Bio-Global Project:
Priority Areas for Sustainable Bioenergy Production

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Horst Fehrenbach (IFEU)

2nd Joint International Workshop on
Bioenergy, Biodiversity Mapping and Degraded Lands
from July 7-8, 2009 at UNEP, Paris

in cooperation with

funded by

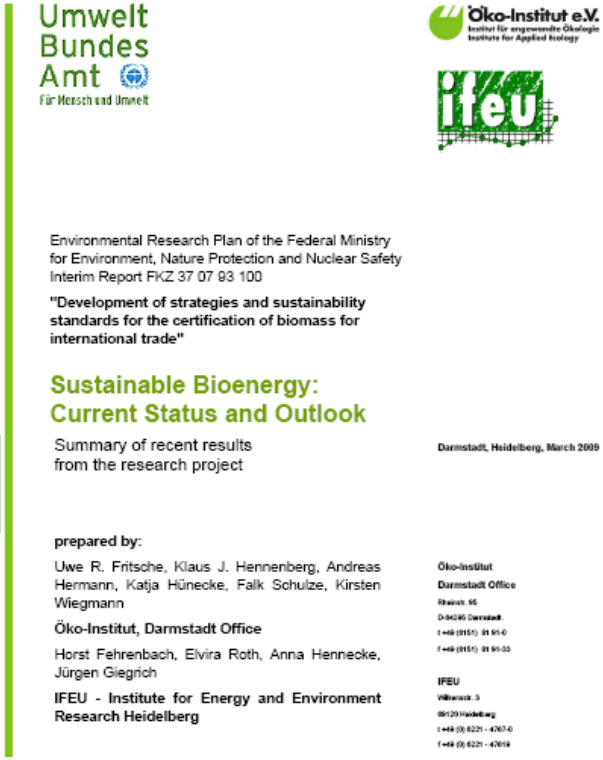
“Bio-global“ Project (financed by UBA)

Analytical support and policy development:
scientific methodologies and strategies on environmental impacts of bioenergy cultivation, trade, and use

Issues: Direct and indirect GHG from land use change, biodiversity, water, trade, legal aspects and global potential of degraded lands

Four country studies:

- Brazil (just started)
- China (last phase of work)
- India (starts soon)
- South Africa (last phase of work)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Environmental Research Plan of the Federal Ministry for Environment, Nature Protection and Nuclear Safety
Interim Report FKZ 37 07 93 100

"Development of strategies and sustainability standards for the certification of biomass for international trade"

Sustainable Bioenergy:
Current Status and Outlook

Summary of recent results from the research project

Darmstadt, Heidelberg, March 2009

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Why Degraded and Abandoned Land?

Positive effects:

