



GreenInvest Platform

Workshop on Green Financial Technology and Green Foreign Direct Investment

Berlin, 30-31 May 2017

Summary

GreenInvest aims to become the G20 platform for promoting policy dialogue, leadership and public-private initiatives with and for developing countries in advancing the mobilization and mainstreaming of green finance in the context of broader sustainable development objectives. The global economy will need to be fundamentally reoriented and redeployed in order to achieve the 2030 Agenda for Sustainable Development (SDGs) and the commitments under the Paris Agreement, and the G20 plays a key role in shaping the international financial rules. However, most developing countries have limited access to the G20 process, especially those forums discussing financial cooperation. GreenInvest therefore seeks to organize and structure developing country inputs to the G20 processes and other international forums.

The first GreenInvest event – the Singapore consultation in January 2017 – formulated inputs to the Financial Stability Board (FSB) Task Force on Climate-related Financial Disclosures. The event also gave rise to an emerging concern that green finance will have both positive and negative spillover effects for developing countries, and should be examined thoroughly at the policy level.

The second GreenInvest event – the Berlin workshop in May 2017 – aimed to foster dialogue between G20 countries, non-G20 developing countries and the private sector, with a view to making developing country voices heard. The workshop included representatives from G20 countries, international networks and intergovernmental organizations, as well as from the Vulnerable Twenty (V20) Group of Ministers of Finance of the Climate Vulnerable Forum.¹ Over two days, workshop participants explored:

- **Green financial technology (fintech):** The connections between the emerging digital finance agenda and the sustainable development, climate change and environmental agendas, particularly the issues most relevant to developing countries.
- **Green Foreign Direct Investment:** The opportunities to unlock the potential of green FDI as a source for sustainable and low-carbon development, particularly for developing countries.

This report summarizes the Berlin workshop discussions. It includes key insights and action points that chart a possible course forward on these issues for the G20 and developing countries. Fuller summaries of the workshop's presentations, panel discussions and breakout groups can be found in the appendices.

1 Green Financial Technology (Fintech)

Financial technology – ‘fintech’ – has emerged as a powerful disruptor that is rapidly reshaping the financial sector on a global scale. By changing the way people pay, lend and invest, fintech could challenge the continued viability of the financial sector, as well as its policies, regulations and norms. At present, there is a window of opportunity for using fintech to advance green finance, as the rules of the game for an emerging new world are being set. The role of regulators, governments and bankers will be rapidly changing, and preparation is therefore vital – retrofitting will be difficult.

The breadth of fintech’s transformative potential for sustainable development is increasingly understood. Fintech is not just another topic in the green finance space – it is transforming the future of the financial system itself. This wave of fintech innovations could potentially help countries achieve the 2030 Agenda for Sustainable Development and the Paris Agreement on climate change. Fintech could also impact developing countries’ strategic priorities and help them leapfrog over many stages of development.

There are many unknowns about the potential impact of fintech on the global economy, particularly the risks arising from the lack of policy and regulation. What is known, however, is that the digital finance agenda is not presently connected to the sustainable development, climate change and environment agendas. What is the nexus between these agendas? The Berlin workshop sought to advance the emerging conversation on green fintech, and collectively assess how it could relate to the G20.

1.1 Insights and Action Points

Discussions in the Berlin workshop demonstrated both the potential power of fintech for advancing green finance, as well as its complexity and possible risks:

1.1.1 Understanding the Transformative Potential of Fintech

- **Fintech’s disruptive change should be seen in a positive light as an opportunity.** Fintech can help introduce more democracy into the financial system, with strategies not based on traditional economic structures. This could lift poorer communities from poverty and advance sustainable development goals in a much broader way. Fintech can also help manage complexities, especially for building reputation-based systems. Blockchain and smart contracts can lead to new ways of doing business and encourage investments in social progress, financial inclusion and social equity.
- **Green digital finance fits into the green finance agenda, and can help achieve national sustainable development, climate change and environmental goals.** Green digital finance can play a central role in delivering both the scale and pace required to finance climate change mitigation and adaptation. While there are already many examples of green digital finance – such as using fintech innovations to provide affordable solar power or promote a carbon accounting platform for individuals – direct links to the green finance agenda are often lacking. Nonetheless, policymakers, international cooperation agencies, as well as practitioners and advocates of fintech, are increasingly keen to explore these links and build synergies between the two.
- **There are many elements to consider on the potential implications of fintech and the actions needed to advance it in the service of green finance.** For all its promise, fintech also presents risks and dangers for developing countries at all levels of development – from emerging economies with sophisticated financial markets to small and vulnerable countries with a strong dependence on outside capital. Thoughtful reflection will be needed on timing, and on the policy and regulatory agenda – what must be deliberately shaped and what will happen on its own.



1.1.2 Action by the G20

- **The G20 could prepare for the impending fintech disruption and take a lead role in accommodating the change.** Radical economic shifts are already happening and it is essential that action on fintech takes place at an early stage.
- **The G20 could provide leadership in developing the key principles necessary to advance the work on fintech for green finance.** A better understanding of language, standards and working definitions for fintech will be needed. Appropriate policy language is needed to ensure the development of regulatory safe zones and ‘sandboxes’ to allow for experimentation.
- **The G20 could take a lead role in raising awareness, engaging finance ministers and providing a forward-looking signal.** This will be essential for advancing the work on green fintech. Lessons for promoting action on fintech could be learned from the G20’s treatment of financial inclusion.
- **The G20 could also take on a ‘translation’ role for fintech and wider sustainable development goals** – encouraging businesses and consumers to consider sustainability; fostering a sense of accountability; and outlining the essential action items needed to green the future of fintech.
- **The G20 and the V20 could work closely together to address fintech, its disruptive potential, or its possible benefits.** In particular, both groups will need to address climate change, with equal focus on mitigation, adaptation and resilience.

