework” tried to answer the question “Could the current level and reallocation scheme of the coal cess (carbon tax) help in the transition towards a green and inclusive economy?”. India is dealing with the effects of using coal-based energy as a primary source of electricity, a major contributor of CO<sub>2</sub> emissions, and has committed to generating 40 percent of its electricity from non-fossil fuel sources by 2030 under its intended nationally determined contribution (INDC). Since 2010, its coal cess, intended to finance clean energy, has increased from USD 0.4 to USD 3.4 in 2016. Applying a CGE model, the results show that if the current level of the cess were to continue there would not be any significant impact on the energy mix or emission levels unless the cess level is increased to approximately USD 18 per unit. Therefore, the current level and reallocation scheme towards renewables does not make a significant contribution towards promoting green and inclusive growth, or for achieving the INDCs.

The paper presentation “Costa Rica's Experience with Payment for Ecosystem Services (PES) and the Way Forward” showcased how payment for ecosystem services (PES) has significantly contributed to the conservation and recovery of forest cover in Costa Rica. From 1997 to 2015 and with USD 420 million invested, the program has impacted 52.4 percent of forest cover, 6.5 million trees, 123,000 hectares of indigenous territories, and 15,000 families. It involves both international financial stakeholders such as Kreditanstalt für Wiederaufbau, Conservation International, and the Global Environment Facility of the World Bank as well as national financial stakeholders such as Osa Conservation, Costa Rica's National Bank, and the National Fund for Forest Financing's Employee Association. PES has been effective in combatting illegal logging as well as negative effects of land use changes and has instituted transparency, security, and monitoring of ecosystem management. Property registration under the program based on a cadaster largely contributed to its effectiveness. It has highlighted the importance of several factors for PES such as national and legal frameworks, financing, monitoring, and public-private partnerships.

# C4

## Exploring the role of the informal economy and small-scale enterprises

### Session Chair

Mr. Oliver Greenfield, Convener, Green Economy Coalition, United Kingdom

### Paper presenters

Mr. Martin Hilmi, Mechanization Systems and Services Development, Economist, Food and Agriculture Organization of the United Nations

Ms. Adeola Oloyede, PhD Student, University of Ilorin, Nigeria

Ms. Amirali Parpia, Assistant Manager, Aga Khan Planning and Building Service, Pakistan

### Discussant

Dr. Mustafa Moinuddin Senior Policy Researcher and Task Manager, Institute for Global Environmental Strategies, Japan

Those at the bottom of the pyramid in the world population comprise the biggest sector as well as the poorest, with a daily earning of USD 1-5. It is thus important to understand inclusive green growth from the context of those at the bottom of the pyramid as shown in the paper presentation "Fostering Green Growth by Developing Greener Food Value Chains: A Bottom of the Pyramid Perspective". The study looked at contributions of the bottom of the pyramid to green growth via the food value chain, taking into consideration innovations in technology, activities, processes, knowledge, and behavior. Featured bottom of the pyramid technology innovations include self-made water filters in Tanzania, drip irrigation in Zambia, and energy from pistachio shells in Iran. Additional activities, processes, and systems included tomato waste from street hawkers sold to restaurants in Tunisia and Egypt, reused bicycles for transport in the Gambia, and water harvesting for irrigation to avoid contamination by peri-urban farmers in Kenya and Tanzania. It was emphasized that bottom of the pyramid communities could serve as research and development centers for inclusive green growth with innovations building on their traditional knowledge and with practices which could be adopted, upgraded, and replicated by others. Lessons learned from those at the bottom of the pyramid could aid policymaking and foster entrepreneurship.

Agroforestry practices are targeted towards small-scale farmers, yet adoption of the practices is low. The paper presentation "Assessing Adoption of Agroforestry Practices among Small-scale Farmers in North Central Nigeria" examined factors affecting the adoption of agroforestry practices and its effect on the productivity of smallholder farmers in North Central, Nigeria. Studying agroforestry practices as part of sustainable development is vital as it fulfills the purpose of inclusive green growth by tackling land degradation and deforestation, particularly in Sub-Saharan Africa. Results revealed that the adoption of agroforestry practices has been affected by land tenure, the number of trees on farm land, farm size, and location. The paper recommends that the laws

affecting the adoption of agroforestry practices and land rights be updated and harmonized to attain the maximum benefits of agroforestry. An agroforestry program should demonstrate the economic benefits of adoption through participatory demonstration farms with both men and women farmers. Finally, an increase in land rights or tenure and ownership is seen as a boost in promoting green growth and sustainability among small-scale farmers. This results in increased willingness to adopt climate-friendly agroforestry measures.

The paper presentation "Localizing Green Growth Development and Promoting Gender Empowerment and Livelihood Opportunities in the Global South: An Example in Best Practices in Southern Pakistan" analyzed the critical gap between global policy aspirations and its practical implementation. The analysis took off from the question "why would a poor rural family that is barely able to sustain its basic needs support a transition to a green lifestyle?". The basis for the conclusion is the Building and Construction Improvement Program, a two-year program in the low-income rural area in the Thatta District in Pakistan designed to address the high incidence of asthma among women and children due to the use of open stoves in households. The program is a social enterprise which created highly efficient cookstoves that brought health benefits and economic savings to the rural households in the district. The stoves are manufactured, repaired, and operated using locally available materials. This solution addressed the high costs of wood fuel and medication, the high rate of deforestation, and gender marginalization. It is considered a best practice because it adopted a community-centric, inclusive green growth approach, and has achieved unprecedented success in low-income rural communities in southern Pakistan in promoting a green lifestyle. The program emphasized the importance of designing a practical solution that is link to a local environmental problem and ensures effective stakeholder management, builds capacities, and increases livelihood opportunities.

