

# Evaluating the impacts of logging on forest carbon

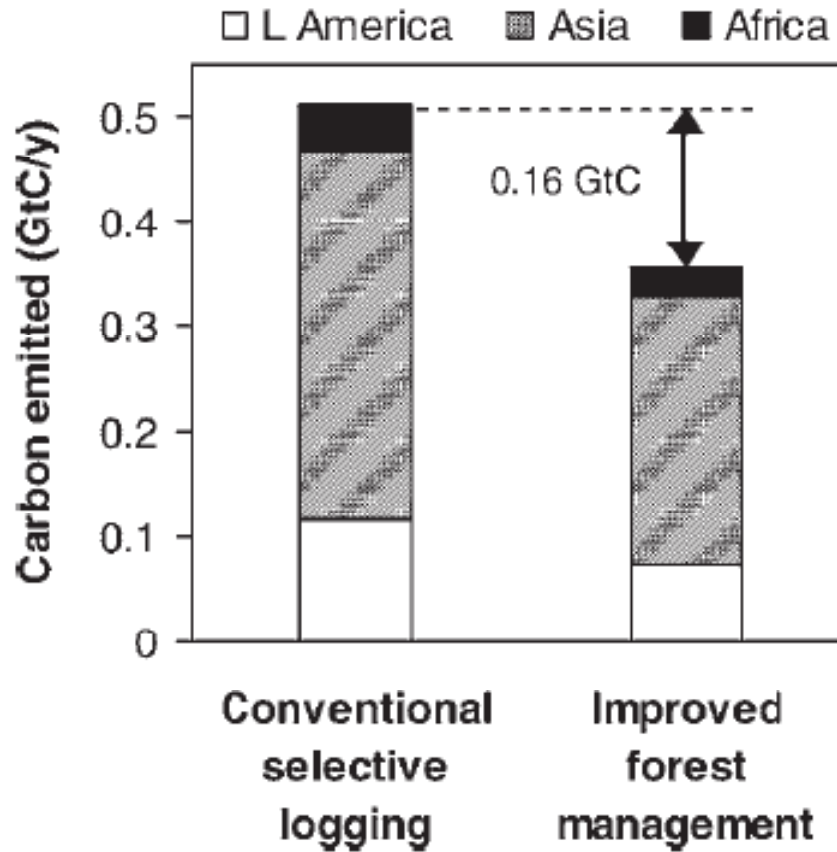
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+

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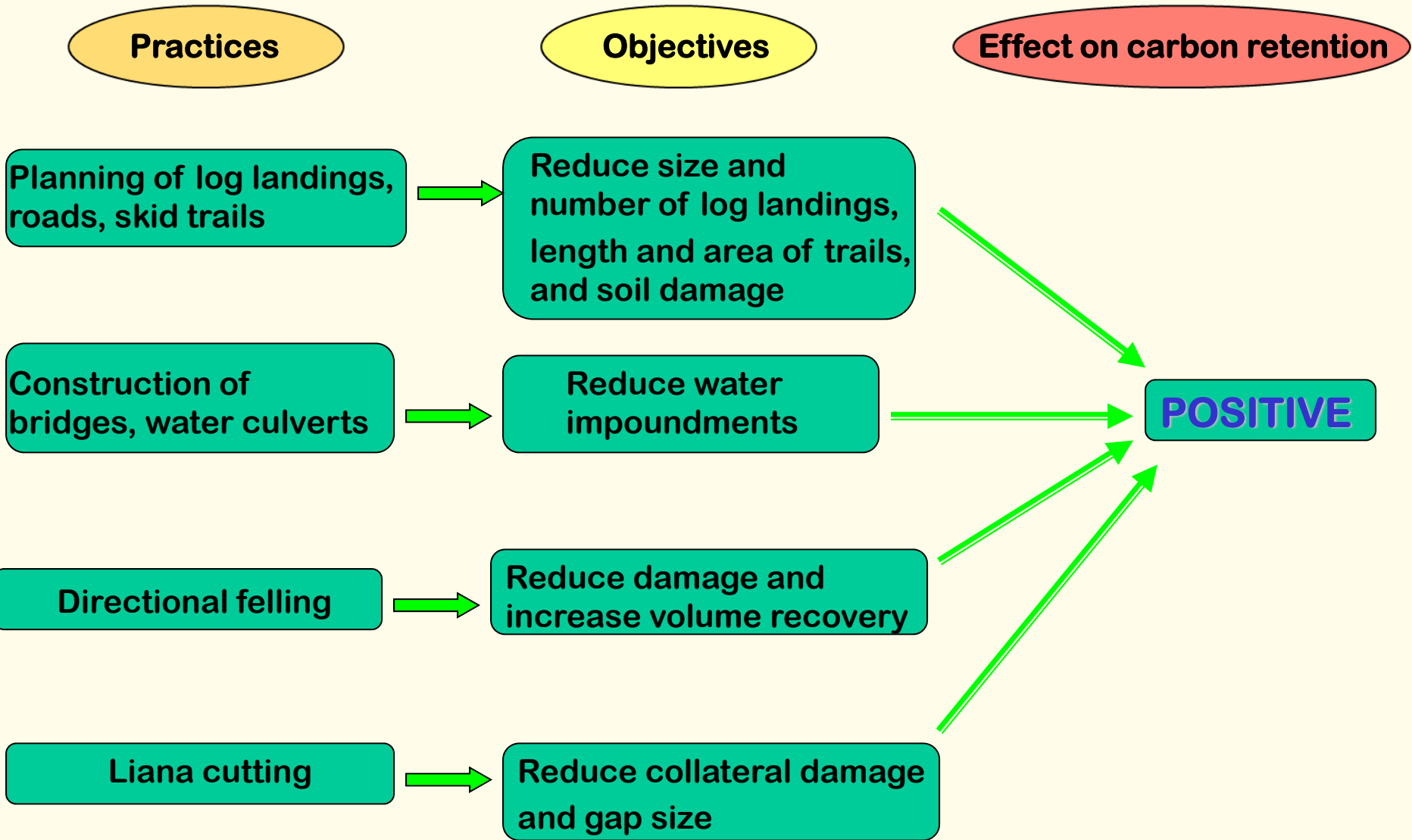
# Logging and forest carbon: the stakes



