Your GHG Audit Toolkit: Audit Prep Made Simple Pt. 1

How do you get your GHG inventory audit-ready?

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Today’s webinar

01. How to build a GHG inventory

02. What to aim for

03. Best data quality indicators when preparing a GHG inventory

04. How an audit usually goes

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What are the standards used for building an inventory?

GREENHOUSE GAS PROTOCOL

The GHG Protocol is one of the common standards used for GHG inventory calculations. There are a few key standards relevant to us:

- The GHG Protocol Corporate Accounting and Reporting Standard
- Corporate Value Chain (Scope 3) Standard
- Product Life Cycle Accounting and Reporting Standard
- Guidances for specific scopes and sectors:
  - Scope 2 Guidance;
  - Scope 3 Calculation Guidance;
  - Agriculture Guidance, soon to be replaced by Land Sector and Removal Guidance

ISO

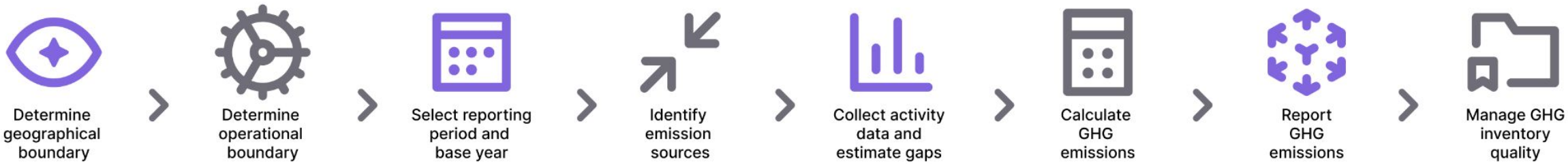
ISO standards are international standards formulated by experts, and determine best practices. Several key standards and guidance are relevant to us:

- ISO 14064 is the International Standard for GHG Emissions Inventories and Verification which is commonly adopted.

ISO Standards are largely aligned with and even derived from the GHG Protocol

The difference between these two standards is that the GHG Protocol identifies, explains, and provides options for GHG inventory best practices, while ISO 14064 establishes minimum standards for compliance with these best practices. Terrascope's focus is on understanding and aligning with GHG Protocol, which is the highest standard.

Overview of key steps around GHG inventory creation



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What to aim for

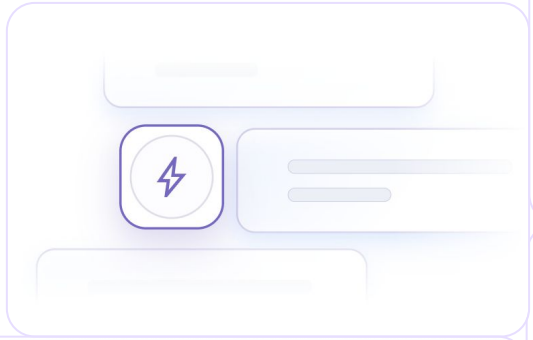
Compliance and achievement of these five main principles gets you a good report

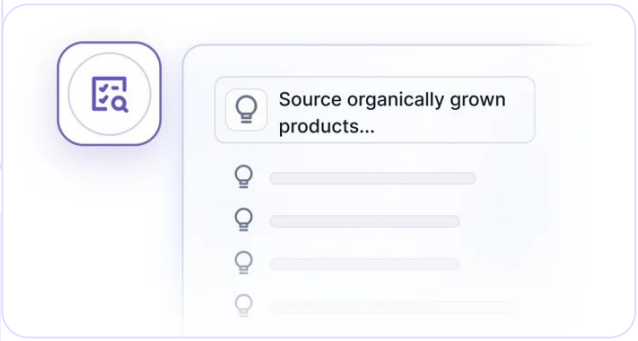
Consistency

Use consistent methodologies, approaches, boundaries, etc. to allow for meaningful comparison of emissions across assets and over time

Relevance

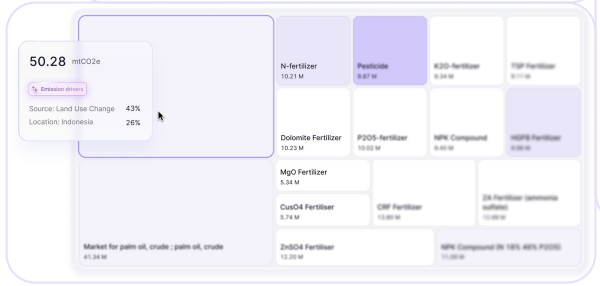
Reported emissions represent the GHG emissions of the company/facility/source and serve the decision-making needs of stakeholders