1.1.3 National Action and International Cooperation

- **At the country or regional level, many green finance roadmaps are starting to play out – all at different stages of development.** Some examples include Italy, Singapore, the City of London and Argentina. A better understanding of green digital finance and its potential impact on sustainable development could assist their thinking on how domestic market development might best work.
- **Awareness and education will be key for advancing fintech.** Many people do not know how to make fintech serve their development needs or how to participate in the most recent fintech innovations. An evidence-based methodology will need to bring some fintech innovations to scale. While some observers caution that fintech could exacerbate financial exclusion, most available evidence says otherwise. Increased training and capacity building for fintech could help ensure against such exclusion.
- **Policymakers need to hear stories on fintech that have a consistent vision.** Efforts may be needed to make the wide range of fintech stories more harmonious. In addition, a common terminology or taxonomy would be needed to advance policy. Appropriate policy language is needed to ensure the development of regulatory safe zones to allow for experimentation.
- **Urgent questions for policymakers include:** how fintech can help with climate resilience, disaster risk reduction and health impacts; how can governments nurture fintech innovations to get them to a ‘green’ stage; how much difference does the country origin of technology actually make; how can one measure fintech’s economic impact on the ground, as well as its impacts on human life – while increased phone access is good, access to clean water is far more important.
- **Green fintech could also benefit small and medium-sized enterprise (SMEs), which have an untapped potential to create sustainable livelihoods and deliver economic growth.** They can represent up to 95% of an economy while providing up to 70% of jobs and delivering on average 50% of GDP. Policy steps could include: utilizing policy sandboxes to develop suitable policies for SMEs;



tailoring policy frameworks to support fintech for SMEs, as many need help deciding whether to use fintech innovations; building a reward system for green behaviour that goes directly to SMEs or the banks supporting them; and addressing the challenges for governments and the public (who do not know who to trust) and the fintech innovators (who can face multiple regulatory systems) with a fintech system based on behaviour would help build a credit history and reputation.

- **Developing countries are already in driver's seat on many financial technologies because of policy leadership and action, based on their specific country requirements for technology.** Further clarification is needed on the risks and rewards in order to induce and incentivize private sector engagement. Intergovernmental platforms are also needed to explore and facilitate fintech issues.
- **In the 'green sustainable finance space' of international cooperation, many major networks have emerged over the past few years – these will need to be connected.** These include the Sustainable Stock Exchanges Initiative (SSE), the Principles for Responsible Investment (PRI), the Principles for Sustainable Insurance (PSI) and the Sustainable Banking Network (SBN). While these raise awareness, they risk creating a green fintech 'silo', but the fintech issue applies to the entire financial system.

2 Green Foreign Direct Investment

The global economy needs to be fundamentally reoriented and redeployed in order to achieve the 2030 Agenda for Sustainable Development (SDGs) and the commitments under the Paris Agreement on climate change. These global goals will require an unprecedented mobilization of both public and private finance, some US\$90 trillion over the next 15 years. The mobilization of finance for sustainable investment will require urgent action by all stakeholders including non-financial and financial firms, debt and equity investors, government policymakers, consumers and workers. Sustainable development therefore presents an investment challenge, and calls for substantial investments in clean technology and infrastructure, much of which needs to happen in developing countries. Urgently needed are policy frameworks, incentives and mechanisms that support sustainable development, which will bring rewards for investors.

The bulk of contributions towards sustainable development will need to come from private sector financial flows, and a key financial flow for developing countries is foreign direct investment (FDI). While FDI is only one of several flows, it is essential, as it represents real economic activities. The challenges for FDI are well known: what does it take to become a successful investment destination, and what framework is needed to govern the investment relationship between the investor and the host country? But what about green FDI: what should be done to favour investment in green actions? What are the obstacles? What reforms could be introduced? How does green keep growing? What can countries do at the national level?

2.1 Insights and Action Points

Discussions in the Berlin workshop explored the challenges facing green FDI, such as the policy actions and reforms needed to favour investment in green activities, particularly at the national level:

2.1.1 Understanding Green FDI

- **The lack of a common definition for 'green' FDI could present a challenge for its advancement.** The OECD and UNCTAD have experimented with definitions, and much work has been undertaken at an issue-specific level, such as 'climate finance'. As yet, there is no standard or accepted definition. However, some workshop participants noted this does not necessarily represent a problem. These participants stated that sustainable development is better viewed as a direction than a definition. When dealing with investments, the green characteristic arises from specific circumstances and externalities, and often the market price does not reflect the true costs.



- **Many governments are rethinking the appropriate role of government in promoting and encouraging green FDI.** They are not seeking the planned economies of previous decades, but not a fully laissez-faire approach either – instead they seek a balanced approach that can deliver sustainable outcomes.

2.1.2 Action by the G20

- **The G20 could help develop a more universal system for understanding and promoting green FDI, based around the SDGs.** This action could help countries define their priorities and develop their own definitions within those goals. One threshold issue is the lack of a clear understanding of what constitutes ‘green FDI’. Current policies promoting FDI are often inadequate for preventing environmental harms and advancing progress on environmental protection. Action by the G20 could help build in a new level of accountability and achieve long-term sustainability goals.
- **The G20 could send a strong signal that governments need to give clear direction to their investment promotion agencies.** Government policies matter and countries therefore need to decide what they want to promote. They could emphasize that the goal should be more than just the amount of FDI – but also the type, quality and sustainability of FDI.
- **The G20 could promote action on green FDI that would reproduce the successful experiences with renewable energy.** Renewables received subsidies for a long time but are now cost-competitive. Such success took deliberate policy action by governments and provides a model for other areas.
- **The G20 could encourage countries to explore the potential for fintech to advance green FDI and achieve their SDGs.** Technology does not see man-made boundaries and can potentially weave disparate countries into a single market. Fintech can also help manage complexities, especially for building reputation-based systems, even if such mechanisms are at early stage.
- **The G20 could agree upon broad international standards for green FDI for use in all their member countries.** Ensuring that international trade is sustainable will require making investors more accountable for their FDI.

2.1.3 National Action and International Cooperation

- **Developing countries’ commitment to sustainability needs to be reflected in their national laws, policies and strategies.** National roadmaps for sustainability, green credit, and green bonds, aligned with national development plans and climate change plans, such as Nationally Determined Contributions (NDCs) and long-term strategies – these are steps that can help a country better understand its goals and priorities. Countries make a more convincing case for green FDI if they have adopted a roadmap for sustainable development.
- **Governments need to give clear direction to their investment promotion agencies to promote green FDI.** Some countries are taking action to translate their climate change commitments (NDCs) into investment plans. In addition, governments could emphasize that the long-term goal should be more than just the amount of FDI – it should also address the type, quality and sustainability of FDI.
- **Economies do not consist solely of formal economic entities – rural, informal and other segments form a major part of many economies and they hold great potential for advancing green development.** The local financial sector, not just the international or national sectors, will be key



for greening investments, ensuring environmental benefits and achieving sustainability. Local stakeholders, including civil society, private sector entities and sub-national authorities, also play essential roles. While planning mostly happens on the national level, the implementation and the impacts of FDI often happen on the local level.