The session concluded that key requirements for green growth to be effective and accepted at the community level include:

- A mindset change where development approaches are localized or 'start where people are' and address their immediate everyday needs and concerns. Localized solutions represent important incremental steps towards green growth rather than leaps with imported technology that the community may not be able to sustain.
- Local ownership of sustainable solutions with optimal results. The communities themselves become the marketers of the solution or technology followed by replication and scaling up.
- A more systematic approach for addressing the potential of different contributing actions to green growth such as in small-scale agriculture. An action should be assessed not only on its contributions towards the efficiency of the sector but also the opportunities it provides to enhance people's rights, well-being, and livelihoods.

# D1

## Developing skills and capacities

### Session Chair

Mr. Orestes Anastasia Head of Knowledge Management, Global Green Growth Institute

### Paper presenters

Mr. Philippe Jochaud, Partner, Centre of Partnership for Development, Spain

Mr. Stanley Rubenstein Doctoral Candidate Department of Natural Resources and Environmental Management, Faculty of Management, Haifa University, Israel

Mr. Melaku Gebreyesus, Practitioner in Social Protection, Food Security / Livelihoods, Natural Resource Management, Agriculture and Food Security Adviser, Ethiopia

### Discussant

Mr. Kees van der Ree, Senior Advisor, Green Jobs for Sustainable Development, International Labour Organisation

The paper presentation "Green Growth and Human Capital Development in Africa" looked at how human capital development can contribute to green growth in different sectors such as energy, construction, water and sanitation, agriculture, forestry, tourism, and mining in the African context. Within the framework of the African Development Bank's 10-year strategy (2013–2022), human capital development is essential in building green growth capacities. Analysis was made through a review of literature, in particular through a country-focused working paper on Burkina Faso, Rwanda, and Zambia. The analysis of linkages includes identifying entry points for human capital development in the areas of skills development, particularly through education and training, job creation, and improved health. The study resulted in identifying skills development for every stage of green growth integration. To enhance green growth in human capital development, the paper recommends that governments should focus on programs to: (a) enhance skills and capacity building; (b) integrate the private sector; (c) monitor and evaluate the green growth interventions; (d) develop inclusive green businesses; (e) enhance entrepreneurship and inclusive green business; (f) develop inclusive value chains; and (g) collect and analyze data for improved resilience.

Israel's green growth commitment made at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21), held in 2015 in Paris, is to reduce annual per capita GHG emissions to 7.7 Mt CO<sub>2</sub> equivalent by 2030, which is 26 percent lower than its 2005 emissions level. Given its relatively high annual population growth rate of 1.8 percent, the target means an annual emission reduction of 23.85 Mt CO<sub>2</sub> equivalent per year by 2030. The paper presentation "GHG Emissions Reductions in Israel: Ramifications for Employment" outlined the impact on employment of Israel's program to reduce its GHG emissions and demonstrated what sectors are negatively affected. In order to achieve energy efficiency, the program aims

to reduce electricity consumption by 17 percent and increase renewable energy consumption by 17 percent compared with the current 3 percent, and at the same time reduce in kilometers the use of private cars by 20 percent, by 2030. To meet the targets, the government will provide the equivalent of USD 210 million in grants and state guarantees to demand management schemes and to develop new energy efficiency and green building technologies. Spending on public transport will also be increased by USD 1.3 billion per year. The program has created employment comprising 1.5 percent of the labor force and introduced new technologies. Some sectors are negatively affected where either the rate of growth is reduced or there are job cuts. Still, the overall results are positive.

The Tigray Regional Government of Ethiopia has established the honey value chain, which provides job opportunities for landless rural people and youth groups. The paper presentation on "Honey Value Chain as a Vehicle for Attracting Youth into Agriculture: The Case of Tigray Region, Ethiopia" revealed that the engagement of youth in the honey value chain generates a number of financial and non-financial benefits such as knowledge transfer, innovations, improved technologies, self-employment, entrepreneurship, enhanced marketability, and competitiveness. Youth employment in the honey value chain also boosts food security at the household, local, and national levels. Engaging in the value chain enhances natural resource management. It presents a viable eco-friendly business, complements safety net and disaster risk management, and contributes to biodiversity. On the marketability of the honey value chain, Ethiopia has become one of six African countries exporting honey to Europe since 2008. It faces challenges in database development, quality standards, and production orientation coupled with the lack of a strategy and development plan in the region. The honey value chain has yet to be transformed into a formal subsector and be fully exploited. The study notes that to grow the subsector, there must be a shift from 'business as usual' (production and supply oriented) to a value chain approach. Additionally, the study recommended that the regional government create a coordinated sector strategy and development plan to address potential challenges and fully reap sustainable benefits.

The session underscored the role of capacity building for inclusive green growth and its potential for job creation despite a skills gap. Approaches and strategies must be interlinked but specific to and anchored in, as well as owned by, the community. Capacity building should identify opportunities for inclusion. Moreover, there is a need for deeper analysis to assess the quality of green jobs, identify the people for whom those jobs are intended, and calculate potential job losses. It is important to share research results and present them in a language that people understand.

