Annex 10. Integrating Measures of Sustainable Finance and Climate Change into External Sector Statistics

A. Introduction

A10.1 During the past few decades, the increased awareness of macroeconomic and financial relevance of environmental and climate change related risks has led to a surge in demand for data on the financial and economic implications of climate change and environmental risks including funding activities which contribute to sustainable outcomes. The UN Intergovernmental Panel on Climate Change and other international platforms, including through the 2015 Paris agreement, has been placing increased emphasis on making more information available to better assess climate-related risks and opportunities and their financial impacts.[1] In that context, the objective of this Annex is to demonstrate how the BOP/IIP data can inform the current demands for data on environment and climate change, with a particular focus on the latter.

A10.2 Consistent with *SNA2025* (See SNA Chapter 35: Measuring the sustainability of wellbeing, paragraph 126), this Annex recommends compilation of supplementary BOP/IIP data in support of the analysis of financing activities that contribute to the achievement of more sustainable outcomes (sustainable finance). It also provides initial ideas on how external sector statistics could be used to better understand climate change. The Annex does not however intend to introduce a framework for data compilation or rigorous conceptual guidance, as the expert work in macroeconomic implications of sustainable finance and climate change is still evolving.

A10.3 While there are a number of international, regional and national initiatives to define climate change and sustainable finance related statistical concepts in the context of economic measurement, consistent and widely adopted definitions are yet to exist. The G20 Data Gaps

[1] The Recommendation of the Task Force on Climate-Related Financial Disclosures, June 2017, also describes climate-related opportunities that can arise from efforts to mitigate and adapt to climate change, such as resource efficiency and cost savings, adoption of low-emission energy sources, the development of new products, and building supply chain resilience.

Initiative 3 (DGI-3)[2] is expected to mobilize progress in this area to develop methodological guidance and reporting templates to produce more comparable indicators of green financing via debt securities and equity instruments across the G20 economies. The 2025 SNA also includes updates to its classification systems (including the classification of institutional sectors, transactions, other economic flows and stocks) addressing the emerging issues related to sustainability, climate change, renewable energy, waste and recycling activities, environmental, social progress, governance, or environmental depletion. The measurement of sustainable finance requires determining which components of the different financial instruments should be considered sustainable. Paragraph A10.10 elaborates on the primary types of sustainable finance, namely, ESG (Environmental, Social, Governance) finance and green finance.

A10.4 Given the lack of consensus on taxonomies for climate change or sustainable finance related concepts, this Annex does not recommend a single taxonomy but instead encourages national compilers and users to refer to the ongoing international work including through the DGI-3 as well as to support the development of official taxonomies nationally or regionally to support the availability of reliable, comparable and consistent data on sustainable finance and climate-related risks.

A10.5 Going forward, the Annex could be complemented with further guidance to reflect advances in methodology and data availability as well as the development of a broader framework to identify the cross-border aspects of sustainable finance as well as environment and climate change.

A10.6 Section B of this Annex focuses on sustainable finance, for which supplementary tables are introduced, as well as international cooperation grants. Section C introduces a number of other data that could be derived from the BOP/IIP framework as well as some additional data that could inform the compilers in support of climate change related analysis and policy making. Section D presents additional climate change related data that could be useful depending on national

[2] See https://www.imf.org/en/News/Seminars/Conferences/g20-data-gaps-initiative

circumstances. Finally, Section E discuss future areas of work.

B. Sustainable Finance and International Cooperation Grants

A10.7 Alongside the increasing range of activity and policy response to the challenges of sustainability, there is increasing level of financing of these activities. This financing can come from both public and private sources, and can include different types of activities, such as debt or equity issuance, financing from own funds as well as grants and subsidies.[3] The balance of payments framework would conceptually include cross-border flows of such financing.

1. Cross-border investment in financial instruments intended to finance sustainable projects

A10.8 While the financial instruments (e.g. loans, bonds, equities and investment fund shares) that are used to provide resources for sustainable development are the same as those used for other purposes, separate quantification of the level of financing for sustainability purposes, for example measures of the value of green bonds, is important for tracking investment in the green and climate/transition economy and informing decisions on monetary and fiscal incentives relating to it (OECD, Developing Sustainable Finance Definitions and Taxonomies, 2020). (See SNA Chapter 35 Paragraph 35.119)

A10.9 The measurement of sustainable finance requires determining which components of the different financial instruments should be considered sustainable. This is an active area of research and discussion in many fora across both the private and public sector. Nonetheless, recognizing the policy relevance of the data, definitions have been determined in order to operationalize the concept of sustainable finance. These definitions should be reviewed in the light of further advances, especially in the context of changes in the regulatory and reporting requirements.

