



GREEN FOREIGN DIRECT INVESTMENT IN DEVELOPING COUNTRIES



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GreenInvest

GreenInvest was established at the G20 Leaders Summit in Los Cabos, Mexico, in 2012 to accelerate investment in green priorities in developing countries. Since then, green finance has risen up the agenda of both policymakers and markets. GreenInvest has been re-launched under the German G20 Presidency to strengthen the connection between green finance momentum and the insights, innovations and needs of developing countries. It 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.

GreenInvest is financially supported by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by the UN Environment Inquiry.

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The UN Environment Inquiry

The Inquiry into the Design of a Sustainable Financial System has been initiated by the United Nations Environment Programme (UN Environment) to advance policy options to improve the financial system's effectiveness in mobilizing capital towards a green and inclusive economy—in other words, sustainable development. Established in January 2014, it published the first edition of 'The Financial System We Need' in October 2015, with the second edition launched in October 2016. The Inquiry has worked in 20 countries and produced a wide array of briefings and reports on sustainable finance.

More information on the Inquiry is at: www.unep.org/inquiry and www.unepinquiry.org or from: Ms. Mahenau Agha, Director of Outreach mahenau.gha@un.org.

The Columbia Center on Sustainable Investment

The Columbia Center on Sustainable Investment (CCSI), a joint center of Columbia Law School and the Earth Institute at Columbia University, is the only university-based applied research center and forum dedicated to the study, practice and discussion of sustainable international investment.

Its mission is to develop practical approaches for governments, investors, communities and other stakeholders to maximize the benefits of international investment for sustainable development.

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Acronyms

CBI	Climate Bonds Initiative
CDM	Clean Development Mechanism
EGS	Environmental goods and services
EGSS	Environmental goods and services sector
ESG	Environmental, social and governance
FDI	Foreign direct investment
GHG	Greenhouse gas
IPA	Investment promotion agency
LDCs	Least developed countries
MNEs	Multinational enterprises
NDC	Nationally Determined Contribution
OECD	Organisation for Economic Co-operation and Development
OPIC	US Overseas Private Investment Corporation
SDGs	Sustainable Development Goals
UNCTAD	United Nations Conference on Trade and Development

Highlights

The message is by now clear: our global economy must be fundamentally reoriented and redeployed in order to achieve the Sustainable Development Goals (SDGs) and the commitments of the Paris Climate Agreement. This requires action by all stakeholders including non-financial and financial firms, debt and equity investors, government policymakers, and consumers. In recognition of that reality, countries committed in Article 2.1(c) of the Paris Climate Agreement to “strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty by ... [m]aking finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.” In terms of the amount of money required, it has been estimated that meeting the SDGs will require US\$5-7 trillion annually,¹ with investment needs for developing countries amounting to roughly US\$3.3-4.5 trillion per year.² While a big picture view of and strategic thinking regarding the entire economic ecosystem is necessary to generate such investments, this paper focuses on the actual and potential role of one type of financial flow – foreign direct investment (FDI) – in achieving the transition to a low-carbon, just and sustainable world and, more specifically, FDI flows into developing countries.

In 2016, FDI inflows were roughly US\$1.75 trillion globally, representing about 10% of global gross fixed capital formation.³ Of that total, US\$1 trillion went into developed and US\$646 billion to developing countries, with the remainder going into transition economies.⁴ It is well recognized that the bulk of contributions to the sustainable development agenda will need to come from the private sector. While there are variations among and within regions, the core single component of private sector financial flows into developing countries is FDI. This averages 42% of private inflows, with portfolio flows, remittances, and other investments (e.g., bank loans) making up the remainder.

FDI is key because it generally represents real economic activities.⁵ FDI includes a parent company’s establishment of a foreign affiliate or one company’s takeover of another company in a foreign country. Because FDI can be an effective way to transfer needed capital and modern technology across borders, FDI is often coveted by recipient or “host” countries and can be an important channel for spurring and spreading the type of innovation and investment that is needed for environmentally sound economic growth and development. However, as controversies regarding the conduct of multinational enterprises (MNEs) highlight, FDI does not always bring net benefits in terms of environmental, social or economic outcomes.

Specifically with respect to FDI’s impacts on the environment, government policies (nationally and internationally) to promote and govern FDI as well as corporate characteristics and motives all shape the extent to which FDI contributes to ameliorating, or exacerbating, climate change, loss of biodiversity, resource constraints, and other environmental challenges.

The particular implications of FDI on the environment – both potentially positive and negative – have given rise to an interest in the concept of “green FDI”. In short, “green FDI” can be thought of as FDI that advances progress on environmental and climate goals, protection and resilience, and avoids negative impacts on the environment or climate. But beyond that broad notion, there is no clear agreement about what “green FDI” actually is or should be. Those definitional challenges, in turn, raise questions about the true environmental as well as low-carbon and climate-resilient integrity of nominally green companies or projects. They also hinder assessment of progress towards environmental and climate 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 define green FDI, calculate present flows and stocks, and assess funding gaps that must be filled in order to meet the challenges as defined in the SDGs, the Paris Climate Agreement, and other environmental treaties and initiatives. The OECD, UNCTAD, individual governments, and market services all are making meaningful contributions in this direction. But much remains to be done.

In addition to better clarifying what “green FDI” is and should be, it is crucial to more closely examine how governments can better attract and harness such FDI. These include:

- More purposefully aligning inward and outward FDI promotion, facilitation, and governance initiatives with environmental commitments made and objectives identified in connection with the Paris Agreement and SDGs; this includes examining and strategically orienting host country policies, home country policies, and international frameworks such international investment treaties; such strategic alignment could include, for instance, efforts to use investment policy to advance projects that countries have identified in their Nationally Determined Contributions (NDCs).
- Focusing on green reinvestment as a strategy for upgrading performance of existing assets;
- Ensuring that policy shifts and priorities by upstream national and international development banks enhance the viability and performance of green FDI; and
- Increasing the effectiveness of FDI as a channel for green technology transfer.

Beyond the government policy sphere, technological innovations (e.g., in fintech) and new market practices (e.g., in green banking and regarding disclosures of climate-related risks) are generating opportunities and expanding demand for green FDI. These developments present promise for a sustainable economy, but raise new governance challenges that will need to be addressed.

In summary, there is reason to be hopeful about the potential contributions of green FDI; but real progress requires a more accurate and robust definition of “green FDI”, and stronger commitments across different layers of government and by private sector actors to ensure FDI helps address modern environmental challenges. This paper attempts to aid the effort by taking stock of where we are and highlighting potential ways forward.

1 Introduction: The Role of Foreign Direct Investment in Financing Sustainable Development

As reflected in the universally adopted Sustainable Development Goals, the social, environmental and climate change-related challenges facing us today are wide-ranging and serious. They require concerted action from diverse constituencies regarding, among other things, how to ensure access to food, water, energy, housing, healthcare, and jobs. At the same time they also require to manage the consequences of a changing climate, stay within planetary boundaries, preserve biodiversity and restore the health of the earth's ecosystems. Meeting these challenges requires a holistic engagement with economic actors and activities to harness the power of the private sector and enlist it in developing and disseminating innovative solutions.

Various initiatives have attempted to calculate the total costs of financing the SDGs. While often unable to produce accurate numbers, such efforts to define what to measure and to gather relevant data are crucial in clarifying understandings of the extent of the problem and the scale of action required. Some estimates are that developing countries require US\$3.3-4.5 trillion per year, and face an approximate annual funding gap of US\$2.5 trillion.⁶

Foreign direct investment is one form of international financial flow that has been recognized for its essential role in financing development, but also for its potential social and environmental impacts and externalities, both positive and negative. Thus, efforts to define, measure and track contributions of FDI are essential, as are corresponding efforts to shape its activities and impacts, and to leverage it in the transition to a green, inclusive, and sustainable economy.

While FDI has the potential to contribute to, and also to impact, the full range of SDGs, the label of "green FDI" has emerged and gained traction to identify those investments that contribute, more specifically, to environmental and climate objectives. This paper focuses in particular on the role of "green FDI". It addresses in Section 2 what is and should (or should not be) captured by the concept of "green FDI" in order to ensure that the concept covers FDI that advances environmental and climate objectives while not undermining other elements of sustainable development. This paper also discusses in Sections 3 and 4 how different stakeholders from the public and private sectors can help increase green FDI, focusing in particular on increasing green FDI in developing countries. But before turning to those topics, the paper begins by, in this Section, briefly providing an overview of FDI, its nature and magnitude, and its relationship both with other forms of financial flows and with sustainable development objectives.

1.1 Trends and Challenges of Foreign Direct Investment

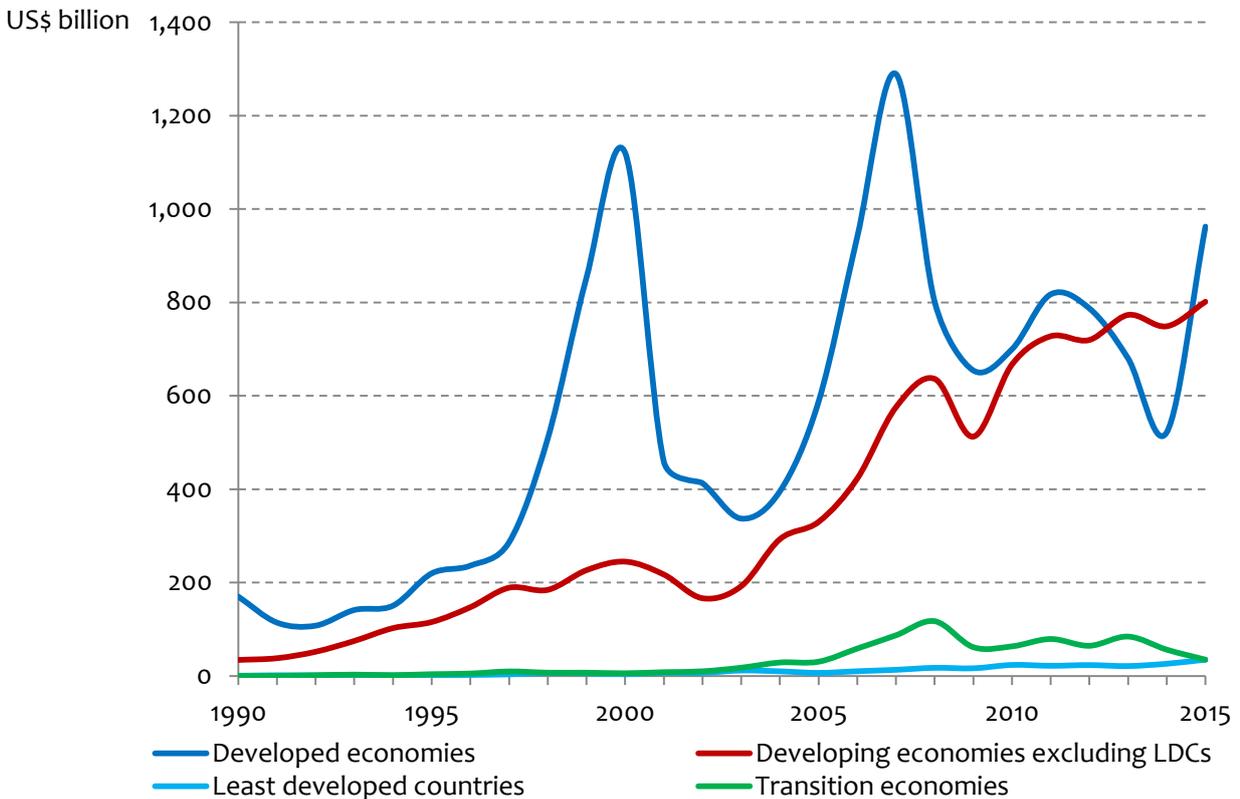
FDI is an investment by an individual or multinational enterprise of one country that establishes a lasting interest in and control over an enterprise in another country.⁷ The decision to invest abroad may be driven by the desire to access new resources (e.g., rare earths, fossil fuels, land, or fisheries), to access new markets (e.g., serving foreign markets for electricity, transportation, tourism, or other services), to increase efficiency (e.g., by moving overseas to employ lower-wage workers, or reduce costs of environmental compliance), and to acquire strategic assets (e.g., by purchasing a company with important technologies or brands). Rather than contract with foreign firms to achieve its strategic objectives, the FDI investor establishes or acquires operations in the "host" country in order to be able to exercise a significant measure of control over the foreign enterprise. FDI is an important type of financial contribution in that it can be a measure of how much foreign-owned companies have invested in

operations producing goods or services in the real economy of the host country, and potentially implies both a long-term commitment and transfer of technology to that economy.⁸

In 2016, FDI inflows totalled roughly US\$1.75 trillion globally, representing about 10% of global gross fixed capital formation.⁹ Of this total, US\$1 trillion went into developed and US\$646 billion to developing economies, with the remainder going into transition economies.¹⁰ From 1990-99 to 2010-15, the annual average share of developing countries in global FDI inflows increased from 31% to 46%; and in 2015, “half of the top 10 largest recipients of FDI were from developing economies.”¹¹

Overall, however, FDI remains concentrated in a few regions (mostly Asia and Latin America), countries (mostly middle-income and upper-middle-income) and sectors (e.g., a significant portion of the investment in least developed countries (LDCs) is geared toward resource rich countries).¹ FDI to LDCs represents a small share of FDI to developing countries (5% in 2015).¹² These patterns raise concerns “regarding the concentration and development impact of many forms of FDI.”¹³

Figure 1: Global FDI Inflows, Developing and Transition Economies



Source: Data from UNCTAD, at unctadstat.unctad.org

Much of FDI comes from developed economies, but a growing percentage originates in developing and emerging economies. Before the financial crisis of 2007-2008, OECD countries accounted for around 90% of FDI outflows, a share that has since shrunk to roughly one third. In 2015, China alone accounted for 9% of global outward FDI – a spectacular rise from levels below 1% in the early 2000s. Accordingly, South-South FDI has also risen in importance. China’s FDI in Africa, for example, rose from US\$1 billion in 2004 to US\$24.5 billion in 2013.¹⁴

In terms of sectoral distribution, the services sector accounts for almost two thirds of global FDI stock, while manufacturing accounts for 27% and the primary sector (e.g., investments in oil, gas and mining) for 7%. This distribution holds true both for developing and developed countries as blocks; however, there are substantial regional differences among developing economies: in developing Africa and Latin America, 28% and 22% of FDI stock, respectively, are in the primary sector, highlighting the reliance of these economies on natural resources.¹⁵ In 2015, coal, oil and natural gas was the largest sector for global greenfield investments (i.e., new investments, as opposed to mergers or acquisitions), accounting for 16% of capital invested. Notably, while data indicate that 10% (or US\$77 billion) of global greenfield FDI went into renewable energy projects in 2016 – a significant figure – more investment (16% of global greenfield FDI, or US\$121 billion) still went into new projects for exploration and exploitation of fossil fuels.¹⁶

Not all FDI goes into productive purposes. Mergers and acquisitions – which can simply be a transfer of ownership or corporate reorganization with little or no positive effect on operations and productive capacities¹⁷ – have accounted for much of the recent post-crisis recovery of FDI. Greenfield investments have grown substantially less. In particular, project financing in emerging and developing economies has markedly dropped over the past years, with LDCs notably seeing severe declines.¹⁸ One factor cited by some as leading to this decline has been the capital adequacy requirements for banks (such as Basel III) that regulators adopted in the aftermath of the global financial crisis, and which has constrained bank lending.¹⁹

For 2016, FDI inflows to developing countries were expected to further decline by 14%,²⁰ driven in part by low commodity prices. And, at a global level, capital expenditures by the world's 5,000 largest MNEs have been falling, dropping 5% in 2014 and another 11% in 2015.²¹ These trends are a serious concern in view of the significant scale up of productive investments needed for the SDGs.

Also disconcerting, 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.”²² Among the challenges this raises is that it reduces the tax revenue governments have available to invest in the fundamentals of their economies important for FDI attraction (e.g., in education and transportation, ICT, and energy infrastructure), and also reduces the amount they can use to specifically promote inward or outward FDI that advances sustainable development priorities.

Overall, these data reveal a mix of opportunities and challenges for FDI in developing countries. In terms of opportunities, companies are increasingly investing in and hailing from developing countries, connecting societies and moving capital and technology across borders. Through their activities, these MNEs can impact locations and modes of production and consumption, playing a potentially transformative role in the jurisdictions where they operate. Nevertheless, the challenges include the following:

- a sizeable share of FDI represents investment for corporate tax planning strategies
- many developing countries, and sectors within developing countries, are receiving relatively small amounts of FDI
- corporations are holding significant amounts of cash on their balance sheets,²³ refraining from investing in productive assets; and
- real investments that are being made are not necessarily being made in activities that are environmentally sound.

