

Transforming the financial system for delivering sustainable development:

A high-level overview

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Key Messages

Financial systems have significant potential to help drive sustainable investment at a scale and speed aligned with the Paris Agreement and the SDGs. This will need to be complemented with policy action that strengthens real economy drivers and creates an enabling environment for sustainable investment.

In order to tap into the transformational potential of financial systems, coherent and comprehensive action at international, domestic and market level is needed. Subsequent **G20 chairs must maintain leadership** on green and sustainable finance by setting up a permanent working group on sustainable finance led by central bank governors and finance ministers, and mainstream it into other relevant working groups. The UN Secretary-General's Climate Action Summit in September 2019 in New York will also be a key moment to review progress of 2030 Agenda and scale up action. In addition, immediate progress is needed in the following areas:

- **Incorporating climate-related risks** to global monitoring of financial stability and stress tests led by the IMF and the World Bank;
- Developing a global and comprehensive way to **track and assess flows and stocks of sustainable finance**, and developing impact indicators;
- Developing **taxonomies of sustainable assets** and drive international harmonisation;
- Encouraging ASEAN countries and others to develop their own **sustainable finance roadmaps and increase cooperation** regionally, and with other countries such as the EU and its member states as they are going through a comprehensive reform of their own financial systems;

There is no silver bullet to financing a global energy transformation, alongside tackling other major socio-economic and environmental objectives. However, **national governments (and sub-national governments where appropriate) will need to do the heavy lifting** when it comes to creating the right enabling environment and coming up with the most appropriate policy and fiscal levers. Areas where governments can take short to medium-term action include:

- Providing **long-term policy signals** to investors, financiers and businesses to overcome short-termism, for instance in the shape of national sustainable infrastructure and capital raising plans;
- Using **public finance levers** more effectively (including blending) to crowd in private investment and de-risk projects both domestically and through MDBs and DFIs;
- **Targeted financial regulatory interventions** – including enhancing good quality disclosure of ESG and climate related risks; updating fiduciary duty definitions; revising supervisory bodies' mandates accordingly; strengthening corporate governance reforms ensuring they are re-tooled to reflect new risks and opportunities.

1. Introduction

This discussion paper aims to provide a high-level overview of the challenges and opportunities in delivering the 2030 Agenda and Paris Agreement commitments, and sets out the essential role financial systems could play. It makes high-level recommendations in order to mainstream sustainable finance into national and international financial systems, building on pioneering initiatives in this area, which have already strengthened international cooperation, domestic leadership and market-led efforts.

2. The scale and nature of the challenge and the opportunity

Delivering climate smart and low-carbon sustainable development will require shifting billions to trillions of dollars in investment. According to the United Nations Conference on Trade and Development (UNCTAD), **USD5 to 7 trillion per year** of investment is needed globally for achieving the Sustainable Development Goals (SDGs), including mitigating climate change and adapting to its impacts. Out of this, **USD3.3 trillion to USD4.5 trillion per year** will be needed in developing countries alone (UNCTAD, 2014)¹ to pay for basic infrastructure, such as water and sanitation and power stations, and food security, climate change mitigation and adaptation, health, and education.

There is sufficient capital globally; however, it needs to be redirected, and in some cases scaled up where it is most needed. Despite its seemingly large size, investments of this order of magnitude are already taking place. For instance, USD5–7 trillion annual investment represents only about 7-10% of global Gross Domestic Product (GDP), and 25-40% of net global investment (Kharas and McArthur, 2016)². On the other hand, developing countries alone face **an annual investment gap of USD2.5 trillion**, of which the power sector and climate change mitigation investment account for over 40% (see Table 1), assuming current levels of public and private investment in SDG relevant sectors. Investment for climate change adaptation will also need to be scaled up significantly from a very low base.

Infrastructure investment will play a key role in driving low-carbon sustainable development as both developed and developing countries upgrade or build new energy and housing infrastructure. The infrastructure required for the low-carbon transition is also integral to meeting many of the SDGs beyond SDG13 on climate change (OECD, 2017)³. According to the Organisation for Economic Co-operation and Development (OECD), about **USD6.9 trillion per year** of climate-compatible infrastructure investment is needed globally up to 2040, in energy demand and electricity sectors in particular (ibid.)⁴. Compared with

¹ This includes power, climate change mitigation, food security, telecommunications, transport, ecosystems/biodiversity, health, water and sanitation, climate change adaptation, and education.

² Value of World Output (billions of US dollars) at Market Exchange Rates at Purchasing Power Parities Real GDP was USD75 trillion in 2016 <http://www.imf.org/en/Publications/WEO/Issues/2017/09/19/world-economic-outlook-october-2017>; Gross fixed capital formation (current USD) was USD18.6 trillion in 2016 <https://data.worldbank.org/indicator/NE.GDI.FTOT.CD>

³ see p.96/Fig 3.4

⁴ Infrastructure includes energy demand (e.g. batteries), telecoms, power and electricity transmission and distribution, water and sanitation, primary energy supply chain, and transport.

current estimates of global infrastructure investment of USD3.4 to 4.4 trillion per year, it is clear that investment needs to be scaled up significantly (Figure 1).

Table 1: Current investment, investment needs and gaps in key SDG sectors in developing countries

Sector	Estimated current investment (latest available year USD billion)	2015-2030 Annualized USD billion (constant price)	
		Total investment required	Investment gap
Power	~260	630-950	370-690
Transport	~300	350-770	50-470
Telecoms	~160	230-400	70-240
Water and sanitation	~150	~410	~260
Food security and agriculture	~220	~480	~260
Climate change mitigation	170	550-850	380-680
Climate change adaptation	~20	80-120	60-100
Ecosystems/ biodiversity		70-210	
Health	~70	~210	~140
Education	~80	~330	~250
TOTAL	~USD1.4 trillion	~ USD3.3-4.7 trillion	USD1.2-3.3 trillion (~USD2.6 trillion)

Based on (UNCTAD, 2014); Note that investment refers to capital expenditure. Operating expenditure is not included.