- **avoided indirect effects (esp. GHG, biodiversity)**

  → no land use competition, i.e. no displacement soil carbon

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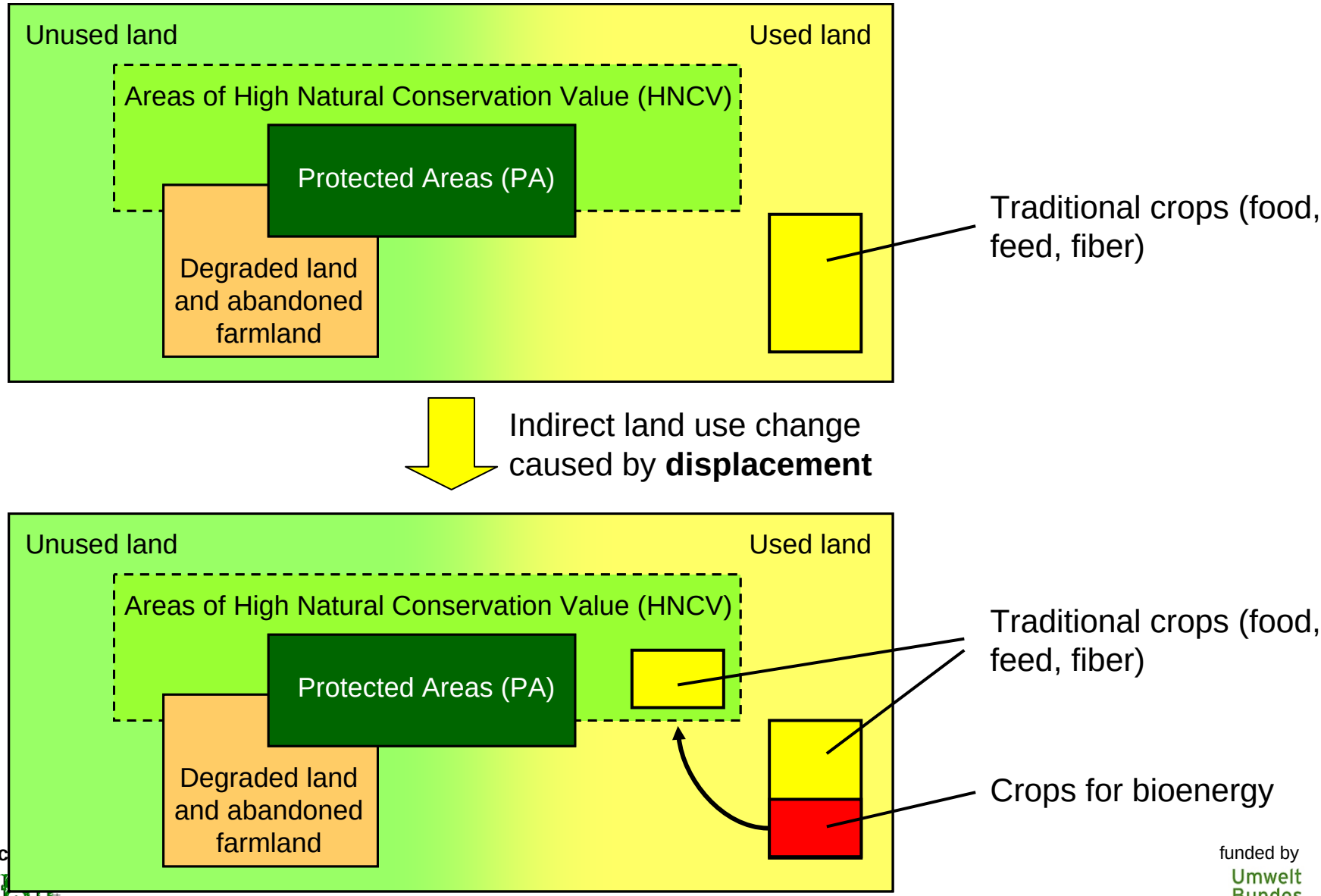
Indirect Land Use Change



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Why Degraded and Abandoned Land?

Positive effects:

- **avoided indirect effects (esp. GHG, biodiversity)**
  → no land use competition, i.e. no displacement soil carbon
- soil carbon
- (possibly) biodiversity
- (possibly) soil quality, water retention, reduced erosion
- but: social concerns (land tenure/ownership…)

Negative Effects:

- Higher costs due to restoration, lower yields, infrastructure overheads (access!)
- restriced choice of cropping systems (mainly: perennials)

