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Determining B_y and $f_{NRB,y}$ in AMS II.G

UNFCCC Practitioners Workshop, Bonn

atmosfair gGmbH, 26.10.2009

atmosfair gGmbH

- Non profit organisation (gGmbH), founded in 2005, Patron: Klaus Töpfer (former Executive Director of the United Nations Environment Programme)
- Climate contributions from air passengers (individuals, companies, NGOs, public institutions) are used to initiate and fund CDM Gold Standard projects
- Certified Emission Reductions generated in the projects are retired on behalf of the donators
- Projects meet the highest environmental, social and climate protection standards → **CDM Gold Standard**
- atmosfair develops own CDM Gold Standard projects

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Efficient Fuel Wood Stoves for Nigeria, CDM Ref. 2711

Project partner	Developmental Association for Renewable Energies, Nigeria Lernen - Helfen - Leben e. V., Germany
Target group	12,500 households in North Nigeria
Technology	SAVE80, up to 80% of savings compared to traditional stoves
CO_2-Reduction	~ 30.000t CO_2/a, average of 10 years
Local benefits	Reduced Indoor Pollution, less Deforestation, less expenses for household energy
Realisation	UNFCCC registration12.10.2009, Gold Standard Request for Registration

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Efficient Fuel Wood Stoves for Nigeria: AMS II.G requirements

B_y = Quantity of biomass used in the absence of the project activity in tonnes

(a) Calculated as the product of the number of appliances multiplied by the estimate of average annual consumption of biomass per appliance (tonnes/year). This can be derived from historical data or a survey of local usage

or

(b) Calculated from the thermal energy generated in the project activity

$f_{NRB,y}$ = Fraction of biomass saved by the project activity in year y that can be established as non renewable biomass using survey methods

Use surveys or government data, if available

Renewable biomass = Biomass originating from sustainable managed forests, croplands or grasslands

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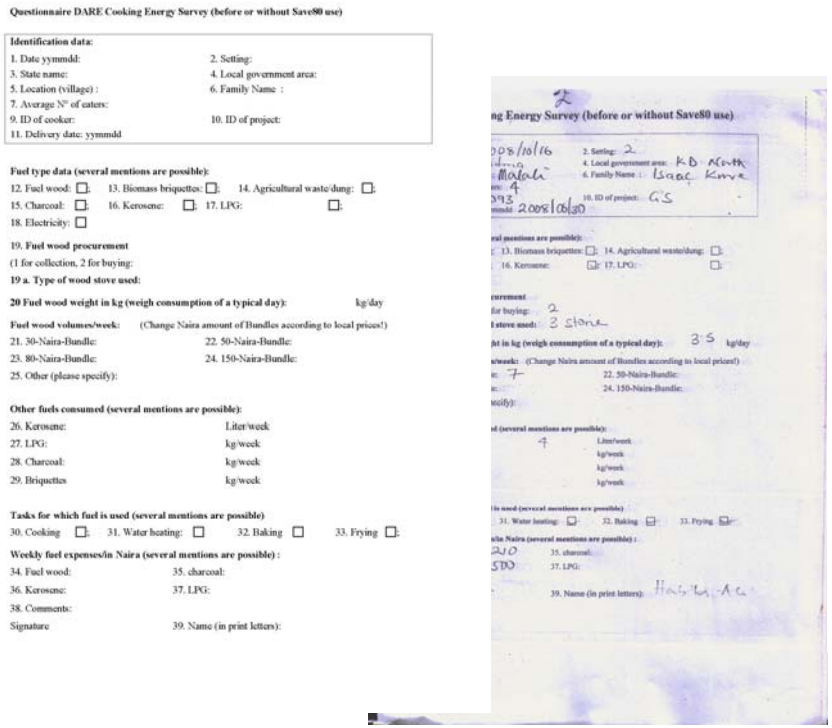
Efficient Fuel Wood Stoves for Nigeria: Approach to determine B_y