GGGI should emphasize entrepreneurship and capacity building that addresses multiple aspects of green growth and a broad range of stakeholders.



# D2

## Measuring and modelling change

### Session Chair

Mr. Joe Grice, Executive Director and Chief Economist, Office of the National Statistics, United Kingdom

### Paper presenters

Mr. Chandet Horm, Landscape Manager, Mekong Flooded Forest Landscape – WWF, Cambodia

Mr. Timothy Nash Director of Sustainability Research, Ethical Markets Media, Certified B Corporation, United States/Brazil

### Country presenter

Dr. Yimeng Liu, Assistant Professor, School of Economics and Resource Management Beijing Normal University, China

### Discussant

Dr. Yongsung Kim Program Manager Global Green Growth Institut

Cambodia was the focus area of the paper presentation “LIVES: Modeling for Change with Nexus Thinking”. LIVES is a research project using an integrated approach for linking indicators on water, food, and energy, or the nexus among these three, using scientific analysis and stakeholders’ inputs to produce credible, evidence-based information. By adopting the approach, decision makers will have a better understanding of the nexus between food, energy, and water and will then be able to make informed and sound decisions on the sustainable management of the three. The decisions or policies can be related to disaster preparedness and food or energy security. Information gathered can feed into planning processes, investment decisions, and natural resource management. Engagement with government and civil society will continue in the next phase of the project, but there will also be new ‘research to policy’ activities and dialogues with relevant ministries to provide inputs in formulating national and subnational development planning guidelines. Moreover, further collaboration with other agencies and universities is planned in order to establish a research and dialogue platform. This platform will improve the link between research and evidence-based approaches to policy making.

The Green Transition Scoreboard® (GTS) highlights the fact that private investments are necessary to complement government funds for transitioning to low-carbon economies as pledged by 195 countries through their INDCs at COP 21 and the SDGs in

2015. The paper presentation “Private Investments in Green Tech: Useful Metrics in Tracking Progress for Inclusive Growth” discussed the accomplishments and potential of GTS. The first GTS was released during COP15, held in Copenhagen in 2009, with a total of USD 1.2 trillion. Figures are updated twice a year. The green transition is well under way at USD 7.1 trillion. The best investments are in poor countries with low switching costs. There should be more incentives for companies to spend on green research and development and tracking of private investments to assess the success of policy decisions. The GTS model proposes that if private investments continue at their current rate of annual increase, amounting so far to at least USD 1 trillion, there will be a rapid scaling of renewable energy at falling costs. Ultimately, this will allow renewable energy to out-compete fossilized energy and nuclear power.

Green growth development in China at the provincial level is guided by the Green Development Index framework. The country presentation “Green Development in China: Measuring Change at the Provincial Level” aimed at finding out where China’s effort on green development stands so far. The measure was based on selected indicators, which included degree of green economic growth (30 percent), carrying capacity potential of natural resources and environment (40 percent), and degree of support of government policies (30 percent). Cumulative growth in green development from 2008 to 2013 has an average rate of 33 percent. The growth potential distribution is conducive to narrowing the gap between provinces. There is a high level of growth in the east with the provinces of Beijing, Guangdong, Shanghai, and Tianjin, while the central and north-east provinces of Anhui, Gansu, Guizhou, Henan, and Jiangxi have low levels of growth and are facing more challenges. The carrying capacity potential of resources and environment shows a tendency towards deterioration for the majority of provinces.

This session brought attention to the need to track and measure progress as well as to demonstrate the benefits of green growth. This requires improved data and new methodologies. For policy-makers, there is a need to develop metrics and methods that will reduce the dimensions for tracking the SDGs and high-lighting synergies and trade-offs in its implementation. Calculating the progress towards SDGs will require systematic measurement of the interactions of various goals and stakeholders.

# D3

## Promoting off-grid energy systems

### Session Chair

Dr. Barbara Buchner, Executive Director, Climate Finance Program  
Climate Policy Initiatives, Italy

### Paper presenter

Ms. Lisanne Heemskerk, Consultant, Sustainable Business Practice, Enclude, Netherlands

### Country presenter

Mr. Jesse Benjamin, Director General, Ministry for Climate Change Adaptation, Meteorology, Geo-hazards, Environment, Energy and Disaster Management, Vanuatu

### Discussants

Ms. Eun Joo Yi, Senior Operation Officer KGGTF Secretariat, Coordinator, and Technical Advisory, Korea Green Growth Partnership, The World Bank

Mr. Vikalp Sabhlok, Green Investment Specialist Global Green Growth

Inclusive green growth in a real sense means addressing the needs of those at the bottom of the pyramid as well as those at higher levels gaining from the benefits. Yet the shift to clean energy implies that providing commercially viable and affordable off-grid clean energy products and services to the bottom of the pyramid is a big task that requires both efficiency and scale. There is no single approach for the different markets across countries and cultures. However, the prospect of bringing alternative clean energy to a market that traditional energy has not yet served is a promising one. The paper presentation “Green Growth in Practice: Lessons from Implementing Clean Energy Projects in Africa” shared the experiences of partnerships between the private sector and the government in providing access to clean energy services to the bottom of the pyramid in urban and peri-urban areas as in Ghana, Kenya, Tanzania, and Uganda. The Sustainable Energy Services for Africa program tested a variety of business models to accelerate the provision of off-grid clean energy services to this group. The program focuses on increasing access to energy in rural and peri-urban areas in developing countries. Experience from the program demonstrates that when making policies that will address energy market challenges the customer preferences must be seriously considered.

