

GNESD

GLOBAL NETWORK
ON ENERGY FOR
SUSTAINABLE
DEVELOPMENT

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ENERGY, CLIMATE
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Electricity Access a UN Perspective

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UNEP

SESSA Conference
Madrid 19 - 20 May 2005

Key issues for UN on access

- How to combine efforts on increased access with poverty alleviation and specifically contribute to the MDGs
- Access for environment and/or development reasons
- Access an important mean but not an end in itself !
- Have sector reforms increased access
- Focus on energy services and finding the best solutions – no mantras or one-size-fits-all
- Barriers are known – how to overcome them ?
- Policy Framework is key – if properly implemented.

Millennium Development Goals

- Extreme Poverty & Hunger (halve by 2015 no. on <1\$)
- Universal Primary Education (all kids in primary by 2015)
- Gender Equality and women's empowerment (equal access to education)
- Child Mortality (reduce by 2/3 child mortality by 2015)
- Maternal Health (reduce by 75% maternal mortality)
- HIV/AIDS, Malaria etc. (by 2015 have reversed spread)
- Environmental Sustainability (stop unsustainable resource exploitation and halve number of people without safe water)

<p>World Energy Assessment 2004 upd.</p>	<h2>Importance Of Energy To Achieving The Millenium Development Goals</h2>
<p>Goal</p>	<p>Some Direct and Indirect Contributions</p>
<p>1) 1) Extreme poverty and hunger:</p> <p>To halve, between 1990 and 2015, the proportion of the world's people whose income is less than one dollar per day.</p> <p>To halve, between 1990 and 2015, the proportion of people who suffer from hunger.</p>	<ul style="list-style-type: none"> · Access to affordable energy services from gaseous and liquid fuels and electricity enables enterprise development. · Lighting permits income generation beyond daylight hours. · Machinery increases productivity. · Local energy supplies can often be provided by small scale, locally owned businesses creating employment in local energy service provision and maintenance, fuel crops, etc. · Privatisation of energy services can help free up government funds for social welfare investment. · Clean, efficient fuels reduce the large share of household income spent on cooking, lighting, and keeping warm (equity issue - poor people pay proportionately more for basic services). · The majority (95 percent) of staple foods need cooking before they can be eaten and need water for cooking. · Post-harvest losses are reduced through better preservation (for example, drying and smoking) and chilling/freezing · Energy for irrigation helps increase food production and access to nutrition.

Energy & MDGs

- “A distinction has to be made between energy requirements for reaching the MDGs, and energy for industrialisation and major infrastructure building. The latter require large quantities of fuels and electricity, while reaching MDGs in rural and peri-urban areas is much more a matter of access to modern than of large quantities of energy”.

(Modern Forms of Energy : liquid and gaseous fuels, electricity, and mechanical energy.)

- “Thus, there is not a major need for transmission lines, central station generation and major gas developments for poverty alleviation. These will be needed for overall economic growth but not to advance the poorest of the poor.”

**REACHING THE MILLENNIUM DEVELOPMENT GOALS AND BEYOND:
ACCESS TO MODERN FORMS OF ENERGY AS A PRE-REQUISITE**

GNESD (draft by T.Johansson & O-Davidson)

Access – Getting priorities right Environment and/or Development

- Important to get priorities right :
 - Climate change concerns in connection with access to modern energy for the poor has little direct relevance
 - Focus on local economic, social and environmental benefits and realise that well designed programmes can ensure synergies with global climate concerns and Carbon Finance can provide an added incentive
 - Small scale access oriented electrification can help address indoor health, land-use and deforestation problems, but other MFEs may be more cost-effective in some cases

The Dual Electricity Challenge

“Countries with large sections of the population and geographical areas with no access to electricity

- *Cannot rely on the internally generated cash from their power sector to finance the massive expansion needed.*
- *Public funds may have to play a role in providing access to electricity (as opposed to subsidizing electricity consumption).”*

