

African Clean Energy

Impacts on Sustainable Development Goals

In 2015, 193 nations adopted the 2030 Agenda for Sustainable Development. This agenda is outlined by a set of 17 Sustainable Development Goals, which targets 169 issues. These goals are a fundamental step towards addressing major issues such as poverty, inequality, and climate change.

We are committed to helping communities in the developing world to make progress toward the Global Goals. By providing access to clean cooking and sustainable household energy the ACE 1 can catalyse change across a number of problem areas.

Goal 1: No Poverty



People in the developing world spend a large portion of their income on cooking and lighting fuel. As a result, some opt to collect “free” fuel (i.e. firewood), however, this is extremely time intensive.

The ACE 1 reduces fuel usage by an estimated 50-70% compared to open fire cooking. Cooking with the ACE 1, therefore, can significantly reduce monetary and time expenditures associated with obtaining solid biomass for cooking and lighting. Reducing the amount of money spent on expensive fuels like charcoal or kerosene directly increases the disposable income of people in the developing world, while reducing the time spent collecting ‘free’ fuel like wood removes the associated opportunity costs, potentially allowing more time for remunerative work.

Goal 3: Good Health and Well-being



Household Air Pollution (HAP) is a major contributor to illness and death in the developing world. Inhaling cooksmoke can lead to pneumonia, stroke, ischaemic heart disease, COPD, and lung cancer. The WHO estimates that 4.3 million deaths per year are attributable to HAP, as well as 50% of premature deaths due to pneumonia of children under the age of 5.

The ACE 1 is a smokeless biomass cookstove, which drastically decreases exposure to carbon monoxide (CO) and particulate matter (PM2.5), the primary components of HAP, during cooking. Many households in the developing world also rely on kerosene candles for lighting, which further increases HAP; the ACE 1 includes an LED lamp attachment which provides clean, safe lighting.

Goal 5: Gender Equality



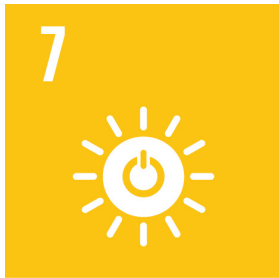
In most target areas, women are primarily responsible for fuel collection and meal preparation. Therefore, they are regularly exposed to traditional cooking hazards and are often burdened with lengthy fuel collection times. Additionally, girl children are often present during meal preparation and, therefore, are also exposed to the harsh emissions as well as other cooking related dangers.

The ACE 1 can improve gender equality in three ways: firstly, by mitigating the adverse health risks of cooking smoke which disproportionately affect women and girls. Secondly, reducing the hours spent collecting fuel can significantly increase the time which women have available for remunerative work or education. Finally, By reducing the need for firewood ACE 1 can improve the safety of women, who often have to travel long distances through unsafe areas in order to collect wood for cooking.

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Goal 7: Affordable and Clean Energy



The ACE 1 has DC and USB ports for phone charging, allowing people without access to grid electricity to charge their phones for free, reducing their costs and increasing their access to ICTs. These ports can also be used to power an LED light included with the stove. Providing basic nano-grid electricity to those who live off the grid not only has benefits at the household level, but also at the level of national development policy. In some cases (such as inaccessible or low-population areas) off-grid solutions like the ACE 1 may be preferable to extending the grid, due to the burden which maintaining electrical infrastructure places on developing countries.

Goal 13: Climate Action



Open fire cooking is believed to be responsible for as much as 18% of GHG emissions worldwide. On average, a single ACE 1 unit will reduce CO2 emissions by between 2 and 5 tonnes per annum, due to a much reduced fuel requirement (between 50-70% compared to an open fire). Savings are expected to be even higher if the user also switches to locally sourced and sustainably produced biomass (such as wood pellets or briquettes). Overall, the adoption of the ACE 1 has the potential to reduce local air pollution considerably through both decreased emissions and lowered demand for woodfuel.

Goal 15: Life on Land



Open fire cooking is inefficient, requiring large amounts of wood or charcoal. The huge demand for woodfuel for cooking has led to large scale deforestation across the globe, particularly in Sub-Saharan Africa.

The high thermal efficiency of the ACE 1 drastically reduces the need for fuelwood, which in turn reduces the pressure placed on forests in the developing world. Fuel efficient biomass technologies like the ACE 1 can therefore play a significant role in the preservation of forests and the protection of biodiversity.