The paper presentation “Mobilizing Investments for Green Energy Access for the Poor – The New Energy Fund in Vanuatu” provided an overview of the initiatives of the Vanuatuan government in the energy sector for a cleaner and greener environment. Vanuatu’s geographical location and dispersion of islands makes it difficult to attain economies of scale and to access major

markets. It is highly susceptible to natural disasters and lacks adequate infrastructure assets and facilities. It relies heavily on imported petroleum products for its energy supply. To build the country’s resilience to natural disasters and climate change, the government developed the Climate Change and Disaster Risk Reduction Policy (2016–2030) and has integrated green growth policies and objectives into national strategies such as the National Sustainable Development Plan and the updated National Energy Road Map (NERM). With support from GGGI and the World Bank Group, the government undertook a review of the NERM, which was approved in June 2016. The NERM prioritizes accessible, affordable, secure, reliable, and sustainable energy as well as green growth. A main feature of the updated NERM is the National Green Energy Fund (NGEF), which will recommend a suitable financing mechanism for green energy projects in Vanuatu. The main purpose of the NGEF is to assist the government in meeting its energy targets and objectives set out in the updated NERM. The next steps for the NGEF are: drafting legal documents for NGEF financial products and operations and maintenance services; reviewing legal documents of financiers; developing a project pipeline for NGEF; designing a management plan, organizational structure, staff terms of reference, and operating guidelines; and planning as well as hiring the management and operations team of NGEF.

Key points from the session include:

- Finance is key to scaling up successful off-grid approaches and there is a need to identify innovative funding mechanisms that include private financiers, and project preparation collaboration should be carried out through the development of new financial mechanisms and partner groups to facilitate wider access;
- Together, PPPs, a broad coalition of stakeholders, and an institution that can act as an aggregator are invaluable for effective action;
- Skills development and a focus on the operations and management of systems post-construction must be part of the packaging;
- Market access remains a great challenge for the bottom of the pyramid, both in access to infrastructure and business structures, as does reconciling costs of distribution with affordable cost structures;
- Market segmentation is important to ensure there is proper targeting of consumers;
- There is a need for increased exchange and collaboration to scale up off-grid operations in areas of high need;
- Government and business must account for cultural and context-specific factors; and
- Continue to look at technological innovation.

# D4

## Promoting green cities

### Session Chair

Dr. Hoon Chang, Head of Global Cooperation and Outreach, Korea Environment Institute

### Paper presenter

Mr. Vijay Saini, Senior Project Officer ICLEI—Local Governments for Sustainability South Asia

Dr. James Seong-Cheol Kang, Principal Transport Specialist Global Green Growth, Institute

### Country presenter

Dr. Tran Quoc Thai, Deputy Director, Urban Development Agency, Ministry of Construction, Vietnam

### Country presenter

Dr. Haileselassie Medhin, Director, Environment and Climate Research Center and the Ethiopia Development Research Institute, Ethiopia

The paper presentation “Urban Green Growth Strategy and Framework for Indian Cities” outlined the environment for adoption of inclusive green growth strategies by cities in India. The paper’s framework provides the strategy for prioritizing projects and investments, meeting development objectives, enhancing the quality of growth, and smartly integrating social inclusion. The paper also outlines strategies for integrating environmental protection into economic planning. It covers eight sectors: land use and density; ecosystem; energy; urban economy and business; housing and built environment; urban transport; solid waste; and water and sanitation. Formulating the framework was made complex by multiple challenges that cities are facing such as poverty, congestion, environmental decay, inefficient service delivery, scarcity of finance, and inefficient administration. In the process of framework development, the author assessed the readiness for green growth of 10 cities in India. The paper identifies guiding principles for a paradigm shift to green growth: stable and strong leadership, decentralization, local government ownership of the project, appropriate role sharing, public outreach and involvement, community mobilization, community inclusion, and an exit strategy for ‘hand holding’ agencies.

Many developing countries have placed the following among their top agenda: transforming their transport system into green transport, reducing GHG emissions, mitigating traffic congestion, enhancing road safety, and improving accessibility to services in an inclusive way without constraining urban development or economic growth. The paper presentation “Green Transport Assessment Methodology: A Two-Stage Framework for Indicator-Based Assessment and Policy Mapping” proposed a new green transport assessment methodology. The methodology contains a two-stage framework that first diagnoses the weaknesses of a city’s transport system and then identifies transport policies that can best address those weaknesses. In the first stage of the methodology, an indicator-based assessment of

a city’s transport system from a green transport perspective is conducted using a set of 24 indicators which are categorized into six themes: transport intensity, infrastructure provision, transport emissions, energy consumption, traffic safety, and accessibility. Once the indicator-based assessment is completed, the methodology maps green transport policies to low-scoring themes. The application of the methodology to Phnom Penh revealed the city’s strong dependence on private motorization and lack of sufficient infrastructure to host alternative transport modes, compared to peer cities like Bangkok, Dhaka, Hanoi, and Vientiane. Bus rapid transit, non-motorized transport, and better land use planning are recommended as suitable green transport policies for Phnom Penh.

