

REPIC

Renewable Energy &
Energy Efficiency
Promotion in
International
Cooperation



Hand in Hand with UNIDO-RECP

Energy and fertility from biomass-residues in coffee/rice-sector

follow-up from Pulpa-Pyro-Peru

- **2011 general feasibility proofed**
- **2012 Lol's with coffee cooperatives, single farms and local process equipment industries**
- **2013 Development of novel simplified pyrolysis process for wet biowaste**
- **2014 Successful development and testing of demonstration plant for the just in time pyrolysis of wet coffee-pulp and other harvest residues**
- **2014 Terra-Preta Testing in coffee plantations initiated**
- **2015 Urgent need for further dissemination, training and support for pionieers and first movers**
- **2016 Implementation of additional power generation module**



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Local needs

- *Fuel and power for coffee processing and pre-drying = costs*
 - *Fertilizer = more costs (>double of energy costs)*
 - *Coffee pulp is unused waste, very low compost quality (acid), ground water poison*
- *Pyrolysis turns waste into biochar, heat (and soon) power.*
- *Biochar is alkaline, stores water, N-fertilizer, and returns mineral fertilizer (potassium), increases humus layer, stores CO2*

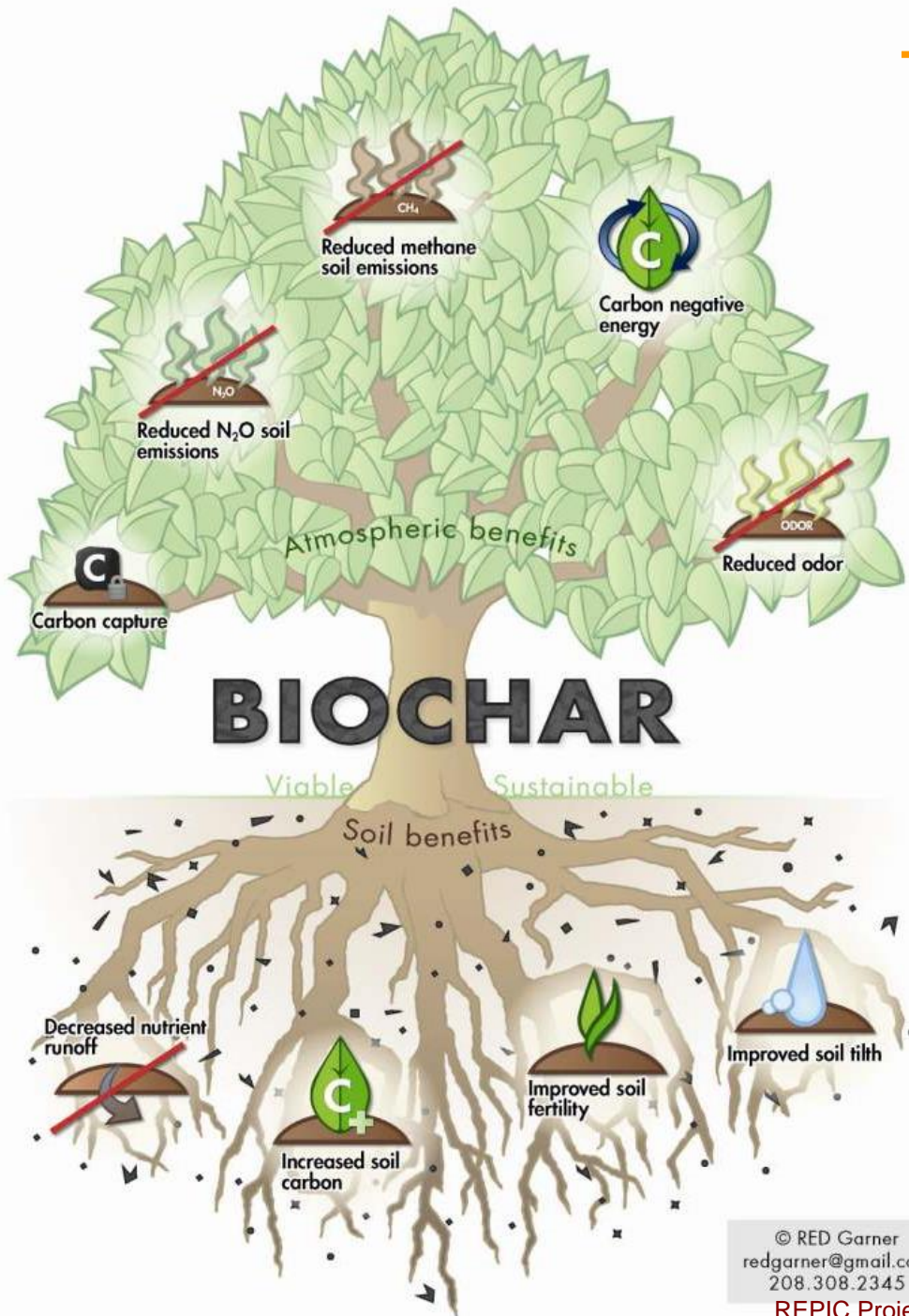


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Terra Preta =
local and
global
benefit

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Replication/multiplication potential

20 million tons of coffee pulp

150 million tons of rice husks

= 200 million tons of CO₂ stored

= 2'000 million tons of water stored (pot.)

*= 10'000 million \$ savings fertilizer and fuel**

** At typical costs for coffee farmers in Peru 2012 (ahorro cascarilla como combustible / urea- y potassio-fertilicantes)*

And only 40gr of biochar on every m² agricultural land on earth would reduce all yearly CO₂ emissions of fossil energy (7 Gt/a)- and increase immunity of the soil

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Open questions

*The pyrolysis plant is open-source –
depending on donations and...*

*The universal exhaust engine «3-stroke»
will be a private development depending
on investments...*

Will both be ready early enough?