- **The Least Developed Countries (LDCs) receive a paltry amount of FDI, which basically amounts to exclusion.** Deliberate sustained effort will be needed to more fully involve LDCs in green FDI.
- **Different vehicles, such as green bonds and green credit, can attract investors who would not otherwise come at all, as well as influence current investors.** Nigeria's effort to issue sovereign green bonds, for example, seeks to attract new investors and expand the current range of investors.
- **To mobilize green investment, governments need to prepare bankable FDI project proposals and facilitate green projects in their pre-establishment, set-up and operational phases.** UNCTAD's Global Action Menu for Investment Facilitation contains specific actions that governments can take to strengthen their facilitation efforts and maximize the positive impact of investment projects.

2.1.4 Institutional Action and Green FDI Promotion

- **Institutional solutions can encourage and facilitate green FDI by identifying problems and providing a safe space for development.** Policy sandboxes, innovation labs and regional hubs can be used for experimentation and testing potential green policies and measures.
- **Countries like Kazakhstan and Morocco, which are setting up mechanisms to seek FDI, especially green FDI, and seeking to become green regional hubs demonstrate a key point.** Countries can make a more convincing case for green FDI if they have an established roadmap for national sustainable development, developed investment plans to implement their climate change commitments (NDCs), and taken other clear national actions to achieve sustainability.
- **A key FDI question from the outset should be: does this help achieve the SDGs?** Some investment agencies have successfully raised green issues with investors early, which ensured they continued as part of the discussion. In other cases this government intervention proved to be a race to the bottom, with some countries giving away everything in order to attract FDI. Investment agreements increasingly contain clauses on environmental and social issues, but they could also focus on clean production processes.
- **Government commitment to green FDI may require subsidies.** For examples, investors often need to borrow money for wind power, and sometimes stop action altogether because wind turbines cost too much. Subsidies may be the only way such projects can happen.
- **Possible actions to promote green FDI include:** lowering the customs tariffs for green products; lowering the reserve requirements for banks providing credit for SDGs and green actions; and reducing or cancelling licensing fees for factories that reduce carbon emissions. In addition, public money can be used to achieve public policy and priorities, wherein companies that bid for public contracts must commit to respecting specific green criteria. Governments could also charge investors who inflict environmental damage and establish a fund for those who are environmentally friendly.



Appendix

Workshop Highlights: Presentations, panel discussions and breakout groups

1 Green Fintech

1.1 Green Finance in a Digital Economy

This session examined a range of issues relating to green finance, the G20 and developing countries. Participants surveyed the ‘big picture’ potential of advancing green finance through the application of digital technology. Four panellists set the stage and raised key points for consideration.

1.1.1 Panel Discussion – Summary

Fintech vs. Techfin – VeriFi (Hong Kong) Ltd.

The complex fintech landscape could be understood as having two types of actors – fintech and techfin. ‘Fintech’ refers to technology companies jumping into the financial domain and applying new technologies to radically alter the financial landscape. In contrast, ‘techfin’ refers to companies adapting existing financial capabilities to the technology wave – a less disruptive, incremental approach. These actors can face different levels of regulation, types of investors, and levels of risk. Developed and developing countries should consider which actor is best suited for their economic development pathway. This may require reflection on the different types of capital (financial, human, societal, environmental and data), as well as the risks and technologies involved. For developing countries, fintech is reducing the cost of innovation, which changes the investment profile and capital required. Other key points: fintech does not respect man-made borders or political structures like the G20 or V20; fintech could lower the cost of doing the right thing, like tracking, tracing and trading carbon; fintech can allow for rethinking the problem at this early stage and de-risking the process.

Fintech and green finance – International Institute of Green Finance, CUFE, China

As green finance and fintech innovations are new concepts, greater public awareness will be essential for promoting and facilitating the use of green financial products, such as green bonds. Technology will be useful for tracking the green behaviour of green bond issuers and disclosing such information to the public. Fintech can also reduce the physical costs for obtaining and sharing information. For example, cloud computation could track the companies that set up around water power stations and use the energy. Successful use of fintech for green finance calls for building a technology infrastructure, particularly Internet access, and a common database to collect data.

Fintech and developing countries – Kenya Bankers Association

To promote green finance in developing countries, fintech innovations need to fit their means and be structured affordably. Many have small economies with much of the population based in urban areas. On the financial inclusion agenda, Kenya has made significant strides through agency banking and mobile technology. Another key strength has been in the field of energy, as Kenya now has one of the cleanest energy distribution systems with increasing use of renewable energy sources like hydropower and wind. However, green energy growth still holds huge potential, with only 18% of the population currently



accessing the national grid. Examples such as M-KOPA solar provide an excellent example of green fintech in action, as well as Takamoto's pay-as-you-go biogas solution, which is payable in small instalments via mobile phone. In addition, Kenyan bankers have made progress towards the first green bond issue, in connection with the Climate Bonds Initiative. Green bonds could provide an avenue to partner with fintech innovators, as one positive innovation seems to trigger the next.

Fintech and emerging countries – National Institute of Public Finance and Policy (India)

Emerging countries assess the risks of fintech differently than developed countries, as these are not simply add-ons to other risks. Emerging countries are keen to understand how fintech can help reduce financial risks, as well as to help draw out savings and deploy them at scale. Fintech potential for de-aggregation for solar power could also prove helpful. The problem is not getting such energy onto the grid, but who owns it. De-aggregation could mean that energy investments could be made without going through a banker. However, fintech innovations could also perpetuate exclusion, enhance inequality and worsen unemployment – all require careful reflection. It was also noted that the G20 was not designed for developing countries, so they must work within its finance track.

1.2 Green Digital Finance Practice – Green Meets Fintech

This session reviewed specific cases of green digital finance in order to better understand emerging business models, challenges and barriers, and means of overcoming them. The session began with a presentation to set the stage, followed by four panellists and a workshop discussion.