The current urbanization scenario in Vietnam paints a picture of 795 cities facing challenges in climate change, urban morphology, urban infrastructure, and inclusive urban upgrading and development. The paper presentation “Vietnam Urban Green Growth: Challenges and Actions” discussed policy and operational actions being implemented by the Government of Vietnam to address urbanization concerns. From 2016 to 2020, the government will revise the Orientation for National Urban System Plan (2020-2030), including the National Urban Development Strategy, develop the Urban Green Growth Strategic Road Map, formulate the National Urban Development Program (2020-2030), and pass the Urban Development Management Law. Under its National Green Growth Strategy, 60 percent of class III cities and 40 percent of class IV and V cities will have wastewater collection and treatment systems while 35-45 percent of large and medium cities will have shared public transportation and 50 percent will meet green urban standards. Plans are under way for partnerships and collaborations for developing the strategic framework and road map, implementing and monitoring indicators, preparing guidelines, and analyzing best practices.

Similarly, the paper presentation “Can Ethiopia’s Modernization Be Green?” described the scenario in Ethiopia as it undertakes green industrialization. Ethiopia has just started implementing its Climate Resilient Green Economy Strategy, which is expected to be Ethiopia’s pillar for improving and increasing agricultural production with reduced emissions, protecting and re-establishing forests, expanding renewable power generation, and transitioning to modern and energy-efficient technologies in transport, industry, and buildings. However, as the country goes through this transformation, there are both enormous challenges such as electricity outages, urban migration, an outdated land tenure system, an inefficient land market, uncontrolled sprawl, and pollution of land, water, and air. In transforming, cities will become sustainable through an urban structure that has identified an eco-effective city network (natural resource efficiency, climate disaster resilience, low-carbon development), socially productive places (access to social infrastructure/services, culturally inclusive, strong rural-urban linkage), a well-designed city system (infrastructure connectivity, spatially balanced urban network, a high urban quality of life), and engines of growth (competitive



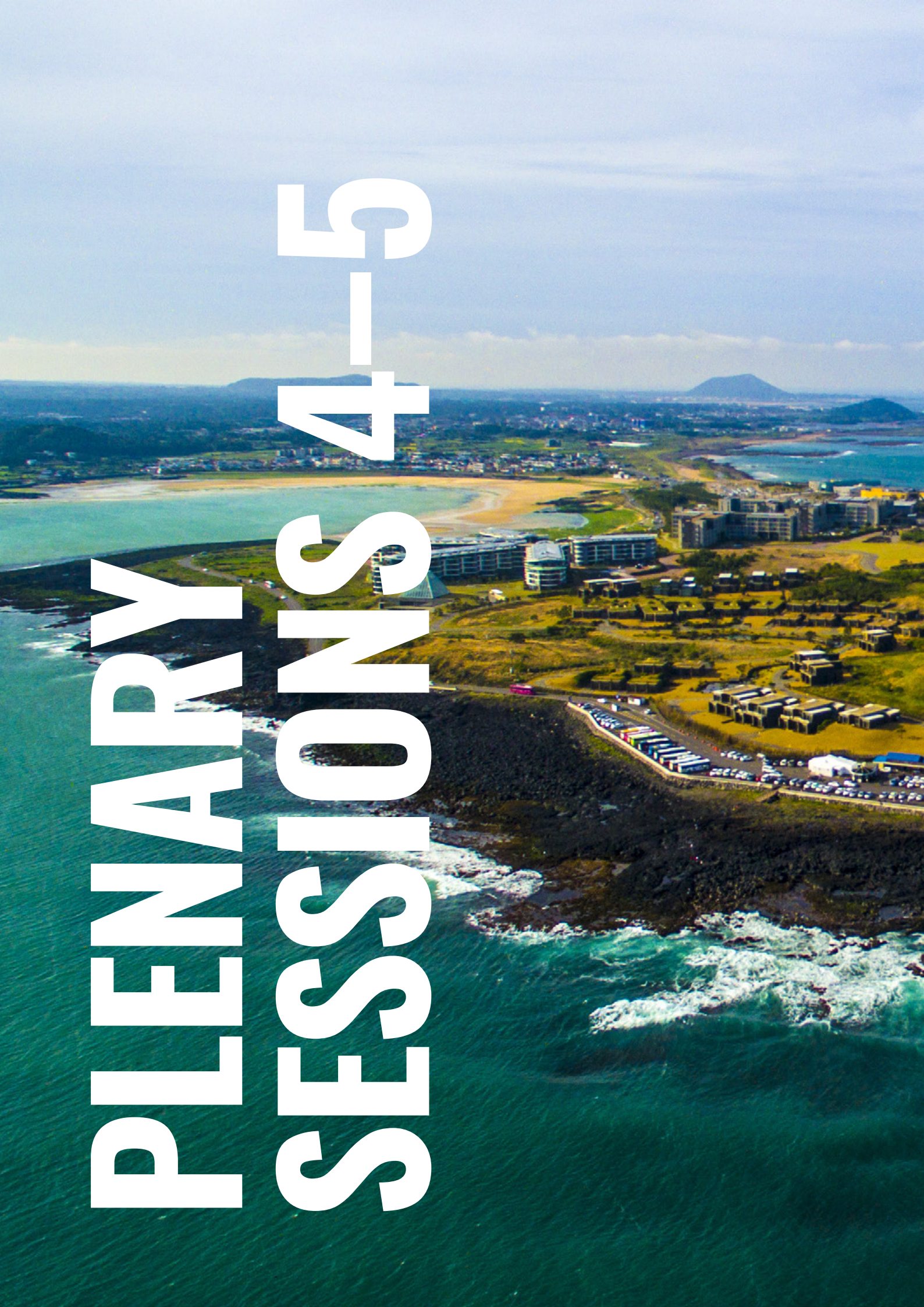
cities, access to international markets, and thriving micro, small and medium enterprises). A particular policy focus is on developing eco-industrial parks.

