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METHODOLOGY FOR THE ANALYSIS OF IFU'S PORTFOLIO CARBON FOOTPRINT

Table of Content

Methodology for the analysis for IFU's portfolio carbon footprint

1. Introduction

This report presents a description of the methodology used for the calculation of IFU's 2022 portfolio carbon footprint. The methodology used is rooted in the approach described by the PCAF Global GHG Accounting Standard[1]. However, in comparison to PCAF, it includes considerations that are specific to IFU, and expands or adapt the PCAF standard in order to allow for a full assessment of IFU's portfolio.

The methodology is aligned with the approach used for the previous footprint calculations (i.e., the 2020 footprint) and IFU plans to use it for at least three years in a row to allow for comparability between years.

The report and its content build upon earlier work and documentation developed by Compassi.

2. Definitions

This section aims to clarify key concepts related to the GHG footprint. Where available, definitions are taken from established and well-recognised organisations and methodologies in the field of climate science.

- **Absolute (anthropogenic) emissions**: Emissions of greenhouse gases (GHGs), precursors of GHGs and aerosols generated by human activities and emitted to the Earth's atmosphere. These activities include the burning of fossil fuels, deforestation, land use and land use changes (LULUC), livestock production, fertilisation, waste management, and industrial processes[2].

- **Sequestered emissions**: The withdrawal of greenhouse gases (GHGs) from the atmosphere as a result of deliberate human activities. These include enhancing biological sinks of CO_2 and using chemical engineering to achieve long term removal and storage. Carbon capture and storage (CCS), which alone does not remove CO_2 from the atmosphere, can help reduce atmospheric CO_2 from industrial and energy-related sources if it is combined with bioenergy production (BECCS), or if CO_2 is captured from the air directly and stored DACCS)[2]. Also referred to as sequestered GHG.

- **Net-zero (GHG or CO_2e) emissions**: A situation in which the total metric-weighted anthropogenic absolute emissions, emitted and removed, of a system is zero i.e. a net balance is achieved between the anthropogenic GHGs put into the atmosphere and those removed[2].

- **Carbon footprint**: the sum of the total absolute GHGs, emitted and removed, of a product, system, project, or other.

- **Emissions' scopes**: The GHG Protocol Corporate Accounting and Reporting Standard[3] classifies an organization's GHG emissions into three scopes:

    - **Scope 1 emissions**: Direct GHG emissions that occur from sources owned or controlled by the reporting company – i.e., emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.

    - **Scope 2 emissions**: Indirect GHG emissions from the generation of purchased or acquired electricity, steam, heating, or cooling consumed by the reporting company. Scope 2 emissions physically occur at the facility where the electricity, steam, heating, or cooling is generated.

    - **Scope 3 emissions**: All other indirect GHG emissions (not included in Scope 2) that occur in the value chain of the reporting company. Scope 3 can be broken down into upstream emissions that occur in the supply chain (for example, from production or extraction of purchased materials) and downstream emissions that occur as a consequence of using the organization's products or services. The emissions resulting from a reporting company's

[1] The Global GHG Accounting and Reporting Standard for the Financial Industry (carbonaccountingfinancials.com)

[2] IPCC. Sixth Assessment Report. https://www.ipcc.ch/report/ar6/wg1/ (2021)

[3] ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf

loans and investments fall under the Scope 3 downstream emissions of the financial institution, more precisely under Scope 3 category 15 (investments).

