Carbon Storage and Sequestration
InVEST 3.0

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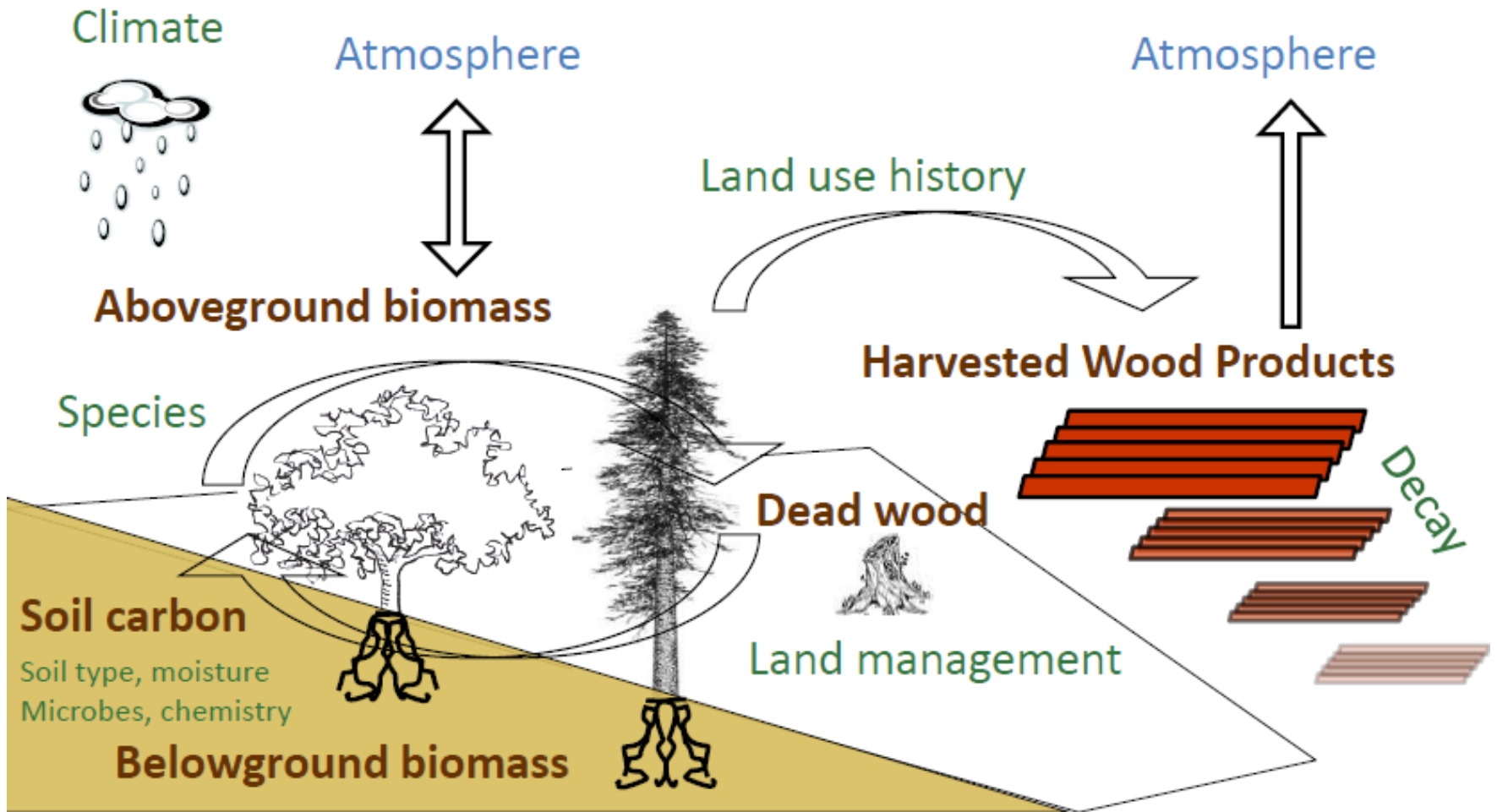# Carbon Storage and Sequestration

- In Tier 1 model, we estimate carbon stock as a function of land use/ land cover

- ***Storage*** indicates the mass of carbon in an ecosystem at any given point in time

