



# CBSA

Container Based Sanitation Alliance

## An integrated approach to the Sustainable Development Goals: Acknowledging the interrelation between sanitation and climate change



Photo credit: Daniela Sánchez for x-runner

### INTRODUCTION

Today, people and planet face myriad challenges – structural obstacles to the ability of current and future generations to thrive on a flourishing planet. To address these crises, the United Nations has developed the Sustainable Development Goals (SDGs) as a framework to understand and gauge progress towards dismantling the identified obstacles. While the SDGs represent a useful model or shorthand for understanding the greatest challenges facing the human population, the framework does not allow for how deeply intertwined many of the Goals are, and how making progress towards one Goal can adversely impact progress towards another if the two are not considered as parts of an interrelated whole.



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## SANITATION AND CLIMATE CHANGE

Two such goals are SDG 6: Clean Water and Sanitation and SDG 13: Climate Action – taken separately, there are pathways to progress against each; when considered holistically, the outlook becomes more complicated. The sanitation and waste sector is a significant contributor to global greenhouse gas (GHG) emissions, contributing approximately 13% of non-CO<sub>2</sub> emissions in 2005 (making waste the third largest contributor to global non-CO<sub>2</sub> emissions).<sup>1</sup> Currently, the majority of people with access to sanitation are using traditional sanitation solutions, such as pit latrines, septic tanks, and waste stabilisation ponds, all of which emit significant amounts of methane, a greenhouse gas.<sup>2</sup> Billions of people continue to lack access to improved sanitation, even more human waste goes untreated, collecting in open sewers and local waterways, decomposing and releasing GHGs. SDG 6 stipulates that sanitation solutions must meet the standard of “safely managed sanitation” – defined as the “use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or transported and treated offsite.”<sup>3</sup>

As the global population continues to grow and as the level of sanitation coverage continues to increase, sanitation-related GHG emissions will increase in parallel, potentially undermining progress against SDG 13. This means that, while lack of access to sanitation is linked to GHG emissions, increasing access to sanitation will also be linked to increased GHG emissions, unless the prevailing sanitation paradigm shifts to climate-positive sanitation solutions.

This gap represents a critical opportunity to implement climate-positive solutions to the global sanitation crisis, making headway against two SDGs simultaneously, rather than setting one goal back while making progress towards another.

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1 Global Anthropogenic Non-CO<sub>2</sub> Greenhouse Gas Emissions: 1990 - 2030; United States Environmental Protection Agency (USEPA): Washington, DC, 2012.

2 Reid, M. C., Guan, K., Wagner, F., & Mauzerall, D. L. (2014). Global methane emissions from pit latrines. *Environmental Science and Technology*, 48(15), 8727-8734. <https://doi.org/10.1021/es501549h>

3 Water, Sanitation and Hygiene. UN Water, accessible at: <http://www.unwater.org/water-facts/water-sanitation-and-hygiene/>





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## A GLOBALLY APPLICABLE SOLUTION

Container-based sanitation (CBS) is an example of a promising climate-positive sanitation solution that can allow for simultaneous progress towards increasing global sanitation access and reducing sanitation-related GHG emissions.<sup>4</sup> CBS is defined as a system where toilets collect human waste in sealable, removable containers that are collected and transported to treatment facilities when full. CBS is designed as a circular economy solution – leveraging sanitation systems’ inherent value and strong potential for reuse and recapture to create services that use minimal water, create minimal carbon emissions, and incorporate waste reuse and treatment technologies that produce useable byproducts like compost, biogas, briquettes, or animal feed. These mitigative and adaptive elements position CBS as a promising example of climate-positive sanitation that is responsive to the needs of global urban populations, simultaneously addressing SDGs 6 and 13.

Globally, 4.5 billion people currently live without a safely managed sanitation<sup>5</sup> solution, and unfortunately, that number is only expected to increase in coming years, as the global trend towards urbanisation<sup>6</sup> continues. Urban settlements face a suite of unique sanitation challenges that have made traditional sanitation interventions (such as sewers, pit latrines and septic tanks) ineffective and unsafe. Without climate-positive sanitation solutions specifically designed for the dense urban communities where the majority of the global population reside, sanitation will pose a continued risk to planetary climate health.

<sup>4</sup> It is additionally possible to improve the climate impact of some traditional sanitation solutions through resource reuse and recapture, such as adding biogas capture to waste water treatment plants.

<sup>5</sup> Defined as a system or service including the safe treatment and disposal of excreta.

<sup>6</sup> United Nations. (2014). World Urbanization Prospects: 2014 Revision. Retrieved from <https://esa.un.org/unpd/wup/Publications/Files/WUP2014-Report.pdf>

## THE CONTAINER BASED SANITATION ALLIANCE

The Container Based Sanitation Alliance (CBSA), a group of pioneering sanitation innovators working to develop alternatives to sewers for urban areas, is tackling just this issue. The goal of the Alliance is to formalise CBS as a widely accepted and endorsed approach around the world, to help CBS services reach scale, and to achieve sustainable impact in urban areas. In a sector that is too often characterised by institutions working alone, the CBSA is a ground-breaking effort to address the global sanitation crisis by promoting knowledge sharing, collaboration, and sustainability.

The CBSA has already undertaken significant efforts to evaluate the climate impacts of CBS services against the existing global paradigm. Ongoing work includes research to quantify and compare GHG emissions from a variety of CBS operations; developing a flexible emissions calculator tool that is designed to be customisable and broadly applicable to CBS practitioners; and comparative research to advance understanding of the potential costs associated with not employing CBS or other climate-positive sanitation solutions (i.e. what potential outcomes will look like if global sanitation access does not increase, if sanitation coverage increases but only via increased access to traditional sanitation options).

Collectively, CBSA member organisations are directly providing CBS services to over 100,000 people on a daily basis. By working in collaboration as opposed to isolation, Alliance members can more effectively progress towards the twin goals of increasing access and availability of CBS services, and advocating for CBS as an effective and climate-positive approach to tackling the global sanitation crisis.

By zooming out to consider the interconnections among the Sustainable Development Goals, practitioners can create mutually reinforcing solutions that tackle multiple solutions simultaneously, without undermining others. Container Based Sanitation represents such a solution, and can serve as a hopeful example that tangible, easily implementable solutions with strong potential for scale exist.

Molly Case, on behalf of the Container Based Sanitation Alliance



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### ABOUT THE CBS ALLIANCE

The CBS Alliance is a coalition of CBS practitioners around the world with extensive experience in developing and providing CBS services. The goal of the Alliance is to formalise CBS as a widely accepted and endorsed approach among municipalities and regulators, help sanitation services to reach scale, and achieve sustainable impact in urban areas around the world. Find out more at <https://cbsa.global>



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