G20 countries account for around two-thirds of this infrastructure investment need. G20 countries also account for more than 80% of energy-related CO₂ emissions (IEA and IRENA, 2016). Their investment decisions will determine our ability to limit temperature change to below 2°C, and whether we lock into high or low-carbon infrastructure.

Making the infrastructure compatible with climate and sustainable development goals does not need to cost much more. The OECD found that the incremental cost is about 10% in addition to the BAU investment scenario. However, higher up-front costs linked with “sustainable” or “low-carbon” projects mean financing and investment need to be mobilised better from both international and domestic sources (New Climate Economy, 2016).

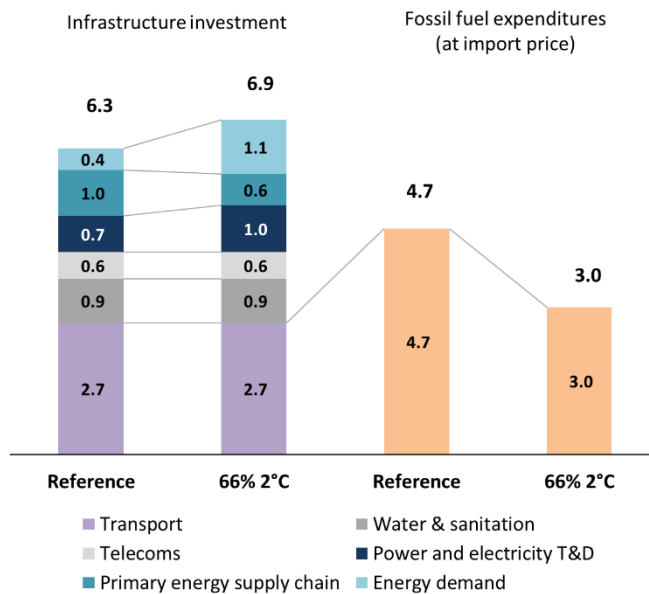


Figure 1 Global annual infrastructure investment needs for a 66% chance of 2°C, and fuel savings, 2016-30, (USD 2015 trillion)

Source: OECD, 2017

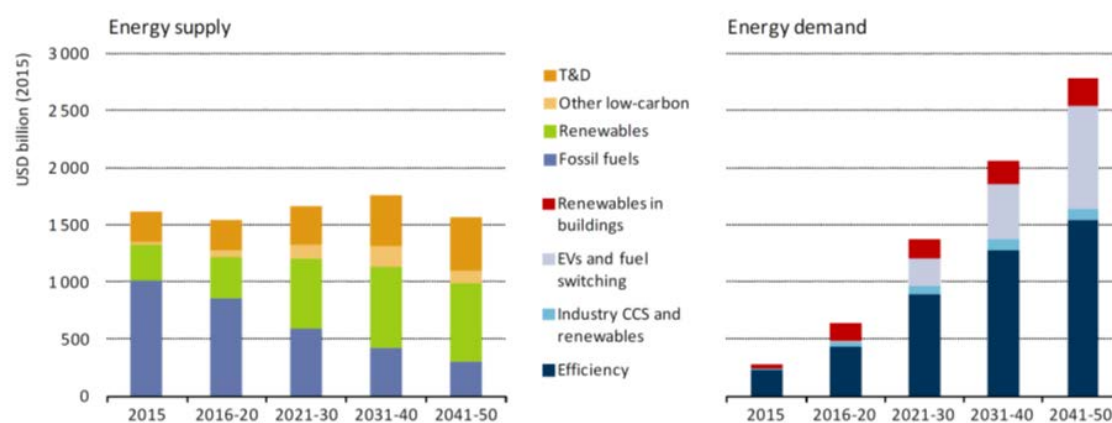
The power sector (including renewables and other low-carbon technologies) and transport sector emerge as critical sectors for investment globally, including the Asia-Pacific, in sustainable development and decarbonisation (UNCTAD, 2014; IEA and IRENA, 2016; OECD, 2017) (see Box 1). The International Energy Agency's (IEA) Sustainable Development Scenario estimates around USD2.8 trillion investment is needed annually in the energy sector up to 2040 compared with USD1.8 trillion in 2015 (Figure 2). Interestingly, total investment in energy supply would not need to rise over today's level to achieve climate targets. However, **a fundamental reorientation of investment will be needed on the supply side**. Two-thirds of energy supply investment will need to be made in electricity generation and networks, while investment in fossil fuels will need to be massively scaled down to about 40% of current level of investment.

On the other hand, almost all additional investment will be needed in end-use sectors (e.g. efficiency, electric vehicles and fuel switching). Early, concerted and consistent policy action is crucial in order to facilitate the energy transition and manage the risk of stranded assets. Most of the risk lies with the coal-fired power plants, and to some degree with the fossil fuel upstream sector.

Box 1. Infrastructure investment needs in Asia-Pacific

In developing Asia and the Pacific, the Asian Development Bank (ADB) estimates infrastructure investment needs will exceed USD26 trillion through 2030, or USD1.7 trillion per year, if climate mitigation and adaptation is included, almost doubling the current investment of USD881 billion per year (ADB, 2017). The infrastructure investment gap equals 5% of projected GDP until 2020, if China is excluded. While the region's infrastructure has improved rapidly, it remains far from adequate. Over 400 million

Asians still lack electricity; roughly 300 million have no access to safe drinking water; and 1.5 billion lack basic sanitation. In Southeast Asia, there is a significant risk that success in reducing extreme poverty could be reversed with many of the working poor remaining vulnerable to falling back into poverty (UNDP, 2017). UNDP warn that “climate or environmental shocks can derail progress toward many of the SDGs”. The ASEAN region remains among the most disaster-prone regions in the world. Four ASEAN countries are among the top ten countries most exposed to natural hazards worldwide (ibid).



Note: T&D = transmission and distribution; EVs = electric vehicles; CCS = carbon capture and storage.