Household Baseline Survey

Use of Option (a): Survey of local usage

- Sample size: 95/5confidence/ precision, ~ 400 households
- Fuel Wood measurements and questionnaire
- Determination of mean annual fuel wood consumption per household
- Determination of average household size
- Comparison with other surveys: similar consumption found in other studies in SSA



Questionnaire DARE Cooking Energy Survey (before or without Save80 use)

Identification data:
1. Date yymmdd: 2. Setting:
3. State name: 4. Local government area:
5. Location (village) : 6. Family Name :
7. Average N° of eaters:
9. ID of cooker: 10. ID of project:
11. Delivery date: yymmdd

Fuel type data (several mentions are possible):
12. Fuel wood: ☐; 13. Biomass briquettes: ☐; 14. Agricultural waste/dung: ☐;
15. Charcoal: ☐; 16. Kerosene: ☐; 17. LPG: ☐;
18. Electricity: ☐

19. **Fuel wood procurement**
(1 for collection, 2 for buying:
19 a. Type of wood stove used:

20 Fuel wood weight in kg (weigh consumption of a typical day): kg/day

Fuel wood volumes/week: (Change Naira amount of Bundles according to local prices!)
21. 30-Naira-Bundle: 22. 50-Naira-Bundle:
23. 80-Naira-Bundle: 24. 150-Naira-Bundle:
25. Other (please specify):

Other fuels consumed (several mentions are possible):
26. Kerosene: Liter/week
27. LPG: kg/week
28. Charcoal: kg/week
29. Briquettes kg/week

Tasks for which fuel is used (several mentions are possible)
30. Cooking ☐; 31. Water heating: ☐ 32. Baking ☐ 33. Frying ☐;

Weekly fuel expenses/in Naira (several mentions are possible) :
34. Fuel wood: 35. charcoal:
36. Kerosene: 37. LPG:
38. Comments:
Signature 39. Name (in print letters):

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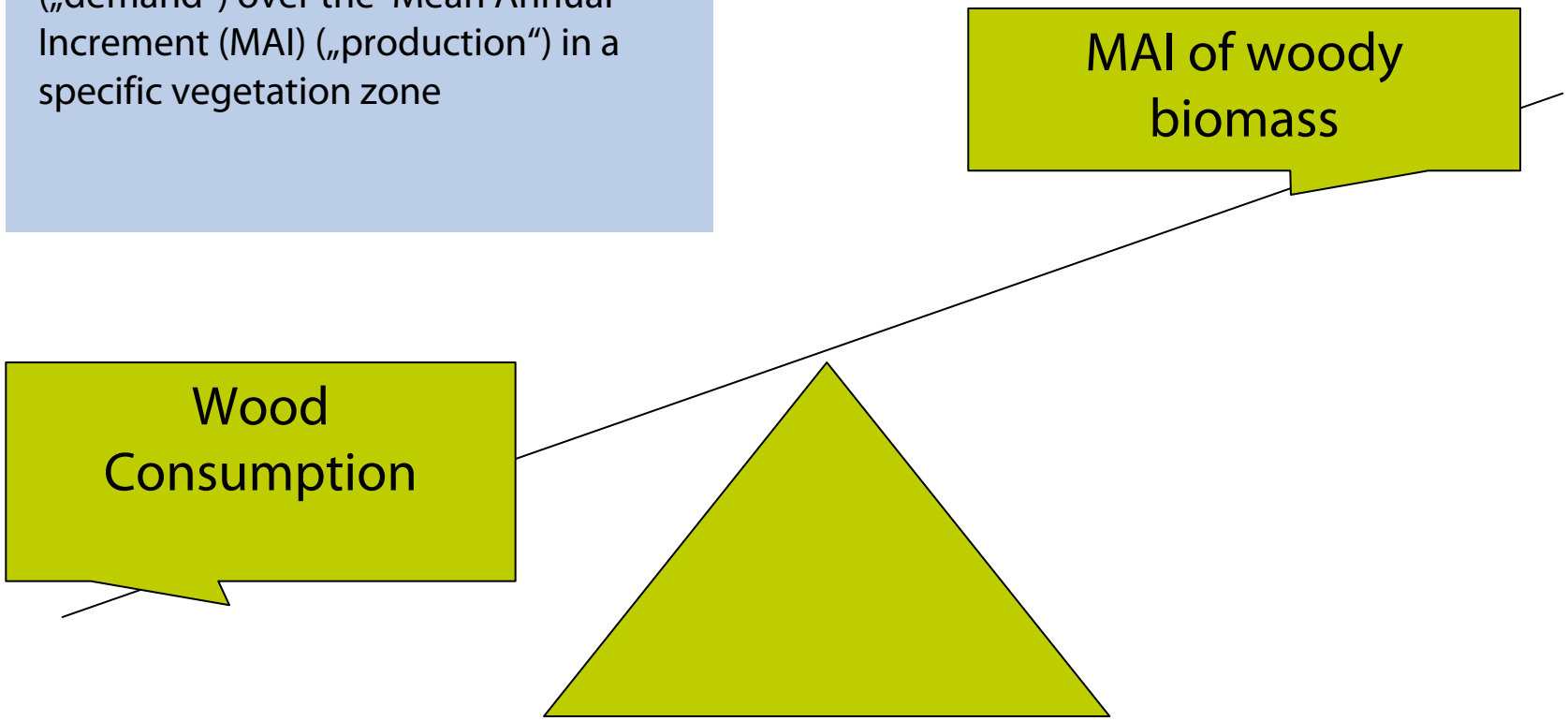
Efficient Fuel Wood Stoves for Nigeria: Approach to determine $f_{NRB,y}$