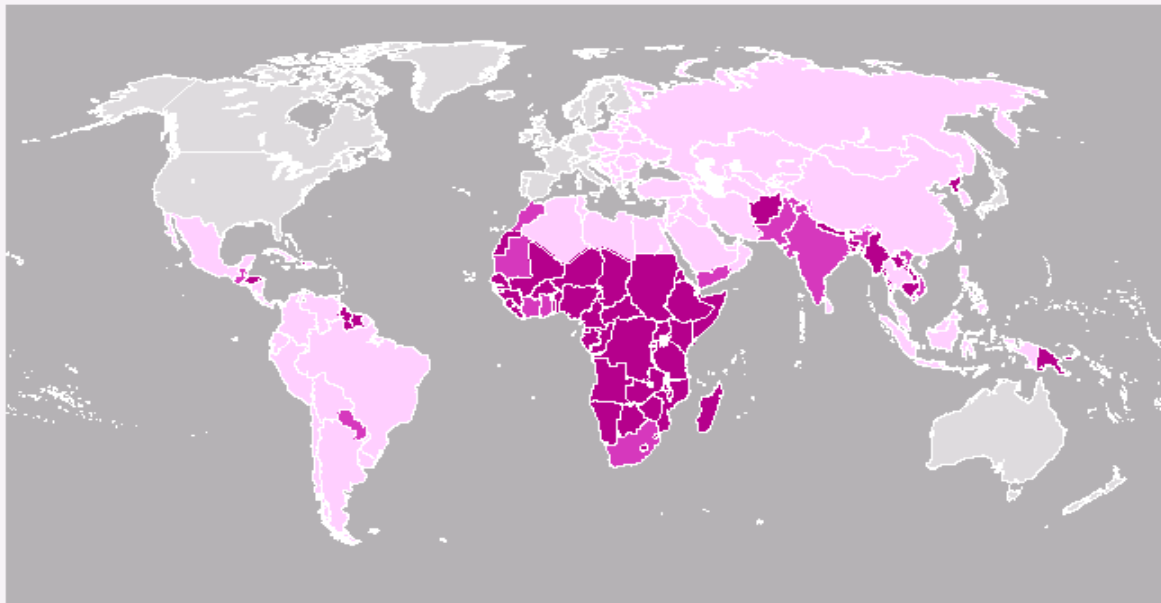
*J. Saghir,
World Bank*

How can large scale power sector development be linked with specific policy action on access to modern energy services for the poor

- *“Trickle down” not realistic*
- *Dedicated policy effort linked with sector reforms*
- *Learn from early OECD experiences on access and recent problems with reforms*

Current access levels

FIGURE 1
TOO MANY PEOPLE IN DEVELOPING COUNTRIES STILL LACK ACCESS TO ELECTRICITY
(PERCENTAGE OF THE POPULATION WITH ACCESS, 2000)



Source: World Bank Group staff estimates

3% to 33% 33% to 66% Over 66%

Table 1: Electricity Access in Developing Countries, 2002

Country or region	Population without Electricity (million)	% Population with Electricity	% Urban Population with Electricity	% Rural Population with Electricity
South Asia	814	40	69	33
Sub-Saharan Africa	531	17	52	8
North Africa & ME	39	87	99	88
East Asia	216	88	96	83
Latin America	47	88	98	61
Developing Countries	1,620	70	85	72

Sources: World Bank, 2000, IEA 2002.