- ***Sequestration*** indicates the change in carbon storage in an ecosystem over time.
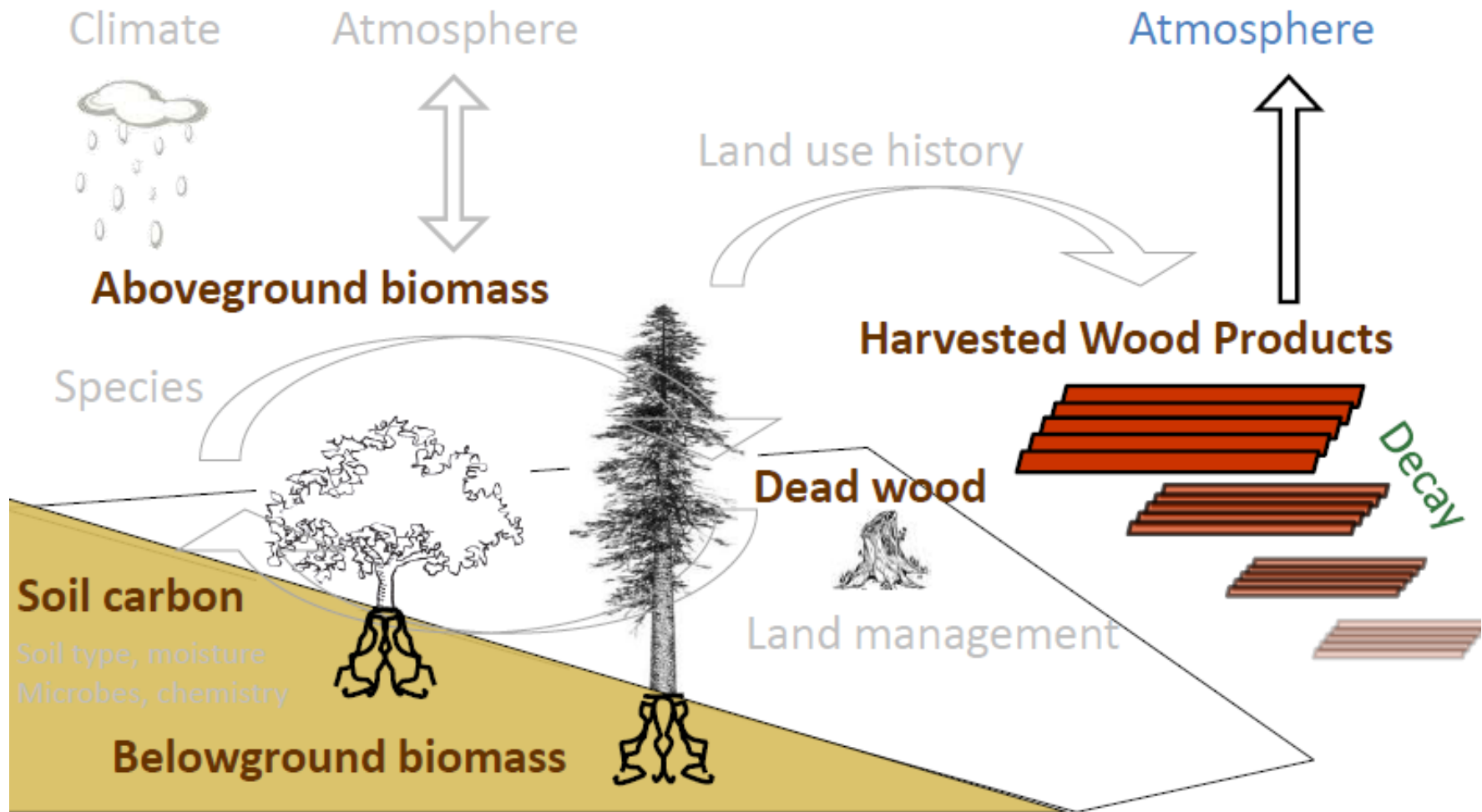
