

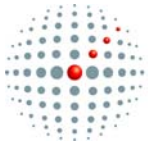
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ESD part of CAMCO

Can carbon finance help
solve Africa's charcoal
problem?

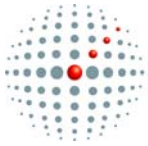
GEOFFREY O. ONYANGO
Geoffrey.onyango@esda.co.ke





About ESDA Part of Camco Group

The Camco Group is a pioneering business with an outstanding track record creating value in the sustainable energy and low carbon markets. The Group works closely with organizations worldwide, establishing partnerships to turn our clients' climate change liabilities into economic, social and environmental assets.

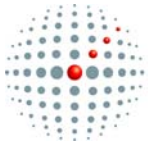


Can carbon finance help solve Africa's charcoal problem?

High possibility however a few issues needs to be addressed.

Challenges include:

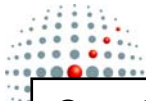
1. No methodology developed yet
2. Uncertainty of carbon market
3. Uncertainty of viability
4. Would the carbon finance provide sufficient finance
5. Challenges in filling in the gaps before first harvest



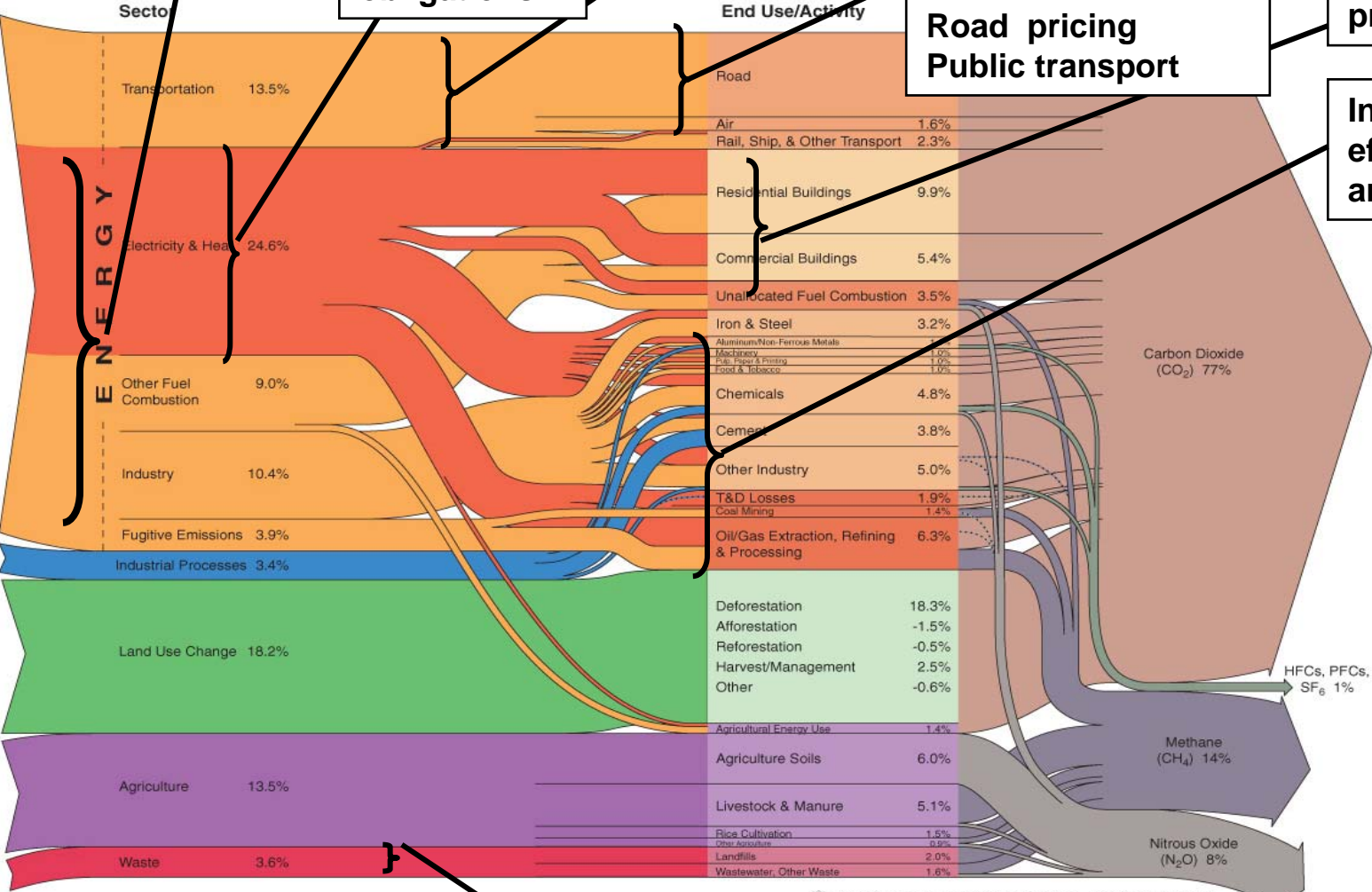
Can carbon finance help solve Africa's problem?