Fundamentally, while FDI can have potentially wide-ranging benefits in host countries (e.g., bringing jobs, technology, know-how, and capital across borders), those positive effects do not always materialize. Research indicates that in certain contexts FDI can undermine progress on the SDGs. This includes cases when, for example, FDI crowds out domestic firms,²⁴ contributes to inequality,²⁵ worsens problems of corruption,²⁶ facilitates tax evasion and avoidance,²⁷ and generates food insecurity.²⁸ As is discussed further in this paper, the impact of FDI on the environment is a matter of debate.²⁹

In order for FDI to effectively contribute to inclusive and sustainable economic development, these patterns will need to shift, and policymakers need to identify how to help drive that change.

1.2 Other Forms of Financial Flows and Impacts on FDI

Other forms of domestic and international financial flows such as portfolio investment and loans can enable and may be essential to FDI decisions. Portfolio investment – or investment representing less than 10% of the enterprise’s voting power – is generally considered to be more liquid and volatile than FDI, and to involve ownership stakes that are too low to enable control over the foreign affiliate’s management. Nevertheless, portfolio investors – particularly institutional investors – can be influential in management decisions. Broader trends affecting the priorities of those investors, such as increased attention to environmental, social and governance criteria, can collectively have an outsized impact on the decisions of MNEs.

Similarly, other types of financial flows, such as loans, may be long-term and attach conditions that impact management decisions regarding an FDI project, and therefore be important levers for altering the activities and impacts of large-scale investments. But the provision of loans does not involve the same direct establishment, maintenance or expansion of operations abroad or the associated transfers of technology as FDI, nor are the providers of loans generally able to exercise the same degree of control over investment protects as FDI investors.

There are, therefore, important reasons for focusing specifically on the nature, promise, and potential risks of FDI as distinct from other types of financial flows. Nevertheless, as is done in Section 4, it is also crucial to think of the broader financial system when considering how to catalyse investment and shape MNEs’ activities and impacts.

1.3 Foreign Direct Investment’s Implications for the Environment and Climate Goals

FDI operations have myriad and varied implications for environmental outcomes and the broader sustainable development agenda, through the nature of the enterprise, the methods of production, and the inputs required. Impacts may include:

Exacerbating, reducing, avoiding or capturing greenhouse gas (GHG) emissions: Investments can have notable impacts on GHG emissions through their choices of production methods and energy consumption. Most notably, the management decisions of fossil fuel companies regarding how much of their R&D budget to expend on developing renewable energy as opposed to developing new reserves impact GHGs over the long term. Other non-extractive MNEs can also take active steps to decrease their GHG emissions by changing their production processes or by switching to renewable energy sources. MNEs’ activities in industries such as agribusiness, manufacturing, real estate, telecommunications, and water services, for instance, will shape whether the global economy continues on a business-as-usual trajectory, or moves towards a more sustainable system of production and consumption.³⁰ Finally, certain investments in technologies that capture GHG emissions or in energies to replace any carbon-based energy sources will also shape GHG emissions and climate change over the long term.

Shaping environmental footprints: Investments can also have impacts on the physical environment, including on water, land, forests, biodiversity, air quality, soil quality, and other ecosystem services. These types of impacts may be more concentrated in jurisdictions with weaker regulations. Indeed, some firms' decisions to move overseas are driven by the desire to reduce the costs of complying with environmental regulations. Moreover, international corporate structures that can make it difficult to secure redress for environmental harms caused in the host country may further dilute the business case for MNEs to avoid those potentially costly and harmful outcomes in the first place. Operational decisions and production processes by MNEs can exacerbate, mitigate or avoid such environmental impacts.

Improving environmental quality: Certain investments offer great and important potential to help tackle pressing environmental challenges. For instance, greenfield investment in renewable energies will shift the availability and cost of such alternatives in the marketplace for use by consumers as well as by other MNEs. Investments can also ensure that the environment is left better than at the outset of an investment through, for instance, conservation or reforestation projects, or through investment in adaptation or improving the resilience of local infrastructure. Finally, while FDI can be a means for avoiding stringent regulations, it can also be a channel for promoting best practices. More specifically, FDI investments can transfer the technologies to local enterprises that are crucial in helping firms manage and mitigate environmental impacts. Indeed, one of the most frequently touted benefits of FDI is that it can facilitate the transfer of technology and enable the recipient country to “leapfrog” less efficient and more heavily polluting phases of development that other nations have passed through in the course of industrialization. Placing operations of an MNE in a foreign country involves the export of certain technologies that may ultimately be diffused into the local market through positive spillovers such as the demonstration effect, labour turnover, and linkages.³¹

Given modern imperatives to address complex problems including climate change, ocean acidification, loss of biodiversity, and stress on ecosystem services, the key challenge is how to catalyse cross-border business activities whose *products* and *production processes* directly advance and, at a minimum, do not undermine environmental objectives. To accomplish that, laws, policies and markets need to send firms the right signals and, in some cases, mandate or prohibit particular types of conduct. The evolution of the “green” label – to distinguish investments that contribute to, and do not undermine, environmental objectives – has been responding to that need. This paper takes stock of current efforts in that respect. In the next section, this paper describes initiatives of intergovernmental organizations, national-level actors, and private sector bodies to define, measure and advance “green FDI”. The third section then builds on the attempts to define “green” investments and financial vehicles, and identifies core strategies and priorities for governments to attract and leverage green FDI, in particular in developing countries.

2 Assessing the Current State of Green FDI

2.1 Concepts and Definitions

A definition of “green FDI” can enable policymakers and others to assess whether and how FDI is contributing to environmental objectives, and to adopt strategies to green those financial flows. A workable definition can also help project developers, potential funders, consumers, governments and other stakeholders identify more easily and efficiently whether an investment is environmentally sound, reducing transaction costs involved in investment decisions, government approvals, and consumer choices. No single widely adopted or statistically operationalized definition of “green FDI” yet exists. Nevertheless, there have been some informative attempts to define the concept. This section reviews some of those efforts, and highlights some persistent challenges that arise in connection with assessing the environmental impacts of FDI.

Table 1: Overview of Estimates of Green FDI

Source	Concept	Included	Annual FDI Flow
UNCTAD ³²	Low-carbon FDI	Greenfield FDI in renewable energy, recycling activities and low-carbon technology manufacturing	US\$90 billion (2009) US\$82 billion (2016)
OECD ³³	Green FDI	FDI in Environmental Goods and Services (EGS), proxied by FDI in electricity, gas and water sectors	US\$41 billion (2005-2007 average)
		FDI into environmentally relevant sectors from home country with stricter environmental policies* or higher energy efficiency** than host country	Between US\$268* and US\$299** billion (2005-2007 average)
fDi Intelligence ³⁴	FDI in Renewable Energy	Greenfield FDI in solar, wind, biomass, hydroelectric, geothermal, marine and other renewable power generation	US\$76 billion (2015)
Bloomberg New Energy Finance ³⁵	Global investment in clean energy, low carbon services and energy smart technologies	Greenfield and M&A activity in renewables (e.g., biofuels, small hydro, wind and solar), clean energy services (e.g., carbon markets), and energy smart technologies (e.g., digital energy, energy efficiency, and energy storage)	US\$287 billion greenfield FDI (2016)

2.1.1 UNCTAD

A 2008 UNCTAD definition of green FDI includes all investment that (1) applies higher environmental standards than required by host-country law, or (2) goes into production of environmental goods and services (EGS).³⁶ (Box 1 and Table 1). This definition therefore relates both to *production processes* and *product and service types* – in other words, both to *how* something gets produced, and *what* gets produced. While EGS as a classification for green products and services is adopted by other definitions of

green FDI, the first part of the definition has not similarly been used in other approaches. This may be due both to the challenges of verifying whether the investment project does in fact apply higher standards than the host state law, and the relative nature of the standard, which may produce misleading information about the environmental soundness of an investment. Just because an FDI project may apply processes that are cleaner than required under the host country's law does not mean that it is applying best practices, or that it is even environmentally sound.

The UNCTAD World Investment Report 2010 “Investing in a Low Carbon Economy” defines low-carbon foreign investment, a subset of green FDI, as “the transfer of technologies, practices or products by MNEs to host countries – through equity (FDI) and non-equity forms of participation – such that their own and related operations, as well as use of their products and services, generate significantly lower GHG emissions than would otherwise prevail in the industry under business-as-usual (BAU) circumstances.” Besides its focus on technology transfer, two aspects of this definition are noteworthy. First, it incorporates both a firm's own operations and the upstream and downstream impacts of products and services, taking a global, life-cycle-based approach to the environmental impact of FDI. This seems to reflect the view that manufacturing products like solar panels or electric vehicle batteries should be labelled as a “green” activity due to those products' long-term contributions to global emissions reductions notwithstanding the nearer-term or more localized negative environmental impacts that can be associated with such production. Second, the definition is not restricted to certain industries or sectors (e.g. renewable energy, waste treatment), but is based on how an economic activity performs in relation to a business-as-usual scenario. While this complicates operationalization – it would require estimates of business-as-usual and FDI data at the sector, project or facility level – it reflects that green growth ultimately requires an economy-wide transformation.

Given the methodological difficulties of calculating low-carbon FDI based on that definition, the estimation undertaken by UNCTAD in the same report resorted to a narrower, sector-based approach. It estimated low-carbon FDI flows by singling out greenfield FDI in renewable energy, recycling activities and low-carbon technology manufacturing. These three key business areas for a low-carbon economy received US\$90 billion in FDI in 2009, equal to about 8% of global FDI flows that year. In 2016, greenfield FDI into those three business areas was roughly US\$82 billion.³⁷ While that figure is significant, it is notably less than the US\$121 billion invested that same year in greenfield coal, oil, and natural gas projects.³⁸

The decision to isolate greenfield FDI in this context may be important as M&As can represent just a transfer of relevant assets (e.g., through a privatization) and, if included in the data, could misleadingly inflate perceptions of new contributions to the green economy.

2.1.2 OECD

The OECD has described “green investment” as including investment in “(a) green infrastructure and greening of existing infrastructure”; (b) “sustainable management of natural resources and the services [those resources] provide (e.g. fisheries, forests, wildlife and nature-based tourism, soil productivity, water security and minerals)”; and (c) “activities within the environmental goods and services sector, and across entire segments of green value chains (e.g. traditional upstream or midstream industries producing intermediate inputs for solar photovoltaic or wind-energy manufacturing among others) and greening of existing value chains.”³⁹ This definition is broader than UNCTAD's low-carbon FDI definition. Likely due to its breadth and the methodological complexities involved in identifying what qualifies as,

for example, “sustainable management of natural resources”, the OECD does not provide estimates of green FDI based on this definition.

A separate exploratory OECD paper⁴⁰ proposes two separate approaches to estimate green FDI based on existing data. The first proxies FDI in environmental goods and services by measuring investment in electricity, gas and water, which was US\$41 billion per year between 2005 and 2007. The second isolates *environmentally relevant* FDI, defined as investment in sectors where the scope for environmental spillovers is greatest, to set an upper bound of potentially green FDI. It then separates out a green share based on the assumption that FDI from home countries with better environmental performance is likely to meet higher environmental standards than domestic investment in and from the host country, and generates an estimate of US\$268-299 billion per year. Both approaches have issues; and the green FDI estimates produced with these approaches – ranging from 2.8% to almost 50% potentially green FDI in 2005-2007 – are likely more helpful to illustrate the challenges of measuring green FDI than as representing sound estimates for green FDI.

In order to help improve measurements of green FDI, the OECD’s Working Group on International Investment Statistics (WGIIS) incorporated work on this topic in its research agenda. As part of this process, the British government adopted an experimental first approach to assess stocks of green FDI in the UK: the government’s calculation combined (1) foreign direct investment firms with an “environmental” Standard Industrial Classification; (2) data from surveys to firms in the government’s FDI datasets asking whether the (a) firm produced goods or services that protect the environment and, (b) if so, what proportion of the turnover related to the relevant good(s) or service(s); and (3) an estimation of green FDI by FDI firms not captured in the first and second components. Based on that methodology, the UK estimated that stocks of green FDI in the UK in 2013 amounted to GBP8.1 billion, or 0.8% of the total value of FDI stock in the UK.⁴¹

Box 1: Defining and Measuring Environmental Goods and Services

Some definitions of and attempts to measure green FDI attempt to rely on the amount of investment in environmental goods and services (EGS). But what are environmental goods and services? How are they defined? And are they currently being measured?

The System of Environmental-Economic Accounting: Central Framework (CF), developed by the European Commission, the Food and Agriculture Organization, the International Monetary Fund, the OECD, the United Nations and the World Bank is a landmark instrument addressing and providing clarity on these issues. The CF, which was adopted as an international standard by the United Nations Statistical Commission (UNSC) in 2012, “is the first international statistical standard for environmental-economic accounting” (CF, para. 1).

The CF defines the environmental goods and services sector (EGSS) as including two main elements: goods and services produced (1) for the purpose of environmental protection, and (2) for the purpose of resource management. “Environmental protection” activities are defined as “those activities whose primary purpose is the prevention, reduction and elimination of pollution and other forms of degradation of the environment” (para. 4.12), while “resource management” activities are “those activities whose primary purpose is preserving and maintaining the stock of natural resources and hence safeguarding against depletion” (para. 4.13).

“Excluded from the scope of environmental goods and services are goods and services produced for purposes that, while beneficial to the environment, primarily satisfy technical, human, and economic

needs or that are requirements for health and safety. Goods and services related to minimizing the impact of natural hazards” such as extreme weather events associated with climate change, “and those related to the extraction, mobilization and exploitation of natural resources are also excluded” (para. 4.102).

Environmental goods and services in scope of the EGSS include:

- environmental specific services (e.g., environmental remediation services, and water and wastewater management);
- environmental sole-purpose products (goods or services “whose use directly serves an environmental protection or resource management purpose and that have no use except for environmental protection or resource management” (e.g., installation of solar panels)) (para. 4.98);
- adapted goods (goods that have been specifically modified so as to be more environmentally friendly, including goods that are “less polluting at the time of their consumption and/or scrapping compared to ‘normal’ goods” (e.g., low emissions vehicles), and goods that are more “resource efficient” in their production or use) (para. 4.99); and
- environmental technologies (which may be pollution treatment or prevention technologies).

Goods and services included within EGSS data include both EGS outputs for sale and EGS for own use, which would include, for instance, investments in improving the energy efficiency of a manufacturing plant producing non-EGS goods.

Efforts to comprehensively track economic activity related to EGSS are still relatively nascent. One important development is that, as of the beginning of 2017, EU member states are required to collect and report relevant data to cover economic activities under the following categories consistent with the CF.

Environmental Protection	Resource Management
Protection of ambient air and climate	Management of water
Wastewater management	Management of forest resources
Waste management	Management of wild flora and fauna
Protection and remediation of soil, groundwater and surface water	Management of energy resources
Noise and vibration abatement	Management of minerals
Protection of biodiversity and landscapes	Research and development activities for resource management
Protection against radiation	Other resource management activities
Environmental research and development	
Other environmental protection activities	

Eurostat and EU member states had previously been gathering some data on economic activity falling under these categories, but the mandatory EU-wide reporting that began in 2017 will likely significantly improve understanding of the sector and be able to better inform policies designed to increase investment in it.

2.1.3 Criteria and Performance Standards for Financial Support

Definitions of green FDI can also draw from policies used by development banks and other financial institutions to assess and govern project-level impacts. Over the past decades, many of these have developed project-level criteria for what they see as environmentally sound investment. As is discussed further in Sections 3 and 4, these frameworks are used to guide decisions on whether to provide support for a particular project, not solely for tracking.

A common element of these policies adopted by development banks is an exclusion list for activities that are not eligible for support. These lists usually include such items as nuclear energy, unsustainable forestry activities or logging in primary forests, harmful fishing practices, and the trade and production of goods prohibited by international environmental agreements. Notably, however, heavily GHG-emitting activities do not always figure on these lists, allowing banks' continued support of coal-fired power plants and other fossil fuel-based infrastructure.⁴² As such, exclusion lists can be used to identify certain types of investments that are deemed to generate environmental risks or harms that are too great, but, at least at present, still permit the banks to support environmentally unsustainable investment.

For projects that are not excluded, development banks require environmental impact assessments commensurate with their likely impact, and apply environmental, safety and health standards to projects they finance. These standards, such as the International Finance Corporation's Performance Standards, prescribe certain technical environmental benchmarks and good practices.

In addition to requiring compliance with standard environmental and social policies, some development banks have established additional standards and criteria for a subset of "green" projects or programmes. The World Bank and other development banks, for example, have instituted green bond programmes to identify and support projects advancing climate change mitigation and adaptation activities. Those entities' techniques for identifying projects eligible for and allocated funds under such green bond programmes can further be used in efforts to help define and measure green FDI flows.

2.1.4 Standards, Certification, and Reporting

Industry associations, standard-setting and certification bodies, non-profit organizations, and multi-stakeholder initiatives have developed various benchmarks, guidelines, and tools for assessing and reporting on compliance with sector- or issue-based initiatives regarding environmental performance. These include sector-focused initiatives like the Forest Stewardship Council Principles; and issue-focused guidance such as the Climate Bonds Initiative (CBI). In some cases, the initiatives also call for or require third-party verification or certification of compliance with relevant standards. These efforts can potentially also be used to inform a green FDI definition and aid green FDI measurement.