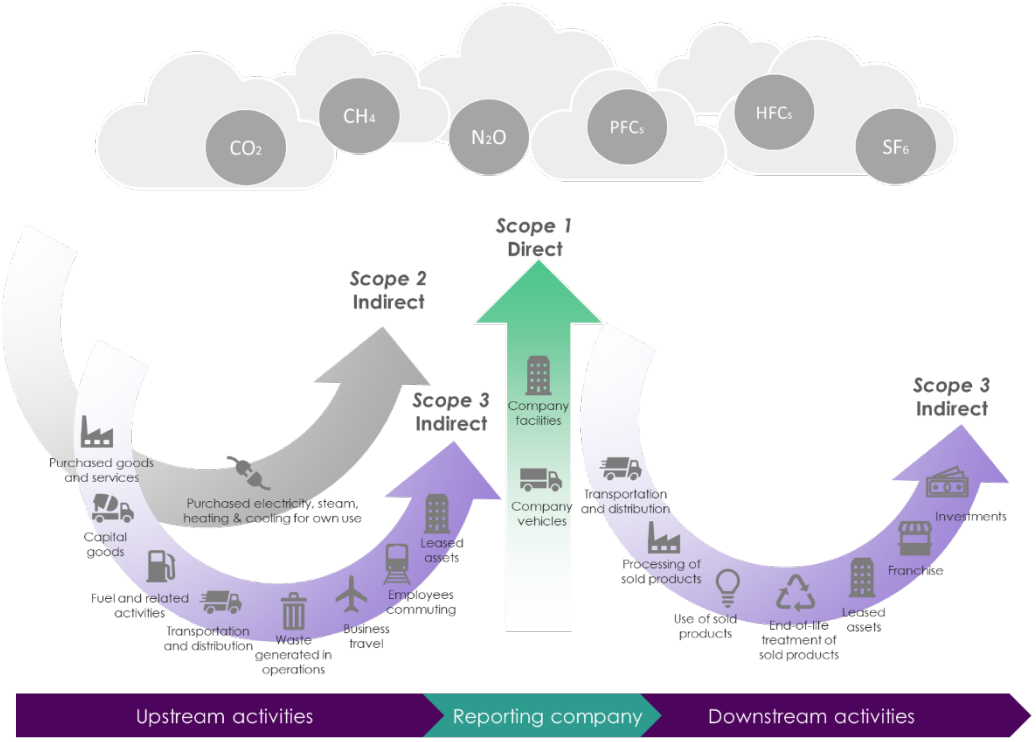

Figure 1. Scope classification according to the GHG Protocol (adapted from the GHG Protocol).

- **Attribution**: The emissions resulting from an activity of a specific entity, which is then regarded as having caused those emissions. Normally applied to avoid double-counting. In the context of financial institutions, attribution is used to estimate the share of total GHG emissions of the borrower or investee that are provided as a loan or investments.

- **Financed emissions**: The emissions that a financial institution is causing through their financial activities. In the GHG Protocol terminology, financed emissions are classified as Scope 3 emissions of the financial institution. Financed emissions can be also classified according to the project/company into the Scope 1, 2, or 3 of the project/company.

- **Portfolio carbon footprint** of a financial institution: The sum of the total absolute GHGs, emitted and removed, from Scope 1, 2, and 3 of the companies or projects belonging to the portfolio of activities of the financial institution that are attributed to the financial institution.

3. Approach

As a general framework, the carbon footprint methodology used, and presented in this report, attempts to align as much as possible with the PCAF Accounting Standard. However, due to the data availability, portfolio compositions and IFU's intended use of the footprint results, the approach was adapted or expanded to allow for the full analysis of IFU's portfolio.

This methodology document does not aim to substitute PCAF, but rather to complement it by explaining how the standard was applied in the context of the assessment of IFU's climate footprint. It provides a summary of the main steps of the approach and underlines the differences to PCAF. Readers should refer to the PCAF standard for more detailed information.

Emissions include Scope 1, 2 and 3 emissions of companies, projects, and financial institutions in which IFU is investing. These are defined as the financed emissions of IFU and are determined in alignment with the

"follow the money" principle, meaning that the money from loans and equity investments is followed as far as possible to understand and account for the climate impact in the real economy.

Furthermore, in order to avoid double-counting, the footprint results account for attribution in accordance with PCAF and the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard for category 15 (investment)[4]. The attribution factor is defined so that GHG emissions from loans and investments are allocated to the reporting financial institutions based on the proportional share of lending or investment in the borrower or investee. The attribution factor is then multiplied with the annual emissions of the company or project.