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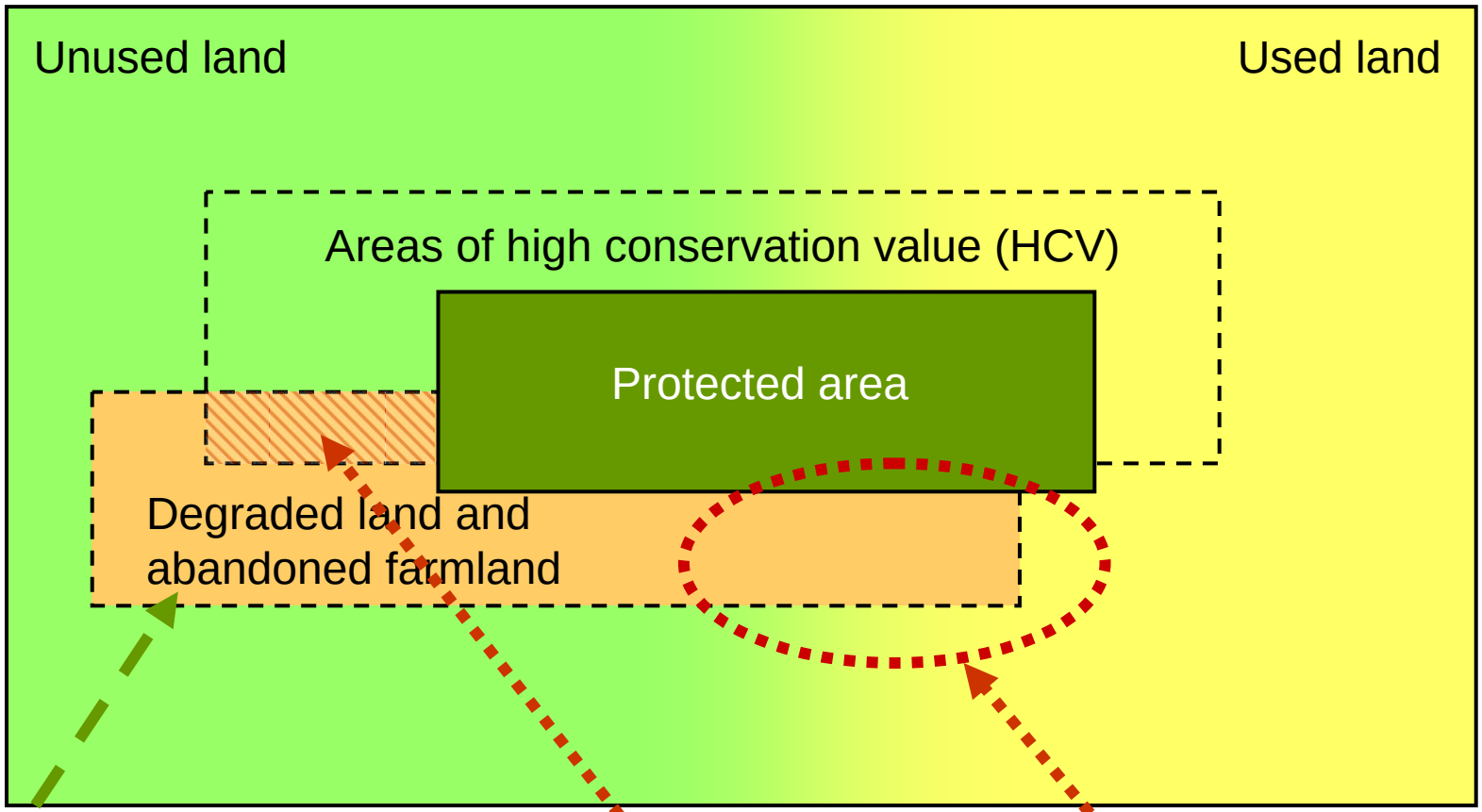
Degraded & Abandoned Land