The CBI, for example, has developed criteria for projects or assets in certain sectors that are compatible with the Intergovernmental Panel on Climate Change's 5th Assessment Report on low-carbon scenarios. It requires certification before and after the issuance of bonds that the projects or assets associated with the bond meet relevant criteria. Any fossil fuel-based power plants and infrastructure or efficiency measures to support fossil fuels are excluded. Through its initiatives supporting the integrity and development of green bonds and the green bond market, the CBI aims to support investment in low-carbon and climate-resilient projects and programmes. Through its reporting on certified bonds, the CBI enables some measurement of investment flows meeting its criteria, but does not publicly report specifically on the amount of FDI supported or catalysed by CBI-certified bonds.

Another example of a relevant standard is ISO 14001, which is an international standard aimed at providing “organizations with a framework to protect the environment and respond to changing environmental conditions in balance with socio-economic needs. It specifies requirements that enable an organization to achieve the intended outcomes it sets for its environmental management system.”⁴³ The standard has been certified in more than 300,000 firms across the world. It has also largely been found to have improved the environmental management of certified corporations.⁴⁴ Assessing the amount of FDI covered by this standard could therefore be one approach for assessing performance that is green as compared to a business-as-usual baseline. Nevertheless, certification of compliance with ISO 14001 is no guarantee of an absolute level of “green” performance in terms of processes used, and does not address impacts of products produced. Using it as a tool for measuring green FDI could therefore result in overestimating relevant green investment. Additionally, because firms may not want or have the resources to acquire certification, the amount of FDI covered by ISO 14001 could also underestimate the amount of green FDI. Thus, this standard could be relevant for sector-, industry- and country-specific attempts to identify the “greenest” companies, but would raise a number of challenges as a tool for measuring green FDI more broadly.

Table 2: Concepts Used to Define Green FDI

Source	Term	Definition
UNCTAD World Investment Report 2010	Low-carbon FDI	The transfer of technologies, practices or products by MNEs to host countries – through equity FDI and non-equity forms of participation – such that their own and related operations, as well as use of their products and services, generate significantly lower GHG emissions than would otherwise prevail in the industry under business-as-usual circumstances.
UNCTAD Roundtable Note (2008)	Green FDI	(1) FDI that applies higher environmental standards than required by host-country law (2) FDI into production of EGS
OECD Policy Framework for Investment (2015)	Green FDI	(1) Green infrastructure or greening of existing infrastructure (2) Sustainable management of natural resources and services they provide (3) Activities in EGSS and across green value chains
OECD Working Paper: Defining and Measuring Green FDI (2011)	Green FDI	(1) FDI in EGS (2) FDI in environmental damage mitigation processes, i.e., use of cleaner and/or more energy-efficient technologies.
<i>Related Concepts</i>		
Green Bond Principles, 2016	Green Bonds	Recognizes several broad categories of projects eligible for funding from green bonds. These categories include, but are not limited to renewable energy; energy efficiency; pollution prevention and control; sustainable management of living natural resources; terrestrial and aquatic biodiversity conservation; clean transportation; sustainable water management; climate change adaptation; eco-efficient products, production technologies and processes.
Climate Bonds Initiative	Climate Bonds	List of 47 investment areas in eight sectors (energy, transport, water, low carbon buildings, ITC, waste and pollution control, nature based assets, industry and energy-intensive commercial), with specific criteria for certification.
System of Environmental-Economic Accounting: Central Framework (CF) EGSS	EGSS	Goods and services produced for (1) environmental protection and (2) resource management

2.1.5 Considerations of Non-Environmental Sustainability Criteria

These examples highlight that efforts to define and measure green FDI are still at a relatively early stage. One approach undertaken by different initiatives at the international and national levels has been to include FDI in EGS as a component of the green FDI definition, and use EGSS data to measure green FDI. While comprehensive EGSS data collection may not yet be widespread, the 2012 Central Framework should enable progress. Other relevant approaches have been to more narrowly focus on tracking investments in particular industries (e.g., renewable energy).

One problem that plagues many of these approaches, standards and tools, however, is that the focus on identifying and promoting what is “green” may result in inadequate attention being paid to other elements of sustainability. This, in turn, risks ignoring or undermining other environmental, social, and economic objectives, and frustrating SDG 17, which emphasizes the need for policy coherence in advancing sustainable development. Concerns, for instance, have been raised about the human rights and economic impacts of renewable energy and other GHG emissions-reductions projects.⁴⁵ Similarly, corporate providers of water and water services – who may be considered green FDI investors based on EGSS data – sometimes cause other types of environmental harms and raise human rights risks.⁴⁶ A characterization of FDI projects as “green” based on their economic industry allows companies (and the markets and policies that support them) to take an unduly narrow view of the companies’ broader impacts on sustainable development. Such a holistic definition of “green” FDI may not be practical in broad macro-level data collection on green FDI flows and stocks. But it would be important for private and public sector investors and lenders, consumers, and other stakeholders to use comprehensive environmental, social, and economic assessments when determining whether and how to support or otherwise engage with the FDI investor and its investment project (by, for example, granting the project tax incentives, or deciding whether or not to lend capital to the project).

2.2 Towards a Common Understanding and Measurement of Green FDI

Diverging and impractical definitions of “green FDI” are problematic for a number of reasons:

- The lack of a consistent understanding of what is “green” can undermine the integrity of “green” projects and can increase transaction costs associated with development of truly environmentally sustainable FDI projects, stymying public and private sector support for those investments.
- Challenges understanding what is green FDI or not hinder efforts to measure the risk-return profiles of green FDI projects as compared to non-green projects in the relevant sector or activity. This information can be important for shaping policies that impact those profiles (e.g., through measures requiring internalization of externalities), and for generating public and private sector backing for green FDI projects.
- The lack of data presents challenges for understanding whether the economy is undergoing necessary transformations and, in particular, what roles FDI is playing in advancing or undermining sustainable development objectives. That, in turn, further impedes relevant policy responses and strategies.

In its 2016 Synthesis Report, the G20 Green Finance Study Group (GFSG) identified the lack of consensus and comparability of “green” finance definitions, and lack of relevant and agreed upon indicators of “greenness” as one of the key barriers slowing financial sector support for green investment.⁴⁷ This does not mean that one single definition needs to be identified and agreed upon: single definitions suffer from

the danger of not adequately reflecting differing contexts and priorities in different countries or markets. On the other hand, too many definitions – e.g., each financial firm defines green assets by itself – could also make it very costly for comparison across institutions and markets and for cross-border green investment.⁴⁸

The same holds true for green FDI, where work on conceptualization and operationalization is at an even earlier stage. Making progress will entail building on existing work on the EGSS, and sector- and issue-based initiatives, and leveraging the initiatives on definitions and measurements of green finance. FDI decisions regarding whether, where, and how to invest will often be shaped by dictates or priorities of sources of corporate or project financing. Harmonizing definitions utilized by upstream suppliers of capital with definitions employed by downstream users should aid both MNEs seeking additional sources of debt and equity for FDI projects, and investors looking for investment opportunities.

When considering how to develop and harmonize understandings of green FDI, relevant issues that will need to be considered relate to:

- **Scope of MNE conduct:** The definition will likely primarily focus on the policies, practices and impacts of FDI established or acquired in the host country (e.g., the foreign-owned electricity generation facility or mining venture), given the defining characteristics of FDI as being investment owned and controlled by a foreign investor (who may be an individual but is commonly an MNE). But the definition should also touch on the role of other key actors in corporate chain (e.g., relevant policies, practices and impacts of decisions taken by the FDI investor at the headquarters level). Thus, while the definition should primarily be impact-based and project-focused at the host country level, it should also leverage guidance and standards developed to more holistically address and shape the conduct of MNEs, such as the OECD Guidelines on Responsible Business Conduct, and the United Nations Guiding Principles on Business and Human Rights.
- **Products and processes:** FDI could be green depending on its processes used, or goods or services produced. A definition should enable consideration of both. While being green in one aspect (e.g., the product produced) could support a provisional green FDI label, negative environmental characteristics or effects of the other aspect (e.g., the process used) should cause FDI to lose its green designation.
- **Timing and amounts:** The definition and use of green FDI labels will need to take into account that environmental performance and impacts of FDI projects can change over time. Thus, efforts to define, assess and measure green FDI cannot be limited to initial investments, but must anticipate and enable shifts in whether or not FDI in a particular project (which includes reinvestment) is or is not green. Additionally, definitions may have to assess how much FDI in a particular project to count as green FDI if not all products/processes would meet a green definition.
- **Feasibility:** The definition should be capable of wide operationalization, using data and indicators, which will likely differ based on the industry or sector of the FDI project, that are widely collected across countries, and capable of monitoring and verification.
- **Usefulness:** The definition should be designed to advance desired purposes. Depending on the objective (reducing transaction costs relating to the development, promotion, and verification of green projects, or enabling better measurement of the impacts of private sector activities), the definitions of green FDI should be aligned with those of other forms of financial flows to the extent possible. If the objective is to identify those projects warranting special government support in terms

of fiscal or financial incentives, the definition of green FDI may need to take into account and exclude FDI that produces environmental benefits but already represents well-established or legally mandated practices in terms of products produced or processes used.

- **Policy coherence:** While the term “green FDI” might generally be considered to be narrower than “sustainable FDI”, the definition used for green FDI should take into account broader sustainable development impacts. Not doing so could mean that public and private sector support mobilized for green FDI projects could actually undermine efforts to ensure economic growth is socially just and equitable, and consistent with the broader set of objectives outlined in the SDGs. Thus, while the concept of “green FDI” need not internalize the same range of issues as “sustainable FDI”, it should at a minimum be sensitive to them and, in particular, exclude FDI projects that risk undermining other elements of sustainable development.

3 Policy Frameworks Shaping Green FDI Flows

Motivated by the potential benefits that FDI can bring in terms of capital, jobs, and technology transfer, countries have been granting fiscal, financial, and regulatory incentives, and establishing investment promotion agencies (IPAs) in efforts to attract foreign capital. Additionally, driven by a desire to increase competitiveness of domestic industry, improve domestic access to resources, or advance global sustainable development objectives,⁴⁹ a growing number of countries have developed policies and programmes supporting their firms' efforts to establish and expand operations overseas.

Complementing these domestic initiatives, countries have engaged in various bilateral and multilateral initiatives to spur FDI including through negotiation of international investment treaties.

Increasingly, however, there has been growing awareness of the limits of FDI. One is that it does not always contribute to sustainable, inclusive economic development in host and home countries. Another is that policies in source countries, recipient countries, and at the international level are essential for maximizing the benefits and minimizing the potential harms that such investment might generate. Similarly, there has been increasing awareness of the limits of certain tools such as investment incentives and investment treaties in terms of their ability to effectively and efficiently influence the direction and impact of investment flows.

Governments are thus reassessing the evidence on policy responses to three separate questions about FDI:

- **Why** – why do firms invest abroad and how can governments effectively encourage inward and outward investment?
- **Where** – where do firms invest and how can governments pull or push investment into desired locations?
- **What** – what impacts does FDI have and how can governments shape those impacts so as to maximize desired benefits at home and abroad?

With respect to green FDI into developing countries in particular, these questions ask how governments can catalyse certain types of investments, direct that investment into jurisdictions that need it, and ensure that it contributes to advancing environmentally sustainable growth and development. This section highlights some ways policymakers in host governments, home governments, and at the international level have sought to answer these questions, while also illustrating the scope of the challenge that remains.

3.1 Host Country Policies and Regulations Relevant to Green FDI

Host countries face challenges of both seeking to attract investment, and ensuring that the investment they receive produces environmental benefits (or, at a minimum, does not generate environmental harms), as shown by two opposite theories from the economic literature. According to the “pollution haven” theory, which is supported by some evidence, these two goals are potentially competing as a country’s relatively low environmental standards or lax enforcement of environmental laws may be seen by some investors as selling points for that country as a foreign investment destination, ultimately resulting in negative environmental impacts.⁵⁰ Yet, as explained by the “pollution halo” theory and the evidence supporting it, FDI can also inject new, cleaner technologies into the host country, upgrading environmental performance and outcomes, and lowering carbon emissions.⁵¹

Some governments have sought to attract and capture environmental benefits from FDI. In these efforts, they have utilized a range of approaches, including offering a mix of financial, fiscal and regulatory incentives, targeting investment in particular sectors and activities, and reducing information asymmetries and other barriers to investment. (See Table 3 for examples).

Table 3: Examples of investment incentives and measures to attract green FDI into developing countries

IPA, Country	Measures to attract green FDI
Invest in Morocco	<ul style="list-style-type: none"> • Integrated development plan to set up 2,000 MW of solar energy capacity in five specific sites, supported by US\$1 billion of public grants and donations. • The <i>Société d'Investissements Energétiques</i> (SIE), a state-owned corporation with US\$100 million, develops and co-finances renewable energy and energy efficiency projects, leveraging foreign and domestic investment • Various forms of direct financial support to investment projects that add value to natural resources or waste or recycle metallic and plastic wastes under the US\$2 billion Investment and Industrial Development Fund and the Hassan II Fund for Economic and Social Development • Strategic plans to scale up investment into agriculture, solar energy, wind energy, and aquaculture/fisheries
Invest India	<ul style="list-style-type: none"> • Renewable energy strategy based on India's Intended Nationally Determined Contribution, including full liberalization of FDI into renewable energy, priority sector lending by banks, and standardized power purchase agreements
InvestSA, South Africa	<ul style="list-style-type: none"> • Targets renewable energy (generation and equipment manufacturing), waste management and energy efficiency • Cash grant of up to US\$3 million/30% for retrofitting industrial facilities for renewable energy use • Support for foreign investors during tendering processes for renewable energy projects • Commissioned studies to inform foreign investors about optimal localization of wind farms • Strategic use of local content requirements to encourage the creation of a local specialized industry for renewable energy equipment
PROCOLOMBIA	<ul style="list-style-type: none"> • 0% corporate income tax for renewable energy generation and new forestry and sawmills plantations; 9% for ecotourism services and late yield crops
Board of Investment, Mauritius	<ul style="list-style-type: none"> • Comprehensive incentive package structured around the country's Smart City Scheme, including an 8-year 100% income tax holiday and VAT exemption on capital goods purchases, for companies investing in carbon and waste reduction, efficient transport, low-energy buildings, renewable energy production and water management

Yet despite some advances in terms of greening investment attraction efforts, investment promotion policies are too often still inadequately aligned with sustainable development strategies.⁵² Consequently, there is a persistent risk that host countries will miss opportunities to attract green FDI and potentially entrench unsustainable activities.

One common issue is that government support to FDI may be in sectors and activities that are exposed to significant sustainability and market risk. These include investments in the development of fossil fuel reserves that might be left stranded due to international climate policy and technological progress,⁵³ or investments in infrastructure that results in high GHG emissions or is vulnerable to the effects of climate change.

More broadly, failure to price environmental externalities reduces opportunities for FDI (and domestic investment) in new green businesses. The Business and Sustainable Development Commission has found that, if the true value of resources and costs of environmental externalities were taken into account, the value of business opportunities relating to food, water, and carbon systems would increase by 40%.⁵⁴ If, for instance, the price of carbon reflected its environmental externalities, there would be additional business opportunities in activities such as improving the energy efficiency of buildings and operations, developing and operating public transport, and developing electric and hybrid vehicles.⁵⁵ Similarly, the failure to adequately price inputs in the food system hinders development of business activities in reducing agricultural and food waste.⁵⁶

In addition to challenges relating to the types of FDI governments are seeking, challenges also arise from the *means used* to attract such investment. In some cases, for example, governments have promised to waive or reduce obligations on foreign investors to comply with environmental laws in order to attract FDI projects.⁵⁷ More commonly, governments are promising a range of fiscal and financial benefits. Those government grants of financial and fiscal incentives to attract or keep investment constitute government expenditures; those expenditures on non-green projects can divert crucial funds away from green ones. Similarly, those expenditures can reduce the amount of funds that governments have available to spend on improving the hard and soft infrastructure and domestic economic climate that can be crucial for attracting green FDI and promoting sustainable economic growth more generally. Even incentives that specifically target green FDI raise challenges, as the amounts given can exceed what is necessary to enable the investor to reach its required rate of return, and can be unsustainable for the government to fund.

Overall, there is significant room for investment promotion to be more actively and efficiently engaged in advancing sustainable, inclusive economic growth in general, and green FDI in particular. Steps that host countries can take in this direction include the development of **policies and structures to ensure greater alignment between investment promotion and sustainable development strategies.**

This can mean, among other things:

- identifying and promoting opportunities for green FDI, including by working with IPAs to target investment in mitigation or adaptation projects consistent with countries' Nationally Determined Contributions and National Adaptation Plans, and identifying opportunities to serve export markets' demand for environmental goods and services;
- Designing sound and robust government plans and strategies, to be translated into project and program pipelines for domestic and foreign investment. Developing pipelines of projects in line with NDCs gives investors certainty through high-level commitment. Within this process, governments can

also assess the kinds of financial sources needed, including FDI, and develop plans on how to access the different sources in a complementary and coherent way. NDCs can be seen as a central instrument for government investment planning, including for attracting green FDI.