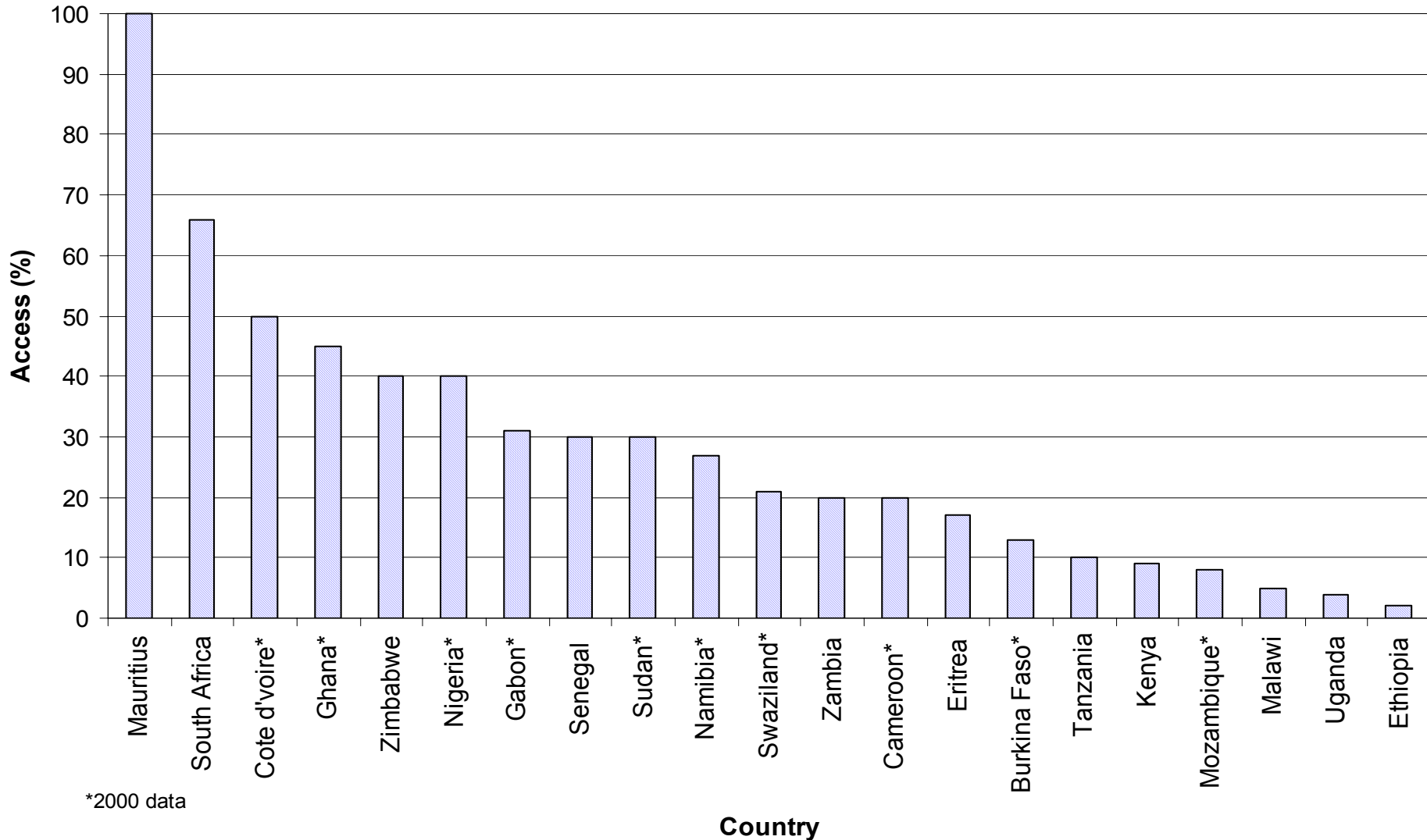
People relying on biomass for cooking and heating in developing countries, 2000

Country or region	Millions	Percentage of population
China	706	56
Indonesia	155	74
Rest of East Asia	137	37
India	585	58
Rest of South Asia	128	41
Latin America	96	23
Middle East and N. Africa	8	0.05
Sub-Saharan Africa	575	89
All developing countries	2,390	52