1.2.1 Presentation on Fintech

The Ant Forest pilot² – Chen Long, Ant Financial Services

Ant Financial Services Group has initiated the world's first, large-scale pilot in greening citizens' consumption behaviour through the use of mobile payment platforms, big data and social media. The 'Ant Forest' app encourages users to reduce their carbon footprint through a three-part approach: providing individualized carbon savings data to peoples' smartphone; connecting their virtual identity and status to their earnings of 'green energy' for reduced carbon missions; and providing carbon offset rewards through a physical tree planting programme.

The Ant Forest pilot has exceeded expectations in attracting large numbers of users in a short period of time, and elicited significant behavioural change. Over the first six months period from August 2016 to January 2017, 200 million people across China have voluntarily joined the programme, about 44% of Ant's user base in China, or about 20% of China's adult population or 3% of the world's total population. Behavioural change over the period has resulted in an estimated 150,000 tons of cumulative avoided carbon emissions and over 1 million trees planted by January 2017.

These early results indicate the potential to use digital finance in collective efforts to safeguard the planet for future generations. The Ant Forest pilot could be extended in collaboration with other digital finance companies to encourage billions of people to reduce their carbon footprint. Digital finance innovations, as part of a wider digital ecosystem, could be deployed in addressing many other environmental challenges, in collaboration also with governments and other stakeholders.

Ant is dedicated to build up a measurable carbon account for its 450 million users, to promote the development of personal avoided carbon emissions, establish the green and open platform, and encourage green and low-carbon activities. It will cover more scenarios of green and low-carbon business, promote green and low-carbon consumption patterns, develop green financial instruments and promote the development of green and low-carbon industry. Ant's next steps include: improving and standardizing the



carbon methodology; establishing an open green platform; and driving a multipurpose green financing platform that will use its big data and other capabilities to build and operationalize voluntary emission reduction methodologies, including to help SMEs in particular enter the carbon trading market and reward the carbon reduction activities.

In response to the presentation, participants emphasized that fintech innovations are moving beyond the fintech industry and becoming part of the service ecosystem that supports a range of consumers. Customer behaviour is driving much of the fintech change, although mostly under the radar.

1.2.2 Panel Discussion – Summary

Fintech and reputation systems for communities – hiveonline: the Financial Trust Platform³

Major efforts are under way to use fintech to build a reputation-based system built on facts and behaviours, with a goal of supporting SMEs – they need better access to finance and improved methods for trust. Fintech could bring methods to trust each other, enabling communities to work together and overcome the friction and barriers imposed by governments and retailers. They want to work together with others like them, but the barriers are too difficult and involve considerable paperwork. A reputation system can accelerate the process, as reputation is the most important currency and is borderless. Blockchain technology can be used to help build trust using non-traditional systems that are not related to a bank account. They can create a record and a history of trust. Participants in the system would need to satisfy stringent criteria. This tool could help level the field for smaller players.

Fintech and solar power – SolarCoin⁴

Fintech innovations like blockchain are proving that “small is the new big”. Major changes can be brought about by action on the individual level; therefore future changes will call for a better understanding of individual micro-behaviours. For example, SolarCoin is a cryptocurrency reward programme for solar energy that incentivizes global solar electricity generation. It is backed by two forms of proof of work and is equitably distributed using both of these proofs as a means to reward solar electricity production. SolarCoin can be claimed by individuals living in homes with solar energy panels on their roof or by large solar electricity farms. It is also trying to put carbon credits on blockchain while using far less energy than typical blockchain applications. With the help of fintech, the energy grid may one day become a stranded asset, as most energy will be produced at home.

Fintech, women and social issues – UN Women⁵

Fintech innovations are empowering communities and enabling them to better access finance. They are helping businesses lower their financial risks and in turn allow more people, particularly women, to move into areas not possible before. Women in developing countries, who are often disproportionately affected by the impacts of climate change, can help scale up action on climate if given the opportunity. Women entrepreneurs have been gaining advantage, but there is still a huge gap in terms of accessing technology. Fintech discussions must be paired with the discussion on access to technology, particularly the high costs of devices and the differing level of confidence in using technology. Policymakers should make explicit efforts to address the gender-specific problems.

Fintech and clean energy – Mobisol⁶

Fintech has helped Mobisol provide affordable green energy to millions of people by selling household solar lighting systems through a pay-per-use plan paid for via mobile. In partnership with mobile money systems such as M-PESA in Kenya and sensors in each solar array, M-KOPA monitors real-time performance and payment status. Mobisol aims for 1 million homes in Kenya by 2018. With high-efficiency home appliances,



energy usage per home goes down dramatically. This demonstrates that large grid systems are not necessary. This provides an example of optimism, and confidence that sustainable green fintech can deliver results on the ground.

1.3 The Green Digital Finance Hackcellerator: Designing Solutions

This session identified ways to advance green digital finance – both at the national level and through international cooperation. In breakout groups, participants discussed how to design specific digital finance solutions and overcome green finance challenges.

1.3.1 What Are the Unintended Consequences of Fintech and How Can They Be Avoided?

The first breakout group discussed potential open source and propriety technology, including from the systemic risk perspective, which has significant implications in terms of ownership, governance, etc. They also considered: technology that allows for the generation of new concepts; viewing the ‘lifecycle’ of technology; and the implications when a technology platform is open. Some unintended consequences of fintech can include:

- Economic exclusion – older people who lack technological skills, or people lacking electricity or Internet access will likely not benefit from digitalization.
- Data protection and privacy concerns – increased digitalization could also lead to increased hacking and private information loss.
- Greenwashing – fintech’s innovative and ‘cutting edge’ appeal could provide an incentive to use it as a new, green marketing tool without providing any actual green benefits.
- Systemic risks – some fintech innovations, if not properly developed, could present risks for the entire financial system. Problems with high-frequency traders and flash crashes provide cautionary examples.
- Regulatory challenges – it will be difficult to regulate the innovations in green fintech. Deregulation alone is not likely the answer, as this has led to financial crises in the past.

The group also discussed the difficulties of combining ‘green’ and digitalization, which are complicated individually and could become even more so when combined. Government bodies will need to monitor this issue, and considerable expert advice and supervision will likely be needed.