- enabling IPAs to understand and communicate basic frameworks of national and international environmental policies relevant to different types of investment, including frameworks relevant for generating emissions credits. It can also mean ensuring IPAs are familiar with key standards and reporting frameworks for green bonds and impact investors, so as to be able to help foreign direct investors design their projects in ways to harness additional sources of green finance;
- developing plans and services that focus on promoting green **reinvestment**. Reinvestment is one of the three components of FDI (along with equity and intra-company loans). It can be a significant portion of overall FDI flows into a country. In 2014, for example, reinvested earnings made up roughly 65% of all FDI outflows from developed country MNEs; in 2015, that number dropped to 43%, but for the US was still a high 91%.⁵⁸ Thus, it is important for governments to think about promoting productive **reinvestment** as well as investment from new sources. Reinvestment-related policies can include efforts to help businesses identify and minimize potential environment-related costs through investment in cleaner production methods. This, in turn, can support additional green technology transfer in the host country, increase the MNE's competitiveness, and improve the position of the MNE's affiliate within the MNE's corporate family;⁵⁹
- revising methods for designing and evaluating performance of IPAs. In order to ensure missions are aligned, IPA hiring and professional development should emphasize the importance of knowledge regarding the characteristics of and opportunities for green FDI. IPAs should also be evaluated on the quality and not just quantity of investment they attract. In order for an IPA to be able to effectively promote green FDI, it needs to be made clear that this is the IPA's core mission, and performance will be evaluated based on the agency's ability to advance green growth strategies;
- developing and implementing tools for ex ante and ex post cost-benefit analyses of fiscal, financial and other incentives to help ensure that they are effective in generating the desired benefits for the host country, and are not unduly wasteful of public resources. Even incentives granted for "green" projects might be unnecessary in terms of their effects on FDI decisions, or unsustainable in terms of their impacts on government budgets;
- identifying and providing ingredients for successful, sustainable investment. These ingredients can include developing clear processes for securing free prior and informed consent from indigenous peoples, and improving land tenure security and transparency around land-based investment. If not addressed, those issues can stymie investment, or lead to investment negatively impacting the rights and interests of host country citizens and communities and giving rise to costly conflicts. These efforts to clarify relevant legal frameworks are consistent with investment facilitation initiatives identified by UNCTAD,⁶⁰ the G20⁶¹ and others as being priority strategies for policy attention.

In each of these areas, investment promotion strategies should leverage research regarding effective tools for attracting and benefiting from FDI. This includes evidence on the importance of hard and soft infrastructure, on the role of and options for targeting investment promotion, and on the tools for facilitating linkages that can help embed FDI projects in the host country and encourage spillovers into the domestic economy.

3.2 Home Country Policies

Home countries are increasingly playing a role in both supporting and regulating their firms' overseas operations. In relation to support, governments may provide diplomatic, informational, financial and fiscal support to ease their companies' paths abroad. Often, this support is made contingent on the companies' compliance with certain obligations such as requirements to adhere to the IFC's Social and Environmental Performance Standards, or other international or domestic environmental and social standards. Similarly, some home government support systems adopt policies barring or discouraging them from supporting certain types of projects that are deemed to present high environmental or social risks.

Some home country supports specifically aim to catalyse green FDI through providing insurance products designed to address risks particularly relevant to such projects, or allotting all or certain portions of their funds to cover eligible green projects. Indeed, certain home country institutions appear to be innovating in this area. In recent years, for example, the US Overseas Private Investment Corporation (OPIC), a US agency with an international development mandate, has developed a number of new insurance products such as insurance to compensate for losses triggered by government actions (1) reducing payment of feed-in tariffs for renewable energy projects; (2) preventing or interfering with investors' abilities to generate or sell carbon credits from "REDD" projects (i.e., projects reducing emissions otherwise generated through degradation of forests or deforestation); (3) expropriating or changing the relevant regulatory framework governing investments in renewable energy projects.⁶² Additionally, OPIC has begun offering "Green Guarantees", green bond credit enhancement instruments that can help increase the use of asset-backed green bonds. OPIC's policy is to complement insurers and other private financial services providers, not substitute for them; thus, it seeks to design products and support projects that are not (yet) adequately supported by private insurers or lenders.⁶³

To be eligible for OPIC support (in the form of insurance, loans, or guarantees), projects must score above a certain threshold on OPIC's "Development Matrix", which attempts to assess impacts on:

- development reach (e.g., impacts on basic infrastructure or benefits to poor and other underserved populations),
- environmental and community benefits (e.g., a project's improvement of the environment),
- job creation and human capacity-building (e.g., number of new jobs to be created and training and benefits exceeding host country legal requirements),
- host country macroeconomic or financial benefits (e.g., local procurement, and impacts on micro, small and medium-sized enterprises), and
- demonstration effects (e.g., technology assistance and knowledge transfer, the adoption of internationally recognized quality or performance standards).

Projects supported by OPIC must also comply with OPIC's environmental and social policies, and are subject to monitoring requirements to assess environmental, social, health and safety impacts, as well as to track performance on criteria that are included in the Development Matrix.⁶⁴

OPIC's policies do not preclude support for development of fossil fuel-based power sources, or new oil, gas, or mining projects. Thus, compliance with OPIC's environmental and social standards may be necessary, but not sufficient, to warrant a label of green FDI. At a programmatic level, OPIC has, nevertheless, adopted specific policies to address climate change by (1) reducing the direct GHG

emissions from projects in its active portfolio, and (2) increasing support for renewable energy and energy efficiency projects. In terms of the direct GHG emissions of its active portfolio, those have fallen from 49.76 million short tons of CO₂ in fiscal year 2008, to approximately 7.77 million short tons in fiscal year 2015.⁶⁵ In terms of support for renewable investment, OPIC reports that, between 2008 and 2015, it has provided approximately US\$1 billion per year to renewable energy projects, supporting roughly 130 projects in developing countries.⁶⁶

The policies of home countries (and other actors) that subsidize their companies can help shape the make-up of FDI projects. One recent analysis of FDI projects supported by the Chinese government through the China Development Bank and Export-Import Bank of China calculated that those policy banks had deployed US\$160 billion in energy finance for overseas projects between 2010 and 2016: 20 per cent was directed for the extraction of energy sources and power transmission, and the remaining 80 per cent went to support the development of power plants. The report further found that “ninety three per cent of the power plant financing is in the coal (66) and hydroelectric (27) sectors.”⁶⁷ In 2016 alone, energy financing from the China Development Bank and Export-Import Bank amounted to roughly US\$43 billion, an amount that is “close to triple the average annual energy lending of the World Bank and all the Western-backed multi-lateral development banks combined.”⁶⁸ Thus, Chinese government assistance to FDI in energy projects is hugely significant, and may be locking in unsustainable infrastructure for the coming decades. If, however, the Chinese government sought to leverage its financial resources and domestic firms’ capabilities in solar and wind power, one could imagine the government catalysing a similar expansion of FDI in renewable energy investment.

As the example from China shows, some home governments use export credits alone or with other tools to support FDI projects. In this context, the OECD’s Arrangement on Officially Supported Export Credits is relevant. It is a “Gentlemen’s Agreement” among its Participants (Australia, Canada, the European Union, Japan, Korea, New Zealand, Norway, Switzerland and the US) on export credits, which can be used, among other things, to support FDI projects. The Arrangement and its Annexes have various provisions relevant to environmental issues, including one on export credits for coal-fired electricity generation projects. This part of the Arrangement, which became applicable on 1 January 2017, includes restrictions on the availability and the terms of credit for coal-fired power projects, as well as requirements to disclose decisions to provide such support.⁶⁹

Drawing from such international frameworks or domestic practices, other governments have developed their own environmental and social policies regarding support for outward investment. Similar to the practices of OPIC and China’s policy banks, other home country entities providing support for outward investment appear to promote projects that would not meet definitions of “green” investments, including projects for the extraction of fossil fuels and the construction of fossil fuel-based power sources.⁷⁰

In addition to circumstances in which the home country regulates its firms as a condition of providing them direct support for outward investments, various home governments have adopted a mix of measures that address and aim to shape the overseas conduct of any MNEs based or operating in their territories. This includes requirements on firms to disclose information regarding payments made to foreign governments,⁷¹ comply with rules barring corruption and bribery,⁷² develop and disclose policies and practices to prevent slavery,⁷³ and conduct and report on their due diligence to avoid harms to the environment and human rights caused by their activities and the activities of their subsidiaries and suppliers.⁷⁴ The home country may enforce those laws through provisions for criminal or civil liability, and may also permit lawsuits against MNEs in the home country’s courts to seek remedies for environmental

or other harms caused by an FDI project in the host country.⁷⁵ These types of initiatives illustrate how home governments can further shape the environmental performance of FDI investors and their projects. They are therefore important to consider as part of the relevant policy mix that can impact the “greenness” of FDI flows.

Home countries have an important role to play in increasing FDI flows (e.g., reducing the risk for FDI projects and lowering the cost of capital), influencing where that FDI takes place (e.g., by providing specific support for FDI in developing countries), and in shaping its conduct and impacts (e.g., through loan conditions, regulations, and liability regimes). Such home country outward investment regulation and promotion efforts are indeed crucial to ensuring that FDI is green, and that it takes place and brings benefits to developing as well as developed countries. Further home country initiatives therefore should consist of efforts to:

- examine outward investment promotion policies and ensure they are aligned with green criteria as well as broader sustainable development goals and commitments;
- develop systems of monitoring and accountability so as to better guarantee adherence to relevant policies and enable those policies to be improved over time;
- engage in multi-stakeholder policy dialogues regarding best practices in green outward FDI promotion; and
- review home country legal systems and address issues allowing MNEs to inappropriately avoid liability for environmental (or other) harms caused in overseas activities.

3.3 Intergovernmental Agreements

Action at the international level can also be important to catalysing green FDI, and can take various forms.

Some intergovernmental initiatives and instruments arise from multilateral development banks, which adopt policies and raise issues similar to those discussed above in the section on home country measures. In particular, multilateral development banks (MDBs) provide financial support (including insurance) that can help spur FDI, and their environmental policies can be crucial for shaping the environmental performance and impacts of supported projects.⁷⁶

Environmental treaties may also establish relevant systems and tools. The treaties can, for example, provide for multilateral funding, capacity-building, and adoption of regulatory frameworks governing public and private conduct, which can all be used to affect FDI flows and MNEs’ activities.⁷⁷ The Clean Development Mechanism (CDM), for instance, was established under the Kyoto Protocol with the objective of catalysing cross-border emission reduction projects and technology transfer in developing countries. At the end of 2014, the CDM had spurred the design and implementation of approximately 7,800 projects and programmes in around 100 countries, with most of them in China and India. A study commissioned by the European Commission concluded: “The CDM has provided many benefits. It has brought innovative technologies and financial transfers to developing countries, helped identify untapped mitigation opportunities, contributed to technology transfer, may have facilitated leapfrogging the establishment of extensive fossil energy infrastructures and created knowledge, institutions, and infrastructure that can facilitate further action on climate change. Some projects provided significant sustainable development co-benefits.”⁷⁸

As highlighted by that and other studies, however, there are serious questions about whether the carbon credit and offset schemes underlying the CDM actually result in global emissions reductions.⁷⁹ Moreover,

there are legitimate concerns about the impacts of CDM projects on other components of sustainable development, including the impacts of the projects on human rights.⁸⁰ These issues illustrate some of the reasons why the amount of FDI in CDM projects is not an easy proxy for measuring green FDI.⁸¹ They will likely inform intergovernmental discussions under the Paris Agreement regarding a mechanism that will replace the CDM when it ends in 2020. (Box 2).

Box 2: Renewable Energy Projects and Human Rights

As the effects of climate change on human rights have been increasingly realized and acknowledged, implementing mitigation and adaptation strategies has been recognized as necessary for compliance with certain human rights obligations.⁸² Investment in projects that seek to reduce GHG emissions and encourage the shift to low-carbon energy alternatives can form an essential component of these strategies. Yet renewable energy projects, like other FDI projects, can themselves adversely impact the human rights of affected individuals and communities. Policies and regulations adopted at various levels to encourage investment in renewable energy can also inadvertently create or exacerbate human rights violations, including: forced displacement and infringements of the right to property; violations of rights to culture and self-determination; violations of rights to food, water, health, life, and an adequate standard of living; and infringements of obligations concerning consultation and free, prior and informed consent (FPIC).⁸³ Specific risks are particularly applicable to certain groups, including women, children, and indigenous peoples.⁸⁴ Thus, while investments in renewable energy may be characterized as “green” on the basis of their economic sector, they nonetheless risk creating or contributing to detrimental human rights impacts.

- **Hydroelectric projects**, for example, can result in physical and economic displacement of local communities.⁸⁵ Several hydroelectric power plant projects in Panama have drawn heavy criticism for their adverse impacts on both the environment and the rights of affected indigenous communities.⁸⁶ One project, which was financed by at least three development finance institutions and officially registered as a CDM project,⁸⁷ is claimed to have resulted in the physical displacement of 1,000 people and economic displacement of 4,000 people, in addition to excessive flooding and destruction of vegetation in the project area.⁸⁸
- **Investment in biofuels** can also result in physical and economic displacement, in addition to other land-related human rights violations and grievances. The increase in large-scale land transfers widely reported during and following the food price crisis of 2007-08 has been partially attributed to increased interest in biofuel production, which was in turn encouraged by the European Union’s policy on biofuel targets.⁸⁹ In 2015, the European Parliament and Council took steps to address some of the negative implications of its biofuels policy, in particular the effects of indirect land use change; however, its revised approach does not directly address the human rights implications of investment in biofuels.⁹⁰
- **Wind, solar, and geothermal projects** carry similar risks for land-related and other human rights.⁹¹

The policies and procedures of host and home countries, development finance institutions, intergovernmental initiatives, investors, and other stakeholders play a critical role in determining whether and to what extent renewable energy projects adversely impact human rights. Carbon finance schemes can, for example, facilitate violations by supporting investment in renewables without conditioning such support on compliance with human rights obligations or standards.

Certain standards governing carbon finance mechanisms and associated projects have incorporated human rights safeguards.⁹² A handful of project-level certification procedures have also sought to address human rights risks associated with renewable energy projects.⁹³ However, in most cases, policies and procedures at various levels fail to adequately address the human rights risks associated with mitigation and adaptation strategies in general, and renewable energy projects in particular.⁹⁴ With total investment in renewables likely to increase over the coming years, much remains to be done to align policies and procedures applicable to renewable energy projects with procedural and substantive human rights obligations that are equally applicable to renewable and other “green” investments.⁹⁵

Another potential channel for intergovernmental action to define and generate green FDI is through concluding and implementing international investment treaties. Over 3,000 of these instruments are in force and more are being negotiated, including agreements between major economies such as the EU and China, the US and China, and the EU and the US.

These agreements typically note that their core stated purpose is to promote cross-border investment flows that will advance economic growth in and the prosperity of signatory states. While the large majority of the thousands of treaties in force do not contain any express reference to achieving environmental objectives,⁹⁶ economic growth and prosperity need to be understood in the context of long-term, holistic, and inclusive sustainable development. As stated in “Transforming our world: the 2030 Agenda for Sustainable Development,” the outcome document agreed by consensus at the conclusion of intergovernmental negotiations on the post-2015 development agenda, ensuring economic prosperity means “ensur[ing] that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature.” At present, investment treaties appear to be of doubtful use in terms of promoting FDI (or growth and prosperity) in general,⁹⁷ let alone promoting green FDI in particular.⁹⁸ Indeed, some aspects of investment treaties may reduce incentives for companies to improve the environmental performance of their FDI projects.⁹⁹ However, investment treaties could potentially be more effectively enlisted to promote green FDI.¹⁰⁰

Indeed, a few existing treaties illustrate how governments can use IIAs to proactively promote green FDI. The Cotonou Agreement is one example. Concluded between the EU and the members of the African, Caribbean, and Pacific (ACP) Group of States in 2000 and subsequently amended, the agreement provides for inter-State cooperation and EU assistance in a range of activities that aim to increase cross-border investment flows. These include capacity building for IPAs, dissemination of information regarding business opportunities in ACP states, provision of risk capital and investment guarantees, and assistance in developing relevant technical, managerial and professional expertise.¹⁰¹ Each of these activities could be implemented with a focus on green FDI.