Figure 2 Average annual global energy supply and demand side investment in the 66% 2C scenario

Source: IEA and IRENA, 2016

Most investment must come from the private sector as public sources will not be sufficient for delivering low-carbon and climate resilient sustainable development.

OECD notes that savings generated from reduced fossil fuel expenditures, currently USD4.7 trillion per year (at import prices) could more than offset additional investment on climate-compatible infrastructure (OECD, 2017). However, private sector participation in some of these sectors (such as climate change adaptation, health and education) and in some developing countries (such as least developed countries)⁵ is very low and likely to remain so, partly due to the public good nature of some of these investments, or difficulty in designing risk-return models attractive to private investors (UNCTAD, 2014). Therefore, public investment remains fundamental and pivotal, while it can also be used to mobilise private sector investment through strategic initiatives and innovative use of financial instruments (e.g. blended finance).

Most of this investment will flow through the financial systems. It is therefore important to align the financial system, including banking, capital markets and insurance with the SDGs. The Addis Ababa Action Agenda (AAAA) agreed in 2015 underscored the importance of aligning private investment and all financial flows with sustainable development, along with public policies and regulatory frameworks to set the right incentives for delivering on the

⁵ UNCTAD 2014 estimates total annual investment needs in LDCs in SDGs around USD240 billion in 2020, but currently stands at USD40 billion (of which 40 percent is private; 60 percent public).

SDGs (UN DESA, 2015a, 2015b). In a similar vein, Article 2.1c of the Paris Agreement includes a long-term ambition to “make finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development” (United Nations, 2015). Private investors globally have sufficient funds available. However, only a fraction of the worldwide invested assets of financial institutions and corporations is in SDG-related sectors (UNCTAD, 2014). Private sector participation is even lower in the Least Developed Countries with Foreign Direct Investment (FDI) standing at a meagre 1.8% of global flows (UNCTAD, 2018).

3. Progress in getting financial systems aligned with sustainable development

3.1. Definitions of sustainable finance

Sustainable finance is a broad concept whose meaning is still evolving. The Brookings Institute refers to sustainable finance as “financial flows—public or private—that are allocated in a way that simultaneously promotes sustainable development, including its economic, social and environmental imperatives” (Kharas and McArthur, 2016). UNEP Inquiry and World Bank provide a useful categorisation of different subsets of sustainable finance (Fig. 3) (UNEP Inquiry and WorldBank, 2017).

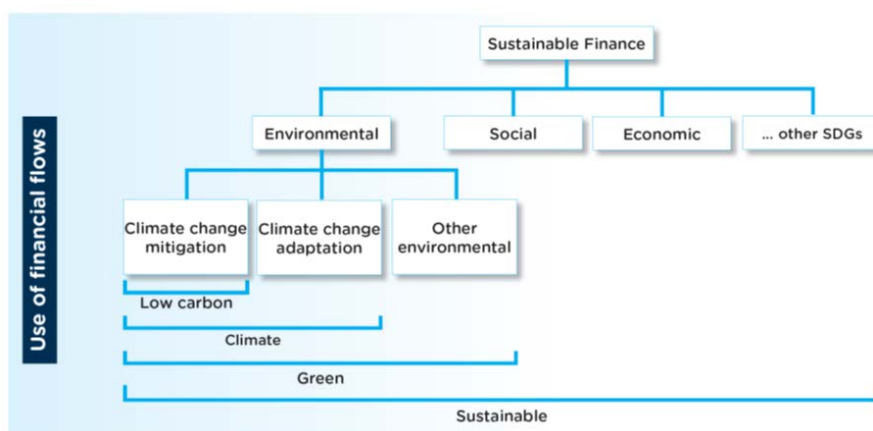


Figure 3 Elements of sustainable finance

Source: UNEP Inquiry and World Bank, 2017

In addition, the European Union’s High Level Expert Group on Sustainable Finance (EU HLEG) provides three definitions for sustainable finance (EU HLEG, 2017):

- Narrow: Integrating environmental, social and governance (ESG) factors in financial decisions;
- Finance fostering sustainable economic, social and environmental development;
- Broadest: A financial system that is stable and tackles long-term education, economic, social, environment issues, including sustainable employment, retirement financing, technological innovation, infrastructure construction and climate change mitigation.

UNEP Inquiry defines a sustainable financial system as “one that creates, values and transacts financial assets in ways that shape real wealth to serve the long-term needs of an inclusive, environmentally sustainable economy” (UNEP Inquiry, 2015b).

Despite various definitions of sustainable and green finance, what matters is how these definitions are interpreted by financial institutions and corporations and incorporated in their investment decisions and risk management frameworks. Harmonisation of these definitions is therefore essential to avoid the risk of ‘greenwashing’. The European Commission set up a Technical Expert Group on Sustainable Finance (TEG) to assist with developing an EU classification system – also commonly referred as taxonomy – to determine whether an economic activity is environmentally sustainable. It also tabled a legislative proposal in this regard in May 2018⁶.

Delivering low-carbon and climate resilient sustainable development will require an integrated and systems approach. Isolated policy solutions, on climate change or environmental degradation, will not be sufficient. The financial system is highly decentralised and international in nature. Domestic policy action, therefore, will need to be complemented with international action in the financial sector. Furthermore, policy responses need to address various barriers along the investment chain, including banks, equity and debt capital markets, institutional investors, and insurers, and consider systemic issues as well as actor-specific constraints (UNCTAD, 2015; UNEP Inquiry, 2015a).

