

C.F. Nielsen's Village Concept aims to provide a win-win briquetting solution for Africa's people, forest and climate

Contributing to the UN Sustainable Development Goals

In Denmark wood-waste such as sawdust, shavings and wood chips used to present a major challenge. Oil and other energy sources were cheap and the wood wastes had no significant economic value, while the lack of storage space created inefficiencies in production. Instead of giving an economic benefit, most of the waste was given away for free to different types of workshops to soak up oil spills, or it was burned without purpose. In the last two decades there's been a constant development within alternative energy solutions and recycling. The economic value of wood waste has skyrocketed, and we see a waste problem turned into a raw material with multiple possibilities, such as being burnt as it is, for energy, for use in MDF or chipboard plates, or as animal bedding. Lastly it could be used for pellets or briquettes.

Today Africa is experiencing the same type of challenges. The main source of energy in many African countries is wood and a large part of this wood is used for cooking either as firewood or charcoal. Due to the large amount of wood utilised this way and the growing population, the forests have started to deplete in many countries. At the same time Africa faces a serious waste issue with agricultural residues burnt or left to rot in

the fields, resulting in a great loss of potential energy.

C.F. Nielsen has made an initial market study for Uganda, which documented the availability of biomass waste in large quantities across the country, including: sawdust, bagasse, rice husks and straw, sunflower hulls, cotton seed hulls, tobacco dust, maize cobs and stalks, groundnut shells, and flower waste. If biomass was collected and used for fuel, it would be a win-win situation for both the people of Africa, their forests, and the global climate.

That makes Africa a new potential growth market for briquetting companies,

as there is a demand for sustainable energy resources. As previously stated, the existing supply consists of mainly firewood and charcoal, often from non-sustainable forests. Looking towards agricultural residues expands the possibilities within briquetting substantially.

The current equipment manufacturers supply to the market is mostly products of low quality with a lack of documentation and after sales service, often leaving the customers to their own devices. The result is that the machinery breaks down within a short time and, as it is often not repaired, factories stop working. C.F. Nielsen now

offers the technology for this as a package solution tailor made for the African market.

The African market for briquettes

In Africa, there are two main market segments for briquetting machinery manufacturers.

The first is larger companies wishing to switch from firewood or fossil fuels to renewable energy. In order to become sustainable, many of these companies can benefit from biomass. Some good examples of how to do it are using sugarcane bagasse or pineapple waste to make briquettes to replace firewood or fuel oil.

The second segment is



Pic caption



The UN's Global Goals for Sustainable Development

domestic cooking, namely replacing firewood and locally produced charcoal with briquettes from wood residues or agricultural wastes. For poor people in the area, the largest part of daily food preparation takes place on an open fire with firewood as the most common type of fuel. For this segment, C.F. Nielsen has developed a village concept for briquetting wastes at a capacity between 150-350kg per hour. Local farmers or smaller companies with residues can either sell their residues to the village factory or they can exchange residues for finished briquettes.

serve smaller communities, C.F. Nielsen has developed a competitive machine (in two models BP2010 and BP2510) – in addition to its leading high-capacity range – with a capacity of respectively 150-200kg/hour and 250-350kg/hour with auxiliary equipment for down-sizing and drying of the biomass.

Challenges: investing in “software versus hardware”

Although the Village Concept shows promising potential, the main challenge is that the companies or villages

implementing the concept have limited funding options. As the average African person doesn't have as much buying power as a private company or a partnership with NGOs, an investment bank or other funding source is paramount for a project to succeed. Often funding or grants can be obtained for similar projects in Africa, but the support is most often given in the form of software (education, administration etc.), and not as hardware, which often leads organisations to acquire machinery of low quality. C.F. Nielsen will seek funding through various channels for the hardware to support future projects.

UN Sustainable Development Goals

By initiating “The 2030 Agenda for Sustainable Development”, the United Nations (UN) encourages all nations to take responsibility in “promoting prosperity while protecting the planet.” In Denmark the SDGs are fully integrated in the country's Foreign and Security Policy but it is also the duty of private companies to comply with the given guidelines.

With the C.F. Nielsen Village Concept the overall objective is to support low-income

groups by providing them access to a sustainable and economically feasible source of energy. At the same time CO₂ emissions can be reduced, and the pressure on local forests can also be reduced through the substitution of non-renewable charcoal with an efficient and renewable alternative such as briquettes made from agricultural wastes that are not being utilised.

As a world leader in mechanical briquetting, we at C.F. Nielsen continuously work to develop this concept so that we can continue to find waste products suitable for briquetting. For us to do so, the concept can as an option be delivered with a small power plant, which will produce enough electricity to give power to the Village Concept and during night hours it could produce power for other purposes such as light etc. By replacing the current unsustainable wood fuel and charcoal, the project can not only reduce deforestation, but also generate local income and employment. ●

For more information:

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The Village Concept in short

C.F. Nielsen has developed a Village Concept consisting of a briquetting press combined with down-sizing and drying equipment. The idea is that all agricultural raw materials from a village can be used. The Village Concept can handle most agricultural- and wood based raw materials. Raw materials should be exchanged for finished briquettes, so that, for example, 100kg of raw materials could give 30kg of briquettes. The rest of the raw material will be used as fuel for the Village Concept and what is left will be sold to other customers to cover other costs of the factory.

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