Another example of an investment treaty that includes relevant investment promotion provisions is the Japan-Mexico Economic Partnership Agreement. It contains an article aimed at promoting investment in activities designed to advance sustainable development and tackle the challenges of climate change.¹⁰²

In recent years, Brazil has been advancing its own approach to investment treaties, which focuses on developing cooperative strategies and mechanisms for investment promotion and facilitation. Brazil also embeds provisions on corporate social responsibility (CSR), directing companies to “develop their best efforts to advance environmental progress” and “refrain from seeking or accepting exemptions that are

not established in the legislation of the Host Party, relating to environment, health, security, work or financial incentives, or other issues.”¹⁰³

These and other examples help illustrate how IIAs could be more actively enlisted to spur green FDI. In particular, they could include commitments by state parties to:

- cooperate on sharing and disseminating information on opportunities for investment in relevant projects;
- cooperate on development, deployment, and diffusion of relevant technologies to be employed through FDI projects;
- provide technical, financial or other assistance to the host government to promote green FDI; this could include such support as capacity building for IPAs, and provision of risk capital and investment guarantees; and
- provide assistance in investment facilitation. As UNCTAD explains: “Investment facilitation is the set of policies and actions aimed at making it easier for investors to establish and expand their investments, as well as to conduct their day-to-day business in host countries. It focuses on alleviating ground-level obstacles to investment, for example through improvements in transparency and information available to investors... Investment facilitation is distinct from investment promotion, which is about promoting a location as an investment destination (e.g. through marketing and incentives) and is therefore often country-specific and competitive in nature.”¹⁰⁴

In addition to more actively supporting green FDI, investment treaties could also contain provisions designed to:

- reduce support for FDI projects that are inconsistent with environmental objectives: investment treaties could adopt the model employed by some government-sponsored political risk insurance providers (such as OPIC or the World Bank’s Multilateral Investment Guarantee Agency (MIGA)) and deny protection to investments that risk or cause undue environmental harm. Under current practices, investment treaties provide what is effectively free political risk insurance to all FDI (and other investment flows) irrespective of its environmental impacts. A green approach following what is already done by government insurers could deny coverage for projects in certain sectors (e.g., new coal mines) or those failing to meet certain environmental performance standards (e.g., breaching the IFC Performance Standards). Investment treaties could be used to discipline fossil fuel subsidies that would advantage FDI projects based on a fossil fuel economy. Some investment treaties contain restrictions on governments’ uses of subsidies; and a more recent development is for the text to also target the use of fossil fuel subsidies.¹⁰⁵ Future investment treaties could expand and strengthen those rules.
- combat environmental challenges that may be exacerbated by FDI: investment treaties can include mechanisms for improving government capacity to develop, monitor and enforce environmental laws. These mechanisms may become especially important if the treaty results in new or expanded business activities using natural resources or generating additional or different forms of waste and emissions.¹⁰⁶ A number of more modern treaties have contained these types of provisions. Nevertheless, studies regarding the implementation and enforcement of those treaty provisions suggest that much remains to be done to ensure they are effective.¹⁰⁷

- more generally discipline relevant competitions for capital: investment treaties can attempt to combat competition for capital that has negative ramifications for green FDI. Some provisions, which can be found in a relatively small but growing number of treaties, aim to prevent countries from trying to attract or keep investment by lowering or failing to enforce environmental standards.¹⁰⁸ Investment treaties, however, generally do not regulate fiscal and financial tools for investment attraction, which may have a particularly negative effect on low-income countries. More specifically, countries may be able to use incentives to attract FDI in, for example, the manufacturing of solar panels. But to the extent those incentives are locational incentives designed to encourage manufacturing investment in one place as opposed to another, they do not necessarily impact *total amounts* of FDI in the relevant green sector. Rather, they affect *where* that FDI takes place. If there are no disciplines placed on the use of incentives, richer countries with resources to provide in terms of fiscal and financial incentives may be able to consistently prevail over poorer countries in efforts to attract green FDI. And in order for poorer countries to attract investment, they may need to offer more incentives than they otherwise would have. Thus, unregulated use of investment incentives can both hinder the ability of poorer countries to attract investment, and can cause all countries to expend unnecessary sums in locational incentives. In order to address these issues, investment treaties could incorporate provisions modelled on the approach of the EU's State Aid regime. That system broadly limits EU Member States' use of investment incentives, but provides lower-income countries (and lower-income regions within countries) special flexibilities to use those tools. The EU's State Aid system also allows certain investment incentives when designed to help meet environmental objectives. By adopting a similar special-and-differential treatment approach to disciplining countries' abilities to offer investment incentives, investment treaties could potentially prevent developing countries from being routinely outmatched in competitions for investment, and could curb wasteful grants of tax and financial packages.

These examples of substantive provisions and procedural mechanisms illustrate the variety of ways states can craft their investment treaties to more actively catalyse investment. State parties can use investment treaties to promote investment flows generally, or can more strategically design them to increase investment into the less developed country partner, increase investment in particular sectors or activities, and collaborate to maximize the benefits and minimize the harms that can be generated by liberalized and increased FDI flows.

3.4 Concluding Remarks Regarding Policy Frameworks and their Impacts

Governments at the home, host, and international level are adopting some policies and taking various steps to use their power to increase green FDI (and discourage brown FDI). Such action is still at a relatively early stage, and does not represent or signal the fundamental shift that is needed to address contemporary environmental challenges including, but not limited to, climate change. The strength of commitments to environmental objectives at unilateral, bilateral and multilateral levels needs to be ratcheted up and broadened. High-income home governments also need to play a heightened role in helping increase and improve the quality and distribution of FDI flows. Important steps include action by:

- **the host state** to design investment policies, strategies and tools (e.g., initiatives of IPAs to attract and keep FDI) as instruments aimed at helping meet environmental and climate change-related goals and commitments;

- **the home country** to promote green outward FDI in developing countries through, for example, providing insurance, information, or financial support; and to help ensure their MNEs can be held accountable for environmental harms caused in host countries; and
- **countries and organizations to, at the international level,** use institutions (such as multilateral development banks) and instruments (such as international investment treaties) to help the private sector overcome barriers that are impeding green FDI in developing countries.

4 Greening Financial Markets

The home, host, and intergovernmental policies noted in the previous section represent some key frameworks that governments have developed to influence firms' overseas investment decisions. Tools for (inward and outward) investment promotion can be used to influence firms' decisions regarding whether and where to invest, and impact the quality of FDI that is sent or received. Nevertheless, a broader range of factors and actors influence the amount and impact of FDI. Whether or not FDI takes place, where it goes, and whether or not FDI is green depends on such factors as: the characteristics of host countries; the impacts of "greening" on profits; the impacts of host countries and business models on access to capital; and the constraints and opportunities that arise from corporate governance norms. The right signals need to be put in place by policymakers, the private sector, and other stakeholders for firms to make the desired and needed investments in a green economy.

In this context, a series of questions are relevant, including:

- What are the internal characteristics of and levers on the firm that can impact green FDI?
- What drives firm-level decisions to go beyond regulatory mandates (which may be essential for, e.g., discretionary decisions to invest in efficient modes of production, to shift R&D away from extraction of fossil fuels to development of new, cleaner technologies)?
- What are the roles of shareholders in private and publicly listed firms?
- How do issues of "short-termism" affect the willingness and ability of firms to adopt green FDI strategies?
- How does the growing role of private equity impact firms' behaviour – does it ease pressures of short-termism and enable injection of crucial expertise? Or does it exacerbate pressures to extract near-term value at the expense of long-term objectives?

These questions are just some of the issues that are relevant for green business models in general, whether those businesses operate at home or abroad. Green FDI raises an additional set of opportunities and challenges. The opportunities relate to firms' decisions to invest abroad, which are typically considered to arise from the desire to access new markets (e.g., provision of off-grid energy to a rural economy) or resources (e.g., rare earth minerals), to acquire strategic assets (e.g., advanced technologies), or to improve efficiency (e.g., through accessing concessionary capital). The challenges arise from issues such as exchange rate risks, uncertainty regarding the host country's legal and business environment, and geographic and cultural distance between the FDI investor and the host country. In order to maximize green FDI, it is therefore important to evaluate how the market treats those opportunities and challenges now and how it may do so in the future.

Box 3: Emerging Trends in Internal Carbon Pricing and Potential Implications for FDI

Among a range of emerging environmental, social and governance (ESG) measures, a growing number of multinational companies are voluntarily adopting internal carbon pricing. In 2016, one out of five companies reporting to CDP (formerly known as the Carbon Disclosure Project) said they have adopted or are planning to adopt an internal carbon price over the next two years – a 23% increase from 2015 levels.¹⁰⁹ Out of the 100 largest MNEs in terms of foreign assets, 56 feature on this list.¹¹⁰ While the price levels used vary widely, around half of the companies use higher prices than imposed on them by regulatory carbon pricing systems to assess the viability of planned investments.

Internal carbon pricing can take different forms:

- **Shadow price:** A shadow carbon price is a virtual cost for expected emissions factored into internal rate of return analyses. While no actual financial transactions take place, a shadow price can alter investment decisions both at project and strategic level, and prepare companies for the implementation of effective regulatory pricing.
- **Internal carbon tax:** Under an internal carbon tax, business entities effectively pay for each ton of CO₂ emitted in their operations. Proceeds are collected at the company level and normally used to finance internal emission reduction projects or to purchase emission offset credits. Internal carbon taxes tend to be set at lower levels than shadow prices because they involve actual transactions.

While research on the effects of internal carbon pricing is still at an early stage, evidence suggests two things:

1. Meaningful carbon pricing can affect investment decisions of MNEs. It justifies the use of low-emission processes and technologies when retrofitting or setting up new operations, and supports the exploration of new business fields. 37 MNEs disclosing to CDP – including Microsoft Corporation, Bouygues, Novartis or TD Bank – have reported such direct impacts. The French multinational energy company Engie, for example, ceased coal investments among other factors due to its internal carbon price analyses.¹¹¹
2. Carbon pricing practices differ across sectors, with potentially important implications for FDI. Companies at the beginning stages of the value chain – notably in the materials, energy and utilities sectors – have the highest coverage of carbon pricing¹¹² and tend to use shadow pricing in high-level strategic planning.¹¹³ Countries aiming to attract FDI in these sectors will have to consider this.

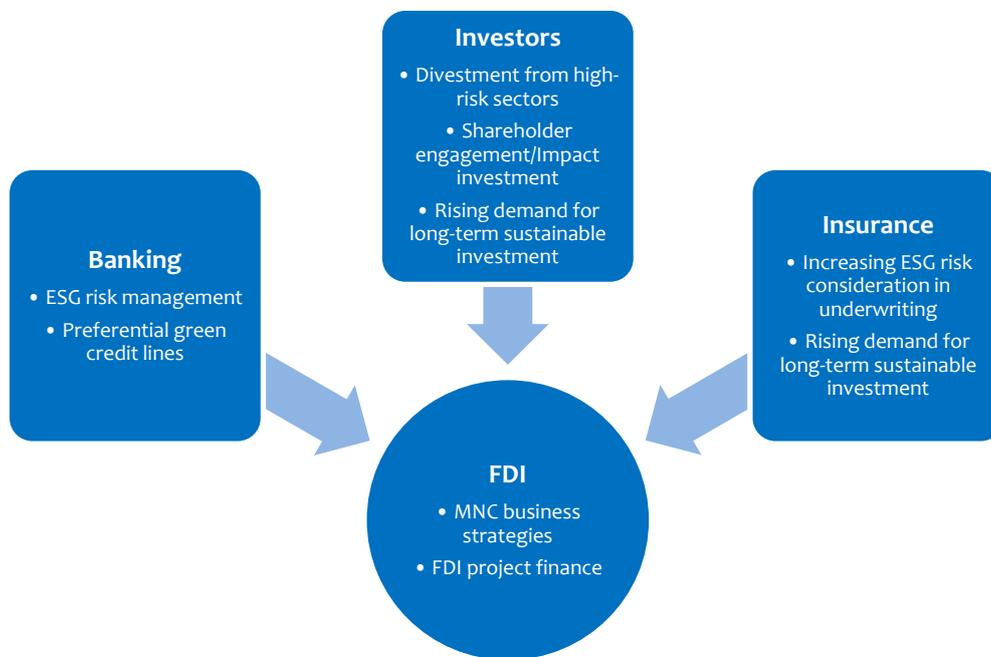
The UN Global Compact recently called on companies to implement an internal carbon price of US\$100 per ton by 2020 to remain in line with a 1.5-2°C world.¹¹⁴ As price levels gradually increase and integration in business strategies deepens, carbon pricing may come to affect investment decisions.

4.1 Harnessing the Momentum: The Greening of Upstream Financial Markets and Implications for FDI

Market and policy efforts to promote the greening of the financial sector have advanced considerably over the past years. Banks are mainstreaming environmental risk analysis and greening their lending criteria and balance sheets; investors are increasingly incorporating sustainability factors and impacts in their investment decisions; and insurance companies are incorporating ESG risks in underwriting and

investment. Initiatives like the Principles for Responsible Investment (PRI) now group more than 1,700 signatories representing 50% of global assets under management. As discussed below, therefore, there are ripe opportunities for both MNEs to try to leverage support from increasingly sustainability-sensitized financial service providers, and for investors to try to ensure that the MNEs they invest in adhere to principles of and further drive demand for green finance.

Figure 2: Upstream financial sector trends towards green finance that affect FDI



We identify three developments in upstream green finance that are particularly relevant to FDI:

4.1.1 Financial Environmental Risk Management

ESG risk management is becoming a more widespread practice in the financial sector. Banks accounting for 70% of project finance in emerging markets have signed up to the Equator Principles.¹¹⁵ Countries like France, Brazil, Indonesia and Peru have started to incorporate environmental risk management into their banking regulation. And as evidence of the business case for ESG risk management mounts, trends towards more widespread and robust ESG monitoring and reporting are likely to continue (Table 4).

Table 4: Benefits of ESG Due Diligence and Risk Management

Category	Benefits	Key Findings
Stock Price	<ul style="list-style-type: none"> • Outperformance in stock price • Increased shareholder returns • Reduced volatility • Improved investor satisfaction 	Companies with strong sustainability dramatically outperformed low sustainability companies in terms of both stock market and accounting measures. For listed companies, outperformance was estimated at 4.8% annually from 1993 to 2010.
		Publicly traded US companies, after adopting shareholder-sponsored ESG proposals, experienced a 1.77% boost in systemic-risk adjusted returns between 1997-2012.
		Stock prices of companies with a reputation for social responsibility did not decline significantly during recessionary period while they declined 2.4% for companies without strong CSR.
Cost of Capital	<ul style="list-style-type: none"> • Better access to financing • Lower cost of equity 	<p>Results suggest that superior CSR performance leads to lower capital constraints/better access to financing.</p> <p>90% of studies on the cost of capital showed that sound sustainability standards lower companies' cost of capital.</p> <p>Companies with better CSR scores exhibit cheaper equity financing, mainly due to increased transparency and reduced risk.</p>
Environment	<ul style="list-style-type: none"> • Reduced waste, pollution, and energy leading to cost savings in the form of lower expenditures for raw material, and averted compliance, disposal and liability costs • Process and product innovation • Better operational performance 	<p>Proper corporate environmental policies result in better operational performance. In particular, higher corporate environmental ratings, the reduction of pollution levels, and the implementation of waste prevention measures, all have a positive effect on corporate performance.</p> <p>More eco-efficient firms have significantly better operational performance as measured by return on assets.</p> <p>With regard to poor environmental policies, both the release of toxic chemicals and the number of environmental lawsuits have been found to have a significant and negative correlation to performance. Carbon emissions have been found to affect firm value in a significant and negative manner. Hence, evidence related to the 'E' dimension shows that a more environmentally friendly corporate policy translates into better operational performance.</p>

Source: Extract from “Quantifying the Costs, Benefits and Risks of Due Diligence for Responsible Business Conduct: Framework and Assessment Tool” (2016), pp. 6-9 (presenting table and listing sources).

Myriad initiatives have been launched in order to help improve the efficiency of ESG monitoring and evaluation, and thereby improve the ability of banks and investors to more accurately and easily identify those investors to support, or avoid. For example, the Financial Stability Board (FSB)-mandated Task Force on Climate-related Financial Disclosures (TCFD) has published recommendations for forward-looking, scenario-based climate risk analysis and disclosure for financial and non-financial firms. Despite

their voluntary nature, they are expected to develop important influence on market practice over time and raise sensitivity to medium- to long-term ESG risk.¹¹⁶ The public sector has also been pushing changes in reporting practices, as governments have increasingly been adopting laws and policies mandating environmental, climate, and other non-financial disclosures.¹¹⁷

Stronger ESG screening of project and core loans and investments, while not automatically redirecting FDI into green growth sectors, will make it more difficult to secure financing for “brown” FDI with significant sustainability risk. Several global banks, including Deutsche Bank, Bank of America, Citigroup and Crédit Agricole are phasing out financing of coal projects.¹¹⁸ In turn, ESG risk analysis will free up capital and shift risk premiums in favour of less polluting FDI. Similarly, better documentation of ESG characteristics and effects can make it easier for debt and equity investors to identify opportunities in green FDI firms.

