Goal 4: Support alternatives to deforestation driven by basic needs (such as subsistence farming and reliance on fuel wood for energy) in ways that alleviate poverty and promote sustainable and equitable development

Indicator 1.1
Indicator 2.1

Key Messages

- Insufficient data means it is difficult to assess progress towards reducing deforestation driven by basic needs, such as subsistence agriculture.
- Of all 21 million newly distributed stoves in 2015, 13 million were clean and/or efficient. This total, however, was down from nearly 15 million in 2014.
- Between 2012 and 2015, Official Development Assistance for fuelwood declined from USD 81 million to just USD 3.2 million and clean cookstoves offset transactions also decreased from USD 65 million to USD 15 million. Funding to the Global Alliance for Clean Cookstoves increased by more than USD 6 million in 2015, before declining by USD 4 million the following year.

OVERVIEW OF GOAL AND INDICATORS

Goal 4 seeks to address forest loss by supporting economically sustainable alternatives to slash-and-burn farming and unsustainable harvesting of fuel wood from natural forests.

Our ability to measure and assess progress toward achievement of this goal thus continues to be limited. No global data are currently available that quantifies

support from the public or private sectors or civil society for alternatives to deforestation driven by basic needs. Interventions relevant to this goal are often small-scale and scattered, or pursued under different objectives (e.g. food security, health, rural development). Aggregate data that captures interventions to support alternatives to deforestation is therefore lacking.

We continue to assess the distribution of clean and/or efficient cookstoves and funds spent in support of these cookstove programs as proxy indicators for reduced deforestation from fuelwood collection (Table 1).[1]

Table 1: Indicators to track Goal 4

CRITERIA	INDICATOR
1. Global distribution of clean and/or efficient cookstoves	1.1 Number of cookstoves and fuels distributed
2. Financial support for woodfuel interventions	2.1 Funds spent in support of cookstoves programs (USD)

FINDINGS

The use of land and forests provides basic livelihoods and income to millions of smallholder farmers and households in developing countries. With growing pressure on land from commercial agriculture and population growth, farming to meet basic needs has also become an important driver of deforestation, estimated to contribute nearly a third of total deforestation in the tropics. Similarly, in many developing countries the level of fuelwood collected for basic needs (cooking and heating) exceeds regrowth by trees and contributes roughly one-third of forest degradation.[2] The problem of fuelwood collection is particularly acute in East Africa and South Asia,[3] with hotspots Brazil, Indonesia, the Democratic Republic of Congo, Ethiopia, and Malaysia.

The forest impact of fuelwood collection can be reduced by shifting from open fires to more efficient ways of burning (e.g. in the form of cookstoves) or other alternatives (e.g. solar cookers and heaters). In addition to environmental benefits, these interventions also have positive effects on health (by reducing in-door pollution from open fires) and reduce the time and effort spent on collecting firewood.

The link between forest loss and subsistence agriculture is not straightforward.