Source: International Energy Agency 2002

Status of Electrification in Sub-Saharan Africa

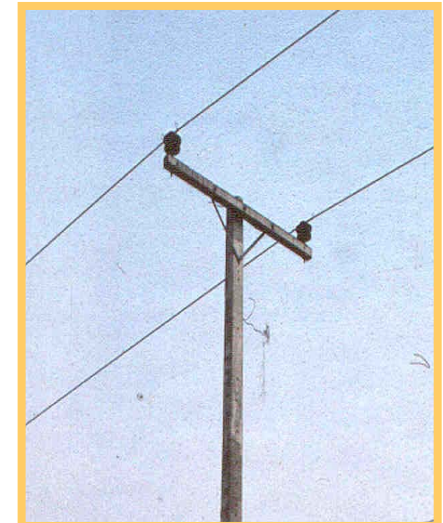
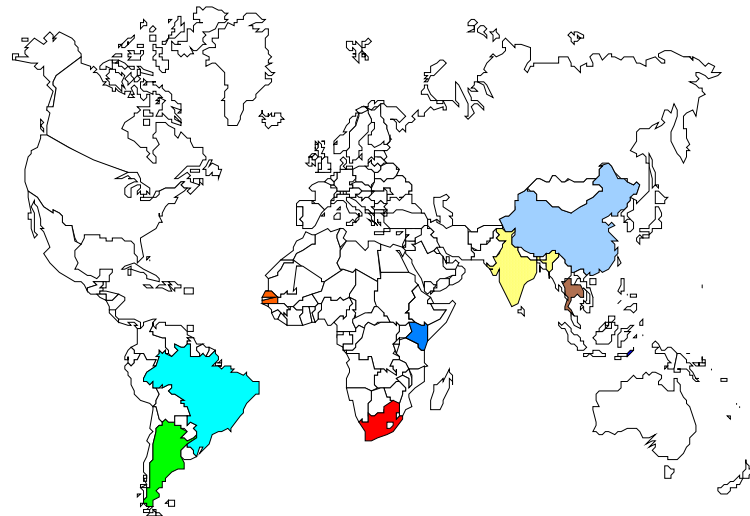
Percentage of Population With Access to Electricity in Africa, 2001



GNESD Study Results

Has power/electricity sector reforms expanded access among the poor?

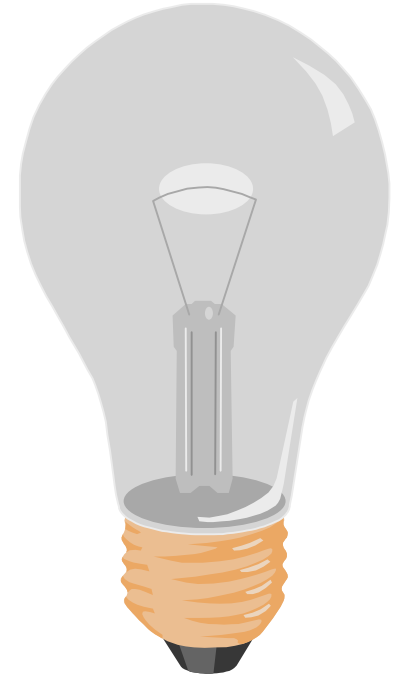
- Empirical assessments of the impact of the power sector reforms on the poor
- Policy options for improving the poor's access to electricity



Location of GNESD Centres

Findings

- Lack of reliable trend data sets on electricity use among the poor - indication of past limited policy interest (used proxies & analysis of primary data)
- Market-oriented reforms have had **neutral or adverse impacts** on the poor (with a few exceptions)
- Power sector reforms need an **explicit pro-poor dimension** otherwise electrification of the poor is forgotten



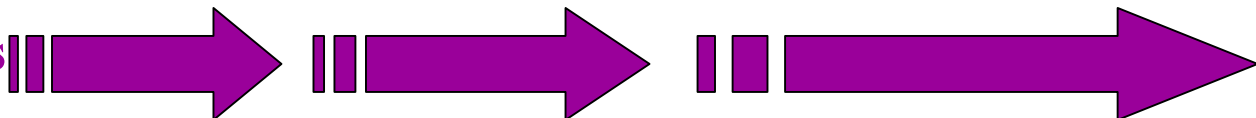
Recommendations

- Need to **protect (ring-fence)** financing for electrification of the poor
- **Sequencing of reforms:** Preferably electrify the poor first, then privatize (or in parallel)
- If possible, ensure that the **poor are represented** in key decision making bodies
- Findings dovetail results of parallel & broader assessments on public benefits of reforms

