Creating a practical guide to quantify and reduce air pollution from businesses

SEI brief
September 2021

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Key messages:

- **Global value chains are substantial sources of air pollutant emissions. Companies have a responsibility to implement mitigation actions to reduce the burden of air pollution on health and the environment, and to reduce the emissions that are driving climate change.**
- **However, businesses lack comprehensive guidance to develop accurate air pollutant emission inventories for value chains – information that is critical to reducing such emissions.**
- **The Stockholm Environment Institute (SEI), the Climate and Clean Air Coalition (CCAC), and IKEA are producing a practical guide to help businesses develop their own air pollutant emission inventories, track air pollutant emissions across a value chain, and take steps to reduce emissions.**
- **The guide will build on existing reporting standards for greenhouse gas emissions, enabling combined reporting, strategy development, and mitigation actions to help both the climate change mitigation and clean air agendas.**
- **This guide, to be published in 2022, will enable businesses to take the first step to understand their impact on air pollution, and to take action to reduce it.**
- **The aim is to give businesses that have simple, or complex, global value chains a tool to take required actions to help improve air quality for people worldwide.**

Introduction

Clean air should not be a luxury for the few. Nine out of ten people worldwide are exposed to levels of air pollution exceeding World Health Organization Guidelines (WHO, 2006). Air pollution impacts human health, food productivity, and ecosystems. The respiratory and cardiovascular health effects of air pollution disproportionately impact the elderly, children, and those with lower socioeconomic status. This environmental health threat, so closely tied to emissions that also cause global warming, requires mitigation actions from everyone across the public and private sectors. These issues require urgent attention and immediate action.

The private sector has an important role to play in reducing air pollution and greenhouse gas emissions. The production of goods and services is a significant source of global air pollution, with emissions resulting from every point along a company's value chain (Zhang et al., 2017). Air pollutants are emitted from a wide range of economic sectors and activities, including electricity generation, industrial processes, transportation,

CLIMATE & CLEAN AIR COALITION
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

IMAGE (ABOVE): Golden building with blue sky, Hong Kong © TAMPATRA / ISTOCK / GETTY IMAGES PLUS

agriculture, and waste (Priddle, 2016). These same sectors are also the major sources of greenhouse gases. Thus, there is ample opportunity to design strategies and take actions that simultaneously mitigate both climate change and air pollution. For businesses, this offers an opportunity to leverage existing resources for the benefit of both agendas. In particular, the many companies that already have greenhouse gas emission inventories and reporting activities in place can add air pollution emissions and related health dimensions to their work, building on existing knowledge, resources and ways of working.

Clean air should not be a luxury for the few. Nine out of ten people worldwide are exposed to levels of air pollution exceeding World Health Organization Guidelines

Businesses have a responsibility to enable healthy and sustainable living in the spheres where they have influence. With increasing consumer awareness and concern, and greater scientific understanding about the ramifications of air pollution and climate change, businesses need to find ways to step up to their responsibilities. The impetus to develop tools for the private sector to take meaningful action has never been greater. The guide we are creating aims to make quantitative assessments of business emissions accessible, accurate and actionable.

How to catalyse air pollution emission reductions: lessons from the public sector

Over the past few decades, actions at regional, national, and subnational scales in Europe, North America, and other regions have substantially reduced air pollution levels. A key tool in the process has been the development of an air pollutant emission inventory. An emission inventory accounts for the magnitude of emissions of different air pollutants from different sources. Standardized air pollution emissions inventory guidance, for example by the European Monitoring and Evaluation Programme (EMEP) and the European Environment Agency (EEA), has enabled actors to:

- Understand the relative contribution of different sources to total emissions of air pollutants.
- Identify key sectors in which air pollutant emission reductions could lead to the largest improvement in air quality, and implement actions to reduce such emissions.
- Track the magnitude of air pollutant emissions over time.
- Provide data to advance assessment of air pollution impacts, such as those on health.

Whilst these methods and data exist and are used at national and local scales to develop air pollution emission inventories and inform mitigation strategies, this guide represents the first attempt to adapt, apply and align them to the needs of the private sector, and to quantify emissions along value chains.

Business case: why the private sector should support a combined climate and clean air agenda

Increased action now from the private sector on air pollution and climate change is essential. A rationale for action includes:

- Meeting increasing customer demands for clean air and climate action.
- Reducing financial, legal and reputational risks associated with polluting the air.
- Capitalizing on emission reductions that offer opportunities to make businesses more efficient.
- Capturing efficiencies between the climate and clean air agendas to promote health of both people and the planet.