Integrating sustainable development into the evolution of financial systems can bring about various direct and indirect benefits (UNEP Inquiry, 2015a):

- Direct sustainable development outcomes: Developing countries can increase access to finance which is vital for reducing environmental pollution, scaling up investment in clean technologies, which in turn will create employment and economic growth, as well as improving public health and energy access for all. The EU HLEG notes that a fit-for-purpose financial system needs to help deal with Europe’s key strategic challenges, such as employment, education, technology, retirement funding, infrastructure, all of which have a sustainability dimension (EU HLEG, 2017).
- Strengthening financial and economic stability: The 2007-8 financial crisis and subsequent economic recession have shown the perils of a financial system that lacks transparency, driven by excessive risk culture and weak corporate governance, with insufficient regulatory oversight and accountability (The Financial Crisis Inquiry Commission, 2011; The Economist, 2013). Integrating sustainable development could help “improving market integrity, aligning the financial sector more closely to the real economy, enhancing financial and monetary resilience” (UNEP Inquiry, 2015b). The Financial Times reported that there is “mounting evidence that funds which observe ESG standards tend to outperform those that do not by a significant margin” (Kynge, 2017). Regarding climate change, where the discussion is the most evolved, there is growing recognition and evidence that **climate change can create financial risks** and it is

⁶ https://ec.europa.eu/info/publications/sustainable-finance-technical-expert-group_en

relevant to central banks and other supervisory bodies' mandates (Bank of England, 2017). Bank of England's Governor Carney warned of a "climate-Minsky" moment whereby financial markets respond to low-carbon transition with a rapid system-wide adjustment that, in turn, would threaten financial stability. He advised for an orderly transition to tackle climate change (Carney, 2015).

3.2. The role of the financial system in driving transformation

Sustainable finance has become a mainstream activity in the last few years energised by the adoption of SDGs and signing of the Paris Agreement (UNEP Inquiry, 2015a; UNEP Inquiry and WorldBank, 2017). G20's Green Finance Study Group's progress reports provide a comprehensive account of recent developments and describes progress in terms of three mutually reinforcing trends: (i) increasingly systemic national action; (ii) greater international cooperation; and (iii) increased market leadership at the individual and collective level (GFSG, 2016; G20 GFSG, 2017):

3.2.1. National policy and regulatory action

By October 2017, nearly 300 financial policy and regulatory measures targeting sustainability were in place in over 60 countries (UNEP Inquiry, 2017a). A growing number of governments started developing national finance roadmaps to give a long-term signal to investors and re-orient capital towards green and sustainable investments (see Table 3 for a non-exhaustive list). The EU launched a High-Level Expert Group on Sustainable Finance (EU HLEG) to reform the current financial architecture as part of its Capital Markets Union flagship policy, and integrate sustainability. Subsequent to the EU HLEG's final recommendations published in January 2017, the European Commission announced its Action Plan in March 2018 and tabled legislative proposals in May⁷. The EU HLEG recommendations have significant implications for the financial sector, regulators, businesses and citizens. If enacted upon, its impact may spill over the EU's borders.

In addition, there has been significant momentum around the disclosure debate thanks to the work of the G20 TCFD. In parallel, countries like France have shown great leadership on this issue. French Law on Energy Transition for Green Growth Article 173 strengthened mandatory carbon disclosure requirements for listed companies and introduced carbon reporting for institutional investors (both asset owners and investment managers). Institutional investors have to disclose how they are integrating ESG issues into their investment strategies, and their contribution to the objectives of the energy and ecological transition (FIR, 2016; PRI, 2016). Its "comply or explain" approach provides some flexibility for an experimentation phase. Despite concerns about availability of relevant data, this is now creating a market, hence a chain reaction, led by the early movers for the provision of improved granular data and metrics. This is also likely to set best practice and standards for disclosure in the market informally.

Furthermore, the European Commission announced a legislative proposal building on the EU HLEG recommendations. This proposal aims to introduce disclosure obligations on how

⁷ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en#commission-action-plan-on-sustainable-finance; http://europa.eu/rapid/press-release_IP-18-1404_en.htm

institutional investors and asset managers integrate environmental, social and governance (ESG) factors in their risk processes, as part of their fiduciary duties⁸.

Supervisory authorities are taking a key role in the transformation of the financial system. Recently, the UK pensions regulator reformed the rules and now requires trustees of UK-based pension schemes to state how they consider ESG factors in their investment strategies from next year (Hurley, 2018). The local government pension funds in the UK had been under pressure for a while to align their investment strategy and decisions with a low-carbon transition (Unison, 2018). In a recent parliamentary committee hearing, The Pensions Regulator (TPR) in the UK said that the trustees were either unaware of or unwilling to consider climate risks as material⁹.

The EU HLEG recommended European Supervisory Agencies' (ESAs) mandate to be revised to take into account ESG factors, with specific recommendations on types of action to be taken. The European Commission requested ESAs technical advice to asset managers, insurance companies, and to investment or insurance advisors on how they should integrate ESG issues¹⁰. Most recently, Bank of England's Prudential Regulation Authority (PRA) has launched a consultation to seek views on a draft supervisory statement on banks' and insurers' approaches to managing the financial risks from climate change (Bank of England, 2018).

3.2.2. International financial cooperation

G20 maintained its leadership on green finance, focusing on risk and disclosure. The TCFD presented its final recommendations. It recommended the business and financial sector to use scenario analysis more extensively, and to disclose how they address climate-related risks more consistently (TCFD, 2017)¹¹. Bilateral and multilateral collaboration has also been growing. For instance, the UK and China established a green finance taskforce in 2017 and subsequently launched the UK-China Green Finance Centre in early 2018 (Cooper, 2018). The new Network of Central Banks and Supervisors for Greening the Financial System was established in December 2017¹². In addition, the International Network of Financial Centres for Sustainability was launched in Casablanca in September 2017 aiming to tap into the powerful clustering effect of financial centres that can be deployed to drive sustainable finance (UNEP Inquiry, 2017a).

3.2.3. Market leadership

G20's Green Finance Study Group notes that there is a strong feedback loop between systemic national action, international cooperation and market leadership (UNEP Inquiry, 2017b). While policy signals from governments, including direct regulatory action, triggered markets to launch their own initiatives, in turn, increasing market activity is a signal to policymakers and regulators that "ambitious behavioural and policy changes are in fact feasible, especially when these signals originate from mainstream sector leaders" (ibid., p:15).