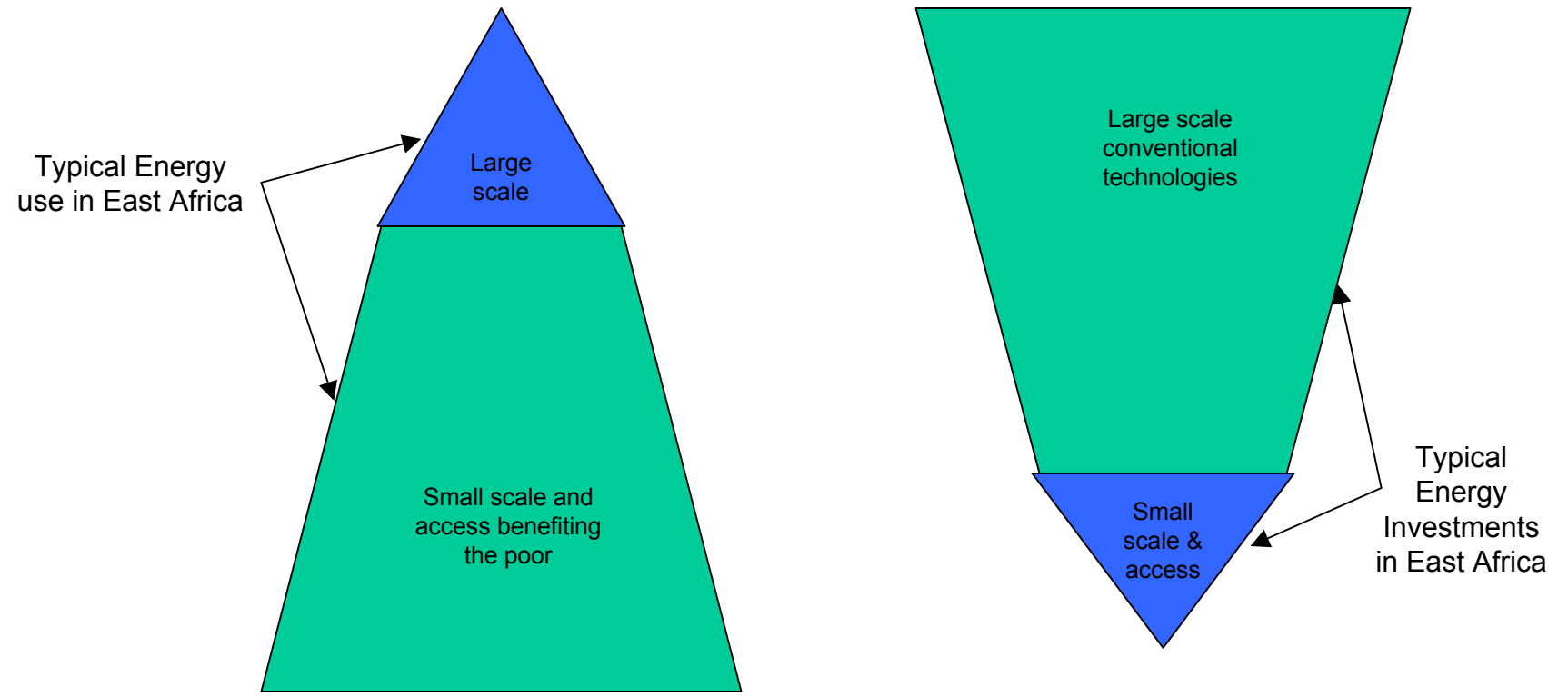
Electrifying the poor



Other reforms

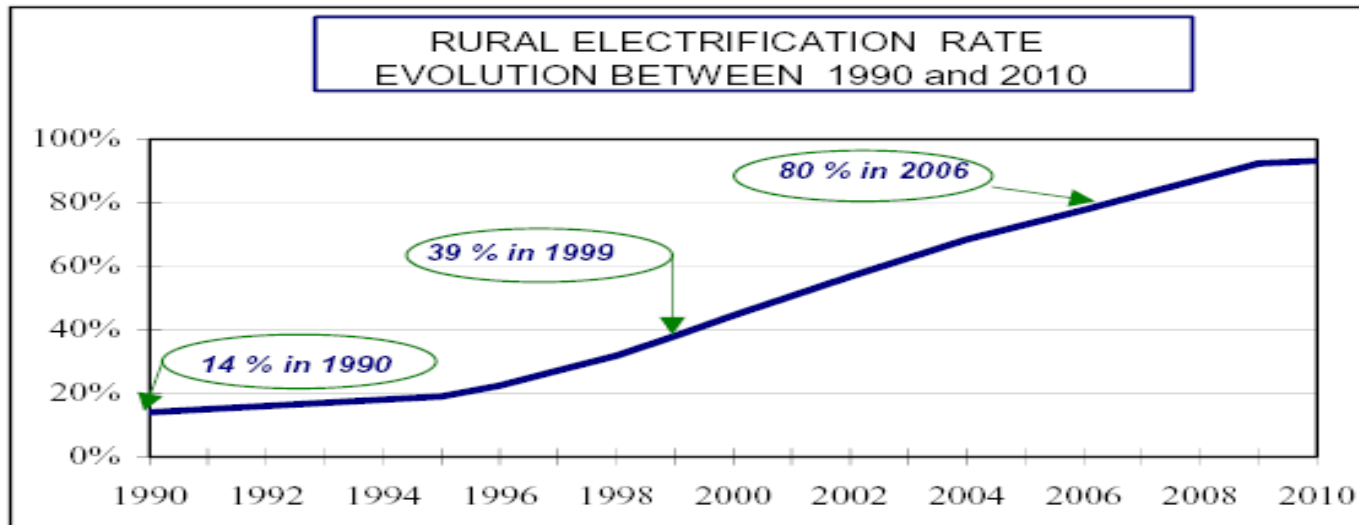


Illustrating the Problem : Typical Energy Use Vs Energy Investment in Africa (Afrepren 2004)



Political Commitment

- Strong commitment over time can achieve strong progress e.g. Morocco from 14% rural access in '90 to 80% in '06 (projected)



Strategies for Access and Development

- A coherent strategy for the promotion of Access has to be embedded in a broader sustainable energy policy strategy and should
 1. **consider country characteristics** that influence the effectiveness and the desirability of policy instruments and the responsibility for global climate change;
 2. **follow an approach that includes an array of effective instruments** in which promotion of access is integrated with other local development actions.

Options for Improving Access

- Regulate prices to reflect economic costs to ensure fiscal stability and financially sound sector companies
- Improve sector governance so that energy markets are fair and uncorrupt
- Redirect subsidies to the poor to ensure social equity
- Implement subsidies that facilitate investment and not ones that subsidize consumption

Badly designed subsidies have unintended outcomes

	Actual Impacts			
	<i>Economic efficiency</i>	<i>Cost recovery</i>	<i>Environment</i>	<i>Social equity</i>
Large price subsidies on petroleum products.	<p>Industry uses diesel for self-generation rather than grid electricity.</p> <p>LPG is diverted to transport use.</p>	<p>High revenue industrial customers lost to utility weakening its finances.</p>	<p>Continued use of polluting fuels in households.</p>	<p>Most of the subsidy captured by the well-off households as they consume more.</p>
Uniform electricity tariff not based on costs of supply.	<p>Utility cannot provide quality (reliability) grid supply increasing industry costs & leading to loss of industry competitiveness.</p>	<p>Utility does not recover costs and cannot make needed investments.</p>	<p>Utility uses low cost (high sulfur) fuels and cannot improve technical efficiency.</p>	<p>Well-off households benefit most from the high level of the 1st block cap.</p>

