

The Problem

Carbon offset projects are an effective strategy for climate mitigation and have demonstrated their capacity as a tool for sustainable development. These projects finance carbon reduction and removal efforts and support community programs and ecosystem services that contribute to their success. These additional benefits, known as co-benefits, are often aligned with the United Nations' 17 Sustainable Development Goals (SDGs).

Reporting and comparing SDG contributions across projects face challenges due to varying requirements and a lack of standardization. Some registries mandate monitoring of SDG contributions along with the emissions reductions/removals monitoring cycle (e.g., Gold Standard), some offer optional reporting at the project level (e.g., Climate Action Reserve), and others allow projects to report co-benefits under a framework different from the SDGs (e.g., the Clean Development Mechanism). Furthermore, interpretations of SDG targets differ across projects, making it difficult to assess and compare contributions accurately and uniformly.

To further increase complexity, even when projects quantify or qualify their contributions, there is a clear difference in the interpretation of targets. For example, in an improved biomass cookstoves project, a project proponent may claim target 7.1 for increasing "access to affordable, reliable, and modern energy services." However, according to our reasoning, the application of this target hinges on the new "energy service" qualifying as a "clean fuel" by the World Health Organization, which biomass does not.

VAI Solution

To enable users to compare projects based on their SDG contributions on an even scale, the VAI team has created an independent SDG contribution evaluation that:

- normalizes SDG claims under a single framework, and
- highlights SDG contributions of those projects that either didn't certify their contributions or narrowly defined them.

Our independent SDG assignment is accomplished in two levels of evaluation:

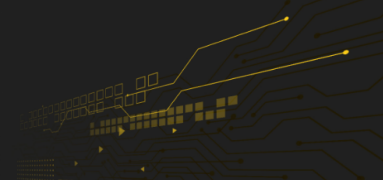
1. **Preliminary: Level 1 (Project Methodologies).** Assigning baseline SDG targets based on the carbon emission reduction/removal methodologies applied by the project.
2. **Complete: Level 2 (Project Documentation).** Assigning SDG targets based on outcomes and impacts reported in monitoring and verification documents.

The VAI platform displays SDGs under the VAI evaluation methodology as either Level 1 (Preliminary) or Level 2 (Complete).

Independent SDG Evaluation Rationale

The 17 UN SDGs consist of 169 underlying targets, which serve as a roadmap for countries and corporates to measure progress and work towards achieving "peace and prosperity for people and the planet, now and into the future."

Through our comprehensive analysis of the 169 SDG targets, we have developed a framework that establishes a connection between the target text and projects within the voluntary carbon market (VCM). Our evaluation of targets and the conditions for determining a "contribution" takes into account the following sources:



1. **UN SDGs.** We consider the text of each goal, target, and indicator, as well as the inferred intent behind them.
2. **The UN SDG [metadata](#).** Metadata at the indicator level provides guidance to SDG reporters on how to measure contributions. We incorporate the general context and intent, official definitions, and exceptions (e.g., agroforestry systems in target 15.2).
3. **Official source definitions.** Whenever possible, we rely on United Nations-related sources such as FAO, IPCC, etc., to clarify definitions. For example, we exclude the assignment of target 7.2 to waste-to-energy projects unless the project explicitly specifies the exclusive use of organic material, aligning with the IPCC definition of "renewable energy."

By aggregating and synthesizing these sources, we have established standardized requirements that a contribution claim must address in order to align with specific SDG targets. This rationale is applied to both VCM methodologies and project documentation.

VAI SDG Evaluation Methodology

Level 1 Evaluation (Project Methodologies)

We have conducted an evaluation of nearly 400 active and inactive methodologies from ACR, CAR, CDM, GS, and VCS within our SDG framework to determine if their climate mitigation activities inherently contribute to any of the targets under the UN Sustainable Development Goals.

If the methodology description provides certainty that an SDG target is being addressed by the underlying project activity, we assign that target to all projects utilizing that methodology. Additionally, if a project employs multiple methodologies to account for GHG emissions reductions or removals, we aggregate and assign the SDG targets associated with each methodology to those projects.

