Scope

- Liquid fuels – ethanol and biodiesel (vegetable oils)
- Large scale production - entire fuel chain
- Rural areas
- Non-technical aspects
Who are the rural poor?

- Woman headed (*de facto* and *de jure*) households
- Elderly/widows
- Children
What are their poverty issues?

- Basic needs (food, water, fuel, fodder)
- Reduction of drudgery
- Income generation
- Food security
- Local environmental protection
- Lack of social services

- Promoting gender equity
- Empowering communities
The energy dimension

- All the poverty issues have an energy dimension
- How can ethanol/biodiesel contribute?
- Primarily transport fuels plus both will drive stationary engines
- How will these help the rural poor?
- Energy ≠ development
Energy needs of rural poor

- Process heat (including cooking)
- Lighting
- Irrigation and drinking water provision
- Milling
- Storage
- Transport

- In other words electricity and shaft/motive power
What is the role of large scale liquid biofuel production in rural communities?

Income generation

- Direct employment
  Sao Paulo State (Brazil) - $1 \times 10^6$ t sugarcane to ethanol
  2200 direct jobs (1600 agric; 600 production)
  660 indirect jobs (service support)
  Area of approx 70,000 ha
  700,000 jobs nationally exist in fuel ethanol

- What is “quality” of the jobs?
Job Quality?

- 30% skilled positions
  10% semi-skilled
  60% unskilled agricultural & industrial
- But for the latter it is seasonal = low wage
- Brazil there has been considerable internal migration of marginal farmers
- Gender issues? Women’s time? Skills? Ways of working?
  Conflict with returning men folk?
What is the role of large scale liquid biofuel production in rural communities?

**Income generation**

- Can stimulate service development (new income opportunities) in rural communities – particularly if there is electricity available
What is the role of large scale liquid biofuel production in rural communities? Environmental threat?

- Biodiversity is under threat when new plants are considered or existing ones plan to expand
- Women are particularly disadvantaged by loss in biodiversity
- Fodder can particularly be threatened
- Making planning permission linked to allocating parcels of land for community forestry can provide a multiple resource base – freeing women’s time & providing income
- Ethanol production – stillage disposal
What is the role of large scale liquid biofuel production in rural communities? Land-use threat?

- Important to define - based on community knowledge – what current land-use is
- Possibilities for land-use switching
  - Malawi → tobacco
  - Kenya → flowers
- Small farmers selling-up land
- Common land registration – gender dimension
What is the role of large scale liquid biofuel production in rural communities? Community development?

- Rural electrification
  Requires power sector reform
- Public/private partnerships for schools, healthcare, telecommunications
Conclusions: Do liquid biofuels address energy and poverty?

- Electricity and shaft power:
  - Basic needs (food, water, fuel, fodder)
  - Reduction of drudgery
  - Food security

- Local environmental protection
  - Needs good planning and enforcement

- Empowering communities
  - Potential is there

- Income generation
  - Probably not the complete answer to rural under-employment

- Lack of social services
  - Not automatic

- Promoting gender equity
  - Not without specific intervention
What helps overcome the negative?

- Environmental risks are location specific – minimisation good planning (IRD), transparency, enforcement & community participation

- Energy planning must also take demand side perspective (helps address lack of women & other disadvantaged groups’ needs & involvement)

- Fair Trade Biofuels?
Thank you

Questions? Reactions?