[3] Note that climate finance, as defined by the United Nations Framework Convention on Climate Change, includes not only financing of climate action through debt (bond issuance or loan subscription) or equity issuance, but also financing from own funds as well as grants and subsidies (see IPCC Sixth Assessment Report: Chapter 15, Investment and finance, Box 15.4). Financing from own funds and domestic financing are out of scope for the external sector statistics.

A10.10Two primary types of sustainable finance are defined[4]: ESG finance and green finance, with green finance being a sub-set of ESG finance. ESG finance is *finance where the use of the proceeds is restricted to financing or refinancing activities or projects, or where the issuer agrees to achieve performance objectives that improve the condition of the environment or society or governance practices*. Green finance is *finance where the use of the proceeds is restricted to financing or refinancing activities or projects that improve the condition of the environment*. The general principle for establishing greenness is positive contribution to the environment, rather than "do no harm."

A10.11 Countries are encouraged to compile measures of ESG finance and green finance as supplementary *of which* items for the following financial instruments: equity and investment fund shares, debt securities, and loans—under the three relevant functional categories—direct investment, portfolio investment, and other investment. The relevant breakdowns are shown in Table A10.1.

Table A10.1 : Supplementary table for ESG and green financial instruments (BOP and IIP)

		BOP (Transactions)	IIP (Stocks)
1	**Direct Investment**		
1.1	Equity and investment fund shares		
	▪ *Of which:* ESG equity/investment fund shares		
	▪ *Of which:* Green equity/investment fund shares		
1.2	Debt Instruments		
	Of which: 1.2.0.1 Debt Securities		
	▪ *Of which:* ESG debt securities		
	▪ *Of which: Social debt securities*		

[4] The definitions would need benefit from further work in the area including the further elaborations/updates in the SEEA.

	▪ *Of which:* Green debt securities		
	▪ *Of which: Sustainability debt securities*		
	▪ *Of which: Sustainability-linked debt securities*		
	▪ *Of which: Other ESG debt securities*		
2	**Portfolio Investment**		
2.1	Equity and investment fund shares		
	▪ *Of which:* ESG equity/investment fund shares		
	▪ *Of which:* Green equity/investment fund shares		
2.2	Debt Securities		
	▪ *Of which:* ESG debt securities		
	▪ *Of which: Social debt securities*		
	▪ *Of which:* Green debt securities		
	▪ *Of which: Sustainability debt securities*		
	▪ *Of which: Sustainability-linked debt securities*		
	▪ *Of which: Other ESG debt securities*		
3	**Financial Derivatives**		
4	**Other Investment**		
4.1	**Other equity**		
4.2	**Currency and deposits**		
4.3	**Loans**		
	▪ *Of which: ESG loans*		
	▪ *Of which: Green loans*		
4.4	**Insurance, pension and standardized guarantee schemes**		
4.5	**Trade credit and advances**		

4.6	**Other accounts receivable/payable**		
4.7	**SDRs**		
5	**Reserve assets**		

A10.12The definitions of each of the instruments are adaptations of the general definitions of ESG and green finance above. Thus, for ESG debt securities the scope concerns those where the use of proceeds is restricted to financing or refinancing activities or projects that improve the condition of the environment or society or governance practices or where the issuer agrees to achieve performance objectives that improve the condition of the environment or society or governance practices. For ESG loans the scope concerns those in which 50% or more of the debtor's activities improve the condition of the environment or society or governance practices. In the case of business loans, the debtor's activities would be reflected in the business's revenue, while in the case of loans to households, they would depend on the use of the loan proceeds. For ESG equity the scope concerns those equity investments in institutional units in which 50% or more of the institutional unit's revenue comes from activities that improve the condition of the environment or society or governance practices. For ESG investment fund shares/units the scope concerns those funds investing in financial instruments, companies, projects or other funds that intend to achieve performance objectives that improve the condition of the environment or society or governance practices. The definitions concerning green instruments have the same measurement scope except that they are limited to improving the condition of the environment. (See SNA Chapter 35 Paragraph 35.122)

