Energy Efficiency and Connections to Poverty

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GFSE: Energy Efficiency for Developing Countries

21 - 23 November 2007, Vienna

Background

- In DFID (Project R7413) to examine and promote mechanisms to increase adoption of energy efficiency practices in the small scale industry sector the reviewers at DFID asked that we add a systematic review of the links between energy efficiency and poverty.
- The overriding focus of DFID's work requires that interventions must be justified in terms of positive impacts on poverty. Intuitively it can be said that energy efficiency is a 'good thing' there is little work on this.
- We report here on some of our findings from the review and also experiences following this.

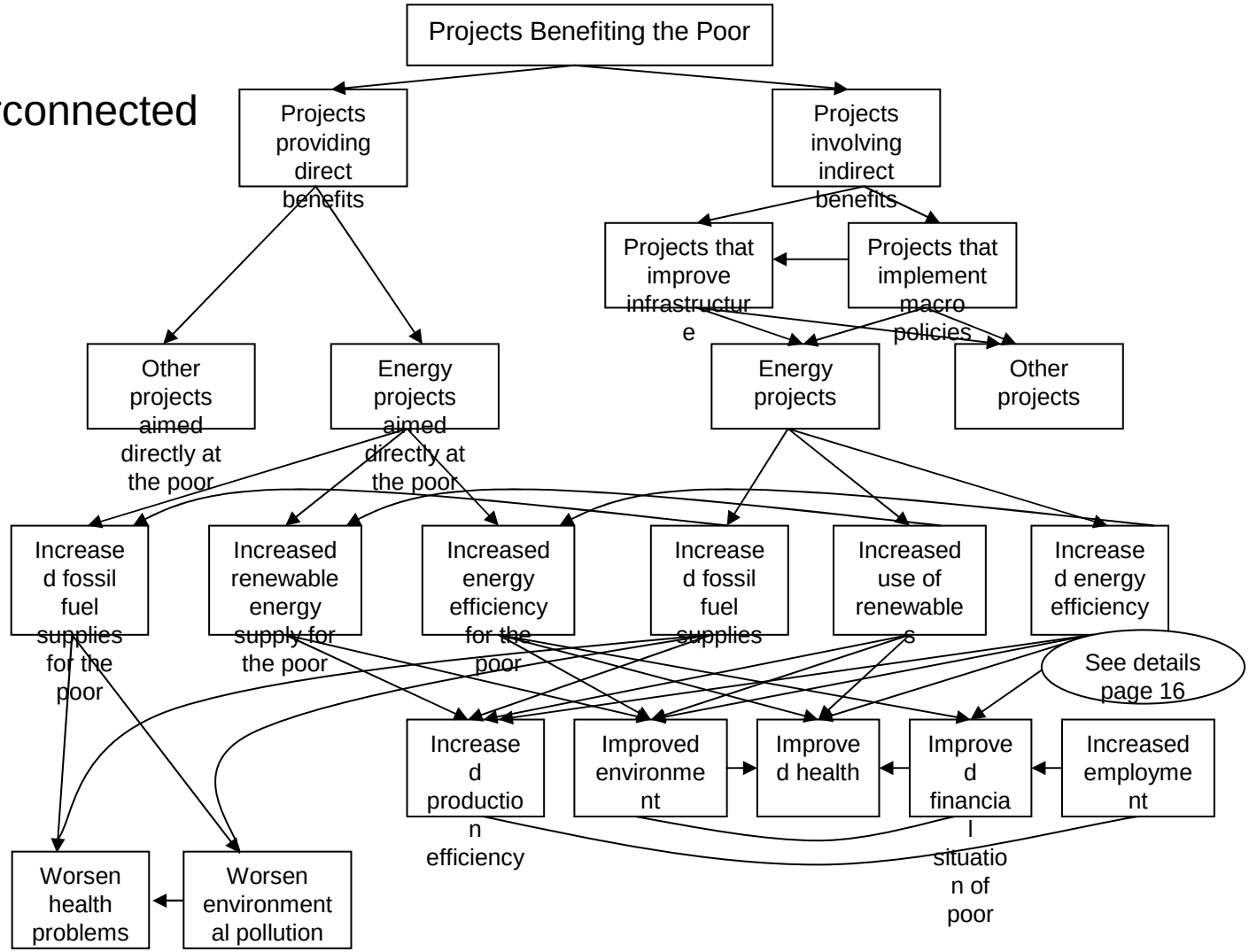
Poverty

- At its most basic is the absence of minimum resources required to sustain life
- This is the basis of the World Bank criteria of incomes below US Dollar 1 per day
- Based on the work of Sen this has been expanded to include inadequate levels of:

1. Food	8. Income
2. Nutrition	9. Employment
3. Health	10. Education
4. Water / Sanitation	11. Skills
5. Clothing	12. Participation
6. Shelter	13. Family
7. Security	14. Equity and distribution

Energy and Poverty

Highly Interconnected



Strong Links: Few studies

- Just as there are strong direct and indirect linkages between energy and poverty, there are equally strong direct and indirect linkages between efficiency and poverty.
- The direct links come from the fact that everyone needs minimum energy for basic survival - for cooking, lighting, often for drinking water, irrigation, health care, sanitation, education and employment. And, almost always, the poor pay excessively for the energy they use in time or cost or both.
- In almost all cases, poverty forces the poor to use energy with poor efficiency as in the case of kerosene for light, wood stoves for cooking and also in many production activities. This often forces the poor to cause and suffer greater environmental harm.
- Thus improvements in energy efficiency directed at the poor increase their well being by reducing costs and increasing opportunities.

Directions of Influence

	Indicators	***Increasing Energy Inputs***		***Improving Energy Efficiency***	
		For the Poor	***In the Economy***	***In uses by the poor***	***In the Productive Sector***
1	***Food***	Improves	Improves	Improves	Improves
2	***Nutrition***	Improves	Improves	Improves	Improves
3	***Health*** *(coal&pollution)*	Worsens	Worsens	Improves	Improves
4	***Water / sanitation***	Improves	Improves	Improves	Improves
5	***Clothing***	Improves	Improves	-	Improves
6	***Shelter***	-	Improves	Improves	Improves
7	***Security***	Environmental security worsens	Environmental security worsens, job security improves	Environmental security improves	Environmental and job security improves
8	***Income***	Improves	Improves	Improves	Improves
9	***Employment***	Improves -	Improves	Improves	Improves
10	***Education***	Improves	Improves	Improves	Improves
11	***Skills***	Improves	Improves	Improves	Improves
12	***Participation***	-	-	Improves -	Improves
13	***Family***	-	-	-	-
14	***Equity & distribution***	-	Tends to improve/ Associated with improvements	-	Possible

Efficiency and Poverty Impacts

- **Direct impacts for those below USD 1 per day:**
- Lighting: CFL and LED can increase disposable incomes by 5-20% (by reducing costs)
- Cooking: for urban poor efficient stoves can increase incomes similarly.
- Home heating: is a major cost in colder regions and the potential for direct benefits to the poor with more efficient systems are very large. The costs can be as high as 30% of total incomes.
- Production activities: irrigation, thermal applications for post harvest processes can increase production and incomes with efficient energy inputs