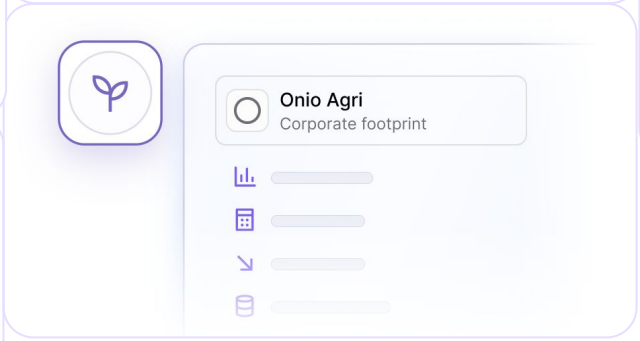




Accuracy

Ensure that uncertainties are reduced as far as practicable





Completeness

Account for and report on all GHG emission sources

Transparency

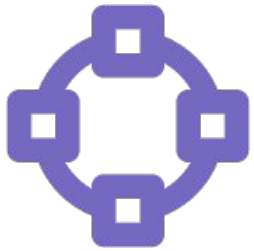
Provide a clear audit trail for data sources, references, assumptions, and other sources of information

What to aim for

Determining the right accounting approach blends business reality with overall strategy, which depends on identifying:

Consolidation approach

Business operations can vary in their legal and organizational structures. Setting organizational boundaries needs an approach for consolidating GHG emissions and then applies the selected approach to define the businesses and operations that constitute the company for the purpose of accounting and reporting GHG emissions.



Business units in scope

In line with the earlier principle, this identifies the extent of the carbon accounting involved, and the stakeholders needed to be engaged for this effort. This identifies whether subsidiaries in other countries, or joint ventures with other companies will be included within.

Baseline year of measurement

Setting a base year, and is a benchmark for assessing progress. Consistent, and accurate carbon accounting involves good baselining, and being consistent with one's accounting.

What to aim for

An example of a scope inventory

Category	**Relevance (Y/N)** (Is this relevant for the reporting company, regardless of whether it is material?)	**Coverage (Y/N)** (Is this covered in the measurement?)	**Emission boundary covered** (Please provide emission sources if covered)	**Exclusions, limitations, and justifications** (Please note down any exclusions and any justification)	**Data availability** (Please describe the type of data available for this scope category)
Scope 1					
Stationary sources	Y	Y	E.g. natural gas used in kitchen stoves	NIL	Natural gas used in liters
Mobile sources	NA - company does not have company vehicles	N	NA	NA	NA
Process emissions	NA - company operations do not have process emissions	N	NA	NA	NA
Fugitive emissions	Y	Y	E.g. refrigerant used in air conditioning	NIL	Type and amount of refrigerant used in liters

What to aim for

Advantages and disadvantages of primary vs secondary data

	Primary data	Secondary data
Definition	Data from specific activities within a company's value chain	Data that is not from specific activities within a company's value chain
Advantages	Most optimal representation of company's specific value chain activities • Enables performance tracking and benchmarking of individual value chain partners and to distinguish between suppliers in the same sector based on GHG • performance • Allows companies to better track progress toward GHG reduction targets • Expands GHG awareness, transparency, and management throughout the supply chain to the companies that have direct control over emissions	Allows companies to calculate emissions when primary data is unavailable or of insufficient quality • Can be useful for accounting for emissions from activities that are not significant in their supply chain • Can be more cost-effective and easier to collect • Allows companies to more readily understand the relative magnitude of various scope 3 activities, identify hot spots, and prioritize efforts in primary data collection, supplier engagement, and GHG reduction efforts
Disadvantages	Primary data is more costly and resource intensive to collect • Can be difficult to determine or verify the source and quality of primary data supplied by value chain partners	Data may not be always representative of the company's specific activities • Does not reflect operational changes undertaken by value chain partners to reduce emissions • Could be difficult to quantify GHG reductions from actions taken by specific facilities or value chain partners • May limit the ability to track progress toward GHG reduction targets

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Five data quality indicators help companies obtain best available data

Data quality indicator		Description	Example of less accurate data	Example of more accurate data
Representativeness of data	**Technological**	Degree to which dataset reflects actual technology(ies) used	Data where technology is unknown e.g. Match organic tomato to general tomato	Data generated using the same technology e.g. Match organic tomato to organic tomato
	Temporal	Degree to which the data set reflects the actual time (e.g.. year) or age of the activity	Data with more than 10 years of difference or the age of the data are unknown e.g. EF last updated in the year, 2000.	Data with less than 3 years of difference e.g. EF that is updated as of year 2021 for a 2022 inventory year
	Geographical	Degree to which the data set reflects the actual geographic location of the activity e.g. country or site	Data from an area that is unknown e.g. Matching to a EF that belongs to a completely country (Asia)	Data from the same area e.g.. Matching to Fuel EF (Switzerland) or Fuel EF (Europe)