A10.13Focus should be placed on recording the stock values for these instruments with transactions being recorded as a second order of priority. If possible, the estimates should be provided for all of the main sectors and sub-sectors. For debt securities, total ESG debt securities may be further broken down to identify the following "of which" items: social debt securities which concern debt securities where the use of proceeds is restricted to financing or refinancing

of activities or projects that improve the condition of society; green debt securities which concern debt securities where the use of proceeds is restricted to financing or refinancing of activities or projects that improve the condition of the environment; sustainability debt securities which concern debt securities where the use of proceeds is restricted to financing or refinancing of activities or projects that improve the condition of the environment and society; sustainability-linked debt securities which concern debt securities in which certain characteristics, such as the associated cash payments, are linked to achieving performance objectives that improve the condition of the environment and/or society; and other ESG debt securities which include all ESG debt securities other than social, green, sustainability and sustainability-linked debt securities.No maturity breakdown would need to be introduced as in the main BOP/IIP tables. (See SNA Chapter 35 Paragraph 35.123)

A10.14As the work in this area evolves, further guidance for addressing the range of measurement challenges in implementing the recommendations for sustainable finance related information in BPM7 could be developed. For more information on the measurement challenges, see SNA Chapter 35 paragraph 35.124.

2. International cooperation grants

A10.15Additional data on international cooperation grants to low-income countries to finance climate change mitigation and adaptation could also be useful to monitor global progress towards meeting climate finance commitments. Climate-related grants could be in the form of current or capital transfers between governments or between international organizations and governments, used by recipient countries to mitigate and adapt to the adverse effects of climate change. Separately identifying these climate-related grants, both by the recipient and donor countries, could be considered depending on the magnitude, macroeconomic implications for recipient economies, and the feasibility of separately identifying them. Such data could be included in the BOP as an *of which* category of international cooperation grants.

A10.16Two international datasets that include climate-related international grants are from the

United Nations Framework Convention on Climate Change (UNFCCC) and the OECD. The UNFCC publishes climate finance data received officially from Annex 1 Parties to the Convention on an annual basis. Reporting countries provide the reasons for classifying the funds as grants or other forms (e.g., loans). The OECD database includes climate grants data from donor and recipient economies. These datasets could, initially, be a useful source for recipient economies to track the climate-related grants provided to them by the reporting donor economies. However, data compilers in recipient economies are also encouraged to compile their own data on climate finance grants which could be cross-checked with the international databases that are typically based on data from donor countries. Furthermore, reporting is based on national definitions (with parties providing the underlying assumptions, definitions, and methodologies); as such, the data may not be comparable across countries.

C. Using External Sector Statistics to Understand Climate Change Related Risks and Opportunities

A10.17Climate change is a global phenomenon affecting not only the natural environment but also posing increasingly significant risks to the financial system and the economy as a whole. These risks could emerge from exposure of the financial sector and their investments to physical risks from climate change related events such as floods, droughts, etc., or exposure to transition risks, which refers to the implications associated with shifting to a low-carbon economy (e.g. sudden changes in policy that may result in stranded assets). For example, more stringent environmental legislation may result in increased credit risk or large changes in asset values. Higher environmental standards may have implications (though not necessarily negative) for the operational costs of doing business of non-financial companies: on the one hand, energy prices may rise, potentially up to the point where certain assets may become stranded (assets that are prematurely written down, devalued or converted to liabilities). However, on the other hand, new opportunities may occur, or more efficient production methods can be used. Also, technological innovations or changes in consumer or investor preferences may impact the business of various

economic actors as well as financial institutions. Such physical and transition risks are not limited to individual (financial) companies but may affect entire industries and geographical regions and countries. Hence, climate change may have important implications for financial and systemic stability which may be curbed by the actions of the policy makers. To that end, it is important to quantify risks related to climate change in support of policy making. In that context, there is increasing interest in measuring physical and transitional risks. Risks are inherently forward looking and as such may not fit in the international macroeconomic statistical standards including external sector statistics; however international macroeconomic statistical standards can provide useful information that can inform decisions taking into account climate-related risks.

A10.18 Despite the global nature of the risks posed by climate change, the extent of their implications would differ across locations, sectors and entities. Therefore, granular information on cross-border flows of investments and trade are becoming increasingly important to measure the potential effects of climate change related risks on different economies, sectors, and entities. This Section focuses on these cross-border aspects of climate change and identifies the types of data that can be important for understanding the relationship between climate change and the economy.

A10.19 This Section presents some initial considerations on the types of data that could be compiled at the national level to support users in understanding climate change in the context of external sector statistics (other than those mentioned in Section B above). This includes useful information that could be made available by isolating certain BOP/IIP components or by introducing more granularity within a BOP/IIP component. In addition, other future areas of work are presented.