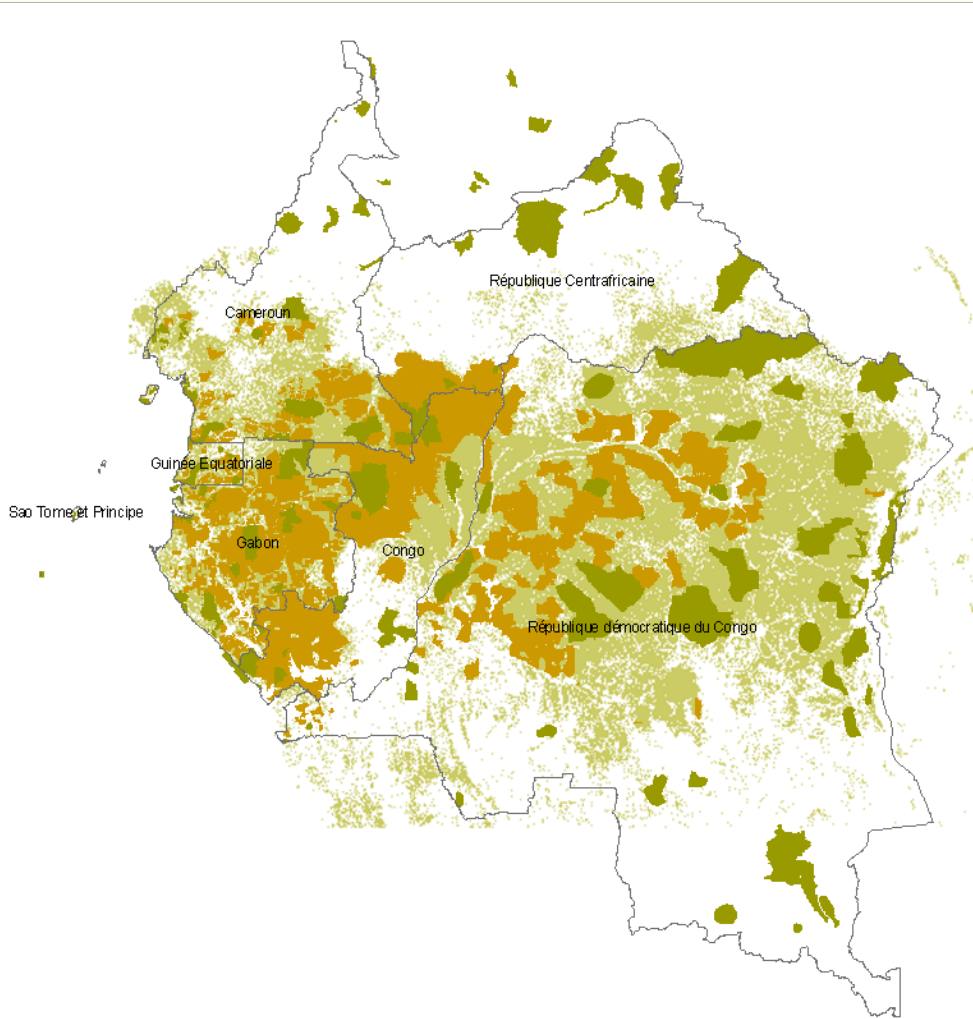
Graphs from Putz *et al* 2008



# RIL practices and their effects on carbon retention



## Importance for the COMIFAC countries



Map: WRI, 2008

40-50m ha of production forest in the COMIFAC countries (SOF, 2008)

