

## SteamBioAfrica – an introduction

SteamBioAfrica is a collaboration from Africa and Europe with the intention of enabling long term sustainable benefit across Southern Africa. It addresses two significant challenges facing the region:

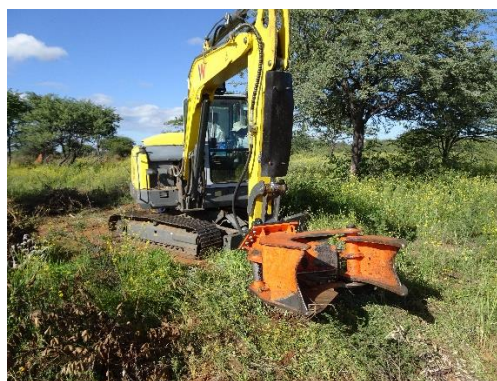
- The need for clean, secure, and reliable energy
- The need to address the challenge of encroacher bush and other invasive woody biomass species

With support from the EU Horizon 2020 funding programme, we intend to address these challenges. We will create value from this problem biomass; we will produce a clean burning, high value solid biofuel with coal-like burning properties. This will stimulate harvesting of problem biomass. Land will be restored to productive use, creating jobs and wealth at a local level.



Our clean burning, solid biofuel will replace charcoal and wood for cooking and heating. It will also replace coal in power generation. Our clean burning fuel will produce less smoke and be less harmful to health. It will be the healthier and more sustainable energy approach for both households and industry users. It will also be economically competitive.

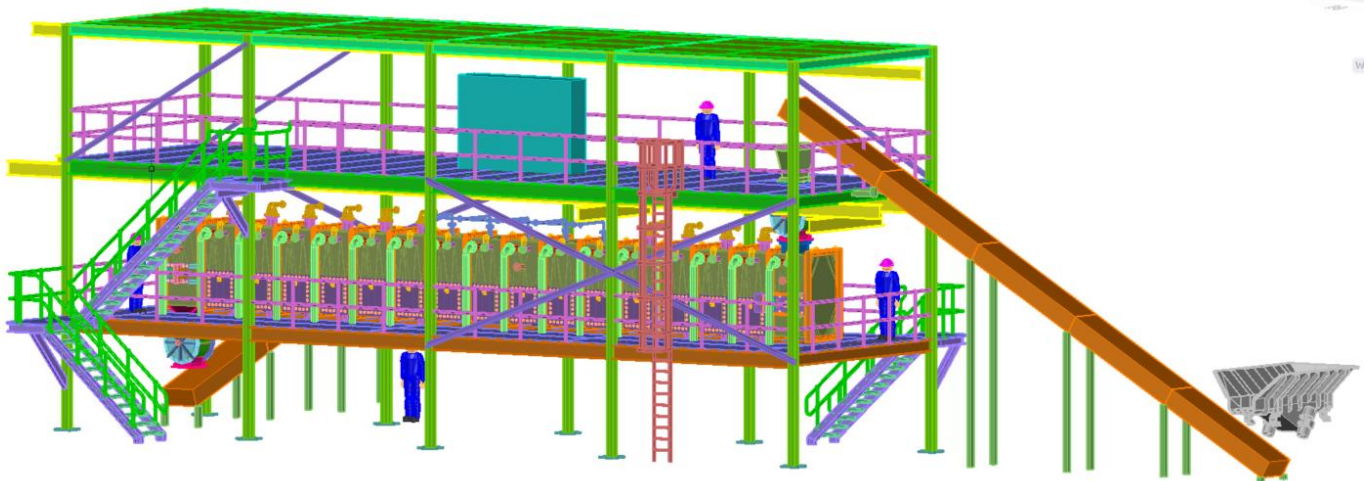
Our work involves the novel use of superheated steam. Historically superheated steam has been used in many industrial applications, including for drying. We have taken the technology forward to achieve continuous and reliable “torrefaction” of biomass into a “green clean burning coal substitute”. We have already shown this to work at an industrial demonstrator scale in Northern Spain with hardwoods, softwoods, vineyard and olive prunings. We are now advancing this process significantly to process industrial scale quantities at our demonstration site in Namibia.



A collaborative fifteen partner industry and research consortium from Africa and Europe have come together to make this happen. A new 250kg/hour throughput demonstrator plant has been designed and is under construction with commissioning planned to be complete by early 2023. It will then operate continuously at Cheetah Conservation Fund’s Biomass Technology Centre ([www.cheetah.org](http://www.cheetah.org)) until mid-2024.

We will trial materials from Botswana, Namibia, and South Africa with this plant. During these trials we will optimise processing conditions according to material inputs and desired market outputs. Outputs will be available for trials with industrial users and domestic households in test market conditions. In our earlier trials in Spain our clean burning solid biofuel was shown to replace coal in an industrial lime kiln in a 24-hour operation.





### We will

- Confirm techno-economic viability as a coal replacement without subsidy,
- Industrial design up to 10 tonne/hour continuous throughput,
- Confirm full life cycle sustainable viability,
- Establish market acceptance and value chains for domestic use
- Develop local value chains to enable local benefit
- Confirm that once harvested the soil fertility is enhanced.

### Acknowledgements

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