When an investment enters IFU portfolio, it is subject to monitoring. This happens through the annual collection of data from the investments. This data is the base for the calculation of the annual emissions of the individual investments, which, multiplied by the respective attribution factors, and summed together across all portfolio's investments constitute the portfolio carbon footprint of IFU (Figure 2). This represents the total absolute emissions financed by IFU that are generated in the financial year considered. The carbon footprint is calculated at a fixed point in time (in this case, end of year 2022), in alignment with guidance from the PCAF standard.

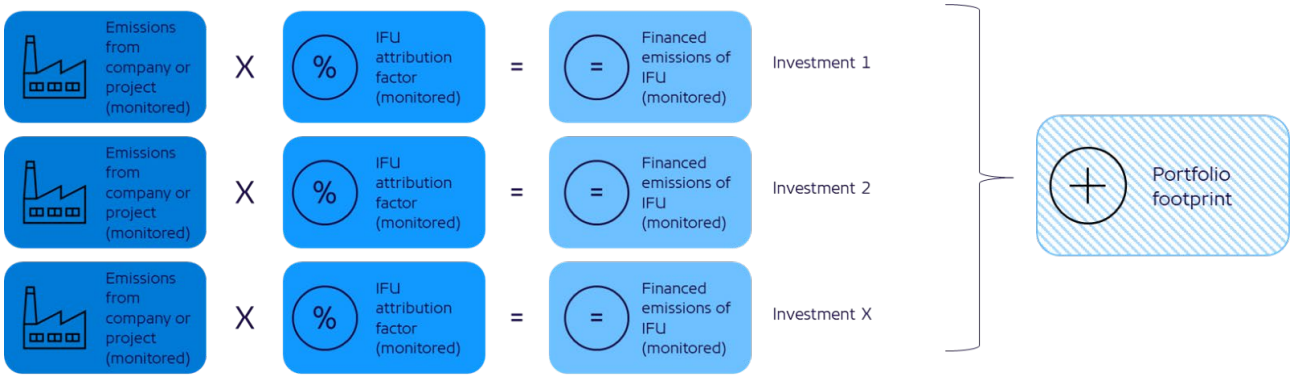

Figure 2. Monitoring of emissions of individual investments for the calculation of the portfolio footprint

Asset class and general approach

Building upon the PCAF standard, three main approaches are used to calculate absolute emissions of the projects and companies from IFU's portfolio, referring to three different asset classes[4]. On top of these, one additional approach is included to assess the emissions from financial intermediaries (funds, banks, etc.). Thus, the four asset classes and respective approach used are:

- Listed equity and corporate bonds (as defined by PCAF)
- Business loans and unlisted equity (as defined by PCAF)
- Project finance (as defined by PCAF)
- Financial intermediaries (added, in comparison to PCAF)

In order to categorize the investments in the four asset classes mentioned above, the diagram presented in Figure 3 is used. For more details regarding these asset classes, please refer to the PCAF standard.

[4] Chapter15.pdf (ghgprotocol.org)

