

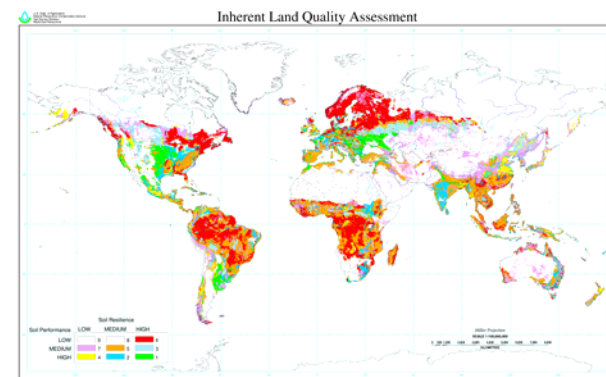
Introduction

**Biochar Workshop, East Malling,
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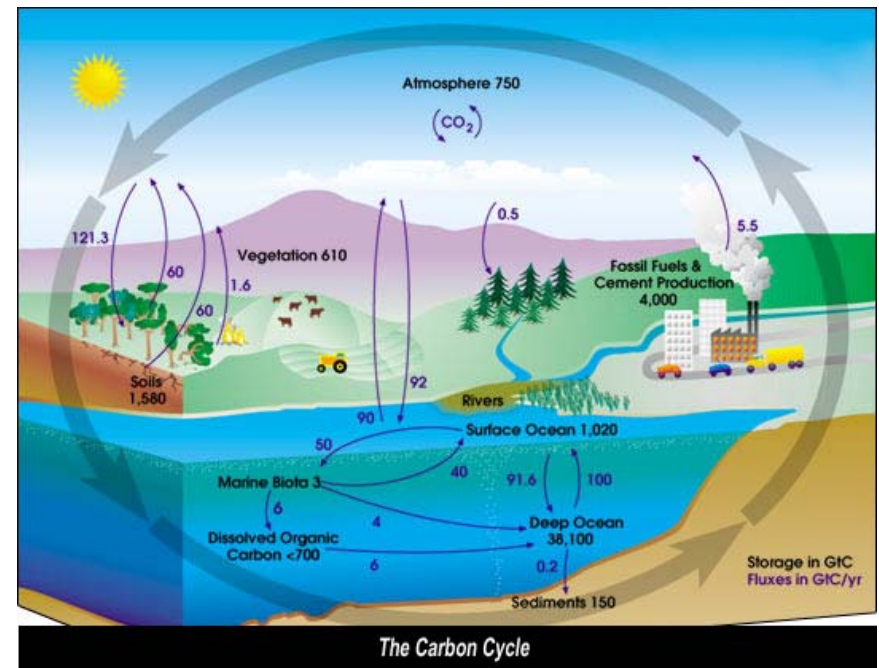
Strategic imperatives

- Contain and if possible reduce greenhouse gases
- Prepare for climate change and its impacts, confounded with rapid population growth, including
 - Food security
 - Water



Biochar potential

- Biochar is charcoal produced by pyrolysis of biomass, it offers potential to
 - Transfer carbon from the atmosphere to soil on a more or less permanent basis
 - Improve the fertility of soils



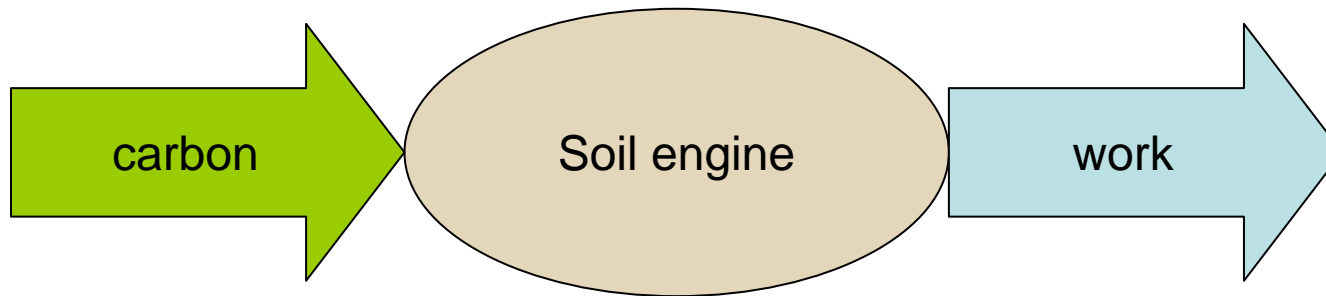
Issues 1

- What conditions are needed to ensure a permanent and additional removal of atmospheric carbon?
 - Is the biochar being produced from carbon that would have been sequestered anyway? Is additional biomass being produced as a feedstock?
 - Is there a net reduction in carbon emissions (based on a full Life Cycle Analysis)?
 - What are the impacts on other processes in the carbon cycle e.g. is oxidation of soil organic matter accelerated?

Issues 2

- Does biochar increase soil fertility and if so what are the optimal conditions?
- What are the provenance and other quality criteria required for biochar?
- What impacts might biochar have on the wider environment e.g. (1) via incorporation in to sediments? (2) soil biodiversity

Soil as a system that does work maintaining a medium for plant growth



A connected set of assemblages of organisms working in concert, within a physical infrastructure (the soil habitat), using energy from carbon to maintain a medium for plant growth – the engine can only be described in terms of statistical distributions

Perspectives

- Biochar is an important mitigation option even if not the only one – it will suit some but not all circumstances; nonetheless all mitigation options must be pursued with vigour
- The potential benefits of biochar on soil fertility are likely to vary depending on
 - Soil type
 - Crop type and production

Possible winning scenarios – an example

