

# **Abstract**

## **Zero Waste Aerated Bunker Composting of Oil Palm Waste**

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1. Sustainable biomass in the past few decades and current development.

The past few decades have seen a resurgence in the use of biomass as a nutrient source and energy source for agricultural purposes. The resurgence of sustainable biomass has been driven by a need to develop alternatives to finite fossil fuel reserves and dwindling mineral reserves.

As a leader in Palm Oil Mill by-product co-composting, Carbon Agro has been able integrate sustainable biomass solutions capable of recycling nutrients and reducing environmental impacts of the mill waste products; Empty Fruit Bunch (EFB) and Palm Oil Mill Effluent (POME).

Sustainable biomass composting has moved from the collection and application of large volumes of raw biomass resources, such as mulching with EFB or irrigating with POME as the labour and transport costs are economically prohibitive.

The current development is focused on reducing the time required to process the waste biomass so that the nutrients in the EFB and POME are concentrated into smaller volumes of compost material that can be easily transported and applied to the field as an organic fertilizer replacement.

2. What are the keys to shape a sustainable biomass future?

The keys to shaping a sustainable biomass future are the development of efficient resource processing methods so that the time required to capture and concentrate nutrients is reduced.

Reducing the processing time reduces the labour costs, the processing facility size (capital costs) and the energy costs. By reducing the cost of implementing sustainable biomass solutions there will be an economic incentive to drive the adoption of sustainable biomass solutions.

3. What is the role of agriculture business like oil palm industry in moving towards sustainable biomass direction?

The Palm Oil industry is placed to be the market leader in sustainable biomass sector. The huge size of the palm oil industry across the globe coupled with the large volumes of biomass by-products means that biomass solutions are essential. The potential for palm oil biomass to produce biogas, bio fuel and compost means that the palm oil industry can significantly reduce the input costs and improve sustainability.

By being a industry leader in sustainable biomass the palm oil industry can improve its environmental reputation. The palm oil industry can be a pioneer for sustainable biomass technologies and processes, and the solutions developed by the palm oil industry could be transferred to all biomass waste industries, which would significantly improve global sustainability.