Science-Based Emissions and planetary boundaries targets setting for engineering projects

By Lokesh Sangarya and Lauren Boyd

Human-induced climate change is our biggest existential threat and the UN Environmental Programme's Emissions reports the need for drastic societal changes needed to limit global warming to 1.5C (compared to pre-industrial levels), by reducing greenhouse gas emissions.

Currently, while there are ambitious net zero targets, there is a major gap in outlining a plan to get there at the program-and-projects level.

A solution to this gap is developing a target-setting framework that is backed by science. In our study, we referred to the UNEP's Emission gap report from 2019 which stated that to limit temperature to 1.5C, global emissions have to drop by 7.6% annually from 2020.

We have used this percentage and year in our study as the basis for developing carbon benchmarks for various project categories that are planned in the future. By dropping a 7.6% reduction curve from a 2020 carbon benchmark, we can develop a 'carbon budget' for future projects to limit their emissions to.

To ensure the integrity of the biosphere, it is also crucial that we look at our impacts beyond climate change. As part of our study, we briefly explored the same approach to set 'budgets' across the nine planetary boundaries for projects.

Bios - Lokesh Sangarya and Lauren Boyd

Lokesh and Lauren are passionate about developing sustainable solutions to large engineering problems. They have been working on large buildings and water engineering projects with a focus on decarbonisation being built into the process (no pun intended).