Public awareness of the health and environment impacts from air pollution is increasing, and pressure on the private sector from customers on this issue will accelerate. A recent survey has indicated that more than 70% of people are concerned about air pollution as a public health and environmental issue (The Conference Board, 2017). Concerns about climate change are also rising among the general public in many countries (Fagan & Huang, 2019). Using guidance that sets out a rigorous approach to quantify air pollution emissions provides companies with a way to credibly document and report on their emission-reduction efforts to their shareholders and the general public.

Businesses have a responsibility to enable healthy and sustainable living in the spheres where they have influence.

Companies are facing increasing financial and reputational risks if they do not act on air pollution. In January 2021, Toyota Motor was issued a $180 million fine for breaching federal emissions reporting requirements (Tabuchi, 2021). In March 2021, ExxonMobil received a $14 million penalty as the result of a citizen-initiated lawsuit on air pollution (Moore, 2021). In May 2021, Tesla settled a $1 million penalty for air quality violations at one of its assembly plants (Bay City News, 2021). In 2016, the Jinghua Group Zhenhua Decoration Glass Limited Company in China was ordered to pay $3 million following a lawsuit by an environmental group (Business & Human Rights Resource Centre, 2021). These examples show that citizens, public interest groups, and governments are proactively seeking out businesses that do not meet their responsibilities on air pollution.

Many large, medium, and small companies have developed emission accounting systems using methods outlined in guidelines by the UN Intergovernmental Panel on Climate Change (IPCC, 2019) to estimate CO2 and other greenhouse gas emissions along value chains. These businesses have also established plans to report on these emissions annually and to take steps to reduce them. However, companies have not yet undertaken similar calculations for air pollution, or developed plans to reduce these types of emissions.

There is a substantial overlap in the major sources of greenhouse gases and air pollutants. By using similar approaches and data that are used to quantify greenhouse gas emissions it is also possible to quantify air pollutant emissions. Therefore, with limited additional effort, a company with an existing greenhouse gas emission inventory can efficiently integrate air pollutant emissions into its existing work. By integrating the climate and clean air agendas , businesses can ultimately reduce emissions related to both issues and, therefore, contribute to improving the health of people globally, and reducing warming. By taking a standardized approach, companies would have a way to provide transparent information to customers and governments on the efforts they are making to reduce air pollution impacts.

Now under development: guidance for air pollution emissions quantification

This initiative by the Stockholm Environment Institute (SEI), the Climate and Clean Air Coalition (CCAC), and IKEA seeks to develop a practical guide to create value chain-wide air pollutant emission inventories for companies. The guide is intended to be piloted with IKEA and additional, interested companies. The goal is to publish the final guide in 2022.

The publicly-available guide will outline a process by which a company can:

- Identify the sources of air pollutant emissions across the full value chain.
- Identify the relevant methodology to quantify emissions from a particular source.
- Identify the relevant data needed to apply this methodology.
- Identify the ways that businesses can use the emission inventory to reduce emissions.

These steps are consistent with those commonly used to quantify greenhouse gas emissions. By aligning with existing greenhouse gas emission estimation methods and databases, the guide intends to provide activity-based methods, and default data and assumptions that can be used to quantify emissions from all sources along a company's value chain. The guide will address the following air pollutants: particulate matter ($PM_{2.5}$ and PM_{10}), black carbon (BC), organic carbon (OC), sulphur dioxide (SO_2), nitrogen oxides (NO_x), non-methane volatile organic compounds (NMVOCs) and carbon monoxide (CO) as shown in Figure 1. This figure shows potential emission sources – such as transport, electricity generation, and industrial processes – along a generic value chain that may be contributing to a business's emission of air pollutants that produce particulate matter (PM) and ozone, the two pollutants that are most damaging to health.

The guide will focus on enabling businesses to create a global overview of their air pollution emissions as a way to spur actions to reduce emissions. Enabling a baseline analysis of a company's global air pollution emissions is a crucial first step to set the stage for mitigating action. It can also make it possible to undertake health or other impact assessment analyses. At a later stage, SEI intends to develop methods to estimate the local impacts of air pollution emitted down a company's supply chain.

Working together for cleaner air and a healthier planet

We are launching the guide in the hope that it will come into widespread use, giving businesses ways not just to assess their emissions, but to reduce or eliminate them.