Key insights from the session for the development of green cities are as follows:

- Cities are faced with a diverse set of challenges, which implies that policies for green cities need to be comprehensive and inclusive;
- There is a need to communicate the benefits of green growth;
- Replication is a challenge but could be addressed by having a city to city collaboration within the country and between countries to share key lessons and experiences, for example by organizing the sharing of best practices among policy leaders or having city officials visit other cities for a direct experience of case studies;
- In introducing innovations or changes, start with a capital city as a pilot and if the solution works then extend to other cities in the country;
- Local and national governments and their partners need to engage the active participation and collaboration between the public and private sectors, establish networks such as through South-South cooperation, and provide opportunities for capacity building and investment;
- There is a need for stable and strong leadership as well as communication that will encourage inclusion and mobilization;
- Transport policies could focus on avoidance or making fewer trips, shifting or changing transport from private vehicle to public transport, and improving technology to reduce environmental and social externalities; and
- Mapping of existing policies in the local context where an indicator-based assessment could be used. Methodologies and tools could provide a standardized and systematic way to assess policy options as well as to shift from 'business as usual' to better policies.



# PLENARY SESSIONS 4-5







# PANEL 4

## Panel Chair

Mr. Per Bertilsson, Assistant Director-General, Green Growth Planning and Implementation Division, Global Green Growth Institute

## Panelists

Mr. Cesar Purisima, Former Secretary of Finance, Philippines

Dr. Mulugeta Mengist Ayalew Director of Climate Change, Office of the Prime Minister, Ethiopia

Mr. Sameer Assaf Advisor, Ministry of Climate Change and Environment, United Arab Emirates

Ms. Sandrine Dixon-Dècleve Chief Partnership Office Sustainable Energy for All

## Advancing the Sustainable Development Goals and Paris Climate Agreement through Inclusive Green Growth

After the signing of the SDGs and the Paris Agreement in 2015 comes the challenge of realizing the commitments in these two critical international agreements. In this plenary panel, senior officials from governments and an international organization shared views on the way forward for these landmark agreements. Focusing on the 'how', it was mentioned that green growth should be strategically incorporated into the nationally determined contributions (NDCs) to ensure maximum impacts. Strategies should ensure an inclusive approach that targets local contexts and priorities.

Partnership has a valuable role, especially in providing technical assistance and financing at the country level since delivery of the commitments will be under the charge of governments. Partnerships between United Nations organizations and countries could cut across 'producing and consuming' countries and bring inclusive green growth into the scope of both. Private sector participation will be critical, particularly through public-private partnerships (PPPs). This will encourage policy and technology innovation as these are usually already prompted by the private sector. Further-

more, replication of good practices results from partnerships.

The 'how' of implementing commitments in the SDGs and the Paris Agreement depends largely on available financing. Since there has been no new funding commitment after the 2015 Financing for Development in Addis Ababa, it is critical to mobilize resources and identify financing sources to ensure that in implementing the two agreements there is adequate funding. Among the possible strategies are imposing a carbon tax, involving the United Nations Committee of Experts on International Cooperation in Tax Matters, and unlocking markets to provide financing aligned with the SDGs. Carbon pricing combined with subsidy reforms in fossil fuel and other innovations in the energy sector are other potential strategies. There is a need to move beyond dependency on official development assistance since this is not sustainable. Unless there are concrete and strategic actions to source financing, the USD 100 billion requirement by 2020 will remain just a figure and an ambitious goal.





# PANEL 5

## Panel Chair

Dr. Steven Stone, Chief, Economy and Trade Branch, UNEP

## Panelists

Dr. Marianne Fay, Chief Economist, Sustainable Development, The World Bank

Ms. Kumi Kitamori, Head of Green Growth and Global Relations Division, Environment Directorate, Organisation for Economic Co-operation and Development

Mr. Orestes Anastasia, Head of Knowledge Management Global Green Growth Institute

Professor Edwin Muchapondwa, Professor of Economics, university of Cape Town, Senior Research Fellow, Environment for Development

## Linking Knowledge-Sharing, Research and Policy-Making for Inclusive Green Growth

In addition to affirming ideas and discussions from earlier panels, the final plenary panel elaborated further strategies that will determine the future direction of inclusive green growth. Since inclusive green growth does not occur by itself and challenges are getting more difficult and complex, there is a need for a smarter and pro-active approach, especially in knowledge sharing and policymaking. Planning for green growth should be integrated with other development areas such as poverty alleviation, equity promotion, and job creation in order to guarantee its effectiveness. There should be a balance between macro and micro policies and analysis with an established link between the two. Platforms like the GGKP should bridge several ideas such as science and policy making as well as social and green development. The panel noted that green finance was one of the key outcomes of the recently concluded Group of 20 meeting in China.