⁸ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en

⁹ <https://www.parliament.uk/business/committees/committees-a-z/commons-select/environmental-audit-committee/news-parliament-2017/bank-of-england-climate-risk-reporting-17-19/>

¹⁰ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en#commission-action-plan-on-sustainable-finance

¹¹ <https://www.fsb-tcfd.org/publications/final-recommendations-report/>

¹² <https://www.bankofengland.co.uk/-/media/boe/files/research/greening-the-financial-system-statement.pdf>

A key indicator of market activity is around how investors and corporations increasingly incorporate sustainable development, in particular climate mitigation and adaptation, into their **financial materiality** frameworks. According to PRI, as of 2017 about USD70 trillion worth of assets under management are aligned with its principles for responsible investment. Similarly, 256 investors with more than USD30 trillion in assets under management have signed on to the Climate Action 100+ initiative which aims to engage with the world's largest corporate GHG emitters in a concerted effort to improve their governance on climate change, curb emissions and strengthen climate-related financial disclosures¹³. The world's biggest pension fund Japan's Government Pension Investment Fund (GPIF) has allocated a significant sum of JPY3 trillion (USD26.7bn) to shares with strong ESG performance, through specialised indices developed by MSCI, TSE Russell, and S&P Dow Jones Indices, the latter focusing on carbon efficiency (Wheelan, 2017; Robinson-Tillett, 2018).

Divestment campaigns, in particular for phasing out coal investments, have also been gaining traction in the last few years. Over 800 institutions worth about USD6 bn, led by faith-based organisations, foundations, and local governments or cities, committed to divest from fossil fuels. At One Planet Summit, the World Bank announced after 2019 it will no longer finance upstream oil and gas (Box 3). Major insurance companies Axa, Allianz, Aviva and more recently Nippon Life also announced plans to divest from coal companies (Ceong, 2018). More recently, Ireland became the first country to divest from fossil fuels (Carrington, 2018). Norwegian Government Pension Fund Global also divested from 216 companies in recent years, on the basis of ESG related risk factors, and a further six in 2017. While there is an ongoing debate on the direct impacts of divestment from high-carbon assets, a study by Smith School at Oxford University argued that while the direct impacts may be meagre in the short term, stigmatisation and reputational risks poses the most far-reaching threat to the fossil fuel companies (Ansar, Caldecott and Tilbury, 2013; Gelles, 2015). In addition to divestment which is seen as last resort by many investors, while non-binding, there has been a steady increase in the number of shareholder resolutions in relation to environmental and social issues. According to CERES, in 2017 104 resolutions were filed by shareholders in the US on environmental issues (mostly on climate change) compared with 62 resolutions in 2015¹⁴. Last year, a major campaign led by influential shareholders such as New York State Common (NYSC) pension fund and the Church Commissioners for England successfully requested Exxon to increase its disclosures on climate risk and strategy to demonstrate how it is factoring the transition to low-carbon economy aligned with a target of well-below 2°C temperature increase (Crooks, 2017).

On the capital raising side, global green bond issuance hit a record USD155.5 billion in 2017, up from USUSD81 billion in 2016 (CBI, 2018). On the listed equity side, the Sustainable Stock Exchanges Initiative (SSE) has grown to 68 members, with the Japan Exchange Group (JPX) joining at the end of 2017¹⁵. A growing number of stock exchanges also established dedicated green bond listings (e.g. Luxembourg, London Stock Exchange-LSEG, Borsa Italiana). Recently, several public and private financial institutions announced new initiatives to scale up sustainable finance at the One Planet Summit in Paris in 2017 and more recently at the Global

¹³ <http://www.climateaction100.org/>

¹⁴ <https://engagements.ceres.org/>

¹⁵ <http://www.sseinitiative.org/home/slider/japan-stock-exchange-group-becomes-newest-un-sustainable-stock-exchanges-partner/>

Climate Action Summit in 2018 (see Box 3 for a non-exhaustive list of announcements). Cooperation between stock exchanges has also been flourishing, including between JPEX and LSEG¹⁶, Luxembourg and Shanghai Clearing House on green bonds¹⁷.

Table 3: National roadmaps or action plans for sustainable finance (non-exhaustive list)

	Key aspects
Europe	The European Union: The European Commission published its Action Plan on Financing Sustainable Growth in March subsequent to the final recommendations from the EU HLEG. In May 2018, the Commission adopted a package of measures implementing several key actions announced in its action plan, including legislative proposals ¹⁸ .
	Italy: Ministry of Environment, Land and Sea, and the UN Environment released the results of a one-year national dialogue on sustainable finance, in Financing the Future report ¹⁹ in February 2017. It concluded that sustainable finance was a strategic opportunity for Italy.
	UK: The independent Green Finance Taskforce, set up at the UK Government's request, published its recommendations in March 2018 (GFT, 2018). In response, the UK Government announced it will fund a new Green Finance Institute together with the City of London Corporation, to champion sustainable finance in the UK and abroad ²⁰ . The Government will respond to the recommendations more substantially by the end of 2018.
Asia-Pacific	Singapore: The Monetary Authority of Singapore supported the launch of an industry-led initiative to develop a vision for green finance in Singapore (SIIA, 2017) . It sets the vision of Singapore as a green finance hub in the ASEAN and Asia (UNEP Inquiry, 2017b).
	China: Guidelines for Establishing the Green Financial System ²¹ published by the People's Bank of China were approved by the State Council in August 2016. It aims to incentivize and promote green loans, green bonds, green funds, green insurance, and mandatory environmental information disclosures, among others. In June 2017, the State Council announced five pilot areas for green finance.
	Indonesia: The Financial Services Authority (OJK) Board of Commissioners issued regulation on Sustainable Finance in 2017 for financial services institutions (including banking, capital markets and nonbank financial

¹⁶ <https://www.jpex.co.jp/english/corporate/news-releases/0070/20180709-01.html>

¹⁷ <https://www.bourse.lu/pr-luxse-mou-with-shch>

¹⁸ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en#commission-action-plan-on-sustainable-finance

