



Bamboo for Renewable Energy and contribution to SDG7: Affordable and Clean Energy

Workshop on Harnessing the Potential of Bamboo for Renewable Energy

Location: Yaoundé, Cameroon

Date: June-July 2020 (TBC)

Target Countries: African Members of INBAR (Cameroon, Ethiopia, Ghana and Madagascar; Benin, Burundi, Central African Republic, Eritrea, Kenya, Liberia, Malawi, Mozambique, Nigeria, Rwanda, Senegal, Sierra Leone, Tanzania, Togo and Uganda)

Partner: Ministry of Forestry of the Republic of Cameroon

Background

Biomass is a major source of energy in Sub-Saharan Africa. It is estimated that about 80% of Sub-Saharan Africa's population rely on traditional biomass fuels, mainly wood fuels in the form of charcoal and firewood, for their energy needs¹. Though Africa's urban dwellers are increasingly shifting from the use of firewood to the use of liquefied petroleum gas, charcoal remains an important source of household energy in the urban areas². In the rural areas, firewood is the predominant source of rural household energy, providing 100% of household energy³. The high use of biomass energy in Sub-Saharan Africa contrasts with the situation in the developed parts of the world, where development has been associated with transition to more advanced sources of energy. High dependence on biomass for fuel wood and charcoal production are the main drivers of deforestation and degradation. Consequently, deforestation and degradation also results in destruction of water catchments, loss of biodiversity and wildlife habits, increased soil erosion and decline in ecosystem services. Therefore, sustainable land management, and alternatives for timber and energy (sustainable fuel wood and charcoal production) are key for addressing the deforestation and land degradation.

Case for bamboo

The high dependence on biomass energy in Africa is expected to remain same into the foreseeable future. The urgency of the need to find sustainable sources in order to ameliorate the environmental impacts of biomass energy production and use cannot be overemphasized. Bamboo is increasingly attracting global attention as a feedstock for biomass energy due to its fast growth, renewability and abundance in tropical and sub-tropical regions. By virtue of its rapid

¹ Hall, D. O., & Scrase, J. I. (2005). Biomass energy in sub-Saharan Africa. (P. S. Low, Ed.) *Climate Change and Africa*

² Girard, P. (2002). Charcoal production and use in Africa: What future? *Unasylva*, 53(211), 30–34

³ Cerutti, P. O., Sola, P., Chenevoy, A., Iiyama, M., Yila, J., Zhou, W., ... van Noordwijk, M. (2015). The socioeconomic and environmental impacts of wood energy value chains in Sub-Saharan Africa: a systematic map protocol. *Environmental Evidence*, 4(1), 1–7.

production of biomass, bamboo offers a sustainable alternative source of woody material for biomass energy⁴.

Annual selective harvesting of bamboo can start 3-6 years after planting. Once established, new shoots / culms of bamboo are produced every year attaining its full size in three to six months of emergence. This also provides opportunity for selective annual harvesting (3-year-old poles). Unlike trees, selective harvesting does not result in deforestation or degradation and due to its rhizome system, there is no need for replanting. Thus, when sustainably managed, bamboo can be an extremely renewable source of biomass energy feedstock.

Many countries in Africa with naturally-endowed bamboo have the potential to ameliorate the environmental impacts of biomass energy production and use by substituting bamboo for the forest trees being used. Cameroon, Ethiopia, Ghana and Madagascar with about 1,000,000 ha, 1,470,000, 1,120,000 and 400,000 ha of bamboo resources respectively, have the potential to sustainably substitute bamboo to meet primary energy needs in addition to creating livelihood and income to smallholder farmers, charcoal processors, SME and industries.

The International Bamboo and Rattan Organisation (INBAR) with financial support from the International Fund for Agricultural Development (IFAD) South-South Triangular Cooperation (SSTC) is organizing a workshop on harnessing the potential of bamboo for renewable energy in Yaoundé, Cameroon on June-July 2020 (TBC). At this workshop, the African Taskforce on Bamboo for Renewable Energy (TFB4RE) will be inaugurated. Invited experts to this workshop will be invited to join the African Taskforce on Bamboo for Renewable Energy (TFB4RE) to contribute their expertise to the documentation of best practices and standards on bamboo for renewable energy such as bamboo charcoal, bamboo for fuelwood, and bamboo biomass for electricity generation through gasification and pyrolysis, etc.

Purpose of the Workshop

The purpose of the workshop is to bring together key African experts to examine the potential of bamboo as an alternative source of bioenergy production in African countries with emphasis on the characteristics, conversion processes, suitability of bamboo for energy production, and socio-economic and environmental implications of bamboo for energy production.

Workshop themes

Experts are invited to submit an abstract on any of the following themes. The abstracts should discuss how best bamboo and bamboo biomass can be explored for the production of renewable energy under these themes:

⁴ Dwivedi, A., Jain, N., Patel, P., & Sharma, P. (2014). The Versatile Bamboo Charcoal. International Conference on Multidisciplinary Research & Practice, I(Vii), 4–6

- Potential of bamboo for biomass applications: Characteristics of bamboo as a good source of biomass for energy: what are the fuel characteristics? what is the yield of bamboo energy per hectare? comparison with traditional biomass; How sustainable is bamboo resource considering the current coverage of bamboo forest in specific countries?
- Technologies of producing energy from bamboo: what are the applications; technologies applied in bio-energy conversion – households, SME, industrial applications.
- Environmental implications: Bamboo Vs other renewable energy source; What will be the contribution to carbon mitigation or greenhouse gas reduction in the atmosphere; environmental benefits.

Expected Outcomes

At the end, the workshop is expected to contribute to the understanding of:

1. The unique characteristics of bamboo species that make them suitable for renewable energy production;
2. The potential of bamboo as an alternative natural resource renewable energy production to meet both rural and industrial energy needs;
3. The methods of conversion of bamboo into various energy products
4. The suitability of bamboo regarding the calorific or heating value for energy production compared to other biomass.
5. Bamboo as a climate-smart renewable energy to contribute to carbon emission reduction.

How to Register and Submit Abstract

Interested participants are encourage to complete the Workshop application form, filling out information including a 300-word max abstract. The form should be returned to the following addresses: rkaam@inbar.int, enacheampong@inbar.int, kbelmond@inbar.int.

Deadline for submission: 22 May 2020

Workshop Sponsorship:

In accordance with donor's requirement, full sponsorship including round-trip airfare, accommodation and DSA will be awarded to selected speakers of the sessions. Only national of African members of INBAR are eligible to the sponsorship.

Non-African INBAR members are encourage to submit abstracts but are not eligible to sponsorship.

Contacts:

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