Problems caused by unsustainable charcoal production?

1. Deforestation
2. Fuelwood waste caused by poor conversion technology
3. Degradation
4. GHG Emission
5. Siltation
6. Loss of biodiversity



World GHG Emissions



Cap & Trade

Renewable energy obligations

Biofuel obligation

**Fuel taxes
Vehicle taxes
Vehicle standards
Road pricing
Public transport**

**Building standards
Energy efficiency programmes**

Industrial energy efficiency regulations and programmes

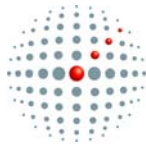
**Waste regulations
Recycling
Methane capture - CDM**

Carbon Dioxide (CO₂) 77%

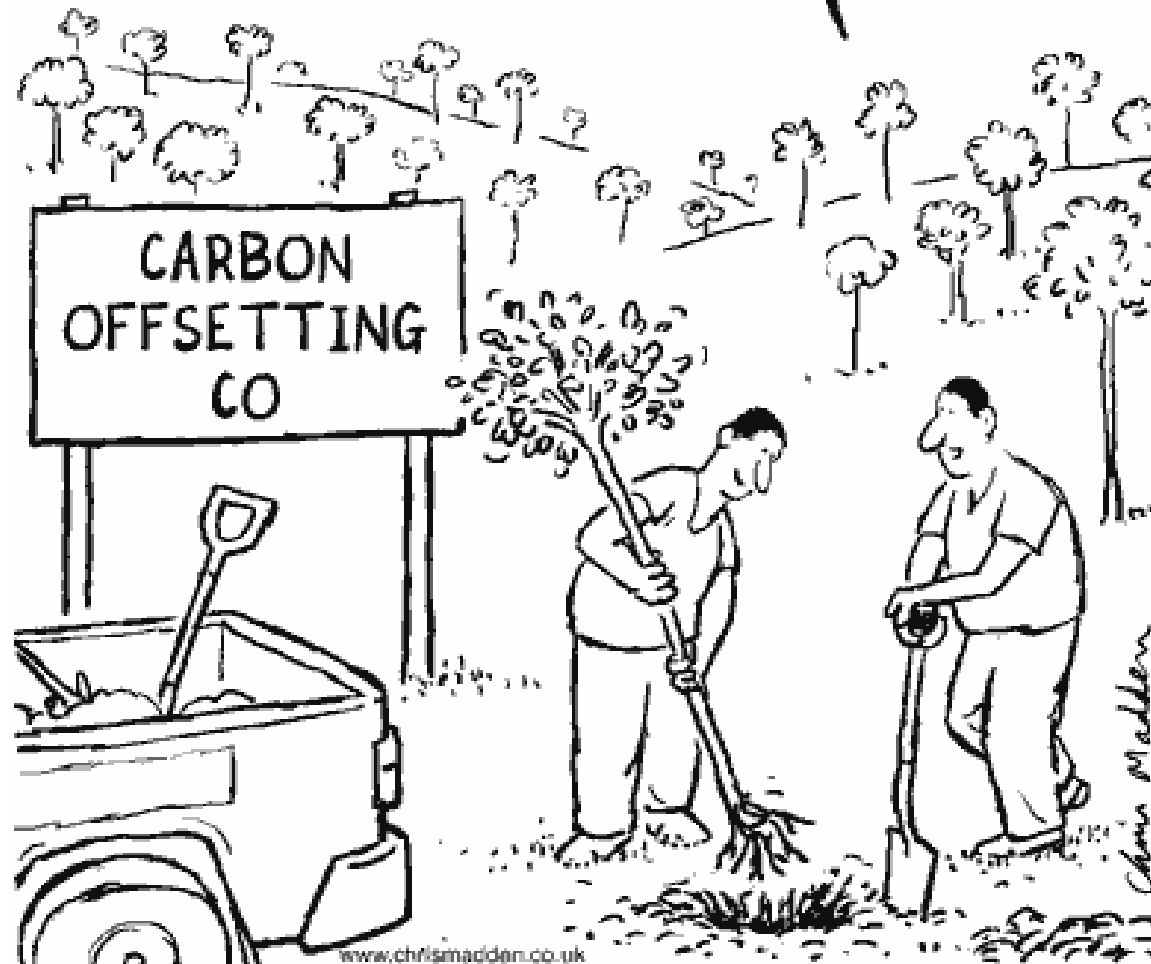
HFCs, PFCs, SF₆ 1%

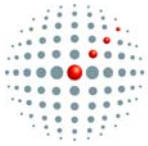
Methane (CH₄) 14%

Nitrous Oxide (N₂O) 8%



OF COURSE IF WE LEFT THE LAND TO ITSELF
IT WOULD REVERT TO WOODLAND ANYWAY,
BUT WHERE'S THE PROFIT IN THAT?



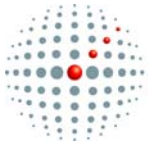


Can carbon finance help solve Africa's problem?

“Sustainability” - meeting the needs of present generations without compromising the ability of future generations to meet theirs

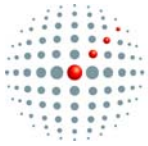
In the context of charcoal, means meeting present energy needs without compromising future:

- Energy security
- Food security
- Health
- Environments (biodiversity)
- Climate
- Economies (markets)



Rationale for sustainable charcoal

- Truly sustainable charcoal only possible if we implement both Upstream (Supply Side - Production) and Downstream (Demand Side - Consumption) Interventions
- Energy Security - affordable
- Better environment
- Sustainable charcoal will help create additional revenue streams and further strengthen the livelihood of farmers from the sale of sustainable energy products – firewood and “eco-charcoal” as well as carbon.
 - Eco-charcoal is defined as “charcoal that is produced in a sustainable and efficient manner with minimum environmental impact”.



Key Components of Sustainable Charcoal Programme

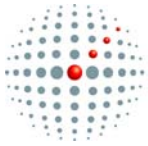
1. Supply Side Interventions

Managing forest resources for charcoal production

- Agroforestry (80% of fuelwood in Kenya now comes from farms)
- Woodlot management
- Controlled exploitation of forest resources
- Improved carbonization skills and Technologies

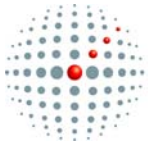
2. Demand Side Interventions

- Promote use of improved cook stoves