The panel put forward other ideas in pursuit of inclusive green growth, including:

- Find channels to direct funding that is already available towards green growth, and closely examine where it is currently being invested;
- Make sure that environmental concerns are reflected in pricing;
- Secure the role of central banks in making the crucial transition to inclusive green growth—for instance, during the 2017 G20 Annual Conference, to be held in Washington D. c., banks could be on a panel discussing the transition;
- Inclusivity should embrace social inclusion, extending to the informal economy—the International Labor Organization could help in this area;
- Communicate inclusive green growth in a way that appeals to policymakers by showing the direct and immediate benefits to local people;
- Focus on inclusiveness; learn from the experiences of others, especially OECD countries where not everyone benefits from green growth;
- Consider the value of data and revisit the Inclusive Wealth Index of the World Bank where further work is needed and there is a need to correct policy incentives; and
- Promote collaboration and avoid isolation.

# PRESENTATION OF RESEARCH PAPER PRIZES

The Fourth GGKP Annual Conference ended on a high note after two days of stimulating, enlightening, and enriching discussions on inclusive green growth. The GGKP partners gave two special awards to researchers to recognize the hard work, insights, and commitment.



Ms. Daye Eom was recognized for having the Best Young Researcher Paper for “Comparison of Financing Mechanisms in Promoting Rural Electrification in Tanzania Using Agent-Based Modeling”.



Dr. Byela Tibesigwa was recognized for having the Best Overall Paper for her work “Small-holder Farming, Food Security, and Climate Change in South Africa: Male-Female and Urban-Rural Differences”.

# CLOSING REMARKS

The conference was formally closed with a message from Ms. Mahua Acharya, Assistant Director-General, Investment and Policy Solutions Division of GGGI. Ms. Acharya spoke of the value of the two-day conference, especially with regard to the further development of the inclusive green growth agenda and showing the path ahead. She stated that GGGI will share and apply the gains from the conference and that the GGKP will serve as a primary conduit of GGGI in spreading the gains. She reaffirmed the continued commitment of GGGI to disseminating inclusive green growth to its member countries and across the world.



# ANNEX I -PAPERS AND PRESENTATIONS

## Parallel sessions – A

### A1: Managing Distributional Impacts from Green Growth Transitions

The Transition to a Low Carbon Economy and its Effects on Jobs and Welfare-A Long-Term Scenario for Brazil (presentation) (paper)

**Carolina Grottera, William Wills, Emilio Lèbre La Rovere**

Household Welfare and CO2 Emission Impact of Energy and Carbon Taxes in Mexico (paper)

**Sebastian Renner, Jann Lay, Hannes Greve**

Inclusive Green Growth and Distributional Impacts under China's Green Growth in the 13th Five Years Plan (presentation)

**Yu Hai**

### A2: Promoting Inclusive, Community-Based Water Management

Information Technology for User-Based Water Rights Enforcement (presentation) (paper)

**Sebastian Muñoz-Amezcu, Emiliano Iturriaga**

Green Development Opportunities for Mongolia: Community-Based Water Management (presentation)

**Chuluun Togtokh**

### A3: Exploring Impacts of New Energy Policies

Macro economic Impacts of Energy Efficiency Improvement: A General Equilibrium Perspective (presentation) (paper)

**Yang Liu, Taoyuan Wei**

The Impact of Renewable Energies on Regional Value Added in Developing Countries (presentation) (paper)

**Andreas Marcus Roehlig, Jonas Klamka**

China's Energy Policy from a Green Growth Perspective (presentation)

**Zhanfeng Dong**

### A4: Ensuring Gender-Balanced Participation and Empowerment (1)

Creating opportunities for women in the renewable energy sector (presentation) (paper)

**Bipasha Baruah**

Gender and Fossil Fuel Subsidy Reform: Implications for India, Bangladesh and Nigeria (presentation) (paper)

**Shruti Sharma, Christopher Beaton, Lucy Kitson, Laura Merrill, Philip Gass**

Agricultural Adaptive Strategies in the context of Climate Variability and Gender Equity in Rwanda (presentation) (paper)

**Alfred R. Bizosa**

## Parallel sessions – B

### B1: Exploring the Climate Change and Poverty Nexus

Shockwaves: Managing the Impacts of Climate Change on Poverty (presentation) (paper)

**Marianne Fay, Stephane Hallegatte, Mook Bangalore, Laura Bonzanigo, Tamaro Kane, Ulf Narloch, Julie Rozenberg, David Treguer, Adrien Vogt-Schilb**

Impact of Multiple Climate Smart Practices in the Climate Resilient Green Economy: Empirical Evidence from the Nile Basin of Ethiopia (presentation) (paper)

**Hailemariam Teklewold, Alemu Mekonnen, Gunnar Kohlin, Salvatore Di Falco**

Socio economic Impacts of Climate Change in Colombia (presentation)

**Silvia Calderon**

### B2: Investing in Ecosystem Services

Poverty and the Environment in Mexico: The Right to a Healthy Environment (presentation) (paper)

**Ricardo Morales Trosino, Carlos Munoz-Pina, Marisol Rivera, Artemisa Aguirre**

Implementing Ecosystem Services for Inclusive Green Growth Transitions (presentation) (paper)

**Christina P. Wong, Bo Jiang, Kai N. Lee, Zhiyun Ouyang, Lijuan Cui, Dongchun Ma**

Assessing the Efficiency of Forestry Policy for Inclusive

Growth in Ghana (presentation) (paper)

**Jonathan D. Quartey**

### B3: Developing Rural Electrification

Wind Farms in Oaxaca, Mexico: Complex Contracting and Spatial Effects (presentation) (paper)

