

# INVESTMENT MEMORANDUM

## ➤ PROJECT

### **Biochar small-scale production using the Artisan Biochar program.**

Artisanal biochar production is an accessible, low-cost method that often involves participation of local communities. It supports sustainable agricultural practices, improves soil health, and offers additional sources of income.

Artisanal biochar is produced using small-scale, often traditional methods accessible to rural communities. Biochar is a charcoal-looking, carbon-rich substance that is produced when materials like agricultural residues are heated in a process called pyrolysis. This approach harnesses the power of biochar for carbon sequestration while supporting sustainable livelihoods and promoting environmental stewardship.

The farmers are burning the feedstock (corn stems, wooden chips etc) in the Kon-Tiki kilns.



## ➤ INVESTMENT VOLUME

If you would like to invest: up to 58 600 EUR per 1 fixed location. 1 location consists of 4-6 kilns. Minimum investment size is 10 000 EUR per 1 investor until there is a batch of investors for 1 location.

Or you can offer various locations and farmers and become a member of the local management team.

## ➤ RETURN

15% and above per annum.

## ➤ SWOT

### SWOT

#### Strengths

Proven technology, online status of production and certified method of biochar carbon credits.

#### Weaknesses

Need for organic feedstock, need for water to extinguish the fire at the end of a day.

#### Opportunities

Growing market of biochar carbon offsets, EU decarbonisation legislation forces companies to enter the decarbonisation programs.

#### Threats

Natural disasters such as flooding etc which can affect the feedstock.

## ➤ QUALITY ASSURANCE

Assuring **below 30% level of moisture**, ideally 15%-20%. It is approx. 3 days of drying process on the floor under the sun depending on initial moisture level. The moist biowaste will not burn and is not efficient. Technically we have a device that measures the moisture (e.g. Bosch 603688000 – humidity and temperature detector).

The dMRV (digital measurement reporting verification) is a mechanism behind the control and quality assurance of the product and process. The guarantor is the verification body. In our case we use Carbon Standards International (Switzerland). They verify us according to their guidelines.

The method of control is as follows:



The audit of the carbon credits is currently executed by the organisation to approximately 1% of the farmers, thus 10 out of 1000.

## ➤ PROJECT RISKS

There is a risk phase until the setup is done, which is the time risk.

The kiln production and implementation have a low risk unless the producer of the kiln is unreliable.

We produce kilns locally according to our specifications. It is not difficult. The verification from the local laboratory (assigned by the Carbon Standards International) needs approx. 2 to 4 weeks to come to the location and basically approve the distances between the biomass and the kiln (max 30 km).

Then the risk is on the farmer who needs to be monitored and incentivized. Some need weekly and some monthly payment. Here is our attention and supervision required. We have an employee who is regularly on site to be close to the kilns. When the kiln user is ill one day we need a backup. We have two ways to motivate them, one is payment and the other is the biochar that he can use to enhance his fields.

The proof of concept can be seen in India, Laos, Thailand, Namibia, Colombia etc.

The risk not to sell the credit carbon credit is low as the demand is huge and once we have the certificate it is a fully valid title deed.

## ➤ INPUTS

### Sources of the feedstock for the biochar:

- dried agriculture residues
- corncobs
- rice husks
- straw
- wood chips
- cotton or corn stalk
- coffee waste
- tobacco waste
- other homogenous organic feedstock (the closer to the wood structure, the better)

Example of a waste from the juice producer in Turkey:



## ➤ MAIN REQUIREMENTS

The waste can be collected from **max 30 km**.

1200 m<sup>3</sup> **up to max 1500 m<sup>3</sup> p.a.** of biochar is maximum allowed under the artisan pro concept. Assuming 180 working days p.a. we get 6+ m<sup>3</sup> up to max 8+ m<sup>3</sup> per day.

To **ensure the feedstock availability from January to December**. Several types of biowaste can be used.

It is not permitted to store biochar in piles **higher than 1 meter**. Otherwise anaerobic reaction starts.

### **Requirements to the farmers:**

- 1) A phone that can make photos and send the coordinates
- 2) Online Application (dMRV tool)
- 3) Water to extinguish the fire at the end of the day
- 4) Storage space within 30 km radius to store the biochar

## ➤ OTHER STUDY MATERIALS:

Mixing biochar with the soil - [https://www.youtube.com/watch?v=PIMPgn1xa\\_E](https://www.youtube.com/watch?v=PIMPgn1xa_E)

Artisan method - <https://youtu.be/bSGfAN4fd38?si=YpSSQL8HYH5EJfQj>

Kon-Toki: biochar making in open burn deep cone kiln - <https://www.youtube.com/watch?v=-AebWlpGu4I&t=117s>

How to use biochar in your garden - <https://www.youtube.com/watch?v=LWg1fm6Ss1M&t=9s>