Funded by the European Union

BiocharPlus

Energy, Health, Agricultural and Environmental Benefits from Biochar Use: Building Capacities in ACP Countries

Consortium

Implementing partners:

- Università degli Studi di Udine, *Italy (Project Coordinator)*
- ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), *Cape Verde*
- Studi Analisi e Ricerche Territoriali SRL (STARTER), *Italy*
- The Association of Social Advancement (ASA) Initiative, *Ghana*
- University of Lomé, *Togo*
- CORD-SL, *Sierra Leon*
- Jimma University, *Ethiopia*
- Bindura University of Science and Education, *Zimbabwe*

Associated partners:

- African Union
- UNIDO
- Cornell University

Development challenge

A large portion of humanity continues to rely on wood for nearly all of its energy needs. The three-stone fire is a popular method of generating energy for cooking in Sub-Saharan Africa. Traditional stoves are inefficient, capturing only 5-15 percent of the biomass energy. The primary source of indoor air pollution is an inefficient combustion system, which poses a major global health risk to those who are exposed, primarily women and children.

Despite of the far-reaching benefits of clean cooking, the clean cooking is often seen as a second-tier priority, and with a low level of funding and investment that does not match the global magnitude of the challenge. Another challenge is the limited existing knowledge on biochar technology in Sub-Saharan Africa.

Budget

Total budget: €1,176,184.47
EU contribution: €99,756.80

Duration

February 2014 - January 2017

Countries of intervention

- Cape Verde
- Ethiopia
- Ghana
- Sierra Leone
- Togo
- Zimbabwe

Project approach

The BIOCHAR PLUS project used a combined multidisciplinary multisectoral and multilevel approaches with participative processes. This eco-friendly technology was introduced to a variety of stakeholders, ranging from technology end users, primarily women and farmers, to researchers, policymakers, and the private sector.

The BIOCHAR PLUS project focus on effective knowledge and technology transfer at all levels, and in reinforcing also the partner's technical and managerial competences.

Project results

Improved knowledge on biochar multiple benefits in energy access and efficiency, clean cooking uptake, soil fertility, environmental sustainability and socio-economic development of research organisations, NGOs, Civil society actors, technology developers and end users (women and farmers).

9

Biochar Plus capacity building events in:

- **Lomé** *(Togo)*
- **Jimma** *(Ethiopia)*
- **Bindura** *(Zimbabwe)*
- **Banjul** *(The Gambia)*
- **Cape Verde**
- **Kumasi and Akpafu-Mempeasem** *(Ghana)*
- **Milan** *(Italy)*
- **Nairobi** *(Kenya)*

750 participants

1

MSc thesis 'Methods and approaches to the application of biochar systems in Ghana. Sierra Leone, Zimbabwe Ethiopia and Cameroon', University of Padova, Italy.

Improved capacity of small farmers and communities in the use of biochar and environmental benefits generating circular economy effects.

3,050

of biochar applied by

48 farmers on their fields in:

- **Ethiopia**
- **Ghana**
- **Sierra Leone**

have tested biochar to improve soil fertility and saw an increase in crop growth.

67

Local communities and villages in:

- **Cameroon**
- **Ethiopia**
- **Ghana**
- **Sierra Leone**
- **Zimbabwe**

are aware of biochar technology and its use.

>3,700

Elsa pyrolytic clean cooking stoves, locally produced and adapted to local users' needs. Mainly distributed to women:

- **3,609** stoves in Ghana
- **38** stoves in Zimbabwe
- **60** stoves in Ethiopia
- **33** stoves in Sierra Leone

Pellets made from multisource waste biomass are produced and sold as cooking fuel in the local market In Cape Coast (Ghana).

Africa Biochar Partnership (ABP) hub for continental and regional institutions, universities, research centres, foundations, NGOs and the private sector and the increase of scientific knowledge at African research institutions on biochar promoting research and technology transfer with 24 scientific institutions in Africa providing biochar training.

Project results (2)

Improved capacities of S&T communities, business, MSMEs, NGOs and public institution on biochar system, technology and ecosystem.

Biochar information provided in local languages:

1

Informative documentation (French & English).

1

Educative kit (French & English).