Five data quality indicators help companies obtain best available data

Data quality indicator		Description	Example of less accurate data	Example of more accurate data
Quality of data measurements	**Completeness**	Degree to which the data is statistically representative of the relevant activity. Completeness includes the % of locations for which data is available and used out of the total number that relate to a specific activity. Completeness also addresses seasonal and other normal fluctuations in data.	Data includes less than 50% of sites for shorter time period or representativeness is unknown	Data includes all relevant sites over an adequate time period to even out normal fluctuations
	Reliability	Degree to which the sources, data collection methods and verification procedures used to obtain the data are dependable.	Non-qualified estimate e.g. Dataset that has no source of methodology and verification	Verified data based on measurements e.g. Dataset has followed through clear documentation of methodology and verification

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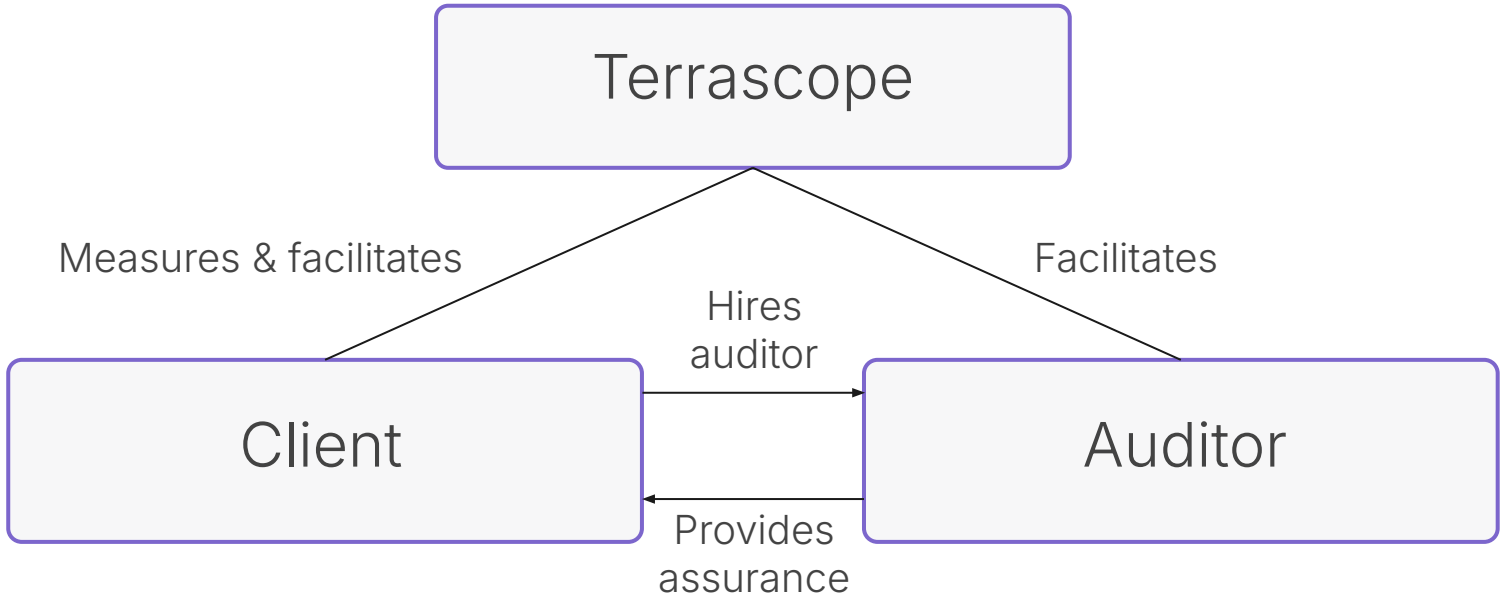
Main assurance providers

- Big 4
- Specialised inspection agencies
- ESG consultancies



What standards are usually used by auditors?

AA1000

Accountability Assurance

- AccountAbility Principles (AA1000AP): outlines standards of inclusivity, materiality, and responsiveness, which guide organisations in engagement stakeholders effectively and addressing relevant sustainability issues
- Assurance Standard (AA1000AS): provides framework for assurance of sustainability reports, allowing organisations to obtain either moderate or high assurance regarding their sustainability performance.
- Stakeholder engagement standard (AA1000SES): offers guidelines for designing and implementing effective stakeholder engagement processes.