¹⁹ <http://web.unep.org/newscentre/italy-lays-out-roadmap-increasing-flows-sustainable-finance>; (UNEP Inquiry, 2017b, 2017a; UNEP Inquiry and WorldBank, 2017);

²⁰ <https://www.gov.uk/government/news/green-finance-institute-and-financial-services-skills-taskforce-unveiled>

²¹ <http://www.pbc.gov.cn/english/130721/3133045/index.html>; GFPR (2017)

	institutions), issuers and listed companies. It requires them to submit a Sustainable Finance Action Plan, and a publicly available Sustainability Report annually (OJK, 2017; UNEP Inquiry, 2017b). This builds on the 2015 Sustainable Finance Roadmap for the period 2015-19 ²² .
	India: The Reserve Bank of India, India's central banking institution is in the process of formulating a roadmap for green banking in India by looking into various aspects of green finance (G20 GFSG, 2017).
Latin America	Argentina: commenced a process in February 2017 examining how its financial system supports sustainable financing, including green finance(G20 GFSG, 2017).
Africa	South Africa: The National Treasury has co-convened a national steering committee to identify a sustainable finance roadmap for action (UNEP Inquiry, 2017b). A study led by the Treasury will analyse gaps in financing and identify potential financial policy innovations that can be used to increase such investment (National Treasury, 2017).
	Morocco: Morocco's Central Bank, Bank Al-Maghrib (BKAM), together with the banking association and 5 other financial regulators, launched its "Roadmap for Aligning the Moroccan Financial Sector with Sustainable Development" in November 2016 during COP22(Bank Al-Maghrib, 2016; UNEP Inquiry, 2017b) ²³ . It highlights five major themes and makes suggestions for implementation for each financial sector actor.

Box 3. A short list of high profile initiatives in sustainable public and private finance

Global Climate Action Summit held in San Francisco in September 2018 and **The One Planet Summit** held in Paris in December 2017 witnessed the launch of several initiatives and pledges from both public and private sector institutions for scaling up investment and finance to tackle climate change.

Global Climate Action Summit (GCAS), San Francisco, September 2018

- **The Investor Agenda:** Nearly 400 investors with USD32 trillion in assets committed to step up action on climate change²⁴.
- **New York City** Mayor Bill de Blasio announced that the New York pension fund would double its climate investments to USUSD4 billion within three years. This follows his announcement earlier in the year to divest the fund from fossil fuels²⁵.

²² <http://www.ojk.go.id/en/berita-dan-kegiatan/publikasi/Pages/Sustainable-Finance-Roadmap-in-Indonesia-for-the-Period-2015-2019.aspx>

²³ http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/company-resources/sustainable-finance/sbn_guidancefrommembers;

²⁴ <https://www.ceres.org/news-center/press-releases/nearly-400-investors-32-trillion-assets-step-action-climate-change>

²⁵ <https://www.ceres.org/news-center/press-releases/nearly-400-investors-32-trillion-assets-step-action-climate-change>

- **Global Green Bond Partnership (GGBP):** This new initiative will support efforts of sub-national entities and financial institutions to accelerate the issuance of green bonds²⁶.
- **Green Bond Pledge:** Launched initially in March 2018 this joint initiative calls for all infrastructure and capital projects to be climate resilient and where relevant, support the reduction of GHG emissions, and support the role of green bonds. Australia's Local Government Super (LGS) and Luxemburg Green Exchange (LGX) joined the initiative as founding signatories²⁷.
- **Global Environment Facility (GEF)** announced a half billion US dollar financial commitment in new grant funds for food, land use, and restoration projects²⁸.
- **A coalition of 16 global banks** convened by the UN Environment Finance Initiative published a report on how to assess the risks and opportunities associated with climate change²⁹.

One Planet Summit, Paris, December 2017

- Nine of Europe's largest industrial issuers of green bonds of EUR26 billion publicly announced their **pledge to double their green bond issuance**, with an update on progress in December 2018³⁰.
- **World Bank Group**³¹ announced that it will no longer finance upstream oil and gas, after 2019 (apart from exceptional circumstances). It confirmed it is on track to meet the goals of its Climate Change Action Plan, but will announce new commitments and targets beyond 2020 at COP24 in Poland. Starting from 2018, it reports GHG emissions from the investment projects it finances in key emissions-producing sectors, such as energy. The World Bank will be applying a shadow price on carbon in the economic analysis of all IBRD/IDA projects in key high-emitting sectors where design has begun since July 2017. IFC will further mainstream its shadow carbon price in 2018. It also announced new partnerships and initiatives to mobilise private and public finance and deepen collaboration on climate action.
- **BNP Paribas**³² and **UNEP** announced the establishment of Sustainable Finance Facilities. It will identify suitable commercial projects with measurable environmental and social impact, with a target of capital funding amounting to USD10 billion by 2025 in developing countries.
- **Storebrand**³³, Norway's largest private pension provider, launched a new fossil free index fund. The fund excludes the entire oil and gas sector, including suppliers, as well as other

²⁶ <https://www.climatebonds.net/2018/09/global-green-bond-partnership-launched-accelerate-green-issuance-announcement-during-gcas>;
<https://www.globalclimateactions Summit.org/global-green-bond-partnership/>

²⁷ <https://www.climatebonds.net/2018/09/green-bond-pledge-founding-signatories-announced-us-cities-lgx-lgs-first-wave-commitments>;
<https://www.greenbondpledge.com/about>

²⁸ <https://www.globalclimateactions Summit.org/gef-financial-commitment/>

²⁹ <https://www.globalclimateactions Summit.org/banks-move-climate-change/>

³⁰ <https://www.engie.com/en/journalists/press-releases/industrial-issuers-26-billion-in-green-bonds-pledge-to-double-down-on-green-financing/>

³¹ http://www.worldbank.org/en/news/press-release/2017/12/12/world-bank-group-announcements-at-one-planet-summit?CID=ECR_FB_worldbank_EN_EXT_OnePlanet

³² <https://www.unenvironment.org/news-and-stories/press-release/un-environment-and-bnp-paribas-partner-bring-private-capital>

³³ <https://www.storebrand.no/7883/fossil-free-fund>

companies where more than 5% of revenue comes from production and/or distribution of fossil fuels. The fund has about the same risk and expected return as the world index.