By increasing their awareness of how to identify, manage and progressively reduce ESG risks, firms might be able to expand their access to, and lower the cost of, capital. Initiatives at the home country, host country, and international levels, therefore, appear to have an important role to play in improving firms’ abilities to track and report on their ESG performance.

Heightened attention to ESG risk may not have a positive effect on increasing green FDI, at least in the near term. If, for instance, a country’s environmental and governance standards are weak, positive ESG performance may be more difficult for firms to establish and for investors and lenders to assess; similarly, if data on relevant indicators has not been gathered over a long period of time, firms and their potential financial backers may be unable to identify baselines against which to evaluate required standards of conduct. A sound policy mix, including clear and strong environmental laws and regulations, and a reliable system of monitoring and reporting should, however, help governments, companies, investors, lenders, and other stakeholders overcome these challenges regarding gathering and reporting on ESG data.

4.1.2 Green Lending and Investing

Recognizing the opportunities in green loan origination, banks are also opening preferential green credit lines and adopting targets for green finance, often supported by policy leadership. China’s financial regulators and environmental ministry, for example, have published comprehensive green credit guidelines and a monitoring framework in 2012. In Brazil, a set of voluntary green banking guidelines developed by the national banking association served as the basis for new regulation. The central bank of Bangladesh offers favourable refinancing conditions to banks that lend to green projects.¹¹⁹ Finally, some countries have created designated green banks that leverage private investment by offering advantageous financing terms and de-risking of green projects.¹²⁰

Beyond debt, institutional and impact investors are increasingly looking for equity investment opportunities that produce environmental and social benefits. Indeed, institutional investors have critical potential to help finance sustainable development due to “the size of assets under their management, and because of the long-term liabilities of some investors, which should enable the longer-term investment necessary for sustainable development.”¹²¹ At the end of 2014, roughly US\$80 trillion in institutional investor assets was “held by ‘primary’ institutional investors, such as pension funds, insurance companies, and sovereign wealth funds (SWFs), with long-duration liabilities.”¹²² But rather than contributing “patient capital” in the types of infrastructure assets that are key to sustainable development, these investors primarily held more liquid and volatile portfolio investments.¹²³ “For instance, direct investment in infrastructure globally represents less than 3 per cent of pension fund

assets, with even lower allocations to infrastructure in developing countries and low-carbon infrastructure.”¹²⁴

Over recent years, pension funds and other institutional investors have been shifting more of their investment holdings to less liquid investments, but have done so through hedge funds and private equity investors – intermediaries whose interests and incentives may not be in line with public goals or “conducive to long-term sustainable investment.”¹²⁵

A different shift in investment decisions by institutional investors – one that reflects a long-term commitment to hold illiquid infrastructure assets – can have a major impact on downstream FDI projects, supporting investments in infrastructure over a longer duration and better enabling the projects to weather economic downturns or other difficulties.¹²⁶ Government policies can help drive that shift through such measures as taxes or fines that price externalities, and through blending private investment with aid, guarantees, or insurance.¹²⁷

Another source of capital that represents an untapped potential source of finance to support FDI projects is remittances (transfer payments from expatriates to their home countries). In many developing countries, inflows of remittances exceed those of FDI;¹²⁸ and in others, the volumes are close.¹²⁹ While remittances are often considered to fund consumption as opposed to investment,¹³⁰ some research indicates that this assumption does not always hold.¹³¹ In low-income countries in particular, there is evidence that remittances can make an important contribution to financial development,¹³² domestic capital formation,¹³³ and economic growth.¹³⁴ Studies have also indicated that remittance-induced growth can cause a rise in FDI inflows.¹³⁵

In an attempt to direct expatriate funds more strategically to domestic development, some governments are seeking to raise funds by using remittances as collateral for loans or securities.¹³⁶ Countries such as Ethiopia, Ghana, India, Israel, Lebanon, Nigeria, and Pakistan have also issued diaspora or remittance bonds in order “to secure a stable and cheap source of external finance. Since patriotism is the principal motivation for purchasing diaspora bonds, they are likely to be in demand in fair and foul weather.”¹³⁷ Proceeds can be used for a range of purposes, from funding housing and infrastructure development to addressing balance-of-payment problems.¹³⁸

Like assets of institutional investors, diaspora savings and remittances can thus be another source of funding available to directly support green FDI (e.g., through providing financing for FDI in green infrastructure), or to indirectly promote it (e.g., by enabling development of hard and soft infrastructure that can make the host country an attractive destination for green FDI projects). And, as with investments by institutional investors, smart policies, including policies to facilitate and reduce costs of remittances, are needed to help produce these economic outcomes.

Scaled up green investment can open considerable opportunities for low-cost financing of green FDI projects, while impact investment can offer new sources of capital. As MNEs often use a combination of home and host country-based financing to realize FDI projects¹³⁹, developing green banking guidelines, credit lines and investment funds in home or host countries can have a direct positive influence on promoting green FDI. Additionally, the availability of finance in the host country specifically can be important for both attracting FDI and ensuring that domestic firms are able to develop productive linkages with foreign MNEs, facilitating spillovers and technology transfer into the local economy. Involving FDI practitioners and investment policymakers in the shaping of green finance roadmaps at

home and abroad would help aligning green financial market reform with inward and outward FDI policies.

To help ensure that FDI can access necessary green finance from home or host countries, and that such green finance advances sustainable development, requires important shifts. One is that the trend of commercial lending to developing countries – which has been declining – will need to reverse,¹⁴⁰ and the spread of FDI will need to diversify.¹⁴¹ A second shift is that companies will need to be able to more accurately assess and report on their impacts (making it easier for green debt and equity to support relevant projects), and to ensure those projects meet green criteria. Consequently, it is important for policies to drive improvement in environmental and social performance, and documentation of that performance. A third, related shift is that lenders and investors will need to assess their policies so as to ensure that their concerns regarding returns on their investment in “green” projects do not undermine other norms such as protecting human rights.¹⁴²

4.1.3 Green Bond Markets

Beyond its direct impacts on lending practice, the momentum in green finance has created new markets that can be used by issuers and investors, including institutional investors, to support green FDI. Green bonds are particularly promising. They represent one of the fastest growing fixed-income market segments, with issuance having skyrocketed from US\$2 billion in 2012 to over US\$81 billion in 2016 and still being significantly oversubscribed.¹⁴³ While developed and large emerging market countries have taken the lead, there are first signs that developing countries are catching up, with Nigeria, Kenya and Bangladesh issuing or announcing plans to issue sovereign green bonds.¹⁴⁴

Green bond markets can be used strategically to shape attractive investment environments and opportunities for green FDI. Green bond proceeds can be used to build green and climate-resilient infrastructure and buildings, increase renewable energy supply, improve energy efficiency, provide low-cost capital for green projects and support the build-up of strategic green growth industries. They allow issuers and project developers to tap into the asset pools of institutional investors like pension and insurance funds that are traditionally little involved in direct investments in developing countries but looking for long-term sustainable opportunities. Efforts to promote and ensure the “green” integrity of green bonds, increase securitization of green bonds, expand the range of issuers, and increase the use of project bonds are all developments that can help expand the market, provide additional investment opportunities, and facilitate financing for green FDI projects.

Trends in upstream financial markets can influence the quantity, quality, direction and sectoral distribution of FDI, be it through shifting risk perceptions that affect bank loans and insurance terms or through direct investor engagement with MNEs. International regulations – such as the Basel standards on risk-weighted capital adequacy that make long-term investment in low-rated developing countries costlier – may also play a role. Yet, the two policy areas of green finance and foreign investment promotion have so far had surprisingly little coordination, and no systematic analyses of the potential linkages, spillovers and co-benefits have been undertaken. Our preliminary analysis reveals several options for developing countries to explore synergies, prevent adverse impacts, and promote policy alignment.

- **Market opportunities for green FDI and help firms connect with relevant financiers:** Host countries can play a role in helping identify and develop bankable green FDI projects that are attractive to investors paying heightened attention to ESG criteria.

- **Leverage green bond markets to improve the business environment for green FDI:** Green bonds are in high demand by institutional and other investors, and could become a key instrument for governments and corporations in developing countries to tap international capital markets for sustainable development. As part of a broader green bonds strategy, developing countries could issue sovereign green bonds the proceeds of which go into creating an attractive environment for green FDI, including by supporting low-carbon infrastructure, energy supply and the creation of strategic green growth industry clusters. Additionally, they could support generation of the technical skills necessary for identifying and certifying projects eligible for support by bond proceeds.
- **Integrate FDI strategies into green finance roadmaps:** Host country financial markets can play an important role in attracting FDI, both directly through loan provision to foreign direct investors and indirectly by shaping the domestic industrial environment. Green finance roadmaps should include specific strategies and provisions for FDI.
- **Critically reassess investment incentives:** Countries that currently focus on attracting FDI into sectors that are under growing investor scrutiny for ESG risks should carefully analyse the viability of their investment policies. Drawing inspiration from the TCFD recommendations, they could use scenario analysis to assess the likely longer-term contribution such investments will make to their economies and societies under different low-carbon transition pathways.
- **Foster dialogue between green finance and FDI communities and harmonize policies:** In many countries, financial and investment policymaking are institutionally separate, resulting in limited interaction and policy coherence between the two areas. A structured multi-stakeholder dialogue could help identifying opportunities and challenges arising from market and policy developments in both fields and inspire early action.

4.2 Fintech and FDI: New Opportunities, New Challenges

Innovations in financial technology (fintech) present new opportunities (and challenges) for green FDI. Fintech has been described by the FSB as “technologically-enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services.”¹⁴⁵ While understanding of the uses and implications of fintech, including, in particular, its implications for green growth, is still in its early stages, one of fintech’s potential effects is that it can help accelerate green FDI and its associated benefits.

Fintech’s potential role in accelerating green FDI stems from, among other things, its ability to facilitate access to investment capital, credit, and insurance. This should make it easier for firms (particularly those traditionally unable to secure access to capital, such as SMEs and firms with new, unproven technology) to invest abroad. While those benefits may flow to both green and non-green FDI, performance-based preferences and screens can potentially be enlisted to channel financing toward green projects.

Expanded access to financial services can also potentially enable host country firms to increase their competitiveness and ability to build linkages and capture spillovers from MNEs. Particularly in our knowledge-driven economy, it is crucial for technology, skills, and know-how to transfer across borders. One way for this transfer to happen is for domestic firms to interact with MNEs as the MNEs’ suppliers, customers, and competitors. Challenges accessing financing, however, too often constrain the ability of

domestic firms to play these roles. With fintech and the improved access to financial services it can bring, domestic firms may be better able to establish commercial ties with foreign-owned companies.

Another link with green FDI is that fintech opens up opportunities for new business models and value chains aimed at providing environmental goods or services (e.g., generating, buying and selling renewable energy within communities, and providing micro-insurance and credit to smallholder farmers). It can enable MNEs to overcome barriers otherwise stymying FDI in countries or communities underserved by financial services. Coupled with powerful data analytics, fintech innovations further offer vast possibilities for reducing transaction costs and overcoming information asymmetries associated with measuring and reporting firm performance on ESG risk factors.

Yet expanding fintech itself is not without environmental costs. The energy used to power these innovations and their applications, and the production and disposal of hardware necessary to use new fintech products and services, create challenges that will need to be managed. But more fundamentally, while opening up new frontiers in financial services presents promise, it also raises and will likely long continue to generate unprecedented and complex challenges for governance. Fintech can indeed revolutionize private and commercial activity, but there are no guarantees yet that the changes introduced will produce green, equitable or just outcomes. Thus, as with other financial services, all relevant stakeholders will need to be involved in ensuring fintech (including FDI in fintech) aligns with, and does not undermine, broader social, environmental, and economic objectives.

For government policymakers considering the role fintech could play in advancing sustainable development, a threshold issue will relate to whether and on what terms to open the host country's economy to FDI in fintech, and how to address the unique and wide-ranging issues that foreign ownership of financial services firms can potentially raise. Free trade agreements and international investment treaties are increasingly providing for liberalization of these services, meaning that this issue is or should already be on stakeholders' agendas.

A forthcoming GreenInvest paper focused on digital finance and sustainable development will shed more light on these topics.

5 Conclusion

In order to achieve the SDGs, FDI, which can be envisioned as representing the financial flows of the world's MNEs, will need to be active, and actively managed. Policymakers have an essential role to play in encouraging firms to unlock capital, and invest in underserved locations and activities. Moreover, in addition to ensuring that firms comply with mandatory laws and regulations, policymakers face the task of driving MNEs' improvement on environmental and other issues.

Existing frameworks provide a helpful base: governments are active in trying to promote FDI flows; and various policy initiatives at the home, host, and intergovernmental levels try to ensure that FDI does not do harm and, instead, generates benefits, at home and abroad. But more needs to be done to expand and improve those policy signals, while also enlisting upstream financiers and downstream consumers in the effort.

This paper highlights some additional steps that can be taken for FDI to advance the green economy in particular. These include:

- developing a pragmatic framework concept of “green FDI” that can be adapted for different sectors, activities, and locations. It will help MNEs, lenders, investors, and governments more readily, efficiently, and effectively identify what does, and does not, merit that label.
- ensuring that inward and outward investment promotion and facilitation initiatives consider spurring green FDI to be their mission, rather than merely a potential positive side effect.
- Identifying how international investment treaties, economic instruments designed to increase cross-border capital flows, and which presently provide benefits to all investment irrespective of its impacts, could be retooled as strategic instruments for advancing green FDI, limiting competitions for capital that disadvantage low-income countries, disciplining fossil fuel subsidies, and discouraging adherence to unsustainable business-as-usual practices.

In considering how to catalyse green FDI, initiatives should also seek to leverage emerging developments in technology, financial markets, and society. Illustrative examples highlighted in this paper include the opportunities presented by fintech; trends in issuance of green bonds and financial sector attitudes towards ESG assessment, management and disclosure; and the role of migration and remittances in indirectly and directly supporting FDI.

Each of these issue areas – outward/inward FDI promotion policies, redesign of investment treaties, opportunities and challenges of fintech and green bonds for sustainable development, ESG and responsible business conduct of MNEs, and the contributions of remittances – are at the forefront of research initiatives and policy dialogues taking place within the G20, the World Bank, the UN, and other intergovernmental fora. In order to catalyse green FDI (and restrict FDI that undermines sustainable development objectives) it is essential that work related to these issue areas be more closely and regularly connected. For example, discussions on green finance could be brought together with discussions on the environmental impacts of MNEs that are dependent on external capital; and those on government FDI attraction and retention policies with those on investment for sustainable development. Thus, and consistent with the call for policy coherence reflected in SDG 17, it is important to ensure inputs to and outputs from these processes address the challenge of how to ensure FDI advances a new, green economy.

Endnotes

¹ United Nations Conference on Trade and Development (UNCTAD) (2014). World Investment Report 2014: Investing in the SDGs: An Action Plan, p. xi (hereafter UNCTAD, World Investment Report 2014).

² Ibid.

³ United Nations Conference on Trade and Development (UNCTAD) (2017). World Investment Report 2017: Investment and the Digital Economy, p. x (hereafter UNCTAD, World Investment Report 2017). The components of FDI are equity capital, reinvested earnings, and intra-corporate loans (e.g., loans from the parent company to the affiliate in the host country). Because not all countries collect data on these three categories of flows, data on FDI has limitations. Data on FDI is also distorted due to practices of round-tripping (whereby an investor from Country A will establish a corporate entity in Country B, and then invest back in Country A through the “foreign” company established in Country B), and difficulties tracing FDI back to the ultimate source of the investment. For additional information regarding FDI data, including challenges collecting it, see, e.g., UNCTAD, Methods of Data Collection and National Policies in the Treatment of FDI: Foreign Exchange Records versus Company Surveys, available at <http://unctad.org/en/Pages/DIAE/Methods-of-Data-Collection-and-National-Policies-in-the-Treatment-of-FDI.aspx>.

⁴ UNCTAD, World Investment Report 2017, p. x.

⁵ But see *supra*, n.3 (referring to challenges regarding FDI data).

⁶ UNCTAD, World Investment Report 2014, p. xi.

⁷ OECD Benchmark Definition, para. 11.

⁸ But see *supra*, n.3 (noting some of the issues with FDI data).

⁹ UNCTAD, World Investment Report 2017, p. x.

¹⁰ UNCTAD, World Investment Report 2017, p. x. This is a dramatic increase from US\$34 billion in 1990.

¹¹ UNCTAD (2016). World Investment Report 2016 – Investor Nationality: Policy Challenges (hereafter UNCTAD, World Investment Report 2016). Developing economies includes emerging economies.

¹² United Nations (2016). World Economic Situation and Prospects. p. 85.

¹³ United Nations (2017). World Economic Situation and Prospects. p. 79; United Nations (2016). World Economic Situation and Prospects. p. 85.

¹⁴ WRI (2015). Chinese Development Finance Update. Available at <http://www.slideshare.net/WorldResources/sustainable-finance-china-12-dec2014>.

¹⁵ UNCTAD, World Investment Report 2016.