ISAE 3000 / SSAE 3000

International Standard on Assurance Engagements / Statements on Standards for Attestation Engagements

- International Standard on Assurance Engagements (ISAE 3000): applies to a wide range of assurance engagements, including GHG reporting. It emphasises principles of independence, ethical behaviour, and professional skepticism during the audit process.
- Statement on Standards for Attestation Engagements (SSAE 3000): similar to ISAE 3000 but tailored for use in the United States.

Levels of assurance

- Limited assurance: basic review that provides lower level of confidence regarding the accuracy of reported data.
- Reasonable assurance: more thorough evaluation, often involving site visits and detailed assessments of data collection methods.

How an audit usually goes

01
Measurement
What emissions are measured within this organisation's GHG inventory? What is the scope, what are the assumptions made, and what is the baseline year of this inventory?

02a
Process Verification
How is the inventory produced? What quality assurances are there, and what controls are implemented to get this inventory?

02b
Data Verification
Are these numbers reproducible by an independent third party? What quantitative analysis was used to assess these numbers? What is the quality of the data used?

03a
Trend Assessment
What broader trends can be observed from the data, against baseline years? Are emissions expected to increase or decrease depending on the scope of a company's inventory?

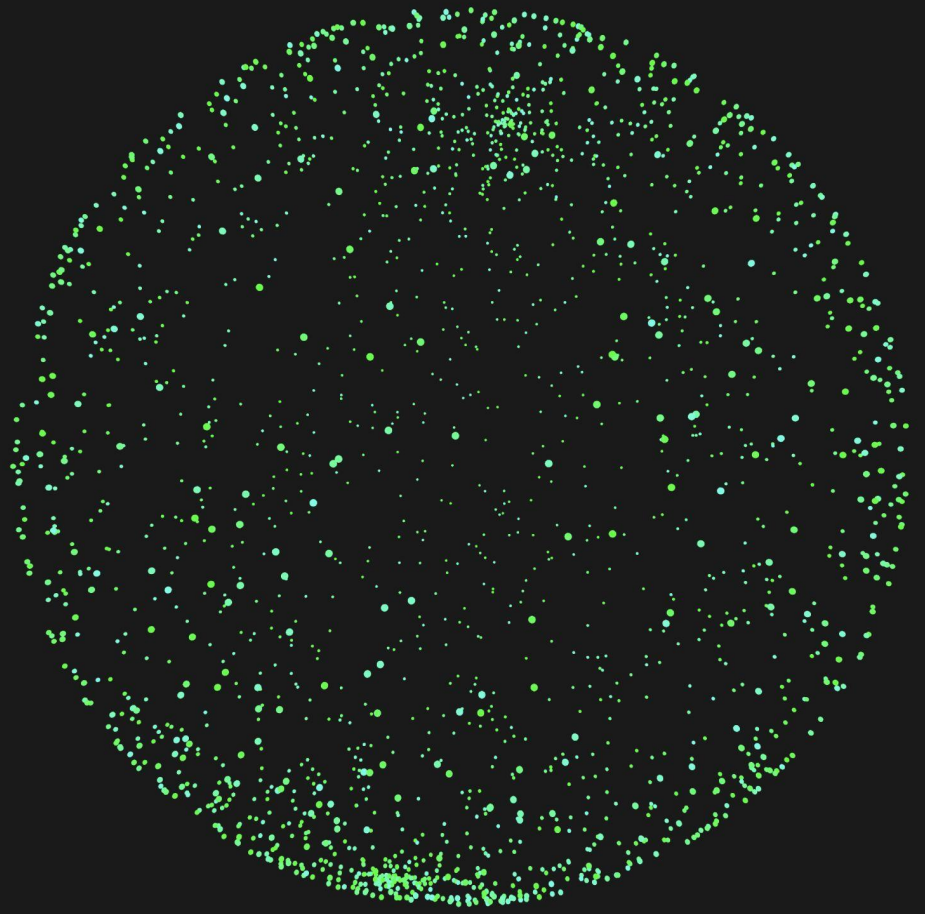
03b
Overall Assessment
Does the absolute magnitude of emissions make sense for a client's size? Does the relative size of emissions across categories make sense? If an audit has been conducted before, how do collected results compare against historical measurement?

03c
Assurance
Once the auditor is satisfied with the results of the audit, and that the customer has clarified its methodology, the auditor provides an assurance statement that varies depending on the agreed-upon level of assurance.

Thank you *for your time*

Let’s work together for a sustainable future and keep our planet habitable for all.

See how we can support your journey



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