- ***Valuation*** is applied to sequestration
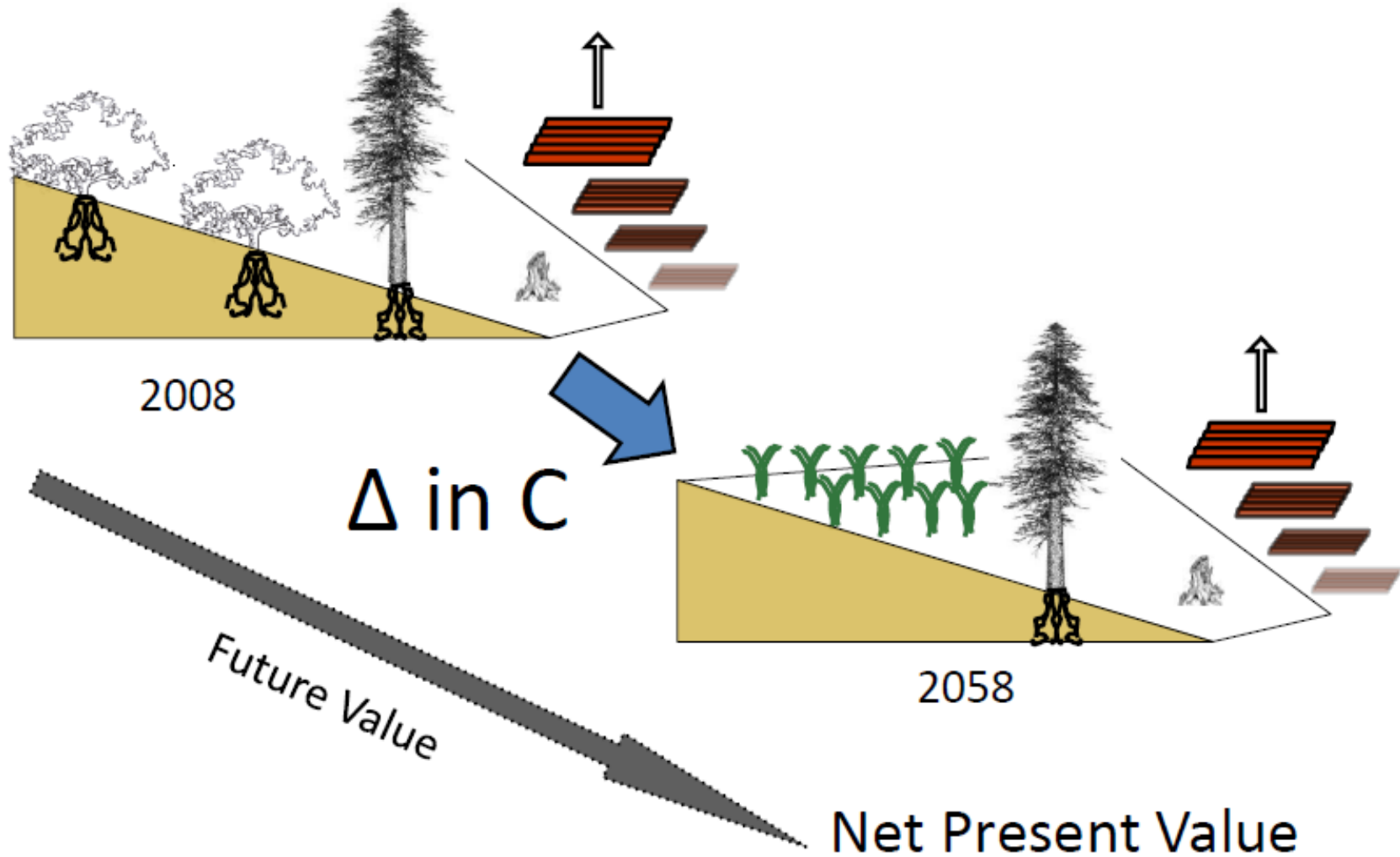
A Tiered Approach
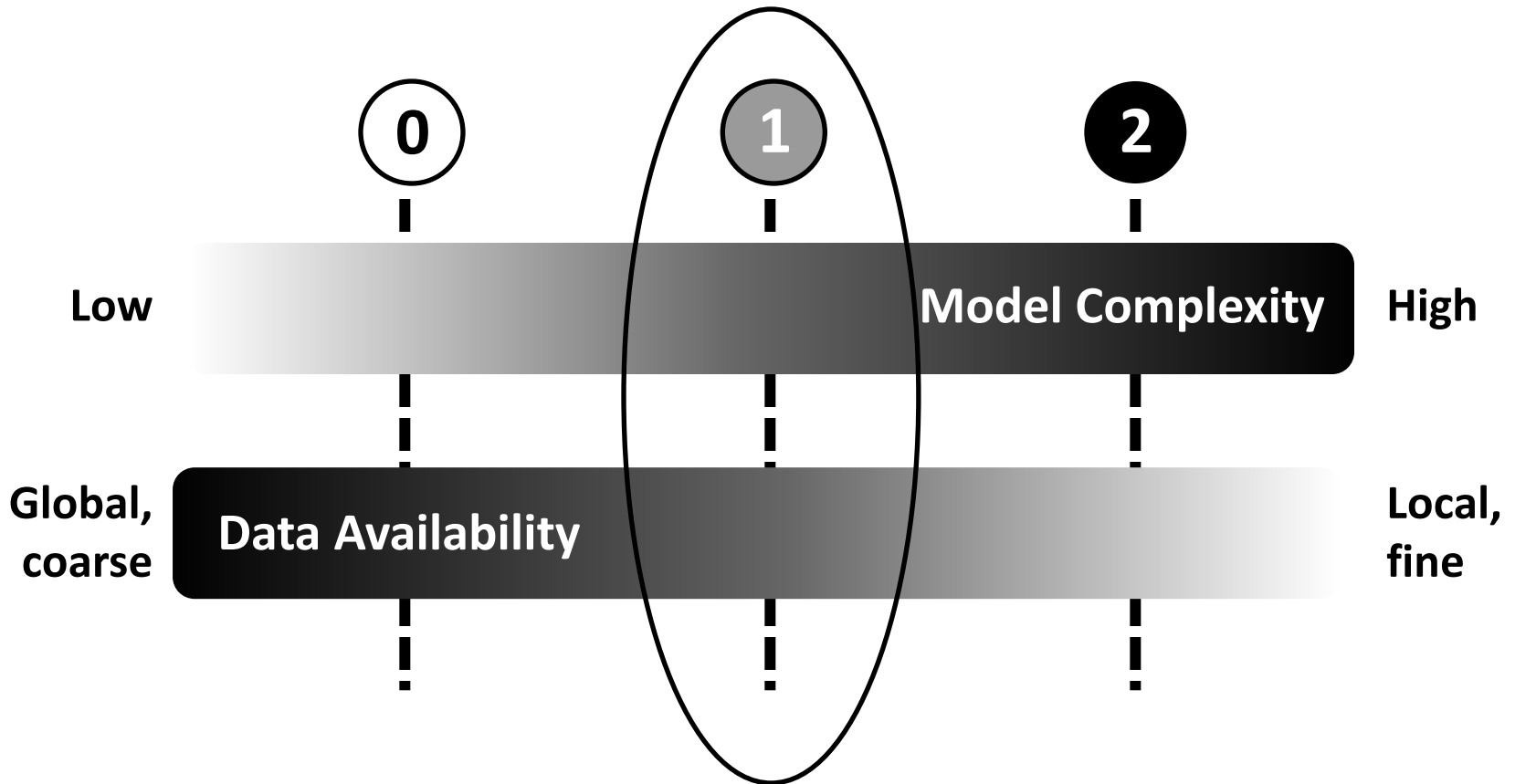
Big Picture