A10.20 The data items presented in this section should be considered as indicative items that could help further inspire the national compilers in support of their respective data users. It is not intended to introduce a data framework for climate-related data compilation or dissemination for external sector statistics, but rather to provide some initial considerations on the types of data that

could be relevant for policy makers. In addition, these items could potentially be useful in combination with other information on environmental risk exposures (e.g., environmental risk exposures of economic activities or climate risk profiles of individual countries). While a wide range of indicators may be useful to explore risks from a cross-border perspective, the presented items are those initially considered by the balance of payments community as the most feasible to compile in the short term as additional details and breakdowns of existing BOP and IIP items.

1. Direct investment by industrial sectors

A10.21 *Breaking down direct investment by economic activity* would be useful to assess the industrial sector specific climate-related risks that resident nonfinancial corporations are directly exposed to through their direct investments in specific sectors. For example, direct investments in sectors such as agriculture or real estate would be more exposed to physical risks related to climate change while others in carbon-intensive sectors would be relatively more exposed to transition risks. Financial corporations would also be subject to both kinds of risks, mainly indirectly through the lending portfolios of their subsidiaries abroad. Obviously, such information on the breakdown of direct investment by economic activity needs to be complemented with information on the exposures of sectors to environmental risks using tools such as ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure)[5].

A10.22 BPM7 (See Chapter 6, Paragraph XX) includes among the standard items, sectoral classification of direct investment data by institutional sectors similar to the rest of the functional categories (i.e. central bank, DTCs except the CB, general government, OFCs, NFCs/HHs and NPISH). While this would be a useful start in the context of climate related risk, compilers could usefully aim for further granularity of sectors such as a more granular breakdown of non-financial corporations aligning with other statistics (e.g., with the International Standard Industrial Classification (ISIC))[6]. Compilers are also encouraged to go beyond the existing classifications to

[5] https://encorenature.org/en

[6] ISIC classification has some limitations for its use for climate change purposes (e.g., the energy sector does not differentiate between electricity generated from renewable resources and from coal).

capture additional aspects of climate change considering the limitations of existing classifications.

2. Physical location of investments (Direct investment by counterparty country)

A10.23 Direct investments in certain host economies may be more exposed to physical risks or transition risks related to climate change than in others, depending on the geographical location or policy developments. In addition, greater exposure to climate change related physical and transition risks could affect the direct investments received. To that end, counterparty country data for direct investments, in combination with information on the risk exposures of the location[7], would provide insights into risk exposures of both the direct investor and investee countries. While the ideal information would be direct investment by ultimate counterparty, immediate counterparty data would be more readily available and still useful. Data may be compiled and published both at a bilateral level but also, for example, as a weighted average across countries. National (and supra-national) level data would be particularly useful for transition risks, since policies supporting the transition are likely to be enacted at the national (supra-national) level.

A10.24 A refinement of data by counterparty economy on the exact (near) *physical location of direct investments* would shed more light into, particularly, physical risks to which a country's cross-border investments would be exposed. Such calculations are ideally made at a more detailed geographical level in combination with other statistics on investments at various levels of aggregation (such as city or postal code area) due to regional variation in climate change risks within countries. Nevertheless, national data would still be relevant, as the macro stability implications may still extend to the national level, as mentioned above. Importantly, data sources on physical risks by such detailed geographical area are readily available for use[8], and their use in combination with existing data collections on investments at various levels of aggregation (country, city) are being explored to develop indicators of physical risks. Having said that, explicit

[7] Intergovernmental Panel on Climate Change, Climate Risk Institute, World Bank's country profiles could be useful resources for information on regional/national climate change risk profiles.

[8] Examples include the data published by the World Resources Institute or the EU Risk Data Hub.

data on physical structures (e.g., buildings, structures) and how these are financed may not be readily available and would require some sophisticated modeling. Efforts at the national level to develop detailed geographical data for direct investment (e.g., at a city level) by utilizing existing data collection frameworks together with other statistics would be encouraged.[9]

3. Trade in goods related to the transition to a low-carbon economy

A10.25Trade statistics could provide important insights into the analysis of movement of environmental risks across the supply chain and into the supply chains associated with products aimed at greening production systems or at mitigating risks. To that end, information on trade in "environmental goods" or more specifically trade in "low carbon technology (LCT) products" could be useful. Environmental goods," is a broader concept which includes products related to environmental protection and resource management. The System of Environmental Economic Accounting Central Framework (SEEA CF) provides guidance on the accounting for environmental expenditures and goods and services under its environmental activity accounts and relevant trade statistics should seek alignment with the SEEA CF including any further improvements to it.