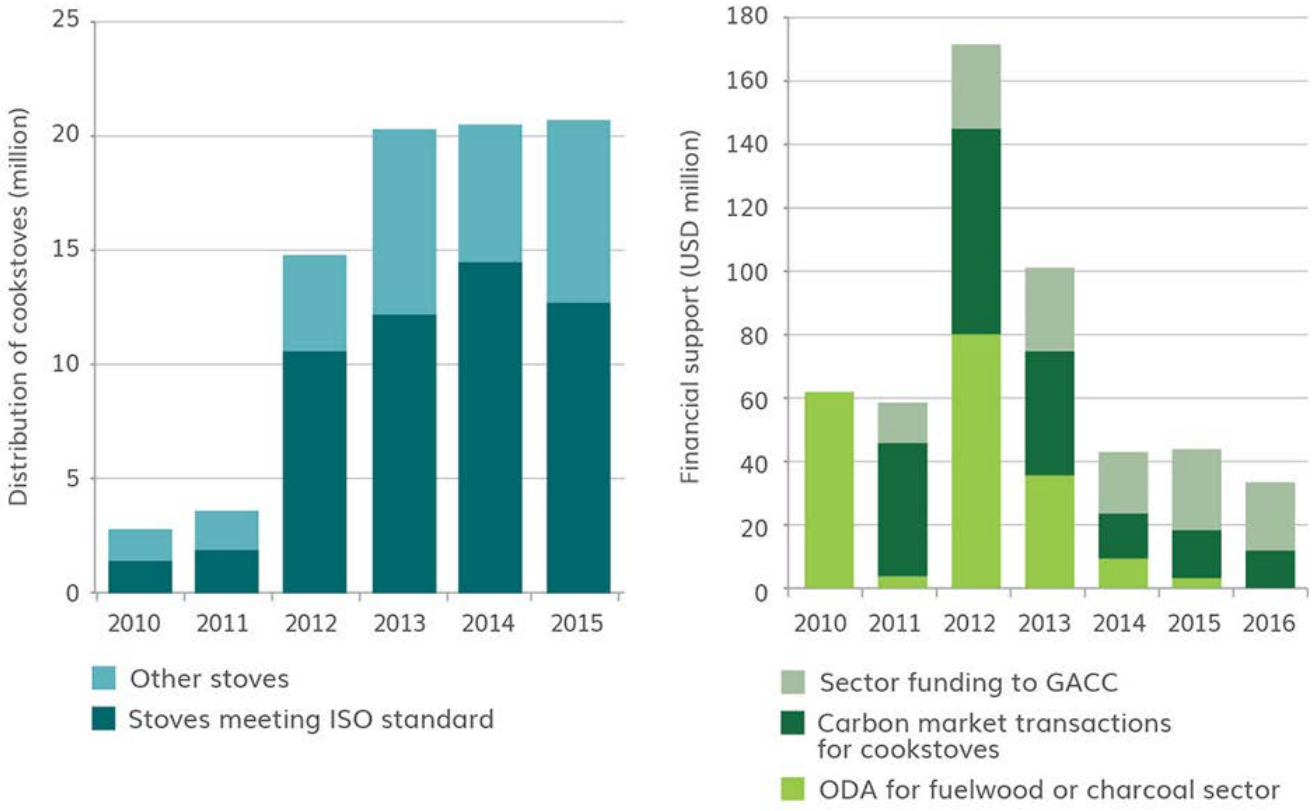
While low-yielding cultivation practices can contribute to tropical forest loss due to increasing a*gricultural land expansion*, traditional practices (e.g. rotational cultivation) do not automatically pose a threat to forests. Certain types of subsistence agriculture (i.e. shifting agriculture) are, however, usually preceded by forest clearance and, often, involve slash-and-burn practices. In some regions of the tropical rainforest belt,[4] slash-and-burn agriculture (also known as swidden agriculture) is still an important source of livelihoods and income for millions,[5] representing a key driver of deforestation and forest degradation, especially in Southeast Asia.[6]

Criterion 1: Global distribution of clean and/or efficient cookstoves

Indicator 1.1: Number of cookstoves distributed

According to data from the Global Alliance for Clean Cookstoves (GACC or the Alliance), the total number of distributed cookstoves increased substantially from just under three million in 2010 to a stable 20 million annually in more recent years (Figure 1). While cookstoves are generally more efficient and less polluting compared to open fires, some cookstoves have higher environmental and health benefits than others. In 2015, more than half of all cookstoves distributed met clean and/or efficient standards.[7] The GACC predicts that by 2020 the large majority of distributed cookstoves will meet clean and efficient criteria.[8]

Figure 1: Cookstoves distributed (left) and funds spent in support of cookstove programs (right)



Source: Compiled by Climate Focus based on GACC. (2016). ***2016 progress report. Clean cooking: Key to achieving global development and climate goals***. Retrieved from http://cleancookstoves.org/resources/495.html; and data provided by GACC and retrieved from the OECD creditor reporting system.

Criterion 2: Financial support for woodfuel interventions

Indicator 2.1: Funds spent in support of cookstove programs

While ODA for fuelwood and charcoal interventions declined by a third in 2015, voluntary carbon markets and funding channeled through GACC to support clean cookstove and woodfuel interventions grew. Between 2014 and 2015, carbon market support for cookstoves grew by 6 percent and funding to the Alliance and partners by 32 percent (Figure 1). However, the overall trend for the period 2012-15 shows that ODA for fuelwood declined from USD 81 million to just USD 3 million and carbon credit transactions also decreased from USD 65 million to USD 15 million. Funding to the Alliance increased by more than USD 6 million from 2014 to 2015, before declining by USD 4 million in the following year.

Support is still far from what is needed to provide clean and healthy energy alternatives to the world's population using woodfuel. The Alliance aims to spur the

adoption of clean cookstoves and fuels in 100 million households.