1.3.2 How Do We Make Developing Countries Producers of Fintech and Not Just Consumers?

The second breakout group noted that some of the most interesting fintech innovations are under way in developing countries. They shared experiences on fintech in developing countries and noted that many of them are already on a path to become producers of fintech. The group discussion highlighted:

- Developing countries are already in the driver’s seat on many financial technologies because of policy leadership and action, based on their common but differentiated responsibilities and the specific country requirements for technology.
- Further clarification is needed on the risks and rewards in order to induce and incentivize private sector engagement.
- Intergovernmental platforms are needed to explore and facilitate fintech issues.
- Affordability of fintech must be kept in mind if these technologies are to succeed.



- Developing countries must build their own strategies for addressing fintech. There are no existing models to follow.
- A key question will be who owns the technology and standards. If technology is inclusive and open, can others freely use it for further innovations?

1.3.3 How Can Fintech Mobilize Green Consumption?

The third breakout group stressed that unless consumers change their consumption patterns, the green economy will not happen – consumers will drive the change. Participants also cautioned against thinking “they will consume less if educated”. The power and potential of fintech was highlighted in many examples, such as in China, where areas with the least financial power are growing fastest. Alibaba began with online selling, then started using Alipay due to a lack of trust between buyers and sellers. Online payment and online shopping happened at same time – which is the right approach. This later led to Ant Financial. The group also discussed the potential for least developed countries to develop their financial system and access that system at the same time. Some noted that governments should provide the basic technological infrastructure, as well as the right policy infrastructure. In addition, markets will need to work with governments. Participants also stressed:

- Green consumption must be measurable, as this was how consumers can be rewarded for green behaviour.
- Green consumption should also be tradable and allocable. Notably, the right policy mechanisms will be needed to make these concepts workable.
- Psychological motivations should be considered, such as introducing a gaming aspect to increase participation.
- Policy actions should take into account that the world is shifting to a sharing economy.
- Policy actions will also need to link SMEs with their sustainable consumption goals.

Participants also emphasized that while the threat of hacks is serious, millions happen every day. The solution is often improved technology. In addition, it was noted that ‘gamifying’ can also have a negative impact and can give rise to serious conflicts.

1.3.4 How Can Fintech Reduce the Cost of Green Capital in Developing Countries?

The fourth breakout group considered how fintech could help reduce transaction costs in a financial transaction, as well as the costs for having an open relationship with the individual. The Unique Identification Authority of India (UIDAI), noted as an example, gives every citizen a Unique Identification number (Aadhaar) that identifies individuals on the basis of their demographic and biometric information (photo, fingerprints and iris). This gives individuals the means to establish their identity to public and private agencies, while reducing the costs of transactions. These new technology benefits can be passed on to consumers. Fintech has also shown the potential for reducing transaction costs relating to the process of land titles, validation and verification. The group also discussed:

- Removing asymmetric information, such as the Government of Kenya distributing bonds directly through M-PESA.
- Understanding the correlation between the risks and consequences of green actions.
- Improving the leveraging of public finance for green action.



- Recognizing that fintech does not refer to any specific technology. In agriculture, farmer-level technology linked to ‘big data’ on when to keep insurance alive.
- Taking caution on disruptive technology – real fears must be addressed and regulators will need to fully engage.

In addition, the group considered the real risks of green and how they relate to the costs of green. Risks can actually increase with green actions, but green can also lower financial risks for climate-resilient investments – the situation is complex. Therefore, participants cautioned against giving green actions too much credit for lowering risks or blaming it wrongly for increasing risks. Fintech can have a strong disruptive power, while being agnostic on the results. More than just oil companies are at risk for stranded assets. Finally, participants noted that thinking through the broader sustainable development agenda and the digital agenda calls for extracting value at scale. Some inventions could be ‘low-hanging fruit’, as much could be done with innovations already in markets.

1.3.5 How Can You ‘Green’ Fintech Standards?

The fifth breakout group emphasized the opportunity, at this early stage of fintech development, to ‘bake in’ the values that society will want to see over time. This effort will call for simultaneously maximizing the potential of: traditional financial capital; human capital; social capital; and data capital. The group examined the word ‘green’, which often seems merely a buzzword. Improving this situation will require adopting a scientific approach for quantitative metrics and qualitative metrics (happiness, etc.). In discussing quantitative metrics, participants considered basing such a determination on whether an action would be compatible with the global goal of limiting temperature rise to two degrees Celsius. The group thought the development of a qualitative metric required further reflection. Participants also examined the word ‘fintech’ from many perspectives, including a geographic view. They emphasized the global and local views must be balanced because technology often crosses borders.

The G20 could consider taking on a ‘translation’ role for wider sustainable development goals: encouraging business and consumers to consider sustainability; fostering a sense of accountability; and outlining the essential action items needed to green the future of fintech. The group also considered how fintech could help overcome current obstacles to setting a carbon price. In particular, how can the technology itself build social capital and scale down the concept to the individual level, as talking about carbon in metric tonnes is not helpful for most people.

Participants also discussed possible policy steps for fintech that would benefit SMEs, such as:

- Incentivizing specific green policies and actions.
- Utilizing policy sandboxes to develop suitable policies for SMEs.
- Developing policy frameworks to support the evolution of fintech. Regulators and central banks will need to address rapidly changing technology anyway. SMEs may need help deciding whether to participate in fintech innovations.
- Building a reward system for green behaviours. The rewards would need to go directly to SMEs or the banks supporting them.
- Assessing the practicalities of moving money around, like e-wallets. This could build inclusiveness, which in turn stabilizes the economy.
- Improving education on fintech; some innovations could be rapidly adopted.



- Addressing the major challenges for governments and the public (who do not know who to trust) and the fintech innovators (who can face multiple regulatory systems). Having a system based on behaviour would help build a credit history and reputation.

It was noted that SMEs often do not care about green issues unless their customers do. They need to believe that the users care, or that they can greatly reduce their costs. Otherwise they may not act.

1.4 National Action and International Cooperation

This session identified ways to overcome the main barriers to deploying digital technology in the service of green finance. Participants were informed of international initiatives currently under way and discussed their relation to green fintech innovations.