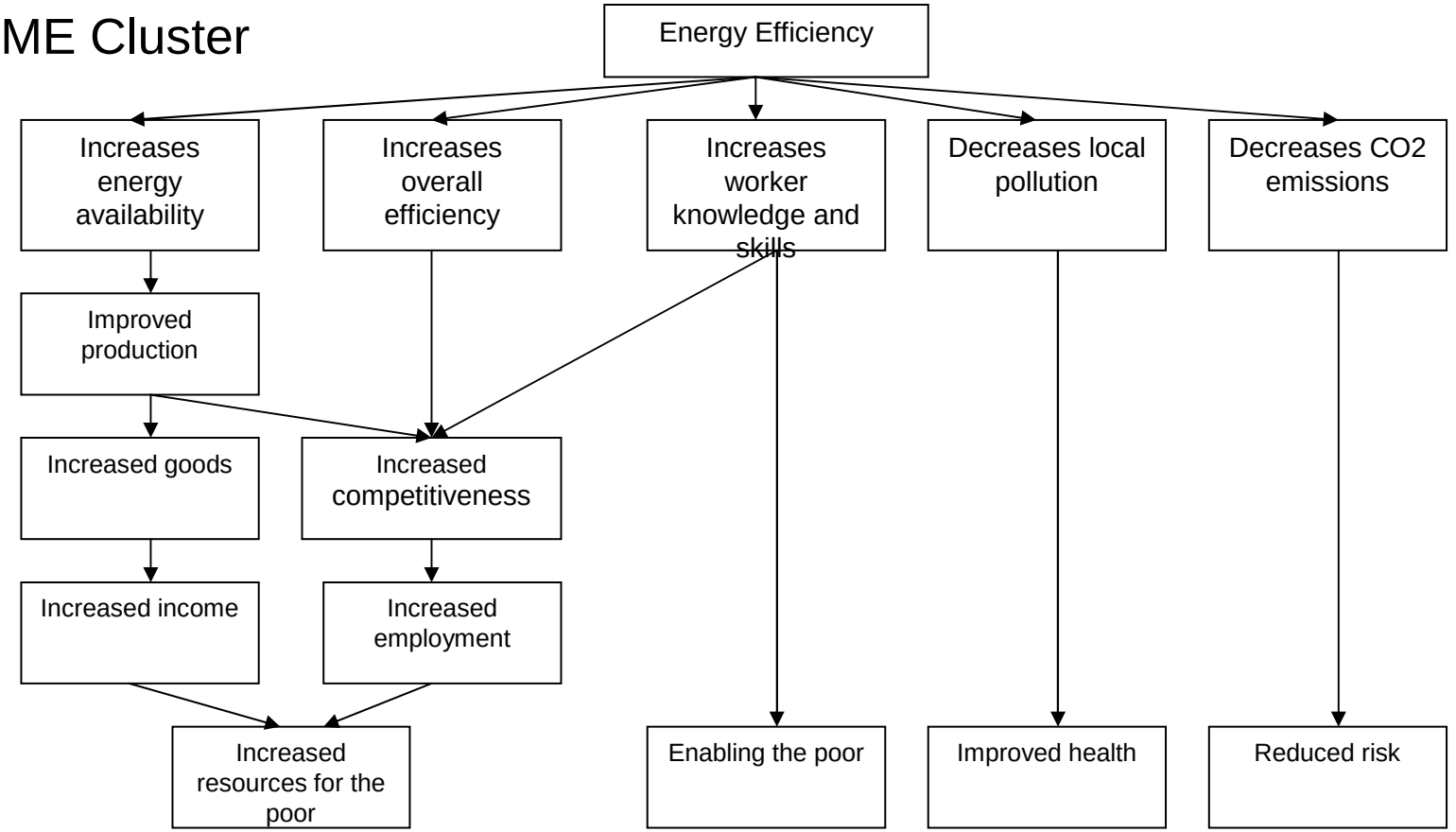
- **But Indirect impacts can be even larger:**
- In most poor countries – Uganda, Vietnam and India – peak electricity demand is much higher than capacity. And this peak takes place in the evening hours of 1800-2200 when all homes turn on lights.
- Increased access to electricity can be promoted together with the release of supply constraints through efficient lighting for instance.

Indirect Linkages

- In countries like India with electricity shortages of 25-30% a great barrier to increased access is the inefficient supply and use which reduces pressures to increase access
- Tariffs can better reflect higher costs to reduce subsidies (in some countries higher than health or education spending) if accompanied by major efficiency improvements especially for poorer populations and production
- Ignoring climate change completely, energy supply and use are the single largest cause of environmental damage in most countries, in some the environmental penalty on GDP is over 5%, penalties often born more by the poor
- An efficient energy system (supply and use) goes hand in hand with an efficient production system, competitiveness, innovation, growth and a host of positives.

Efficiency: Poverty

SME Cluster



Concluding Remarks

- EE = the elephant in the room
- A core issue for security, growth, poverty, local pollution and climate change
- This needs to be re-framed as such and beyond “demonstrations”- needs longer term and consistent efforts, indicators, macro and micro, institutional change
- Lessons and analogies from public health and incorporating inputs from a much wider set of knowledge – beyond engineers and economists – missing dimensions – political economy, sociology, communications, behavioural studies and others.