InVEST Carbon Storage Model

Sequestration and Value

Approach to Valuation

Net Present Value is a function of:

- Market discount rate

- Rate of change in the social value of carbon
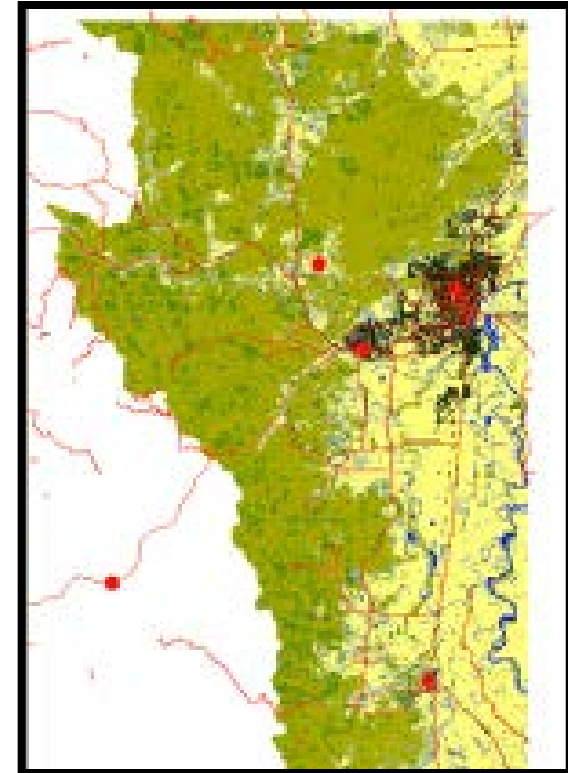
- Social or market cost of carbon

What is the benefit to society from avoiding damage from CO_2 release?

Demo

Outputs Summary

- Map of **current carbon storage**
  - (Mg C/ cell)

- Map of **future carbon storage**
  - If future land use provided

- **Carbon sequestration** map

  = (future – present carbon storage)

- Map of **economic value of carbon sequestered**

Applications

- Land use planners: Compare consequences of future scenarios

- Ecosystem service tradeoffs (Sumatra example)

- Carbon market: First pass analysis

- NOT appropriate for precise cost-benefit analysis!

InVEST Carbon Storage Model

- Similar setup as most other InVEST models
  - Each run = one scenario
  - Results: Biophysical and optional valuation
  - Compare multiple future scenarios
  - Look at tradeoffs, win-wins, etc.