¹⁶ fDi Intelligence (2017). The fDi Report 2017 – Global Greenfield Investment Trends, p. 18.

¹⁷ See UNCTAD, World Investment Report 2016, p. 3 (noting that “a number of [M&A] deals concluded in 2015 can be attributed to corporate reconfiguration, including tax inversions. Such reconfigurations often involve large movements in the balance of payments but little change in actual MNE operations).

¹⁸ OECD (2016). Development Co-Operation Report 2016 – The Sustainable Development Goals as Business Opportunities. Available at <http://www.oecd-ilibrary.org/content/chapter/dcr-2016-8-en> (hereafter OECD, Development Cooperation Report 2016).

¹⁹ See, e.g., Richard Samans (2016). Blending Public and Private Funds for Sustainable Development. In OECD, *Development Cooperation Report 2016*, pp. 71-73.

²⁰ UNCTAD, World Investment Report 2017, p. x.

²¹ UNCTAD, World Investment Report 2016. p. 3. One reported factor leading to the drop in such investment in developing countries is the regulatory regime referred to as “Basel III”. See, e.g., Richard Samans (2016). Blending Public and Private Funds for Sustainable Development. In OECD, *Development Cooperation Report 2016*, pp. 71-73.

²² Strauss, I. (2017). Trends in Foreign Direct Investment 2015-16. In *Yearbook on International Investment Law and Policy* (forthcoming).

²³ See, e.g., United Nations (2016). World Economic Situation and Prospects 2016, p. 100.

²⁴ The literature on impacts is too voluminous to cite here. Nevertheless, some research highlighting challenges and complexities in terms of effects on the host country’s domestic industry include the following: Sarianna Lundan, Tilo Halaszovich and Fabienne Fortanier (2015). North-South FDI and Economic Growth in the Host Country: The Effects of Formal and Informal Institutional Distance, available at investmentconference.info/wp-content/uploads/2015/09/Lundan_North-South_FDI_and_economic_growth.pdf; Nigel Driffield and Dylan Hughes (2003). Foreign and Domestic Investment: Regional Development or Crowding Out? 37 *Regional Studies* 277; George Chen, Yao Yao and Julien Malizard (2017). Does FDI Crowd In or Crowd Out Private Domestic Investment in China? The Effect of Entry Mode. 61 *Economic Modelling* 409. Some of the negative impacts of FDI may be felt in the short term, with positive effects materializing over the longer term. See Jennifer W. Spencer (2008). The Impact of Multinational Enterprise Strategy on Indigenous Enterprises: Horizontal Spillovers and Crowding Out in Developing Countries. 33 *Academy of Management Review* 341.

²⁵ Florence Jaumotte, Subir Lall and Chris Papageorgiou (2008). Rising Income Inequality: Technology or Trade and Financial Globalization? IMF Working Papers 08/185.

²⁶ See, e.g., Hassen A. Wako (2016). FDI, Institutions, Economic Growth and Industrialization in Sub-Saharan Africa (Vienna Investment Conference).

- ²⁷ See, e.g., Sung Jin Park, et al. (2016). Is Foreign Direct Investment Effective from the Perspective of Tax Avoidance? An Analysis of Tax Avoidance Through the International Transfer Pricing Behaviors of Korean Corporations. 32 *The Journal of Applied Business Research* 917.
- ²⁸ Andreea Michalache-O’Keef and Quan Li (2011). Modernization vs. Dependency Revisited: Effects of FDI on Food Security in Less Developed Countries. 55 *International Studies Quarterly* 71; Mehdi Ben Slimane, Marilyne Huchet-Bourdon, Habib Zitouna (2015). The Role of Sectoral FDI in Promoting Agricultural Production and Improving Food Security. 145 *International Economics* 50.
- ²⁹ See, e.g., Jiajia Zheng and Pengfei Sheng (2017). The Impact of FDI on the Environment: Market Perspectives and Evidence from China. 5 *Economies* 8; Tomasz Kozluk and Christina Timiliotis (2016). Do Environmental Policies Affect Global Value Chains? OECD Economic Department Working Papers; Steven Poelhekke and Frederick van der Ploeg (2015). Green Havens and Pollution Havens. 38 *The World Economy* 1159; Natalia Zugravu-Soilita (2017). How Does FDI Affect Pollution? Toward a Better Understanding of the Direct and Conditional Effects. 66 *Environmental Resource Economics* 293.
- ³⁰ These activities are significant sources of GHG emissions. According to the IPCC, in 2004, industry accounted for an estimated 19% of GHG emissions, agriculture 14%, transport 13%, and energy supply 26%. Remaining contributors included gases released from land-use change, waste, and residential, commercial and service sectors. Intergovernmental Panel on Climate Change (IPCC) (2007). Assessment Report, Working Group III (adopted at IPCC Plenary XXVII (Valencia, Spain, Nov. 12-17, 2007), p. 27.
- ³¹ Hoekman, B.M. et al. (2005). Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options. p. 9.
- ³² UNCTAD. (2010). World Investment Report 2010 – Investing in a Low Carbon Economy
- ³³ Golub, S.S., Kauffmann, C., and Yeres, P. (2011). Defining and Measuring Green FDI, Available at <http://www.oecd-ilibrary.org/content/workingpaper/5kg58j1cvcvk-en>.
- ³⁴ fDi Intelligence. (2016). The fDi Report 2016 – Global Greenfield Investment Trends.
- ³⁵ Bloomberg New Energy Finance (2017). Global Trends in Clean Energy Investment.
- ³⁶ UNCTAD (2008). Creating an Institutional Environment Conducive to Increased Foreign Investment and Sustainable Development – Note by the UNCTAD Secretariat.
- ³⁷ These figures were provided by UNCTAD.
- ³⁸ fDi Intelligence (2017). The fDi Report 2017 – Global Greenfield Investment Trends, p. 18.
- ³⁹ OECD (2015). Policy Framework for Investment, 2015 Edition. p. 127. Available at <http://www.oecd-ilibrary.org/content/book/9789264208667-en>.
- ⁴⁰ Golub, S.S., Kauffmann, C., and Yeres, P. (2011). Defining and Measuring Green FDI, OECD Working Papers on International Investment, Available at <http://www.oecd-ilibrary.org/content/workingpaper/5kg58j1cvcvk-en>.
- ⁴¹ O’Connor, S. (2016). Measuring the Value of “Green” Foreign Direct Investment in the United Kingdom (UK Office for National Statistics), available at <https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/adhocs/005648greenforeigndirectinvestmentexperimentalestimates>.
- ⁴² Nonetheless, there is a clear trend among MDBs and export credit agencies to only support coal-fired power plants under strict conditions. In 2017, participant countries to the OECD Arrangement on Officially Supported Export Credits have stopped providing export credit support to projects involving certain inefficient types of coal-fired power plants. (OECD. (2015). Statement from Participants to the Arrangement on Officially Supported Export Credits. Available at <http://www.oecd.org/newsroom/statement-from-participants-to-the-arrangement-on-officially-supported-export-credits.htm>.) Most MDBs have also substantially reduced their financing of coal-fired power plants recently (Piccio, L. (2016). Coal or No Coal: A Balancing Act for MDBs. Available at <https://www.devex.com/news/coal-or-no-coal-a-balancing-act-for-mdbs-87610>.). The Asian Infrastructure Investment Bank AIIB, meanwhile, has left the door open for coal financing in its recently published draft.
- ⁴³ International Organization for Standardization. (2015). ISO 14001: 2015. Available at <https://www.iso.org/obp/ui/#iso:std:iso:14001:ed-3:v1:en>.
- ⁴⁴ See Boiral, O., et al. (2017). Adoption and Outcomes of ISO 14001: A Systematic Review. P. 1-22. Studies, however, have disproportionately focused on companies in the United States, and paid less attention to the high number of companies certified in China. “The discrepancy between the importance of certification in China – which represent nearly 35% of all ISO 14001 certificates worldwide – and the small proportion of studies covering this region – about 11% – calls for more studies on the adoption of this standard in Chinese organizations. Moreover, the few studies on this region have highlighted internalization issues and the lack of professionalization of registrars,” raising questions about the effectiveness of the standard. *Id.* at 17.
- ⁴⁵ See Box 2.
- ⁴⁶ See, e.g., UK Environment Agency (2017). Thames Water ordered to pay record £20 million for river pollution. Available at <https://www.gov.uk/government/news/thames-water-ordered-to-pay-record-20-million-for-river-pollution>; UK Environment Agency (2016). Water and Sewerage Companies’ Performance: 2015 Summary. Available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/541622/Water_company_performance_report.pdf.
- ⁴⁷ G20 Green Finance Study Group (2016). G20 Green Finance Synthesis Report. pp. 10-11 & 29-30. Available at http://unepinquiry.org/wp-content/uploads/2016/09/Synthesis_Report_Full_EN.pdf.
- ⁴⁸ *Ibid.*
- ⁴⁹ See, e.g., Japan Bank for International Cooperation (2016). Annual Report. p. 1.

⁵⁰ See, e.g., Koźluk, T. and Timiliotis, C. (2016). Do Environmental Policies Affect Global Value Chains? A New Perspective on the Pollution Haven Hypothesis.; Zugravu-Soilita, N. (2017). How Does Foreign Direct Investment Affect Pollution? Toward a Better Understanding of the Direct and Conditional Effects.p 293-338; Bin Hitam, M. and Binti Borhan, H. (2012). FDI, growth and the environment: Impact on quality of life in Malaysia.

⁵¹ See, e.g., Zhang, C. and Zhou, X. (2016). Does Foreign Direct Investment Lead to Lower CO₂ Emissions? Evidence from a Regional Analysis in China. pp. 943-951 (finding evidence of a “pollution halo” effect and reviewing relevant literature).

⁵² See, e.g., CCSI (formerly VCC) and WAIPA (2010). Investment Promotion Agencies and Sustainable FDI: Moving Toward the Fourth Generation of Investment Policies.

⁵³ Cust, J., Manley, D., and Cecchinato, G. (2017). Unburnable Wealth of Nations.

⁵⁴ Business and Sustainable Development Commission (2017). Better Business, Better World, pp. 35-37. Available at http://report.businesscommission.org/uploads/BetterBiz-BetterWorld_170215_012417.pdf

⁵⁵ Ibid.

⁵⁶ Ibid.

⁵⁷ These loosened or waived environmental requirements can come in a variety of forms. They can, for example, be

- contractual stabilization clauses that purport to free investors from having to comply with newer, stronger environmental measures, or that require the government to compensate the investors for the costs of compliance (see, e.g., Memorandum from Michael Fischer, President, Kumtor Operating Company, to His Excellency, Zhantoro Satybaldiyev, Prime Minister of the Kyrgyz Republic, Ministry of Economics, Chairman State Commission, and State Inspectorate for Environmental and Technical Safety under KR Government, 28 January 2013 (noting the company’s belief that contractual stabilization provisions in its agreement with the government of Kyrgyzstan meant that it did not have to pay increases in pollution charges), available at <https://kumtor.kg/wp-content/uploads/2013/02/Response-to-Directive-09-1501.pdf>);
- exceptions from or relaxed requirements to conduct environmental impact assessments or secure environmental approvals (see, e.g., India Business Insight. (2012). Environment Ministry Eases SEZ Clearance Norms. In *Business Insights: Essentials*. (2017); see also Monge, C. (2016). Water Management, Environmental Impacts, and Peru’s Mining Conflicts. (discussing a law designed to expedite approval of investment projects that permits changes to environmental impact assessments without requiring that local governments or communities be informed of or consulted with regarding the changes));
- special privileges accorded to investors to access water and other natural resources (see, e.g., Davidson, H. (2017) ‘Irreversible consequences’: Adani Coalmine Granted Unlimited Water Access for 60 Years); and
- waivers or exceptions from standard emissions limits and pollution controls.

⁵⁸ See UNCTAD, World Investment Report 2016. pp. 7 & 68; UNCTAD (2015). World Investment Report 2015. p. 7. See also Lundan, M. (2006). Reinvested Earnings as a Component of FDI: An analytical review of the determinants of reinvestment. High amounts of reinvested earnings by US MNEs may be due to efforts to MNEs to avoid paying taxes on repatriated funds.

⁵⁹ See, e.g., Wellhausen, R. (2013). Innovation in Tow: R&D FDI and Investment Incentives. *Business and Politics* 15(4): 467-491.

⁶⁰ See, e.g., UNCTAD. (2017). Investment Facilitation: A Review of Policy Practices; UNCTAD. (2016). Global Action Menu for Investment Facilitation.

⁶¹ See G20 (2016). Guiding Principles for Global Investment Policymaking.

⁶² See OPIC (2017). Environmental and Social Policy Statement, revised version approved 13 January 2017.

⁶³ This includes “risky” projects. As a review by OPIC’s Office of Accountability (OA) found, “[d]espite the many challenges” that it raises, “as a development finance institution OPIC will and should continue to consider support for risky projects,” such as projects in post-conflict societies raising elevated human rights and development risks. When supporting those projects, the OA’s recommendation stated, OPIC “needs to have robust internal systems in place to manage different risk categories.” OA Review: Buchanan Renewable Energy Projects in Liberia (September 2014), p. 67.

⁶⁴ A 2014 report by OPIC’s Office of Accountability examines the case of a renewable fuel and power project in Liberia, examining the adequacy of OPIC’s environmental and social policies and the agency’s adherence to those policies, as well as ways to improve environmental and social performance and mitigate related risks in future projects. The report illustrates that OPIC’s policies, while relatively robust, may not always be adequate to prevent negative environmental or social impacts of projects; nevertheless, they can help avoid harms and generate positive development benefits, and are subject to review and refinement over in order to generate lessons learned and improve performance. See also, Accountability Counsel. (2016). Scoring OPIC One Year On: Few Lessons Learned in OPIC’s Response to Disastrous Project in Liberia.

⁶⁵ OPIC (2015). Annual Policy Report.

⁶⁶ OPIC (2016). Annual Report.

⁶⁷ Gallagher, K.P. (2017). Global Energy Finance: A New Database (GEGI Policy Brief 002 – 03/2017).

⁶⁸ *Id.*

⁶⁹ The Sector Understanding on Export Credits for Coal-Fired Electricity Generation Projects requires, among other things, Participants to issue a notification before providing export credit support to these projects. The notification is to “[i]ndicate that an evaluation of less-carbon intensive energy alternatives has been carried out and that such alternatives are demonstrated as not viable,” and “[i]nclude a demonstration that the project is compatible with the host country’s national energy policy and

climate mitigation policy and strategy, which is supported by a targeted policy to expand renewables and/or to enhance energy efficiency.” (Annex VI, ch. III, pp. 124-125). In certain contexts, the Participant is also required to explain “how the supported project helps address energy efficiency.” (Id p. 125). See also Recommendation of the Council on Common Approaches for Officially Supported Export Credits and Environmental and Social Due Diligence (“The Common Approaches”), 7 April 2016.

⁷⁰ See, e.g., the practices of the Japan Bank for International Cooperation (JBIC). In its report entitled “JBIC’s Activities for Environmental Sustainability 2015,” JBIC describes its investment in a project to capture carbon from a coal-fired power plant in Texas, which then would be used to increase crude oil recovery from an oil field on the coast of the Gulf of Mexico. The report is available at <http://www.jbic.go.jp/en/information/env-report>.

⁷¹ See Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, sections 1504, 1502.

⁷² See, e.g., Columbia Center on Sustainable Investment (2014). Home Country Measures (HCM) Taxonomy, pp. 7-15. Available at http://ccsi.columbia.edu/files/2014/01/CCSI-Taxonomy_-_Nov-10.pdf

⁷³ See UK Modern Slavery Act 2015.

⁷⁴ In February 2017, the French National Assembly adopted a law requiring covered MNEs to establish and effectively implement a “vigilance plan”, which must include, among other things, measures seeking to identify and prevent environmental damage. The report is to cover the parent company, affiliates, and suppliers and contractors.

⁷⁵ There are various limits on the willingness and ability of home state courts to hear claims about harms in the host state. The home state court, for example, may only have jurisdiction over harms in the host country that were a result of wrongful conduct by the parent in the home country. Such limits can make it difficult for citizens and communities in the host state to secure access to justice, especially when the affiliate in the host country lacks adequate capital to satisfy any judgment against it.

⁷⁶ Stakeholders have, however, raised concerns about the adequacy of these policies and their implementation. See, e.g., Glass Half Full? The State of Accountability in Development Finance (2016).

⁷⁷ See, e.g., UN Environment (2006). Manual on Compliance with Enforcement of Multilateral Environmental Agreements.

⁷⁸ Cames, M. et al. (2016). How Additional Is the Clean Development Mechanism? Analysis of the Application of the Current Tools and Proposed Alternatives (Oko-Institut, European Commission), p. 17.