Cultivating bioenergy: <u>no</u> displacement, more organic C in soils, …

Risk for biodiversity if not properly mapped

Risk of displacing local (subsistance) land use

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Global Bioenergy Potentials

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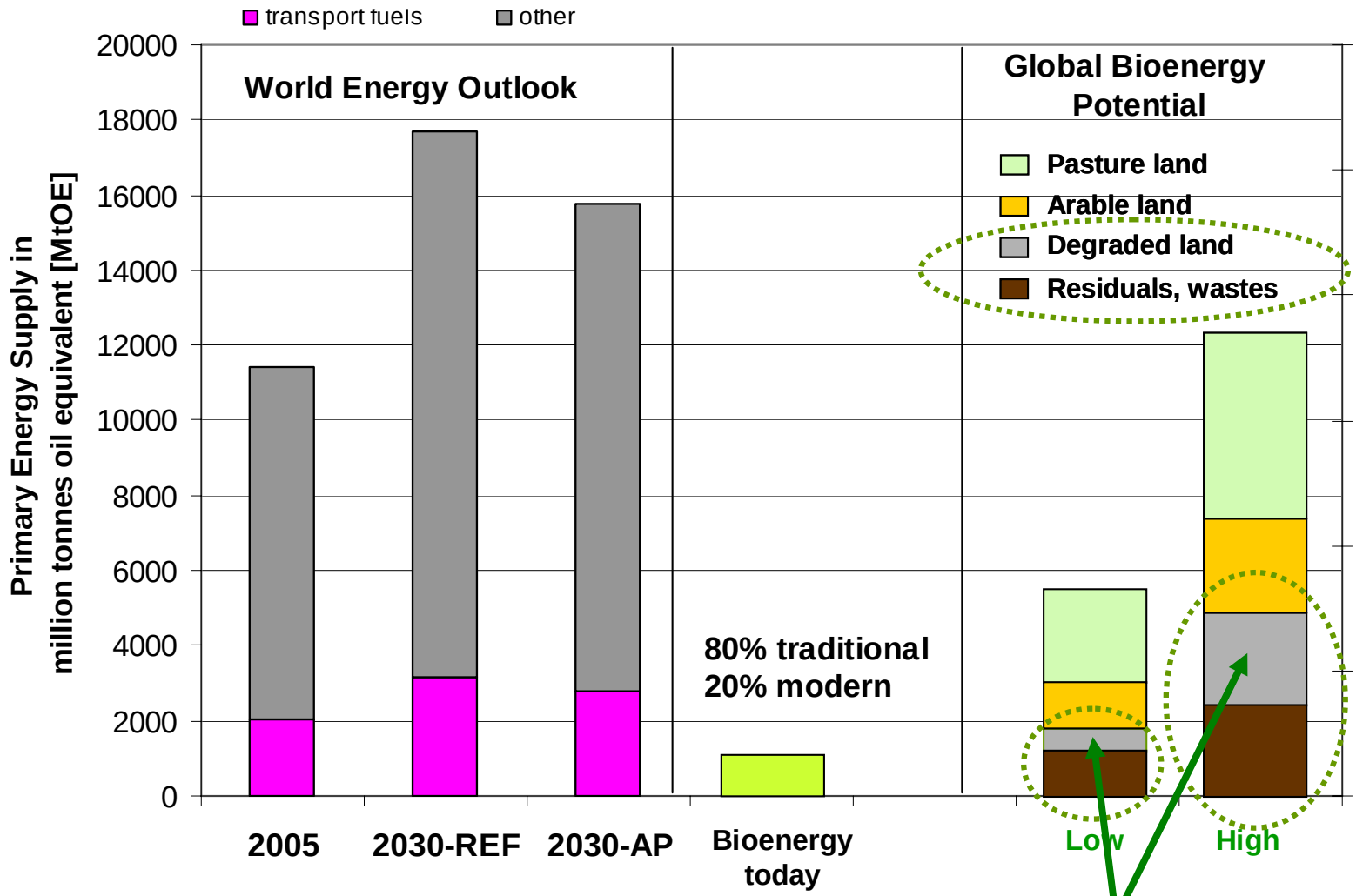

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Top-down – Bottom-up

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A. Top-down analysis (global and national data)

→ identify focus regions with a high amount of **potential** priority areas:

a. High amounts of degraded and abandoned land
b. Mapping out areas worth protecting
c. Mapping out areas of high carbon stock

B. Bottom-up analysis (ground truth at site level)

→ Control and refining of site selection:

a. Refining / controlling degradation and land-use status
b. Refining areas worth protecting
c. Refining / controlling of carbon stock
d. Identification of suitable cultivation systems and extraction rates

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