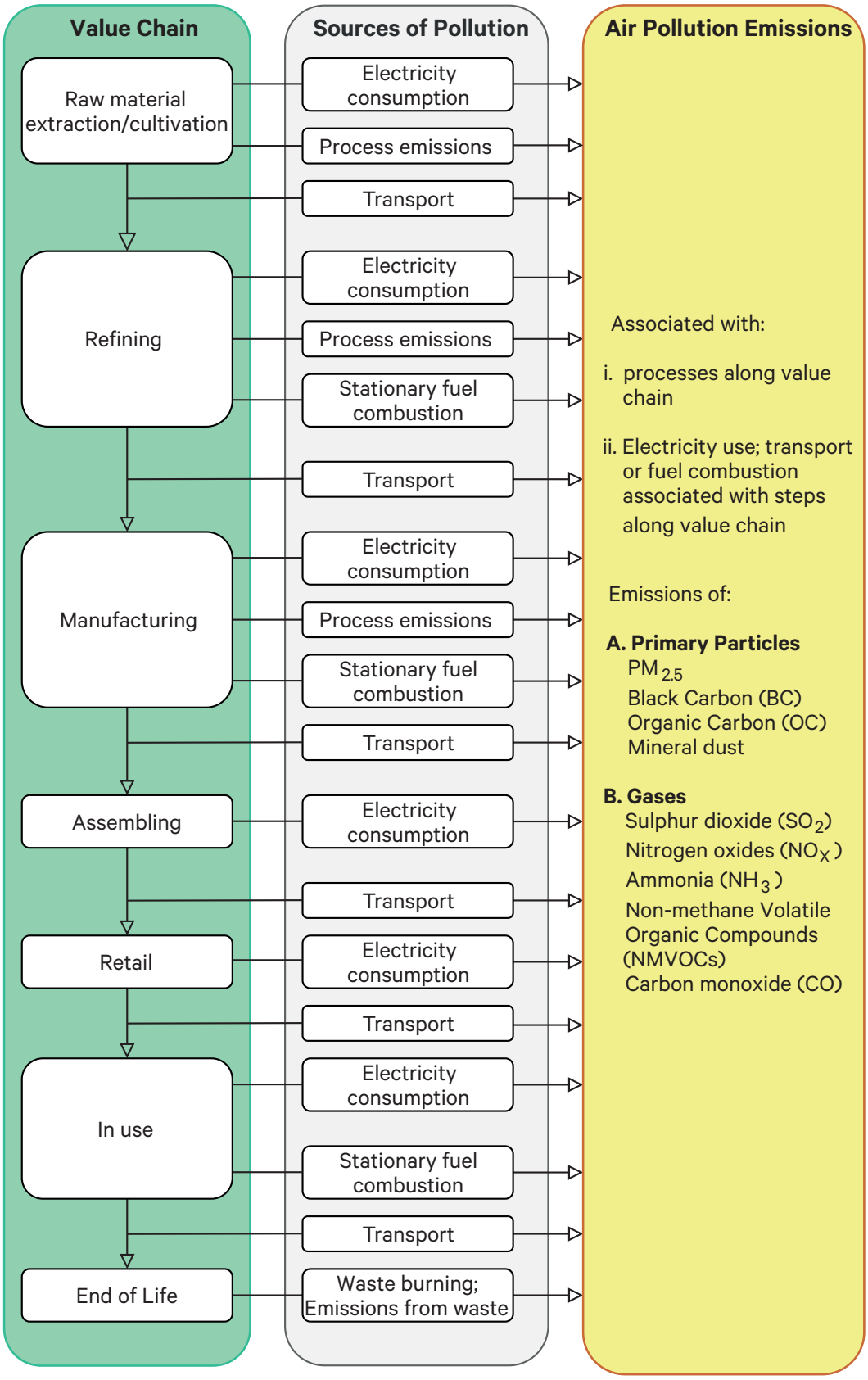
SEI, CCAC and IKEA have initiated the development of this private-sector guidance document with the aim of achieving traction to reduce emissions of the air pollutants that harm human health. The partners in this project recognize that a broad network of businesses and other actors is needed to achieve the aim of making air pollution reporting and mitigation a mainstay among companies. Further application of the methods (beyond IKEA) is needed to test and improve them, and prove that they are applicable in a wide range of companies. This will necessarily require more private-sector actors to take a leadership role to make the case for many companies to use the inventories to take meaningful action on emissions. It will also require leadership from other key organizations active in the climate and clean air space, such as the World Economic Forum's Alliance on Clean Air, which will facilitate the integration of this guidance into existing tools and platforms.

We are launching a project to produce the guide in the hope that it will come into widespread use, giving businesses ways not just to assess their emissions, but to reduce or eliminate them. Thus, we encourage the wider world business leaders and communities to become part of the effort.

Origin and funding of the project

Representatives of IKEA and members of the Secretariat of the Climate and Clean Air Coalition discussed the need for this guide on the sidelines of the UN climate change conference (COP 25) in Madrid in 2019. They then developed the project with SEI, which has experience in quantifying air pollution emissions at national and local scales, and has the knowledge to develop the guidance for the private sector. Funds have been allocated by IKEA and the CCAC, whose board agreed to contribute funding following a discussion with state and non-state partners.

Figure 1: The figure shows a generic value chain that illustrates how air pollutant emissions associated with emission sources can be calculated along the chain. The guidance being created will include methods to quantify the magnitude of such emissions. (Source: SEI as part of the project)



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