A10.26 Compiling consistent data on trade in environmental goods or LCTs would help users including policy makers. These data may be estimated top-down using models, but ideally, compilers could use a bottom-up approach to produce more detailed results from granular, economy-level information, which over time may become increasingly comparable across countries as methodologies and data sources converge. To measure trade in LCT products, a list of commodities to be included needs to be identified. There is no internationally agreed-upon list for environmental goods or LCTs, though several lists have been developed to meet different policy needs including by the IMF.[10] Further work is needed to avoid complications in the

[9] Compilers may want to look into the potential for investments in nature based solutions as these could support the climate change mitigation and adaptation efforts.

[10] The IMF defines LCT products as those that produce less pollution—especially of carbon dioxide and other greenhouse gases—over their lifetime than their traditional counterparts and will play a vital role in the transition

interpretation of analytical results based on different lists of LCT products.

A10.27 National compilers could subsequently derive additional analytical indicators by using the data in trade in environmental or LCT products and combining them with other trade related data. These include import and exports of LCT or environmental products, trade balance in LCT or environmental products, total trade in LCT or environmental products and comparative advantage in LCT or environmental, including by partner economy.

4. Trade in services related to the environment and climate change

A10.28 Another example of useful information that could support users of climate change data could be *environmental, agricultural, and mining services component of trade in services in BPM7*. Based on *BPM7* (paragraph [11.158-3]), environmental services consist of waste treatment and depollution services, including materials recovery (recycling) services, sewerage, sewage treatment and septic tank cleaning services, waste collection and disposal, remediation, sanitation, and other environmental protection services. They also include treatment of air pollution, carbon capture and storage services that are not classified under any other specific category. The SEEA CF also provides guidance on the treatment of waste under environmental accounts which needs to be taken into consideration when compiling granular data on waste treatment and depollution services. Compiling granular data on these relevant subcomponents of environmental services could be useful for the users of climate change data.

5. Transactions in emission permits

A10.29 Separate reporting of *cross-border transactions in emissions permits* could also inform data users. Based on paragraph 5.74 of BPM7, emission permits are recorded as other accounts/payable under financial assets. For countries where cross-border transactions of

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to a low-carbon economy. Rapid diffusion of LCTs is considered to be critical for accelerating climate change mitigation (IMF, *Data for a Greener World*) while trade is a key transmission channel in the development, production, and adoption of low-carbon technologies (Cirera and Maloney 2017). See IMF Book, DATA FOR A GREENER WORLD A Guide for Practitioners and Policymakers, Chapter 9 for a discussion on LCT products and environmental goods.

emissions permits are significant, compilers could consider compiling information on transactions in emissions permits separately.

6. Transactions related to climate-induced natural disasters

A10.30 *Disaggregated data on transfers and direct investment* in response to specific climate induced disasters (e.g., reconstruction after a hurricane, or remittances to climate induced migrants) may be feasible to compile and would be useful to assess how DI and transfers are contributing to financing the climate change adaptation. Such information would help with the assessment of transition risks.

D. Future work

A10.31 As the policy work on environmental change is evolving rapidly, compilers are encouraged to also consider how external sector statistics could support emerging areas of interest. Such future work could include:

A10.32 *Information on the lenders:* Exposure of the sources of financing (e.g., energy exporting jurisdictions, flood prone jurisdictions) to climate change related physical or transition risks may affect the funding levels of financial and nonfinancial institutions

A10.33 *Financial derivatives:* Financial derivatives are an important tool for managing risks. Therefore, institutions' holding of financial derivatives related to sustainable investments or climate related risks, including across borders, would help us understand how they hedge against such risks. Weather-related financial derivatives are being developed to deal with weather-related events. Derivatives tied to specific commodities, such as oil, specific agricultural commodities, or tons of CO_2 emissions, could also be of interest.

A10.34 *Information on total insurance claims* (including reinsurance which is used as a risk transfer mechanism), including those resulting from climate change related natural hazards could also be compiled. Based on *BPM7* (paragraph 14.24), nonlife insurance claims are normally classified as current transfers. For exceptionally large claims, such as those following a major

catastrophe or disaster at national level, some part of the claims may be recorded as capital transfers rather than as normal current transfers..Compilation of data on the insurance claims resulting from climate change related natural hazards could be useful for the users of climate change data.

A10.35More generally, looking at further disaggregating some of the balance of payments flows from a climate change perspective has been put on the SNA/BPM research agenda.