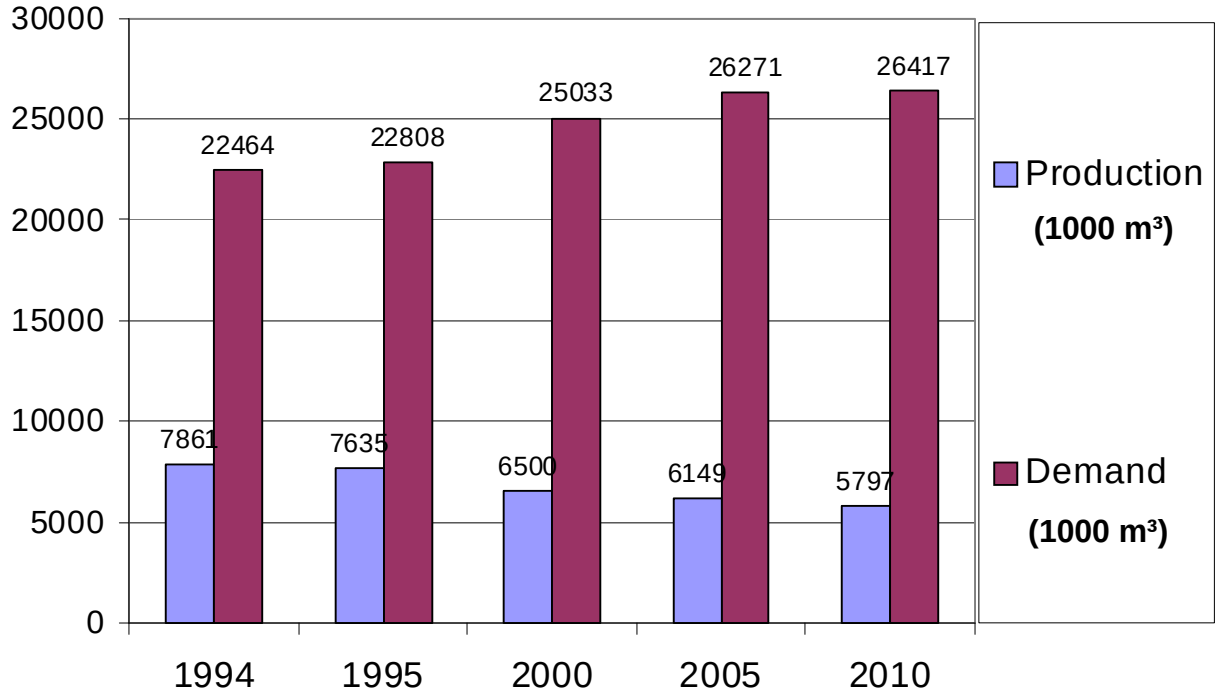
Use of FAO Data & Vegetation Maps

Excess of wood consumption („demand“) over the Mean Annual Increment (MAI) („production“) in a specific vegetation zone



Efficient Fuel Wood Stoves for Nigeria: Approach to determine $f_{NRB,y}$

Production and demand of woody biomass in the Guinea Savannah zone



$$f_{NRB,y} = \frac{Demand - Production}{Demand}$$

Source: Paul Kraemer (Chart), FAO (2003): Experience of Implementing National Forestry Programmes in Nigeria

Suggestions to increase usability of AMS II. G

Conservative default values for $f_{NRB,y}$ and B_y

Justification

- Data collection: time consuming & costly
- Developers may apply different values in similar project settings (Risk of arbitrary values)
- Risk of registration delays

Benefits

- Default values will lower CDM hurdle, incentive to develop more projects
- Reliable CER estimations during design phase

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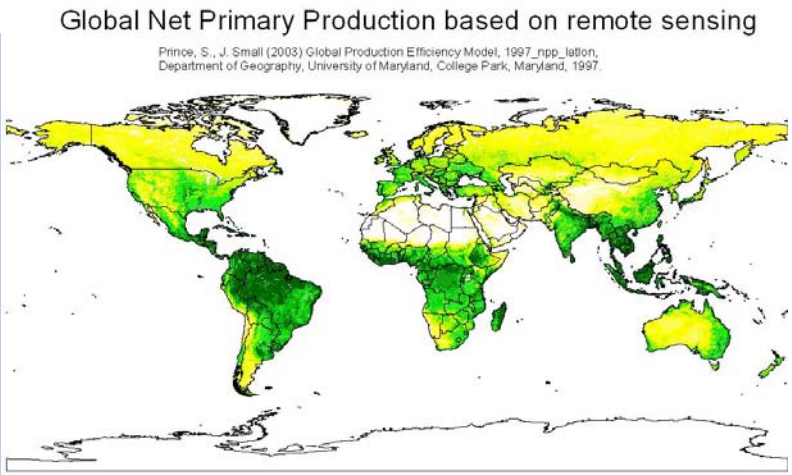
Suggestions to increase usability of AMS II. G

$f_{NRB,y}$, B_y default values: suggested approach

Expert input to develop conservative default values, based on globally standardised models



- Derive default MAI (i.e production) and wood demand values based on global vegetation zones
- Derive default biomass consumption values per appliance from regional or national data, e.g. FAO
- Derive default values for η_{old} (efficiency of replaced appliances)
- In case dung is used, values for firewood should also be permitted based on suppressed demand, because dung is usually the least attractive fuel and will be replaced by firewood as soon as available

Outlook

- Simplified methodologies, esp. AMS II.G., AMS I.E. and AMS I.C. will offer great opportunities for emission reduction projects with high impact on sustainable development – living conditions of millions of people could be improved
- Methodology discussion should be straightforward and any revisions should be approved in a timely manner
- Large pipeline of household energy projects from atmosfair and partners (WECF, LHL, DARE) in Caucasus, East Asia, Africa, waiting to be realised!

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Thank you very much for your attention!

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