1.4.1 Panel Discussion – Summary

*Sustainable Stock Exchanges Initiative*⁷

The Sustainable Stock Exchanges Initiative (SSE) provides a multi-stakeholder learning platform for stock exchanges, investors, regulators and companies to adopt best practices in promoting corporate sustainability. In collaboration with investors, regulators and companies, they strive to encourage sustainable investment. The SSE Global Dialogues are held every two years as the initiative's flagship event. They provide a unique, high-level platform to explore how the world's exchanges can work together with investors, regulators and companies to create more sustainable capital markets. While this initiative focuses on green finance, fintech has not come up during the process. Stock exchanges are not aiming to solve all problems, but they can ask what is "green" and who says so. Green fintech could also help broaden the investor base in developing countries by bringing in small investors.

*Stockholm Green Digital Finance*⁸

A new independent platform, launched on the occasion of the GreenInvest Berlin workshop, will seek to encourage green digital finance initiatives. The platform will collaborate with Stockholm Green Digital Finance, a convening platform for fintech companies, banks and service providers and work to scale green finance. Sustainable fintech will be critical for meeting development goals, as green innovators need access to capital to scale their solutions. Two million unbanked people in the world need access to banking services, and sustainable lifestyles need to be brought to scale – green digital finance can address these needs by delivering sustainable capital to businesses and communities. An example of fintech's power can be seen in Trine, a Swedish tech start-up that enables savers in Stockholm to profitably fund distributed solar energy systems in rural sub-Saharan Africa.

*Alliance for Financial Inclusion (AFI)*⁹

The AFI is a network of financial inclusion policymakers whose core mission is to encourage the adoption of inclusive financial policies in developing nations and lift 2.5 billion citizens out of poverty. It was founded in 2008 to advance the development of smart financial inclusion policy in developing and emerging countries. The AFI utilizes a peer-to-peer learning model to connect, encourage and enable financial policymakers to interact and exchange knowledge on policy initiatives such as consumer protection and mobile financial services. For the AFI, fintech can be leveraged for financial inclusion provided they have the capacity to understand the risks. AFI members want inclusion to relieve poverty, while not exacerbating inequality and gender inequity. A key factor for developing countries will be increased capacity building to train for using new technologies such as blockchain.



*Green Digital Finance Alliance*¹⁰

The Green Digital Finance Alliance is a new initiative by UN Environment and the Ant Financial Services Group. It has been created to address the potential for fintech-powered business innovations to reshape the financial system to better align with the needs of sustainability. The Alliance's members will include innovative financial institutions that are committed to using digital technology to advance green finance in lending, investment and insurance. To ensure success, the Alliance will draw in allies from across the worlds of environment and finance to contribute their expertise, insights and networks to collaborative actions with timely and scaled potential.

2 Green FDI

2.1 Green FDI Presentation – Summary

*Lise Johnson, Columbia Center on Sustainable Investment*¹¹

The global economy must be fundamentally reoriented and redeployed in order to achieve the SDGs and the climate commitments under the Paris Agreement. This requires action by all stakeholders including non-financial and financial firms, debt and equity investors, government policymakers, consumers and workers. One type of financial flow – FDI – specifically, FDI flows into developing countries, could hold great potential for achieving the transition to a low-carbon, sustainable world.

In 2015, FDI inflows reached US\$1.76 trillion globally. Flows into developing countries are increasingly significant in terms of share and amount. US\$962 billion went into developed and US\$765 billion to developing countries, with the remainder going into transition economies. But FDI flows into developing countries are still concentrated in certain countries. The 2015 share into LDCs was roughly 5%. In 2015, approximately twice as much global FDI inflows went into the Cayman Islands (US\$18 billion) and the British Virgin Islands (US\$51 billion), than into all LDCs combined (US\$35 billion). Inflows into Africa (US\$54 billion) only just beat the British Virgin Islands.

Even if not large on a global scale, FDI inflows may be significant for any given country. While there are variations among and within regions, the core single component of private sector financial flows into developing countries is now FDI, averaging 42% of private inflows (with portfolio flows, remittances and other investments (e.g., bank loans) making up the remainder). FDI in some developing countries is relatively concentrated in natural resources, including coal, oil and gas.

Current policies promoting and governing FDI are inadequate for preventing environmental harm and advancing progress on environmental protection. One threshold issue is the lack of a clear understanding of what “green FDI” is or should be. That definitional challenge in turn raises questions about the true environmental integrity of nominally green companies, hinders assessment of progress towards environmental objectives, and can be a barrier to efficient and productive engagements among companies, upstream financiers, downstream consumers, and government partners and regulators seeking to advance green projects.

Various public and private sector actors have taken steps to address these issues, defining green FDI, calculating present flows and stocks, and assessing funding gaps that must be filled in order to meet the challenges as defined in the SDGs, commitments under the Paris Climate Agreement, and other aims and initiatives. The OECD, UNCTAD, individual governments and market services all are making meaningful contributions in this direction. But much remains to be done.



2.2 Green FDI Landscape

This session reviewed the landscape for green FDI as distinct from the general pool of FDI. Is there agreement on what constitutes green FDI? What is the state of data? Where is the information strong or weak? It also explored the impact of green investment as opposed to classic FDI: does green FDI have a more positive impact on a country's development, or is it neutral (or even negative)? Is there a case for greening FDI as a means to achieve the transition called for in the SDGs?

2.2.1 Panel Discussion – Summary

Germany

In the overall investment climate, FDI is not that different from domestic investment. For both, investors are seeking great opportunities and a stable setting. Green FDI and green domestic actions are similar, and many green technologies are now mainstreamed. For all of these, a stable domestic investment framework is key. Finance is often not the main constraint, but rather difficult regulatory frameworks, such as complex licensing schemes. Policymakers will need to actively encourage green FDI and discourage brown FDI. Since green FDI needs to be mainstreamed, it does not need a separate framework. A green framework is needed for both domestic investment and domestic institutions aligned with a sustainable development approach. But overseas financiers also need to take sustainability on board. Developing countries wanting greener criteria for investment will have a stronger case if their domestic rules require the same. In addition, investment treaties often discourage discrimination among investments based on anything other than national law. Measures to favour green or social investment are therefore open to challenge.

Mongolia

FDI differs from other forms of investment, as the former has active control and engagement. For example, in Mongolia, energy and mining companies are the largest foreign investors and there is nothing green about extracting finite resources. Often, a 'disconnect' arises between what investors want and what the host country wants. Sustainability focuses on minimizing the negative impacts and maximizing the social content. But private sector investors often want extraction rights without the social conditions. Host countries seek to benefit from technology and knowledge, while also imposing regulations. But sometimes investors simply ignore these. Some companies come with their own environmental and social standards. Local companies may ultimately imitate these standards. For example, Rio Tinto has its own code, which has served to raise many host country standards.