For example, [ACM0002](#), popular grid-connected renewable energy methodology, inherently contributes to target 7.2. Upon thorough verification of each target and its potential links to specific project activities, we also identified that grid-connected renewable energy projects improve global resource efficiency in consumption and production (8.4) and enhance the resilience of a country's energy infrastructure (9.1). Consequently, projects utilizing ACM0002 inherently contribute to targets 7.2, 8.4, and 9.1.

However, if a methodology allows for optional activities associated with SDG targets, we do not assign those targets at this evaluation level. For instance, in the case of [VM0007](#) "REDD+ Methodology Framework (REDD+MF)" which can be used for either terrestrial or mangrove forest protection, we do not assign target 14.2 for the "sustainable management and protection of coastal ecosystems" by default. However, we do assign target 15.2 for the sustainable management of all forests.

Since all methodologies in the voluntary carbon markets aim to reduce or remove greenhouse gas (GHG) emissions, target 13.2, which calls for integrating climate change measures into national policies, strategies, and planning, is automatically assigned to all projects. This target includes an indicator that measures "total GHG emissions per year."

Level 2 Evaluation (Project Documentation)

The most detailed evidence we rely on to substantiate SDG contribution claims comes from project documents. This final stage of the evaluation methodology aims to strengthen and enhance existing SDG claims while providing insights into the co-benefits derived from specific projects. This evaluation process consists of two steps: first, the application of technology to extract potential SDG target contributions from project documents, followed by confirmation by a domain expert.



Step 1. Technology-Based SDG Target Tagging

In the first step, we utilize an in-house developed and trained natural language processing (NLP) model to identify and extract sentences from project documents that serve as evidence of contributions to SDGs and their respective targets. This NLP model has been trained using sentences from projects across various sectors, types, and registries, which demonstrate tangible outcomes in relation to SDG targets.

To maintain integrity in our evaluation process, we have implemented the following practices:

- The model has been trained to extract sentences that explicitly indicate an action, rather than implying causality without supporting evidence. For example, it avoids extracting claims of poverty alleviation without evidence demonstrating that household incomes have surpassed the poverty line compared to the baseline.
- The SDG evaluation focuses on monitoring and verification reports, as well as SDG contribution reports (where available), while excluding validation documents such as project design documents and validation reports. This ensures that we extract outcomes and results from project activities, rather than aspirations described during the initial project design phase.

Step 2. Domain Expert Confirmation

In the second step of the process, a sustainability domain expert (a member of the Data Operations team) reviews all the extracted sentences to confirm whether the NLP model has assigned SDG targets to the sentences in a manner that aligns with our interpretation and integrity standards. If the assignments do not meet the standards, the domain expert either assigns the correct target, and the model is retrained to improve its accuracy or drops the sentence.

To provide an illustration, consider the following sentence that was extracted by the NLP model and assigned SDG targets 2.3 and 2.4:

“Farmers have been supported by the project in the development of productive diversification in their parcels, trainings, technical assistance and capacity building in fish farming, bee hiving (meliponas), small animal breeding, low impact cocoa farming, coffee farming and cattle breeding”

In this case, the domain expert confirmed the assignment target 2.3 because of the “technical training” aimed at increasing the farmers’ productivity¹, and target 2.4 because of the focus on “low-impact” farming practices².

On the other hand, the NLP model assigned target 1.4³ based on a Verification Report that included the following sentence, which was deemed to be insufficient in providing context regarding how the families were benefited:

¹ SDG Target 2.3: By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.

² SDG Target 2.4: By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

³ SDG Target 1.4: By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance



“The First Project Activity Instance has benefited 18 rural small families.”

Therefore, the target was not assigned in this instance.

In the same document, the NLP model assigned Targets 2.3 and 2.4 to the following passage:

“It is the audit team opinion that the project was successfully implemented causing a transformation in agriculture management practices, an increase in the family remuneration (due to SAFs products, but also because a better organized property management, which saved money), forest restoration and legal compliance (the reforested areas were placed next to springs and river courses what is required by law), among others.”

In this case, the domain expert confirmed the NLP model's tagging and assigned the targets accordingly. We continually retrain the NLP model as the application of this methodology progresses and the sample data becomes more extensive, leading to ongoing improvements in its accuracy.

By combining the use of technology and expert evaluation, we strive to ensure a robust and comprehensive evaluation of SDG contributions based on project documents. This approach helps strengthen the credibility of the claimed contributions and provides valuable insights into the specific co-benefits associated with individual projects.

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