⁷⁹ Cames, M. et al. (2016). How Additional Is the Clean Development Mechanism? Analysis of the Application of the Current Tools and Proposed Alternatives (Oko-Institut, European Commission) (“Overall, our results suggest that 85% of the projects covered in this analysis and 73% of the potential 2013-2020 Certified Emissions Reduction (CER) supply have a low likelihood that emission reductions are additional and are not over-estimated. Only 2% of the projects and 7% of potential CER supply have a high likelihood of ensuring that emission reductions are additional and are not over-estimated. Our analysis suggests that the CDM still has fundamental flaws in terms of overall environmental integrity. It is likely that the large majority of the projects registered and CERs issued under the CDM are not providing real, measurable and additional emission reductions.” *Id.* at 11).

⁸⁰ Olawuyi, D.S. (2016). The Human Rights-Based Approach to Carbon Finance. Cambridge University Press; Schade, J. (2014). Human Rights and the CDM. Cambridge Review of International Affairs; Nyambura, B. (2015). CDM Projects and their impact on sustainable development: a case study from Kenya. In Environmental Economics; Orellana, M. (2012). A Human Rights-Based Approach to Climate Change; Roth-Arriaza, N. (2010). First Do No Harm. Human Rights and Efforts to Combat Climate Change. 38 Georgia Journal of International and Comparative Law 593.

⁸¹ See also OECD (2014). Green Growth Indicators, p. 124.

⁸² For a discussion of the human rights implications of climate change, see e.g., UN Human Rights Council (UNHRC) (2016). Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment. UN Doc. A/HRC/31/52; UN Environment and Sabin Center for Climate Change Law (2015). Climate Change and Human Rights. For a discussion of the human rights implications of carbon finance, see Olawuyi, D.S. (2016). The Human Rights-Based Approach to Carbon Finance (Cambridge University Press).

⁸³ Orellana, M. (2012). A Human Rights-Based Approach to Climate Change. In *The Human Rights-Based Approach: A Field of Action for Human Rights Education* (CIFEDHOP), p. 56.

⁸⁴ See UN Environment and Sabin Center for Climate Change Law, *supra*, n.82, pp. 27-28.

⁸⁵ *Id.*, p. 8.

⁸⁶ See Olawuyi, *supra*, n.80, pp. 81-86.

⁸⁷ For further information about the Clean Development Mechanism (CDM), see p. 27.

⁸⁸ See discussion of the Barro Blanco project in Panama in Olawuyi, *supra*, n.80, pp. 82-86.

⁸⁹ UN Environment and Sabin Center for Climate Change Law, *supra*, n.82, p. 9 citing Oxfam (2008). Climate Wrongs and Human Rights: Putting People at the Heart of Climate-Change Policy, pp. 15-16.

⁹⁰ For details on the steps taken, see: European Commission (n.d.). Biofuels, available at: <https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels>

⁹¹ For examples of the impacts of wind, solar, geothermal, and other renewable energy projects, see e.g., Business & Human Rights Resource Centre, Transform Finance, and Sonen Capital (2017). Investor Briefing: Renewable Energy Impacts on Communities – Managing Investors’ Risks and Responsibilities; Godoy, E. (2017). Expansion of Renewable Energies in Mexico Has Victims, Too. Inter Press Service, available at: <http://www.ipsnews.net/2017/02/expansion-of-renewable-energies-in-mexico-has-victims/>; Szoke-Burke, S. and Cordes, K. (2016). No Free Passes: Making Renewable Energy Responsible. State of the Planet, available at: <http://blogs.ei.columbia.edu/2016/10/17/no-free-passes-making-renewable-energy-responsible/>; Olawuyi, *supra*, n81;

Human Rights Watch (2015). *There is No Time Left – Climate Change, Environmental Threats, and Human Rights in Turkana County, Kenya*.

⁹² UN Environment and Sabin Center for Climate Change Law, *supra*, n.82, pp. 36-39.

⁹³ See Szoke-Burke and Cordes, *supra*, n.90.

⁹⁴ UN Environment and Sabin Center for Climate Change Law, *supra*, n.81, pp. 88 36-39.

⁹⁵ The Paris Agreement itself refers to the need for actions taken to address climate change to themselves comply with human rights obligations. The Preamble to the Paris Agreement Provides as follows: “Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity.” See also UN Human Rights Council (UNHRC) (2016). Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment. UN Doc. A/HRC/31/52, paras. 33-84.

⁹⁶ Gordon, K., J. Pohl, and M. Bouchard (2014). *Investment Treaty Law, Sustainable Development and Responsible Business Conduct: A Fact Finding Survey*. OECD Working Papers on International Investment, 2014/01.

⁹⁷ See, e.g., Bonnitcha, J. (2014). *Substantive Protection under Investment Treaties: A Legal and Economic Analysis*, pp. 105-109 (Cambridge University Press) (reviewing studies); Sauvart, K. and Sachs, L. (eds.) (2009). *The Effect of Treaties on Foreign Direct Investment* (Oxford University Press) (collecting studies).

In contrast to studies on the effects of IIAs on investment flows, studies have shown that bilateral and regional trade agreements do have a positive impact on FDI. Büge, M. (2014). *Do Preferential Trade Agreements Increase Their Members’ Foreign Direct Investment?* Discussion Paper 37/2014. Bonn: German Development Institute/Deutsches Institut für Entwicklungspolitik.

⁹⁸ See Tienhaara, K. (2015). *Does the Economy Need Investor-State Dispute Settlement*. Investment Treaty News.

⁹⁹ This is due to the fact that investment treaties, as they have been interpreted, can enable MNEs to secure compensation for changes in the law – even changes adopted in good faith and for the public interest – that negatively impact their businesses. When the impact is severe, destroying the value of all or substantially all of the investor’s investment, the government conduct may be deemed a “regulatory” or “indirect” expropriation, requiring the government to compensate the investor for harms suffered; but even when the impact is less significant, it can still be deemed a violation of the treaty and result in the government being ordered to pay the investor compensation. The ability to secure compensation for changes in the law may give rise to moral hazards; highly polluting companies, for example, may voluntarily take steps to improve their operations and reduce emissions. Those that do not take such steps may ultimately be subject to new environmental regulations compliance with which is costly and negatively impacts or even requires closure of the investor’s operations. An investment treaty can potentially require the government to compensate the investor for its costs and losses. This provides a benefit to corporate actors that are slow to innovate and improve, and potentially puts those firms who are leaders in terms of environmental performance at a competitive disadvantage.

¹⁰⁰ The text, *infra*, discusses examples from existing agreements. There are also proposals for new models addressing the question of how to harness investment (and trade treaties) for progress on climate change. See Sierra Club (2016). *Discussion Paper: A New, Climate-Friendly Approach to Trade*.

¹⁰¹ See Cotonou Agreement (signed in Cotonou on 23 June 2000 and amended in 2005 and 2010), ch. 7.

¹⁰² Japan-Mexico EPA, art. 147(1).

¹⁰³ See, e.g., Investment Cooperation and Facilitation Agreement between the Federative Republic of Brazil and the Republic of Malawi, art. 9 (Signed 25 June 2015).

¹⁰⁴ UNCTAD (2017). *Investment Facilitation: A Review of Policy Practices*, p. 3.

¹⁰⁵ See, e.g., EU-Singapore FTA, ch. 12, sec. C, & annex 12-A; ch. 13, art. 13.11(3).

¹⁰⁶ See, e.g., CAFTA-DR (n.d.). *Environmental Cooperation: Environmental Capacity Building for Judges*, available (in Spanish) at: http://www.caftadr-environment.org/spanish/top_menu/countries/Regional/A_re_activitiy_snapshot_Environmental_Capacity_Building_for_Judges.html; United States – Chile Free Trade Agreement Chapter 19: Environment and Annex 19.3: Environmental Cooperation, www.sice.oas.org/Trade/chiusa_e/Text_e.asp#Chapter+Nineteen.

¹⁰⁷ United States Government Accountability Office (2014). *Free Trade Agreements: Office of the U.S. Trade Representative Should Continue to Improve Its Monitoring of Environmental Commitments*. Report to Congressional Requesters, available at: www.gao.gov/assets/670/666782.pdf.

¹⁰⁸ These types of anti-race-to-the-bottom provisions are typically only subject to inter-state consultation and, less commonly, dispute settlement (and are not subject to investor-state dispute settlement). As of August 15, 2017, the authors were not aware of any formal claims that had been filed by one state against another on the ground that the “host” state lowered or failed to enforce environmental standards so as to attract or keep foreign investment. There had, however, been one claim brought on the ground that a state had improperly failed to enforce labor standards. In that case, which was initiated by the United States against Guatemala under the US-CAFTA-DR – the trade and investment agreement between the US and five Central American countries – the tribunal found that Guatemala had indeed failed to uphold labor law, but that such failures did not violate the trade treaty because the United States did not prove the labor law violations impacted trade. As this case illustrates, even trade and investment agreements with relatively progressive provisions on labor and the environment may be of limited utility as tools

for addressing challenges in labor and environmental protection. See *In the Matter of Guatemala – Issues Relating to the Obligations under Article 16.2.1(a) of the CAFTA-DR, Final Report of the Panel*, June 14, 2017.

¹⁰⁹ CDP (2016). Embedding a Carbon Price into Business Strategy, available at: <https://www.cdp.net/en/articles/media/press-release-major-multinationals-at-forefront-of-drive-to-price-carbon-and-meet-climate-targets-but-many-companies-still-unprepared>.

¹¹⁰ Authors' own calculations based on: UNCTAD, World Investment Report 2016; CDP (2016). Embedding a Carbon Price into Business Strategy.

¹¹¹ CDP (2016). Embedding a Carbon Price into Business Strategy, available at: <https://www.cdp.net/en/articles/media/press-release-major-multinationals-at-forefront-of-drive-to-price-carbon-and-meet-climate-targets-but-many-companies-still-unprepared>.

¹¹² *Id.*

¹¹³ WBCSD (2015). Emerging Practices in Internal Carbon Pricing: A Practical Guide.

¹¹⁴ UN Global Compact (2016). Executive Update: Setting a \$100 Price on Carbon, available at: <https://www.unglobalcompact.org/news/3361-04-22-2016>.

¹¹⁵ Equator Principles (2017). Equator Principles Association Members & Reporting, available at: <http://www.equator-principles.com>.

¹¹⁶ Aviva Investors warned in July 2017 that it would vote against the annual reports of the companies in which it invested if those companies failed to adhere to the TCFD task force's recommendations and disclose their climate change-related risks. See, Attracta Mooney (2017). Aviva Investors Demands Greater Climate Change Disclosure, available at: <https://www.ft.com/content/69daf7c6-67e3-11e7-9a66-93fb352ba1fe>. Financial Times.

¹¹⁷ See, e.g., France's Energy Transition Law, art.173 (reported to be the first national law mandating climate-risk disclosures by institutional investors); see also discussion in High-Level Expert Group on Sustainable Finance (2017). Interim-Report: Financing a Sustainable European Economy (European Commission).

¹¹⁸ Reuters (2015). Credit Agricole Stops Financing Coal Mining, available at: <http://www.reuters.com/article/credit-agricole-coal-idUSL5NoYB4NO20150520>; The Guardian. Deutsche Bank Pulls out of Coal Projects to Meet Paris Climate Pledge, available at: <https://www.theguardian.com/business/2017/feb/01/deutsche-bank-pulls-out-of-coal-projects-to-meet-paris-climate-pledge>; Fortune (2016). Here's Another Big Sign the Coal Industry Is Burning Out, available at: <http://fortune.com/2016/03/21/coal-losing-lending-credit/>.

¹¹⁹ UN Environment Inquiry (2016). Greening the Banking System: Taking Stock of G20 Green Banking Market Practice, available at: http://unepinquiry.org/wp-content/uploads/2016/09/9_Greening_the_Banking_System.pdf; SBN (2017). Greening the Banking System – Experiences from the Sustainable Banking Network, available at: http://www.ifc.org/wps/wcm/connect/413da3f3-f306-4e99-8eee-679768463130/SBN_PAPER_G20_02102017.pdf?MOD=AJPERES.

¹²⁰ OECD (2017). Green Investment Banks. OECD Environment Policy Papers, available at: <http://www.oecd-ilibrary.org/content/workingpaper/e3c2526c-en>.

¹²¹ United Nations (2017). World Economic Situation and Prospects 2017, p. 85.

¹²² *Id.*

¹²³ *Id.*

¹²⁴ *Id.* (citing Della Croce, R. (2012). Trends in Large Pension Fund Investment in Infrastructure. OECD Working Papers on Finance, Insurance and Private Pensions, No.29.)

¹²⁵ *Id.*, p. 87.

¹²⁶ *Id.*, p. 86.

¹²⁷ *Id.*, p. 88.

¹²⁸ See, e.g., UNCTAD (2016). Economic Development in Africa Report, ch. 4 (noting remittances had exceeded FDI in Africa since 2010).

¹²⁹ Yiheyis, Z. and Woldemariam, K. (2016). The Effect of Remittances on Domestic Capital Formation in Select African Countries: A Comparative Empirical Analysis. *Journal of International Development*, 28.2:243-265; see also OECD (n.d.). Non-ODA Flows to Developing Countries: Remittances, available at: <http://www.oecd.org/dac/stats/beyond-oda-remittances.htm>; World Bank Annual Remittances Data, available at: <http://www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittances-data>.

¹³⁰ See, e.g., Ferdaous, J. (2016). Impact of Remittances and FDI on Economic Growth: A Panel Data Analysis. *Journal of Business Studies Quarterly*, 8.2:58-77.

¹³¹ See, e.g., Benmamoun, M. and Lehnert, K. (2013). Financing Growth: Comparing the Effects of FDI, ODA and International Remittances. *Journal of Economic Development* 38.2:43-65.

¹³² See, e.g., Williams, K. (2016). Remittances and Financial Development: Evidence from Sub-Saharan Africa, *African Development Review*, 28.3:357-367.

¹³³ Yiheyis, Z. and Woldemariam, K. (2016). The Effect of Remittances on Domestic Capital Formation in Select African Countries: A Comparative Empirical Analysis. *Journal of International Development*, 28.2:243-265.

¹³⁴ *Id.*

¹³⁵ Azam, M. et al. (2016). External Sources and Economic Growth – The Role of Foreign Remittances: Evidence from Europe and Central Asia. *The Journal of Development*, 50.2:367-387.

¹³⁶ Shimeles, A. (2010). Diaspora Bonds and Securitization of Remittances for Africa's Development. AfDB Africa Economic Brief, vol. 1, no. 7.

¹³⁷ Ketkar, S.L. and Ratha, D. (2011). Diaspora Bonds: Tapping the Diaspora during Difficult Times. In Plaza, S. and Ratha, D. (eds.) (2011). *Diaspora for Development in Africa*. World Bank. See also UNCTAD (2016). *Economic Development in Africa Report*, ch. 4 (giving examples of remittance bonds).

¹³⁸ Wenner, M.D. (2015). Can Diaspora Bonds be Used in the Caribbean. Technical Note No. IDB-TN-875. IADB: Country Department Caribbean Group.

¹³⁹ Alfaro, L. and Chauvin, J. (2016). Foreign Direct Investment, Finance, and Economic Development, available at: http://www.hbs.edu/faculty/Publication%20Files/FDICapital_092116_FV_dc85doa4-4964-4c2f-8d8b-2bc3b2b79eod.pdf.

¹⁴⁰ United Nations (2016). *World Economic Situation and Prospects 2016*, p. 83.

¹⁴¹ See *supra*, n.12 and accompanying text.

¹⁴² See, e.g., OA Review (2014). Buchanan Renewable Energy Projects in Liberia, p. 9 (“In a given project, there may be internal tensions between allocating credit risk and development risk. OPIC’s legal due diligence regarding contracts does not typically extend beyond ensuring that provisions protect the client’s financial interests. In this case, OPIC lawyers required [its client] to incorporate provisions in the smallholder contract template with this goal in mind. No office within OPIC is responsible for considering template revisions to mitigate development risk, such as disclosing to farmers what would happen if BRF terminated their contracts before rubber seedlings reached maturity. Where some project-affected stakeholders are economically vulnerable, project shut down could mean not only foregone development benefits, but also the possibility that some (in this case smallholder farmers) could be left more vulnerable than they were before.”)

¹⁴³ Climate Bonds Initiative (2017). *Green Bonds Highlights 2016*, available at: <https://www.climatebonds.net/resources/reports/green-bonds-highlights-2016>.

¹⁴⁴ Climate Bonds Initiative (2017). *Lagos Conference to Set Stage for Nigeria Sovereign Green Bond*, available at: <https://www.climatebonds.net/2017/02/lagos-conference-set-stage-nigeria-sovereign-green-bond>; The Daily Star (2016). *Green Bonds on the Horizon*, available at: <http://www.thedailystar.net/business/green-bonds-the-horizon-1330573>; Climate Bonds Initiative (2017). *Kenya Green Bond Programme Kicks-off with Strong Backing from Banking Industry and Development Finance Community*, available at: <https://www.climatebonds.net/2017/03/kenya-green-bond-programme-kicks-strong-backing-banking-industry-and-development-finance>.

¹⁴⁵ This is the working definition offered by the Financial Stability Board.



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