DATA DEVELOPMENTS

Data development #1: Efforts to improve monitoring of cookstove interventions

There is a considerable lack of systematic data measuring clean cookstoves' impacts on forests, health, and livelihoods at the ground level. In 2012, interim guidelines were developed to evaluate the efficiency, emissions, and safety of cookstoves and fuels based on a tiered framework. The framework facilitates the provision of standardized data on the quality of stoves, which can then be used in concert with other ground-level data to better estimate sustainable development impacts of cookstove programs. The Alliance and WWF are now teaming up to develop an assessment framework to evaluate and link cookstoves to forest conservation benefits. The framework seeks to facilitate access to REDD+ and climate finance by aligning cookstoves with emission reductions and forest benefits.

Data development #2: Country-specific GACC data on cookstoves

By prioritizing eight countries – Bangladesh, China, Ghana, Guatemala, India, Kenya, Nigeria, and Uganda – for deeper in-country engagement, the Alliance is working to promote best-practices and collect relevant data on cookstove distribution, adoption, and use in countries with high dependence on woodfuel.[9] Country-specific cookstove data from Kenya show that wood fuels approximately two-thirds of total primary energy consumption in the country, 45 percent of which comes from forests.[10] Recent data based on a field evaluation in Western Kenya indicate that the use of clean cookstoves not only decreased the use of firewood for cooking but also improved children's health by reducing smoke inhalation.[11]

Data development #3: Food and Agriculture Organization (FAO) study on energy use and the impacts on deforestation and forest degradation

The FAO has recently developed a Woodfuel Survey Module, which is designed to collect information on the acquisition and consumption of woodfuel – and its related socio-economic and health implications – in the household sector. The goal is to gather internationally comparable data through a set of standard questions to be included in existing household surveys.

Data development #4: Systematic data collection for Goal 4

To improve data availability, the International Centre for Tropical Agriculture is planning to collect information on the impact of subsistence farming and fuelwood consumption on forest resource management and deforestation in developing countries.

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[1] In the 2016 progress report, the Global Alliance for Clean Cookstoves has updated its methodology on tracking stove/fuel distribution to supplement reported distribution with modelling. Numbers in previous years have also been updated, based on new methodology.

[2] Hosonuma et al. (2012). An assessment of deforestation and forest degradation drivers in developing countries. Environmental Research Letters, 7. doi: 10.1088/1748-9326/7/4/044009; Energy Sector Management Assistance Program and Global Alliance for Clean Cookstoves. (2015). The State of the Global Clean and Improved Cooking Sector (Technical report No. 007/15). Retrieved from https://openknowledge.worldbank.org/bitstream/handle/10986/21878/96499.pdf

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[4] Peng, L., Zhiming, F., Luguang, J., Chenhua, L., & Jinghua, Z. (2014). A review of swidden agriculture in Southeast Asia. Remote Sensing 6(2),1654–1683. doi: 10.3390/rs6021654

[5] Cramb et al. (2009). Swidden transformations and rural livelihoods in Southeast Asia. Human Ecology, 37(3), 323–346. doi: 10.1007/s10745-009-9241-6

[6] Ziegler et al. (2011). Recognizing contemporary roles of swidden agriculture in transforming landscapes of Southeast Asia. Conservation Biology, 25(4), 846–848. doi: 10.1111/j.1523-1739.2011.01664.x

[7] Based on mid-performing tiers for stove performance. The Alliance uses a stove performance rating system based on International Workshop Agreements developed in process towards formal ISO standards. The rating framework ranks cookstoves along 5 Tiers with 0 being the lowest performing and 4 the highest performing. Clean and/or efficient cookstoves meet Tier 2 and 3 requirements. Performance guidelines include indicators on efficiency, total emissions, indoor emissions, and safety. Global Alliance for Clean Cookstoves. (2016). 2016 progress report. Clean cooking: Key to achieving global development and climate goals. Retrieved from: http://cleancookstoves.org/resources/495.html

[8] Global Alliance for Clean Cookstoves. (2016).

[9] Global Alliance for Clean Cookstoves. (2015). Results report 2014: Sharing progress on the path to adoption of clean and efficient cooking solutions. Retrieved from https://cleancookstoves.org/binary-data/RESOURCE/file/000/000/414-1.pdf

[10] Global Alliance for Clean Cookstoves. (2013). Kenya Country Action Plan (CAP) 2013. Retrieved from http://cleancookstoves.org/resources_files/kenya-country-action-plan.pdf

[11] Loo et al. (2016). User perspectives of characteristics of improved cookstoves from a field evaluation in Western Kenya. International Journal of Environmental Research and Public Health, 13(2). doi: 10.3390/ijerph13020167