



Carbon Offset Impact Report

Metrail Limited - M62 Junction 29 Lofthouse Interchange

This document provides details on the social and community impacts linked to IKO Group's carbon offsetting programme for its client, Metrail Limited.

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About CO2balance UK Ltd

Established in 2003, CO2balance UK Ltd is a project developer of high impact, community focused, environmental projects that deliver quantifiable results data that aligns with corporate sustainable reporting indicators. Primarily African based, projects include bespoke CSR and Gold Standard carbon offset projects that provide social, health and community impacts.



Background

Since 2008 IKO Group have been running their carbon offsetting programme, offsetting the carbon dioxide emissions from their Mastic Asphalt to make the product CarbonZero.

Working with CO2balance they have calculated the carbon emissions from the Mastic Asphalt and then offset this carbon footprint through a selection of carbon offset projects, most notably CO2balance's Kenyan Energy Efficient Stove Project and Uganda Borehole Rehabilitation Project. This report covers the carbon offset linked to the M62 Junction 29 Lofthouse Interchange Project and outlines the positive impacts on the local communities in Kenya and Uganda that have occurred thanks to the offset program.

M62 Junction 29 Lofthouse Interchange Project - Overview

- Mastic Asphalt – 47 tonnes
- Equivalent carbon footprint – 7.36 tonnes CO₂e
- Offset Projects supported
 - Kenyan Improved Cook Stove Project (50%)
 - Uganda Borehole Project (50%)

Carbon Offset Project - Kenyan Energy Efficient Stove Project

The Kenyan Energy Efficient Stove Project builds energy saving cooking stoves for villages in Kenya. These brick stoves result in a 50% reduction in the need for firewood and thereby prevent carbon from being emitted. In addition to carbon prevention it also provides families with a cost and time effective method to cook with.

The reduced need for firewood helps to prevent deforestation, creating knock on benefits to the wildlife in terms of habitat and flood prevention. It is also a healthier method of cooking as it reduces in-door smoke by half. In-door smoke is a serious problem in Africa and the World Health Organisation dubbed it the “kitchen killer”, as it is responsible for 2 million deaths in Africa every year.





Other co-benefits of the project include:

- Reduced deforestation and degradation of surrounding forests
- Reduced soil erosion, nutrient loss and risk of flooding
- Reduced cooking and wood collection time; householders can spend more time on other household tasks, as well as schooling and supervising children
- Reduced exposure of firewood collectors (mainly women) to hazards in remote areas
- Reduced burns and injuries from exposure to an open fire

Impacts – Kenyan Energy Efficient Stove Project

The carbon offsetting that has taken place thanks to the use of IKO Group’s CarbonZero Mastic Asphalt by Metail has resulted in numerous impacts to the local communities. The table below provides a summary of these impacts related to the stove project in Kenya:

Impact Sector	Impact	Quantitative Data ¹
Environment	CO ₂ e prevented (through the stove project)	3.68 tonnes
	Wood saved	2.96 tonnes
Social	No. of stoves	1
	Time saved	10 days
	Young people impacted	4
	Elderly people impacted	1
	Total people impacted	6
Economic	Working time saved	76 hours
	Working days equivalent	10 days

¹ The data from the Impacts are based on the field work carried out by CO2balance within the project locations in Kenya. The data that is gathered is in line with the requirements of the Gold Standard as part of the annual Monitoring Surveys. These Monitoring Reports are available on the Gold Standard Registry. Data is then cross compared against national averages in Kenya to ensure accuracy. Assumptions and extrapolations have been used where relevant.



Health Impacts	Quantitative Data ²
Condition	Likely reduced cases from project support
Respiratory illness (Lower Chest /Lung)	1
Asthma	1
Ear Nose and Throat irritation	0
Total reduced instances of serious illness attributable to indoor smoke	2

Project Technology

The project has distributed CO2balance's "CZK stove" built from pre-fabricated components made in Mombasa, Kenya and employed local people in the project area to install the stoves. The stove has been developed as part of the initial stakeholder consultation, based around an existing design used by the proponent in other Improved Cook Stove projects.

Project Location

There are numerous project locations within the Kenyan Energy Efficient Stove Project run by CO2balance; the project location linked to IKO Group's support of the stove project in Kenya is the "Kisumu" project, which is located near the city of Kisumu to the East of Kenya. Stoves have been distributed in the communities of East and West Kajulu, outside Kisumu in the Nyanza Province.