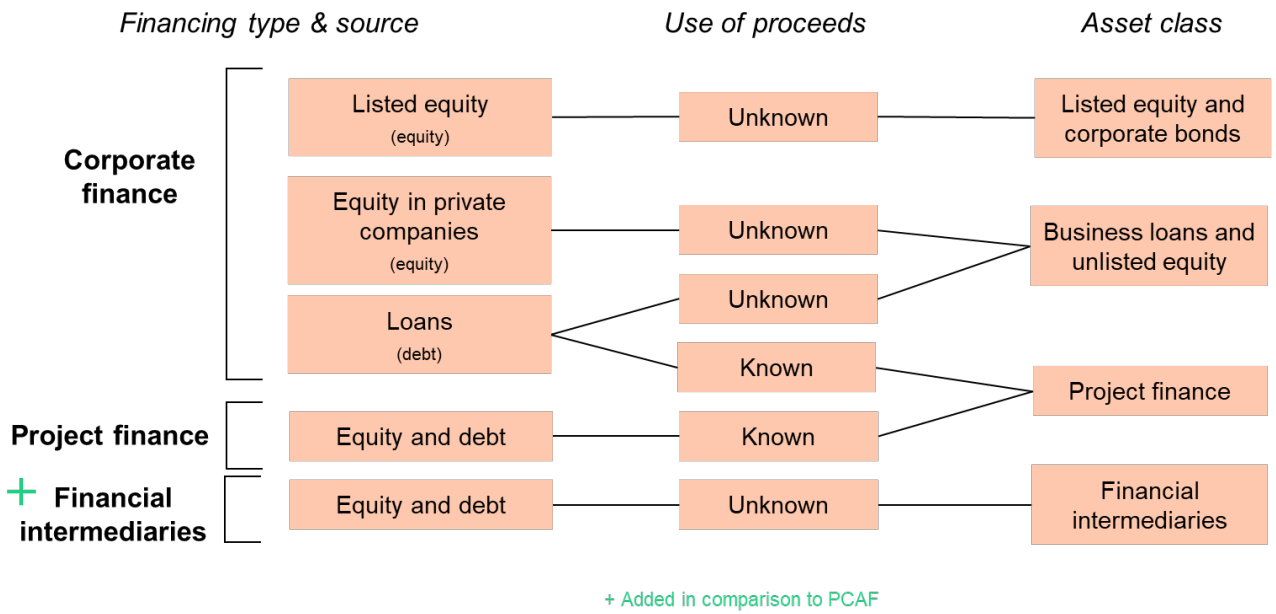

Figure 3. Guidance for choosing an approach to calculate financed emissions (adapted from PCAF).

In general, all greenfield projects are of the project finance type and are assessed using the project finance approach, regardless of whether the instrument is equity or debt. Establishment of new facilities (such as power plants, production facilities, etc.) are considered as greenfield projects, and assessed using the project finance approach.

Corporate finance are generally brownfield projects. Listed companies invested via equity (listed equity that is traded on a stock exchange or another securities exchange) are assessed using the Listed equity and corporate bonds approach. For private companies, on the other hand, the rule of thumb based on PCAF (as depicted in the figure) is that when the financial instrument is equity, the use of proceeds is unknown, and the investment is assessed using the business loans and unlisted equity approach[4]. When the financial instrument is debt, it should be evaluated whether the use of proceeds is known or unknown. The use of proceeds is considered "known" when both conditions below are met:

1. The activities where IFU's financing is provided can be ringfenced, and
2. It is possible to discern the emissions stemming from the activities financed by IFU and the rest of the activities.

On the other hand, the use of proceeds is considered unknown for investments entailing restructuring of companies, providing growth capital for expansions where the results of that (and GHG implications) are not measurable. Based on these considerations, for corporate finance making use of a debt instrument, where the use of proceeds is known, the project finance approach is used, as illustrated in the figure. In the other cases, the business loans and unlisted equity approach is used.

The substantial difference between, on the one hand, the business loans and unlisted equity (or listed equity and corporate bonds approach), and, on the other hand, the project finance approach, is the way the assessment boundaries are set, which influences what activities are included for the calculation of emissions and attribution factors. In the project finance approach, the calculation of emissions includes only the emissions from the financed (ringfenced) activities. Emissions related to existing activities outside the ringfenced financed activities but within the financed organization are not considered. On the other hand, in the business loans and unlisted equity approach, and also in the listed equity and corporate bonds approach, the calculation of emissions includes all emissions from the company in which the financing is provided.

The calculation of the attribution factors follows the same logic. In the project finance approach, the calculation of the attribution factor includes only the financials from the financed (ringfenced) activities. On the other hand, the business loans and unlisted equity approach and the listed equity and corporate bonds approach include all the financials from the company in which the financing is provided.

PCAF does not yet explicitly include an approach for accounting for emissions of investments in financial intermediaries such as funds, banks, microfinance institutions and similar. For this reason, it was necessary to develop an additional asset class, which would include investments in the above-mentioned financial institutions, as they represent a significant share of IFU's portfolio.

The method for assessing emissions of financial intermediaries relies on the approach illustrated in the Joint Impact Model (JIM) methodology for calculating "finance enabling" emissions, and the related assessment tool available online (version 3.1)[5]. In the JIM methodology, finance enabled emissions are described as emissions "at companies, suppliers of companies, and their suppliers associated with the financial intermediary's lending".