- As part of the **EU External Investment Plan**, Climate Action and Energy Commissioner Cañete announced³⁴ climate-smart investments in three priority areas (Sustainable Cities; Sustainable Energy and Connectivity; and Sustainable Agriculture, Rural Entrepreneurs and Agribusiness) which is expected to generate investment up to EUR9 billion. Each thematic investment window is expected to generate approximately EUR3 billion in investments (by leveraging other public and private finance), with a guarantee volume of between EUR200 and EUR300 million each.
- **EBRD unveiled the Green Cities Climate Finance Accelerator**³⁵, a partnership with the Global Covenant of Mayors for Climate and Energy (GCoM), Bloomberg and the EU. The EBRD will provide over USUSD500 million aimed at leveraging additional third-party contributions for the development and implementation of city climate action plans and projects worth a total of USUSD1.5 billion.

4. How to transform financial systems for financing low carbon sustainable development

4.1. Challenges and constraints within the financial system in mobilising capital for sustainable development

Financial industry is starting to respond to the sustainability challenge. Yet, there remain significant challenges in effectively mobilising private finance towards sustainable investments. A number of leading organisations such as the G20 Green Finance Study Group, UNEP Inquiry, and more recently, the EU HLEG provided an in-depth study of these constraints and recommended specific interventions. Some of these fundamental constraints are highlighted below:

4.1.1. Misalignment with sustainable development objectives

The financial system is currently misaligned with low-carbon sustainable development objectives. With over USD400 trillion worth assets in total in banking, institutional investment and capital markets (UNEP Inquiry, 2015b), the private sector has sufficient levels of capital, albeit not allocated in line with long-term societal or environmental challenges. The EU HLEG notes that “there are two misalignments at the heart of the sustainability challenge: one concerns the appropriate **time horizon**; the other concerns the appropriate **conception of risk**. Key objectives such as job creation, environmental protection, retirement financing and climate transition require a focus on the longer term

³⁴ https://ec.europa.eu/clima/news/eu-external-investment-plan-climate-smart-investments-worth-eur-9bn-unveiled-one-planet-summit_en

³⁵ <http://www.ebrd.com/news/2017/ebrd-and-global-cities-group-scale-up-green-urban-financing.html>

and a broad perspective on potential risks to society. Yet much of the financial system is biased towards the short term and a relatively narrow view of financial risk". For instance, in Japan a 2ii study in partnership with IGES and RIEF showed that TOPIX (Tokyo Stock Price Index) is incompatible with a 2°C climate goal. As a consequence, financial institutions that invest in the Japanese economy through Japanese listed companies are not aligned with such goals leading to the overshooting of the 2°C threshold (2 degrees Investing Initiative, 2018).

Another aspect of short-termism is reflected in **corporate governance and reporting requirements** (typically quarterly) and an excessive focus on short-term results. This "requires continuous attention to short-term indicators, potentially at the expense of a longer-term focus" (EU HLEG, 2017).

4.1.2. Mispricing of sustainability issues

Furthermore, financial markets tend to **misprice sustainability issues**, by not internalising both positive and negative externalities their investments might entail. This results in a massive misallocation of capital towards investments and activities that do not support sustainable development (Aviva, 2014; Schmidt-Traub, G. and Sachs, 2015).

4.1.3. Narrow interpretation of fiduciary duty

An out of date and narrow interpretation of **fiduciary duty** by asset owners, financial intermediaries and policymakers prevented ESG issues and other forms of responsible investment approaches being integrated into investment decisions. Principles for Responsible Investment (PRI) and several UN organisations concluded that "failing to consider long-term investment value-drivers, which include environmental, social and governance issues, in investment practice is a failure of fiduciary duty" (Sullivan, R., Martindale W., Feller, E. and Bordon, 2015, p:9). Asset Owners Disclosure Project (AODP) found that 60% of the world's largest public pension funds seem to have little or no strategy on climate change when assessed against the TCFD recommendations, which might put them at risk of breaching their fiduciary duty (AODP, 2018).

4.1.4. Information asymmetry and lack of disclosure

Transparency of risks and prices is essential for markets to allocate capital efficiently and effectively. If long-term risks are not transparent and therefore relevant information is not included, this will limit investors' ability to fully assess risks and opportunities (Bank of England, 2017; EU HLEG, 2018). G20 Financial Stability Board's (FSB) Taskforce on Climate-related Financial Disclosure (TCFD) emphasised the need for better information on climate related risks and opportunities and encouraged enhanced disclosure for better-informed investment decisions³⁶.

Most of these challenges and constraints explored by the EU HLEG and other studies mentioned above are also relevant in a developing country context, to the extent of the sophistication of their domestic financial system and capital markets, and the role and availability of public versus private finance. For instance, in Indonesia, a short-term focus on lending and investment was found to be a major barrier to achieving developmental

³⁶ <https://www.fsb-tcfd.org/publications/final-recommendations-report/>

objectives, as these mostly require long-term funding, such as infrastructure projects (UNEP Inquiry, AsRIA and IFC 2015).