Kazakhstan

While the oil and gas sector have been key for Kazakhstan's growth, companies are now showing increased interest in green growth strategies. The country has a long-term strategy for achieving sustainable development. The actions include: increasing the renewable share of total power generation; increasing the energy efficiency of GDP; improving water management; and requiring that 1% of GDP go towards green activities. It recently introduced an emissions trading scheme, but suspended it until 2018. While an agreed definition for green FDI may not seem helpful, and additional rules can cause further confusion for regulators and market actors, a definition may be necessary for accurately measuring and checking investment data. In addition, Kazakhstan now seeks to become a regional financial hub and a regional zone for investment, especially green FDI.

2.3 Green FDI and Investment Promotion

This session reviewed experiences in promoting green FDI. What can we say about the policy context, e.g. bilateral investment agreements, investment provisions in preferential trade agreements, the evolving



nature of contracts between investors and host states, dispute settlement? What are the trends in this area and how do they affect the wish to boost green FDI? And what are the priorities in responding to the opportunities and challenges?

2.3.1 Panel Discussion – Summary

Thailand

Thailand recently revised its investment promotion policy to provide a package of incentives, and green measures will now play a key role. The previous policy was based on favouring specific geographic zones, but now Thailand focuses on the types of activity it would like to promote, such as strengthening the supply chain and producing eco-friendly products. The incentives now include: reduced corporate taxes, reduced utility charges, non-tax incentives, subsidies and special grants. The government has taken the same approach for nearly 50 years, but it is now taking new actions such as promoting electric vehicles to reduce emissions and pursuing ecotourism, with a view to achieving the SDGs. Countries want to be open to investors, but some conditions are necessary and some issues are non-negotiable.

UNCTAD

Since the 1980s, FDI has been the primary focus of governments. But in recent years, green FDI has increasingly come into the spotlight, as evidenced by UNCTAD's recent publications on green FDI and a new website dedicated to the topic.¹² Overly prescriptive or standardized definitions of green FDI can be challenging to build consensus around and could ultimately prove unhelpful if they lead to a stifling of the broad range of green activities. General working definitions of "green FDI" include the approach taken by UNCTAD to look at 'low-carbon FDI' and to examine such FDI in the context of three categories of FDI: production processes, clean energy generation, and research and production facilities. Sound national policies with clearly stated goals and directions are essential, as FDI will not compensate for bad national policy. National investment agencies need a clear signal from their own government on what types of industry and investment they should be trying to attract. Promoting green FDI can involve tightening emission standards, which can bring in new technology, or providing guaranteed purchase agreements for green energy or covering its start-up costs. International investment agreements do not always notice the environmental impacts of investment activity. In the 1990s, many countries were desperate for investment, but a new generation of investment agreements under way highlight social and environmental issues. In addition, green FDI benefits from building technical awareness within investment promotion agencies, along with sharing of best practices. 'Clean tech clusters' also help, since one project tends to attract others and leads to the greening of special economic zones.

Egypt

A large percentage of FDI goes to Asia, and smaller countries often do not have the option of insisting on green FDI. They have financial obligations, and a country's saving ratio also has an impact. While some countries treat FDI preferentially, it is important to create a climate that will also attract domestic investors. If policymakers do not pursue the SDGs under their national agenda, it becomes difficult to demand that FDI do so. National officials and decision-makers need to understand, and act on, the SDGs and green measures. They should appreciate that their country did not simply sign an international agreement – they need to apply it as part of their daily work. Even if green measures have short-term costs, they are not more costly over the life cycle of the investment. Governments can develop incentive packages, but without the SDGs at heart of their national agenda, it will be difficult to design a lasting framework for green FDI. Currently policies do not distinguish FDI and green FDI, so success is measured in the amount of



investment, but not its type or quality. A key question: how is the success of an agency and the overall investment environment measured?

2.4 Green FDI – The Ways Forward: Designing Solutions in Breakout Groups

This session identified ways to advance green FDI at the national level and through international cooperation. In breakout groups, participants aimed to design specific FDI solutions to overcome green finance challenges. Beyond FDI, this session looked at new channels for investment in developing countries – e.g. crowdfunding, investments off corporate balance sheets, remittances. It also examined changing business models and what we know about what works for green priorities. Participants also considered the actions that developing countries would like to see from international cooperation, and especially the G20 process. It also explored the advantages of fintech for green investment, and what action is required from regulators to shape the markets.

2.4.1 Policy Action by Host Governments

The first breakout group reported that many policy changes could impact green FDI in a positive way. Driving up returns with subsidies will help overall, and could positively impact the risk side of the equation. They called for treating ‘green’ as a multi-dimensional function (i.e. social, environmental and human aspects). They suggested giving every country the option to decide where they stand on each dimension and make this information publicly available. Investors could then decide which country’s scenario best fits their priorities. The G20 could develop a framework (using a simple graphic) outlining the key dimensions and invite countries to use the framework to put forward their priorities. They could then focus on de-risking through policy measures. In addition, the G20 could track the policies within these dimensions over time. This approach would show what has remained stable over time. Other key actions could include: spelling out long-term fiscal policies; better investment insurance; reduced bureaucracy (they cautioned against granting high-level access to investors); internal tracking of the success of investments; and improved transparency.

2.4.2 The Role of Public Finance

The second breakout group stated that public-private partnerships, if keen for a green economy, could supply part of the revenue needed. They proposed obtaining 20% of funding from government and leaving 80% to come from private investors. On the role of monetary policy, policymakers could encourage green investment and lending back to investors that are targeting green projects. They could also lower reserve requirements and provide lower interest rate for green projects. Governments could have a list of certified, minimum requirements relating to green FDI, as well as minimum requirements for any government project. Such standards could be set during the bidding process. They also discussed whether a government could maintain a certified book to list the companies favoured by government and public authorities because they meet set criteria. This would encourage companies to be more committed to sustainability and green approaches, since they would get priority for government contracts.