Considerations specific to guarantees

In addition to the equity and loan investments, IFU also manages a small portfolio of guarantees and invests in financial institution who provide guarantees. According to PCAF Part A, emissions from guarantees and insurances should be accounted only when the guarantee or insurance is called and turned into a loan (i.e. activated). When a guarantee is activated and turned into a loan, the relevant approach for the loan, as depicted in Figure 3, would apply for the calculation of the attribution factors and the resulting "financed emissions". On the other hand, guarantees not activated would be assigned an attribution factor of zero, and the resulting financed emissions would be zero.

This approach is also adopted by IFU to calculate their financed emissions.

This notwithstanding, if a guarantee is enabled it can cause climate impacts. For this reason, the emissions arising from the guarantees that are not being activated (and therefore not resulting in "financed emissions") will be reported separately from the financed emissions from the 2023-reporting.

Investment boundaries

Calculations cover Scope 1, 2 and 3 emissions of the investments (Figure 1). Within Scope 3 emissions (of a company or project) IFU aims to assess as much as possible of the company value chain emissions, in line with the Scope 3 categories presented in Figure 1. As a result of this, all investments assessed have at least some coverage of Scope 3 emissions.

Note on Scope 3 emissions

For the assessment of Scope 3 emissions, Scope 3 boundaries are set in accordance with the GHG Protocol Corporate Value Chain (Scope 3)[5]. According to the GHG Protocol, for some Scope 3 categories (e.g., purchased goods and services, capital goods, fuel- and energy-related activities), the minimum boundary includes all upstream (cradle-to-gate) emissions of purchased products. For other categories (e.g., transportation and distribution, waste generated in operations, business travel, employee commuting, leased assets, franchises, use of sold products, etc.), the minimum boundary includes the scope 1 and scope 2 emissions of the relevant value chain partner.

Especially for renewable energy projects, which have low or zero GHG emissions during the use stage (Scope 1 and 2 emissions), have relevant construction and manufacturing emissions. These Scope 3 emissions from capital goods (e.g., emissions from production of solar panels) are accounted in the years, they happen. For harmonisation purposes, a standard construction period of two years is assumed for all renewable energy project finance investments. For corporate finance investments involving renewable energy companies that install systems on a rolling basis, the full manufacturing Scope 3 emissions are accounted in the year where the systems are deployed (i.e., assuming a construction period of one year).

[5] JIM Methodology (jointimpactmodel.org)

Assessment of the impacts of the financial intermediaries include the Scope 1, 2, and upstream Scope 3 emissions of the clients of the financial intermediaries, for example of the clients of a bank, or of the investees of a fund. The Scope 1, 2 and 3 of the financial intermediary's clients are considered by IFU as Scope 3 emissions of the financial intermediary and reported under the Scope 3 emissions in IFU's portfolio.

Attribution
In the context of the portfolio footprint, IFU bases the attribution on the share of outstanding capital in a client's assets.
The approaches for calculation of attribution, except for the approach developed for financial intermediaries, are the ones presented in the PCAF standard, adapted taking into account the data available at IFU. The approaches, for each of the four asset classes relevant for IFU are summarised in Table 1.

Information	Listed equity and corporate bonds	Business loans and unlisted equity	Project finance	Financial intermediaries
Formula	$Attribution\ factor_c = \frac{IFU's\ Outstanding_c}{EVIC_c}$	$Attribution\ factor_c = \frac{IFU's\ Outstanding_c}{Total\ equity + debt_c}$	$Attribution\ factor_p = \frac{IFU's\ Outstanding_p}{Total\ equity + debt_p}$	$Attribution\ factor_{FI} = \frac{IFU's\ Outstanding_{FI}}{Total\ assets_{FI}}$
Numerator	The financial year-end outstanding amount of IFU in the investment. In the case of debt, the outstanding amount is defined as the outstanding debt the borrower owes to IFU. In the case of equity, the outstanding amount is the outstanding equity IFU holds in the investment[6].			
Denominator	If available, the EVIC at the end of the fiscal year. Otherwise, approach for business loans and unlisted equity is used.	The total balance sheet value (i.e. the client's total assets) at the end of the financial year.[7]		The total assets of the financial intermediary in the reporting year. For this purpose, the funds' "total size" is used, while for other FIs, like banks or microfinance institutions, the total assets of the FI are used.