4.2. Recommendations

Finance community and companies increasingly recognise sustainability-related risks and opportunities, in particular in relation to climate change. This is reciprocated by an increasing understanding among policymakers and regulators of the role financial systems can play in driving the investment needed for achieving low-carbon sustainable societies. However, fundamental challenges remain. This section sets out a number of high-level recommendations that may help scale up action across the financial system. There are no silver bullets, and other factors such as policy, legal and institutional frameworks, including investment conditions, are equally important (if not more, in some cases) for aligning private finance with the objective of achieving SDGs by shaping the real economy. Tackling these constraints will often require cross-cutting approaches and action at international, domestic and market level which are discussed below:

4.2.1. Scaling up international momentum and collaboration

The G20 must continue to provide **strong political momentum** to green and sustainable finance agenda internationally, building on the establishment of the Green Finance Study Group (now known as the Sustainable Finance Study Group), and the TCFD. Subsequent G20 chairs must maintain leadership on green and sustainable finance going forward, and mainstream it into all aspects of their presidency priorities and working groups, such as quality infrastructure, energy transitions and digital economy. In addition, a permanent working group on sustainable finance under the leadership of the finance ministers and central bank governors needs to be established (EU HLEG, 2018).

G20 and G7's political support is very much needed and should aim to enable deeper collaboration between key market players in the financial sector and regulatory bodies, and enable them to think more broadly about national or commercial interests. The EU's HLEG is a good example of **regional collaboration** in developing a harmonised financial system with stability, sustainability and climate objectives in partnership with the financial sector. Other regional economic groups such as the ASEAN should replicate and adapt this approach to their own needs and circumstances building on their existing collaboration around green bonds. As proposed by the EU HLEG and the UK Green Finance Taskforce, countries should embed technical cooperation on sustainable investment and finance into their bilateral and multilateral diplomatic dialogues.

4.2.2. Aligning financial system with sustainable development objectives and correcting mispricing

- **International and systematic supervision** is needed to address the misalignment issues, which are at the heart of the financial system. G20 needs to review and align the mandates of multilateral institutions governing the financial system with the SDGs and Paris Agreement. This should entail a commonly agreed set of principles similar to the development of the Global Principles on Financial Inclusion (Zadek and Kharas, 2018). In that regard, the International Monetary Fund (IMF) and the World Bank need to start integrating sustainability considerations into their global financial system surveillance

regime.

- While international collaboration is crucial, **governments will need to do the heavy lifting** when it comes to creating the right enabling environment and coming up with the most appropriate policy and fiscal levers. Providing long-term policy signals to investors, financiers and businesses will be essential to overcome short-termism. For instance, national investment and financing roadmaps for climate mitigation and adaptation (or indeed meeting SDGs) would be useful indicators of policy direction. This could be complemented with sector-specific national or regional capital raising plans, so that the actions to achieve policy objectives are “bankable”. In addition, governments should use public finance to mobilise private sources of funding (e.g. blending) and finance “difficult to finance” projects under current market conditions in order to further “crowd-in” private finance where it is most needed and address the misconception of risk around ‘green or sustainable’ projects. Altogether, these types of interventions may encourage a stronger pipeline of sustainable projects for investment.
- Board level ownership is essential for addressing misalignment issues. Corporates and financial institutions need to strengthen their corporate governance in relation to sustainability issues and need to have the skills to anticipate longer-term risks and sustainability challenges. They must incorporate scenario analysis and stress tests to their strategy and investment decision-making processes, and assess their exposure to all climate-related risks and opportunities both in the short and long term.
- Actor specific action along the investment chain is needed. For instance, banks need to scale up their efforts in integrating sustainability and best practice on ESG and longer-term sustainability risk assessments into their financing decisions, which tend to focus on the short term. Their assessment of material risks needs to cover both financial and non-financial risks, including through the use of forward-looking tools such as scenario analysis.
- Financial market index providers, should encourage the development of SDG and climate change-related market benchmarks. Greater transparency and guidance on benchmarks would help drive allocation of capital towards green and sustainable investments and address mispricing issues.

4.2.3. Strengthening fiduciary duty and disclosure regimes

- The regulators must clarify the legal frameworks for integrating sustainability related risks and opportunities as part of investors’ **fiduciary duty**.
- **Enhanced disclosure** of how companies and financial institutions are integrating sustainability, ESG issues and specifically climate-related risks (as recommended by the TCFD) into their strategies and investment decisions is also necessary.
- **Supervisory authorities** have to play an ever more important role in facilitating private flows to sustainable investment while ensuring financial stability. They need to adopt a more hands-on approach and set out their expectations with the industry in terms of prudent management of risks by applying scenario analysis and stress tests. The central banks and other supervisors should also incorporate such analyses to their annual stress

tests of the overall financial system.

- Opposite to the banks, the business model of insurance companies and pension funds is naturally aligned with supporting long-term sustainability. They must further integrate TCFD recommendations into the reporting regimes of their asset managers, and strengthen their disclosure regime. In particular, pension funds should consult their beneficiaries on their sustainability preferences and reflect those in the fund's investment strategy.

4.2.4. Correcting information asymmetries

- In addition to high-level political leadership, **multilateral peer-to-peer knowledge networks** such as between financial centres or financial regulators/central banks should be strengthened for deeper technical cooperation on the ground. The recently established Network of Central Banks and Supervisors for Greening the Financial System (NGFS) is a good example of building capacity and capability among the participating financial institutions. Other countries should follow suit in establishing their own peer-to-peer dialogues or join the NGFS.
- Developing **a classification of sustainable assets and their international harmonisation** is essential to give financial markets more clarity (UNEP Inquiry and WorldBank, 2017; EU HLEG, 2018). **Sustainability standards and labels** are being developed and need to be harmonised across asset classes, starting with green bonds, which then could be incorporated into global financial sector oversight and cooperation mechanisms of the IMF and the World Bank.
- Progress towards closing the investment gap needs to be assessed in a comprehensive and systematic way. **Developing and mainstreaming tools for tracking and assessing flows and stocks of finance** (i.e. "green" tagging), and **a framework for measuring key impacts** are needed. This approach could also be integrated into global financial reporting frameworks (for instance from central banks to IMF). New potentially disruptive technologies such as AI, Big Data and Blockchain can help all stakeholders along the investment chain harness vast amount of information in a way that will create value for the consumers and the society.
- National level government action will also be needed to enable disclosure or synthesis of relevant information. Financial supervisors need to set their expectations of the industry and issue guidance on how the firms can meet those expectations.

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