2.4.3 Definitions for Green FDI

The third breakout group agreed there was a lack of consensus on definitions for green FDI. While an agreed definition may be useful for informing policymakers, it may not be needed. They also noted that the discussion emerging in their group demonstrated a level of confusion on key topics. Therefore, rather than seeking to agree on a definition for externalities, perhaps countries should seek to define their own meaning and put forward their preferred social policies. Technical experts could help by providing a framework definition, which could then be tailored by each country. The group noted the direct relation



between definitions and the measures used to quantify green FDI, with different groups using different measurements. A long-term goal could be to build a lexicon around FDI, possibly dividing it into different types like ‘dark green’ or ‘medium green’, or creating a ‘green infrastructure’ category. The G20 could be encouraged to help develop a more universal system, based around the SDGs, to help countries define their priorities and develop their own definitions within those goals. This approach could help build in a new level of accountability and help achieve long-term goals.

2.4.4 The Role of the Financial Sector and Fintech (i.e. Carrots and Sticks)

The fourth breakout group provided an example of how a large company like Toyota could map that entire value chain and link it to green measures. What are the challenges they face in reducing carbon emissions, and could fintech help solve their problems? They could be told their cars must meet green standards, and required to use fintech solutions, such as the Internet of Things (IoT), to monitor pollution. This second set of data could be made public and consumers using the car could get a better insurance rate. Blockchain, IoT and big data could be used to monitor the entire value chain, leading to a better car, better consumers, and a green output. The underlying thought process – find major institutions, identify their green problems, fix the problems and make the information available – can be seen as a ‘global green challenge’. They proposed compiling roughly twenty ‘global green challenges’ and inviting fintech companies to meet the challenge. They could receive funding to start a test case and then test it for the industry. Singapore is taking a similar approach with a “hackathon”, where an organization identified one hundred problems it faced and invited fintech companies to solve them.

2.4.5 International Cooperation

The fifth breakout group outlined the challenge as: given the international standards for labour, social and environmental matters, could there also be an international standard for green FDI? The G20 could agree upon broad standards for use in all their member countries. Ensuring that international trade is sustainable will require making investors more accountable for their FDI, possibly through a compliance mechanism. Current trade agreements can pose a problem for a green transition, since the option for local content is often not allowed. In addition, the WTO could play a role in the transition. The group also discussed a ‘green global fee’ that could contribute to a green global fund. They also discussed how the insurance industry could help support a green transition, and proposed developing sector-by-sector guidance on the projects that could be underwritten by insurance companies. This approach would particularly useful with the infrastructure sector.

2.5 National Action and International Cooperation

This session identified ways to overcome the barriers to deploying FDI for green finance. What would developing countries like from the international community – especially the G20.

2.5.1 Panel Discussion – Summary

Ecuador

Green FDI implies externalities, so global policies, including incentives and subsidies, will be needed. Funding can be sought for enterprises with different priorities, as they have a right to their identity and the right to be different. The popular economy is not frozen in place. The informal economy has its own priorities, and is often the most important economic segment for much of the population. Ecuador is currently working on a new methodology for the value chain, which will act as an incubator and accelerator, and help develop enterprises that will fill the shelves of the supermarkets. The programme involves technology, training, a platform and the fusion of IoT and cryptocurrencies into a package that not even the



large banks can match. Ecuador also is pursuing innovations wherein the community or neighbourhood can build up social capital by using an instrument for transparency, which has proven effective for building a dynamic civil society. These types of initiatives could be pursued at the international level, and provide funding without the requirement of profitability. There is a need to recognize that some externalities cannot be reflected in prices. Economies are not simply formal, registered trade organizations, but are much more diverse. Recognizing this could help accelerate the transition to green solutions.

Mexico

Policymakers must focus on the ‘big picture’, particularly the estimated US\$90 trillion needed to fulfil the SDGs and the Paris Agreement. In addition, there are challenges on every environmental issue – oceans, fish stocks, forests and water among others – so green finance needs to serve more than climate mitigation activities. Market interventions must be done in new ways, such as raising standards for environmental activities to alter perception that these are high-risk activities. Using FDI as a tool for pursuing a green economy raises many questions, as one size does not fit all. Different sectors, such as energy, water, waste, land management or sustainable transport, call for different approaches. But international rules that single out sectors will not be helpful. National actions to foster green investment can include putting a price on carbon through a tax. Other actions can include establishing an emission trading system and phasing out of fossil fuel subsidies. Public-private partnerships can also be helpful for sharing risks and promoting investment. Premium rates and other instruments can also help address risks, as can data improvements for business and financial actors. In areas of cooperation, best practice sharing is important for increasing value added.

Mauritius

Developing countries and small islands face unique challenges in achieving green FDI. They face major challenges for infrastructure, which often calls for a mix of government and private sector money, as well as technological know-how. Past efforts to encourage FDI have included incentives and tax holidays. The opportunities are immense and regionally replicable in the Africa. The board of investment for Mauritius actively fosters learning-by-doing and demonstrating the business case. The G20 could help with matchmakers and facilitators. An international aid assistance initiative could also seek to improve capacity to promote green initiatives. Recent advances in sustainability reporting have been encouraging, but current standards are not enough to prevent greenwashing.



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Endnotes

¹ Afghanistan, Bangladesh, Barbados, Bhutan, Burkina Faso, Cambodia, Comoros, Costa Rica, Democratic Republic of the Congo, Dominican Republic, Ethiopia, Fiji, Ghana, Grenada, Guatemala, Haiti, Honduras, Kenya, Kiribati, Madagascar, Malawi, Maldives, Marshall Islands, Mongolia, Morocco, Nepal, Niger, Palau, Papua New Guinea, Philippines, Rwanda, Saint Lucia, Senegal, South Sudan, Sri Lanka, Sudan, Tanzania, Timor-Leste, Tunisia, Tuvalu, Vanuatu, Viet Nam and Yemen.

² <https://www.greendigitalfinance.org/publications>

³ <http://www.hivenetwork.online>; Sofie Blakstad and Robert Allen of hiveonline contributed extensive information on blockchain for inclusion in the discussion paper on fintech used at the Berlin workshop.

⁴ <https://solarcoin.org/en/front-page/>

⁵ <http://www.unwomen.org/en>

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¹⁰ <https://www.greendigitalfinance.org>

¹¹ <http://ccsi.columbia.edu>

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