Table 1. Description of the three approaches for the calculation of attribution.

If the attribution factor is found to be higher than 100% (i.e. cases in which the balance is lower than the outstanding loans and/or equity that IFU provides, due to underperforming investments), the attribution factor is set at 100%.

4. Data quality

For input data for the calculation of emissions, the PCAF data quality hierarchy, and scoring system are used. Assessments rely on data collected by the use of IFU's data collection tool, the Annual Sustainability Reporting. The data hierarchy adopted is presented in Table 2.

[6] According to the latest version of the PCAF standard from 2022 (see The Global GHG Accounting and Reporting Standard for the Financial Industry (carbonaccountingfinancials.com)), the numerator, in case of equity, should be the outstanding value of equity the financial institution holds in the company/project, calculated by multiplying the relative share of the financial institution in the respective project by the total equity of the respective project according to its balance sheet. However, IFU does not hold the data necessary to perform this adjustment of the equity value, and therefore simply uses data on the outstanding equity, as presented in their annual financial reporting. This also means that the numerator does not take into account a market valuation of the equity or debt.

[7] According to PCAF, for business loans and unlisted equity, the denominator should be the sum of total company equity and debt, which can be found on the client's balance sheet. Total debt includes both current and long-term debt on the balance sheet. For project finance, this should be the balance-sheet value of total equity and debt. For both these approaches, the PCAF standard allows to fall back to the total balance sheet value (i.e. the client's total assets). As the latter is the information that IFU collects as part of their financial report, this is what is used for the calculation of attribution.

Data quality	Option to estimate the financed emissions		Explanation
Score 1	Option 1: Reported emissions	1a	Verified emissions of the company.
		1b	Unverified emissions calculations.
Score 2	Option 2: Physical activity-based emissions	2a	Primary physical activity data for the company's energy consumption. Emission factors specific to that primary data are used for calculating emissions. Relevant process emissions from Scope 1 and 3 are added using primary physical activity data from the company or other data according to Option 2b or 3a.
Score 3		2b	Primary physical activity data for the company's production. Emission factors specific to that primary data are used for calculating emissions.
Score 4	Option 3: Economic activity-based emissions	3a	Company's revenues are known. Emission factors for the sector per unit of revenue are used (e.g. tCO2e per euro of revenue earned in a sector).
Score 5		3c	Outstanding amount in the project is known. Emission factors for the sector per unit of revenue (e.g., tCO2e per euro of revenue earned in a sector) and asset turnover ratios for the sector are used for calculating emissions

Table 2. General description of the data quality score table for the project finance and business loans and unlisted equity asset class, adapted from PCAF.

The data option 3b presented by PCAF is not reported in this table, since IFU does not use this type of data.

IFU strives to use data of the highest quality score (especially for those projects/companies that are known to have high emissions), and to improve this over time.

Data comes from the year of the financial reporting (in this case, 2022), so that emission data and financial data used for attribution refer to the same year. In case 2022 data is not available, the assessment falls back on the information from the latest available year.

5. Modelling tools

Primary physical data related to energy consumption or energy production (Option 2a) are converted into tCO_2e emissions using emissions factors from the IFI TWG harmonised emission factors[8] and from the GHG Protocol[9]. Other primary physical data related to production volumes (Option 2b), is modelled using Life Cycle Assessment (LCA) databases such as Ecoinvent. Economic activity data (Option 3) are converted into emissions using the Joint Impact Model.

[8] IFI TWG - List of methodologies | UNFCCC

[99] Emission_Factors_from_Cross_Sector_Tools_March_2017.xlsx (live.com)

The emission factors used from the LCA databases and JIM reflect sectoral and geographical averages, with different levels of granularity that change from national level, to regional, to global. The time representativeness of the emission factors also varies across processes and sectors.

6. Investments not included in the footprint

The following types of investments have been excluded from the footprint: Project Development Programme (PDP) investments, inactive projects, investments contracted but not disbursed (i.e., with outstanding volume from IFU = 0).