- Create awareness on energy conservation
- Encourage use of eco-charcoal (concept of certification)



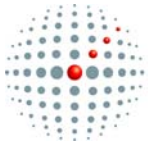
Key Components of Sustainable Charcoal Programme (cont'd)

- Institutional Interventions - Legal Framework
- Policy
- Proper control and policing
- Developing and enforcing (quality) standards
- Certification and grading
- Avoided Deforestation/emission
- Improved kilns
- Improved cook stoves
- Briquetting
- Use of Agricultural waste - to relieve pressure on demand for lump charcoal
- There is interplay among all the components



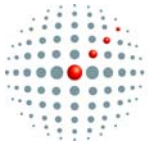
Avoided Deforestation

- Additional benefits can be gained by avoided deforestation through:
 - Improved kiln use
 - Improved cookstove use
 - Briquetting
 - Promoting use of Agro-wastes
- Dr. Walubengo (Forest Action Network) estimates that each tonne of charcoal produced using a traditional earth kiln depletes 0.1 ha of woodlands
- By simple inference:
 - Improving carbonization efficiency from 10% (typical for traditional earth kilns) to, say 30% using improved brick kiln cuts wood consumption three-fold
 - Substituting an improved charcoal stove e.g. the Kenya Ceramic Jiko (30-35% efficiency) for traditional one (20%) cuts consumption by a further 50 - 75% and potentially saves another 0.75ha of woodlands.



Avoided Deforestation (2)

- Use of densified agro-waste or briquettes from charcoal fines cuts demand on lump charcoal.
- Its estimated that $\approx 10\%$ of lump charcoal is lost as fines.
- If this amount is recovered and processed into briquettes, this will reduce the charcoal demand by a further 10%
- If agro-waste is either densified or carbonized and processed into briquettes, this it can be used as a further substitute for lump charcoal and reduce demand, saving forests further.



The benefits of sustainable charcoal include:

- Reduced rate of deforestation
- Possibility of carbon finance (resulting from avoided deforestation)
- Faster restoration of environments
- Reduce leakage
- Reduce rate of land degradation
- Easy to achieve sustainability
- Economic benefit to community through gaining from other forest products e.g. honey, medicinal, wild fruits, juices (baobab) etc



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Thank you!

For further information please feel free to contact me at:
geoffrey.onyango@esda.co.ke