Logging largest rural employer in many landscapes

Logging intensity mostly low, but cumulative impact high due to large area

### Reduced Impact Logging:

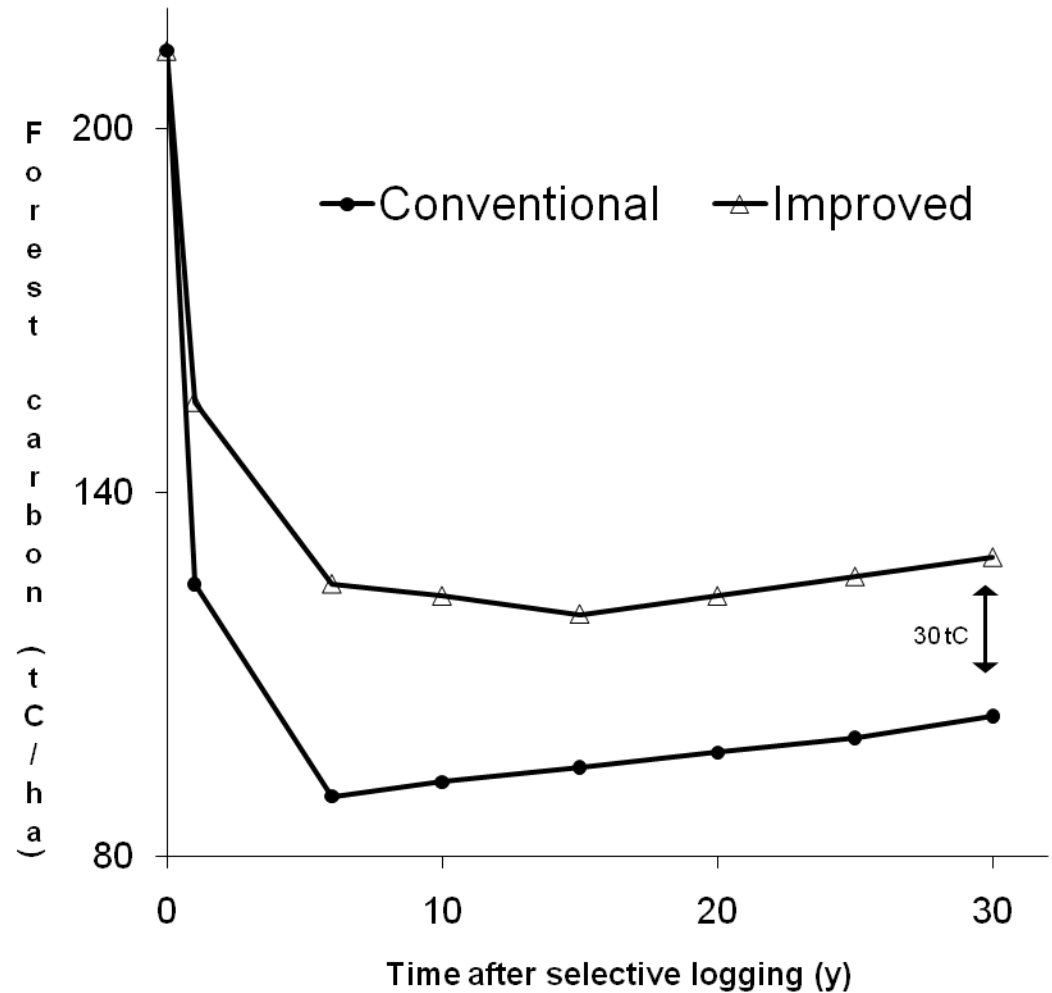
- => potentially positive climate change impact
- => more sustainable livelihoods through employment
- => positive economic and environmental impacts
- => Can be a component of REDD+?

But: Very little data from CA region

=> Need reliable system of evaluating impact of logging

# RIL and forest carbon: challenges of monitoring

- Change small compared to total biomass
  - Remote sensing not yet up to the task
  - Significant challenge for field sampling – intensive effort required
  - Existing forest management inventories insufficient
    - Poor georeferencing = impossible to repeat measures
    - Incomplete sampling



# Field study in Gabon: pilot phase

**Objective: Compare the impacts of RIL vs conventional logging (CL) on carbon stocks**



- Establish permanent plots in forests to be logged using RIL and CL practices
  - 10 x 1 ha nested plots in 50ha logging pocket
  - dbh + height of all trees  $\geq 50$ cm in 50ha pocket
  - geo-reference all measured trees
- Evaluate above-ground dead wood and leaf-litter carbon pools before and after logging
- Control plots in similar unlogged forest at each site

## Relevance and looking forward

- **Pilot study will provide basis for long-term monitoring**
- **Field data allows evaluation of other aspects of forest management**
  - **Assess logging damage to residual forest stands;**
  - **Investigate stand recovery and future timber yields;**
  - **Assess environmental and financial benefits of different forest harvesting practices relative to no logging.**
  - **Evaluate biodiversity and forest processes**





## Evaluating the impacts of logging on forest carbon: key questions

- Can we identify simplified indicators to evaluate impacts more rapidly?
- Can we scale up using CO<sub>2</sub>e/m<sup>3</sup> timber extracted?
- Feedback on methods welcome!