**Andrés Estévez, Carlos Muñoz-Piña, Ricardo Morales**

Comparison of Financing Mechanisms in Facilitating Rural Electrification in Tanzania: Using Agent Based Modeling Approach (presentation) (paper)

**Daye Eom, Sgouris Sgouridis, Scott Kennedy**

Building Sustainability into Universal Energy Access (presentation)

**Mohd. Sahil Ali**

### B4: Greening Industry and Value Chains

Green Growth: Industrial Sectoral Strategies for the Pulp and Paper Industry in Brazil (presentation) (paper)

**Maria Angela Zafra, Cora Maria Moyano, Olutobi Onajin, Cassandra Pillay**

The Greening of the Dairy Value Chain in Argentina (presentation) (paper)

**Eduardo Bianchi, Carolina Szpak**

Innovative Environmental Policy in Promoting the Green Concept of Japanese Electronics Industry (presentation) (paper)

**Azhan Hasan**

## Parallel sessions – C

### C1: Ensuring Gender-Balanced Participation and Empowerment (2)

Understanding the Determinants of Clean Fuel Adoption in Senegal: Do Informal Institutions and Women's Intra-Household Bargaining Power Matter? (presentation) (paper)

**Soazic Elise Wang Sonne**

Small-Holder Farming, Food Security, and Climate Change in South Africa: Male-Female and Urban- Rural Differences (presentation) (paper)

**Byela Tibesigwa, Martine Visser**

Ten things to know: gender equality and achieving climate goals (presentation)

**Ari Huhtala**

### C2: Innovation in Water Governance and Conservation

Irrigation Capital Subsidies, Diffusion of Water Conservation Technologies and Resource Utilization: Evidence from Gujarat, India (presentation) (paper)

**Chandra Sekhar Bahinipati, P. K. Viswanathan**

Agua Tica, a Public-Private Mechanism for Enhancing Water Services Provision (presentation)

**Guillermo Chan**

### C3: Examining Environmental Pricing and Payment Schemes

Latest Trends In The Greening of Tax Systems in Japan, Europe, North America, and Australia, and Their Implications for Japan (presentation) (paper)

**Aya Naito, Yuko Motoki**

Analysis of India's Coal Cess Using an Economy Wide Framework (presentation) (paper)

**Joydeep Ghosh**

Costa Rica's Experience with Payment for Ecosystem Services (PES) and the Way Forward (presentation)

**Silvia Rojas**

## **C4: Exploring the Role of the Informal Economy and Small-Scale Enterprises**

Fostering Green Growth by Developing Greener Food Value Chains: A Bottom of the Pyramid Perspective (presentation) (paper)

**Martin Hilmi**

Assessing Adoption of Agroforestry Practices Among Small-Scale Farmers in North Central Nigeria (presentation) (paper)

**Adeola Oloyede, Opeyemi Ayinde**

Localizing Green Growth Development, and Promoting Gender Empowerment and Livelihood Opportunities in The Global South: An Example in Best Practices in Southern Pakistan (presentation) (paper)

**Amirali Parpia**

## **Parallel sessions – D**

### **D1: Developing Skills and Capacities**

Green Growth and Human Capital Development in Africa (presentation) (paper)

**Philippe Jochaud, Johanna Klein, Fernando Casado**

GHG Emissions Reduction in Israel: Ramifications for Employment (presentation) (paper)

**Stanley Rubenstein, Mordechai Shechter, Andrea Ghermandi**

Honey Value Chain as a Vehicle for Attracting Youth into Agriculture: The Case of Tigray Region, Ethiopia (presentation) (paper)

**Melaku Gebreyesus**

### **D2: Measuring and Modeling Change**

LIVES: Modeling for Change with Nexus Thinking (presentation) (paper)

**Chandet Horm, Karina Watkins, Kimchhin Sok, L. A. Gallagher, Andrea M. Bassi, Simon Costanzo, Brianne Walsh, Sarah Freeman, Kimheak Chhay, Chanmeta Bun, Channa Phan, Naroeun Rin, H. E. Ken Sereyrotha**

Private Investments in Green Tech Useful Metric in Tracking Progress for Inclusive Growth (presentation) (paper)

**Timothy Jack Nash, Hazel Henderson, Rosalinda Sanquiche**

Green Development in China: Measuring Change at Provincial Level (presentation)

**Yimeng Liu**

### **D3: Promoting Off-Grid Energy Systems**

Accelerating Off-Grid Clean Energy Services for the Bottom of the Pyramid- Lessons Learned from a Partnership between Philips Lighting and the Dutch Ministry of Foreign Affairs (presentation) (paper)

**Lisanne Heemskerk, Anouk Verheijen, Wieteke Gondrie**

Mobilizing Investments for Green Energy Access for the Poor- the New Energy Fund in Vanuatu (presentation)

**Jesse Benjamin**

### **D4: Promoting Green Cities**

Urban Green Growth Strategy and Framework for Indian Cities (presentation) (paper)

**Vijay Saini, Ashish Rao Ghorpade**

Green Transport Assessment Methodology: A Two-Stage Framework for Indicator-Based Assessment and Policy Mapping (presentation) (paper)

**James Seong-Cheol Kang, Nikola Medimorec**

Vietnam Urban Green Growth: Challenges and Actions (presentation)

**Tran Quoc Thai**

Can Ethiopia's Modernization Be Green? (presentation)

**Haileselassie Medhin**



# ANNEX II: GLOBAL PARTNERS