Macro policy study of the Biochar systems potential in Ghana, Africa Center for Economic Transformation (ACET) 2016.

2

Feasibility studies on Biochar industrial plans processing.

Publications of 2 research papers from 2015 to 2016.

Impact

Biochar Plus systems have positively affected household and farmer livelihoods, generating a socio-economic development, both at social well-being level and at economic level increasing the household's income and providing new business opportunities, with local Biochar Plus partners in Ghana, Zimbabwe, and Ethiopia manufacturing the ELSA clean cooking device for research and commercial purposes. The biochar clean cooking technology and the highly nutritious biochar residual product not only improve the environment but generates a circular economy with no waste.

Sustained Impact

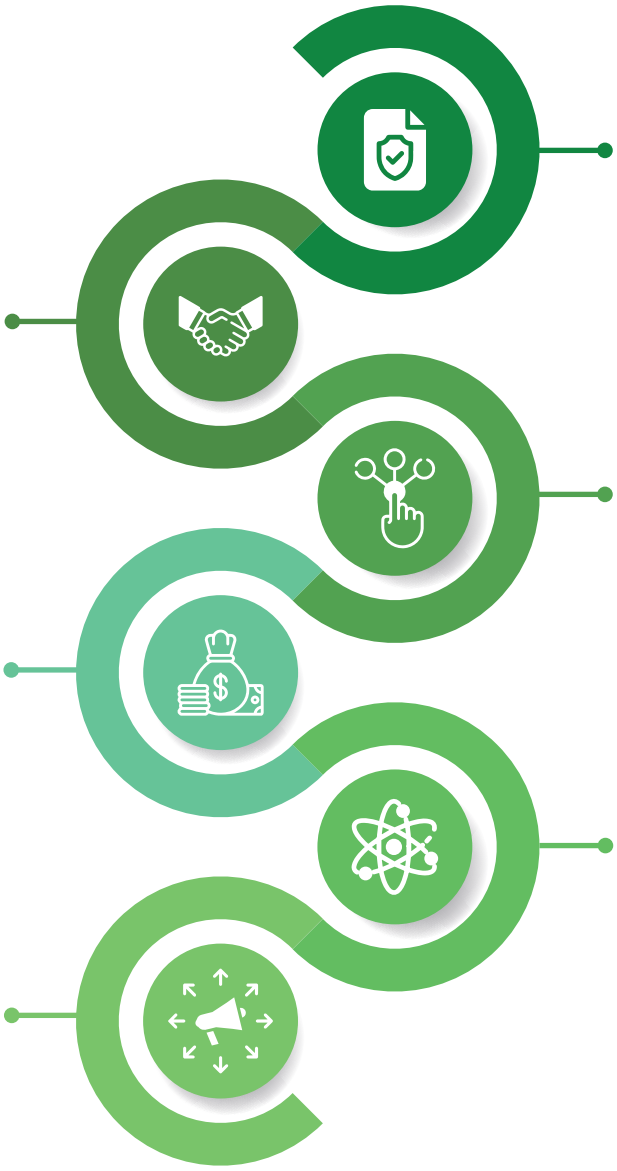
The sustained impact of Biochar Plus has been remarkable in its role of catalysing the development of two other pilot projects and finance sources in Burundi:

€ 350,000
in funding from the **EU Delegation in Burundi** for the Biochar component of the project «UMUCA W'ITERAMBERE-Contributi on à la résilience intégrée des communautés rurales à travers l'accès à l'énergie durable».

US$ 200,000
in funding from the **World Bank** and **ESMAP** for project "Burundi – pilot test on introduction of improved pyrolytic clean cooking systems".

Microfinance assistance to NGOs involved in the project to disseminate biochar technology and ELSA stoves to final users.

Key lessons learned and best practices



Adoption of biochar has been slow due to the lack of alignment between the environmental benefits and commercial motivations to drive more widespread implementation.

Policies that can facilitate or limit the adoption of biochar systems in Ghana and across the continent.

The current state of research/policy interface affects the adoption or not of biochar systems.

Capitalisation of lessons learned from biochar-related initiatives in Africa.

Importance of interaction of the main actors in the adoption of governance systems, the participation of critical institutions for these governance systems and their significance for policy advancements.

Potential and effectiveness of dissemination channels.