Kisumu is Kenya's third largest city and is one of the poorest areas in Kenya characterized by high incidences of maternal and infant mortality, with most of its people suffering from unemployment, poor health and poverty



² The Health Data is derived from the following sources R. Perez-Padilla et al, 2010. 'Respiratory health effects of indoor air pollution' in International Journal of Tuberculosis and Lung Disease, vol. 14 no. 9, pp1079-1086 . Kenya National Bureau of Statistics. (2008). Kenya Integrated Household Budget Survey. Ministry of Planning and National Development, p1-300.



Ugandan Borehole Project

The project is based around the rehabilitation of boreholes in Northern Uganda, supplying families with fresh clean water. As well as the natural health benefits, it means that families no longer have to boil the water, saving firewood and thereby preventing carbon emissions from being released.

Access to safe drinking water is a serious issue in Africa affecting the health and well-being of local communities. A survey by the International Institute for Environment and Development (2009) revealed that there are an estimated 50,000 defective water supply installations (IIED 2009). In addition, it was estimated that 40-50% of hand pumps in sub-Saharan Africa were not working (Diwi Consult & BIDR, 1994). In addition to funding the borehole rehabilitation, the carbon credits that this project produces creates a funding mechanism to deliver a long-term maintenance programme for the boreholes.





Impacts – Ugandan Borehole Project

The carbon offsetting that has taken place thanks to the use of IKO Group’s CarbonZero Mastic Asphalt by Metrail has resulted in numerous impacts to the local communities within the project areas of Uganda. The table below provides a summary of these projected impacts:

Impact Sector	Impact	Quantitative Data
Environment	CO ₂ e prevented	3.68 tonnes ³
	Wood saved	2.59 tonnes ¹
Social	Infants (< 5) impacted	0 ⁴
	Children impacted	1
	Adults impacted	1
	Total people impacted	2
Health	Clean water supplied	4,595 litres ¹

External Project Verification

The Kenyan Energy Efficient Stove Project and Uganda Borehole Project are both externally accredited through the Gold Standard, an internationally respected standard that assesses the social and community benefits to the region in addition to carbon saving. The Gold Standard Foundation is a Swiss based, non-profit organization providing certification of premium quality carbon credits in both the voluntary and compliance markets.



The thorough and extensive methodology and approval process of the Gold Standard is designed to certify the highest quality energy efficient and renewable energy carbon reduction projects. All Gold Standard certified projects demonstrate real and permanent emissions and sustainable development for the local communities that are measured, reported and verified.

The Gold Standard quality benchmark is derived from the actions of the Kyoto Protocol and its methodology is currently endorsed by over 70 non-governmental environmental and development organizations worldwide.

³ Wood saved and clean water supplied - Calculations based on field measurements conducted by staff contracted to CO2balance and are conducted according to the requirements defined by the Gold Standard. Monitoring data is available on the Gold Standard registry.

⁴ People Impacts – Calculations based on field measurements conducted by staff contracted to CO2balance and survey data from the Uganda Bureau of Statistics.



Case Studies

LILLIAN AKOTH OPIYO

“I’m a mother of five school-going children of which four are day scholars in nearby primary schools. One is in a boarding secondary school. I stay with two other female relatives and everyone in this household has learned to operate and cook on the good stove because it is effortless to light, smoke free and saves fuel.

Before the project began in this area, I had sleepless nights particularly during rainy seasons thinking hard on where to get good cooking wood fuel for in this community it is highly priced and hard to come by. There are no free or communal fuel collection points and this means that collecting even a dry twig along the neighbors’ fence can create a serious conflict”.



ADONGO FIONA

“My name is Adongo Fiona, I am 13 years old and I study in Telela Primary school. I am in level 3 and my best subject is science. I want to be a nurse when I finish school.

I am happy for this borehole because I no longer have to travel long distances to collect water for our household. We no longer suffer from diseases like diarrhea and typhoid because the water is clean. Thank you for this water.”





Links to the UN's Sustainable Development Goals

In 2016 the UN launched their Sustainable Development Goals, a set of 17 measurable Sustainable Development Goals (SDGs), ranging from ending world poverty to achieving gender equality and empowering women and girls by 2030 - <https://sustainabledevelopment.un.org/>

Through purchasing CarbonZero Mastic Asphalt via CO2balance's Kenyan Improved Cook Stove and Uganda Borehole Project, the M62 Junction 29 Lofthouse Interchange Project has supported 12 of these 17 Goals:



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