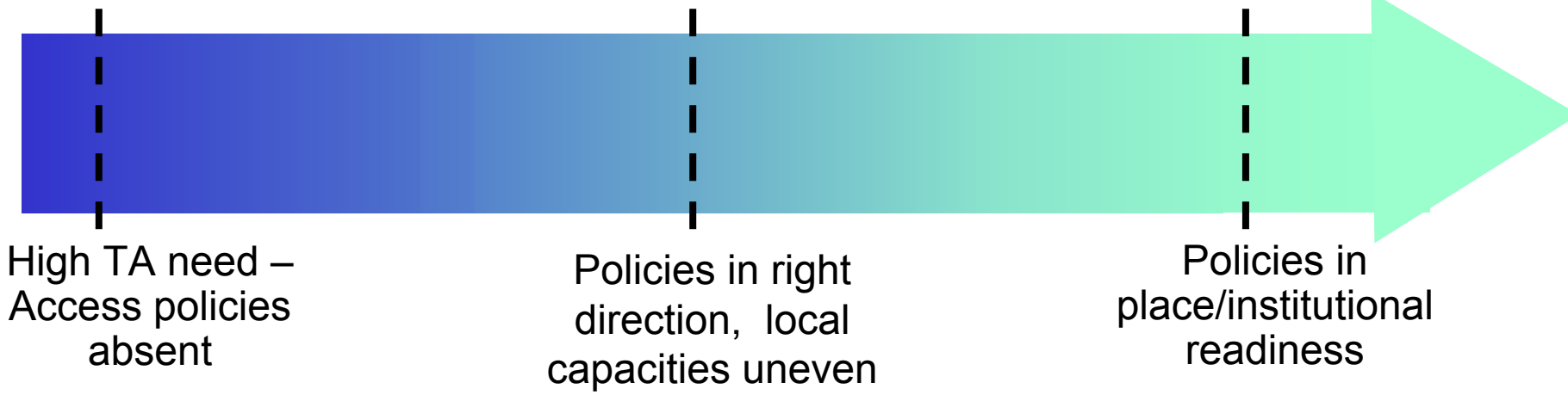
Regional Priorities for Scaling Up Access

Region	Regional Priorities
South Asia	Promote electricity tariff reform to remove cross-subsidies and promote market behavior , subsidy reduce financial burden of utilities, institutional reform to introduce commercial incentives and reduce theft, and regulatory reform to improve governance, create space for competition, and stimulate investment and innovation in the electricity sector.
Sub-Saharan Africa	Deal with enabling environment such as laws institution, concessional funding, private public partnerships to foster national modern energy access programs . This will be done through adjustable program loans rather than intermittent project retail approach. This will be done through policy dialogue, demand driven strategy at the national level, and provision of technical assistance in the form of baseline studies, sector assessments, public expenditure reviews, and analysis of energy p
North Africa & ME	Promote efficient use of energy resources, assist with legal and regulatory reforms, assist with restructuring electricity sector , improve overall investment climate, promote renewable energy, and utilize carbon finance to reduce carbon emissions.
Easter Europe and Central Asia	Address issues of delivery efficiency of heating, financial sector reform, sub regional integration of electricity , and mitigation of adverse environmental impacts
East Asia	Varies by size of country , but improve access to cooking fuel heat and electricity for poor households through guidance to governments, direct financial assistance, supporting implementing agencies, and capacity building . Also, increase installed capacity of renewable energy through help with regulatory issues, technical assistance for surveys feasibility studies, developing market infrastructure and other measures.
Latin America	For low income countries, support rural and periurban electrification through general investments in infrastructure ; For middle income countries, the same goal but with a focus bottlenecks in the power sector. For middle income countries with high levels of electrification, interventions to provide offgrid service to poorest areas and creation of appropriate framework to revitalize private sector investments .

Long term engagement → patience required!
Persistence, not perfection, is the key.

TA & policy dialogue

Lending & private
finance



The Investment Challenge

- Key numbers from IEA World Investment Outlook – 2003
 - US\$ 16 trillion over next 30 years for energy sector investments
 - US\$ 10 trillion (60%) for electricity
 - Approx. 5 trillion in DCs/CEITs where risks are perceived as high and private investments declining
 - Stable policy frameworks necessary to attract international finance and local finance needs to be much more engaged
 - Funding for access programmes represent a special challenge but PPPs combining investment subsidies with private implementation has shown promising results

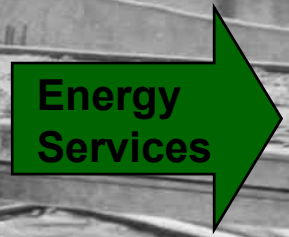


**Enterprise
Development
Services**

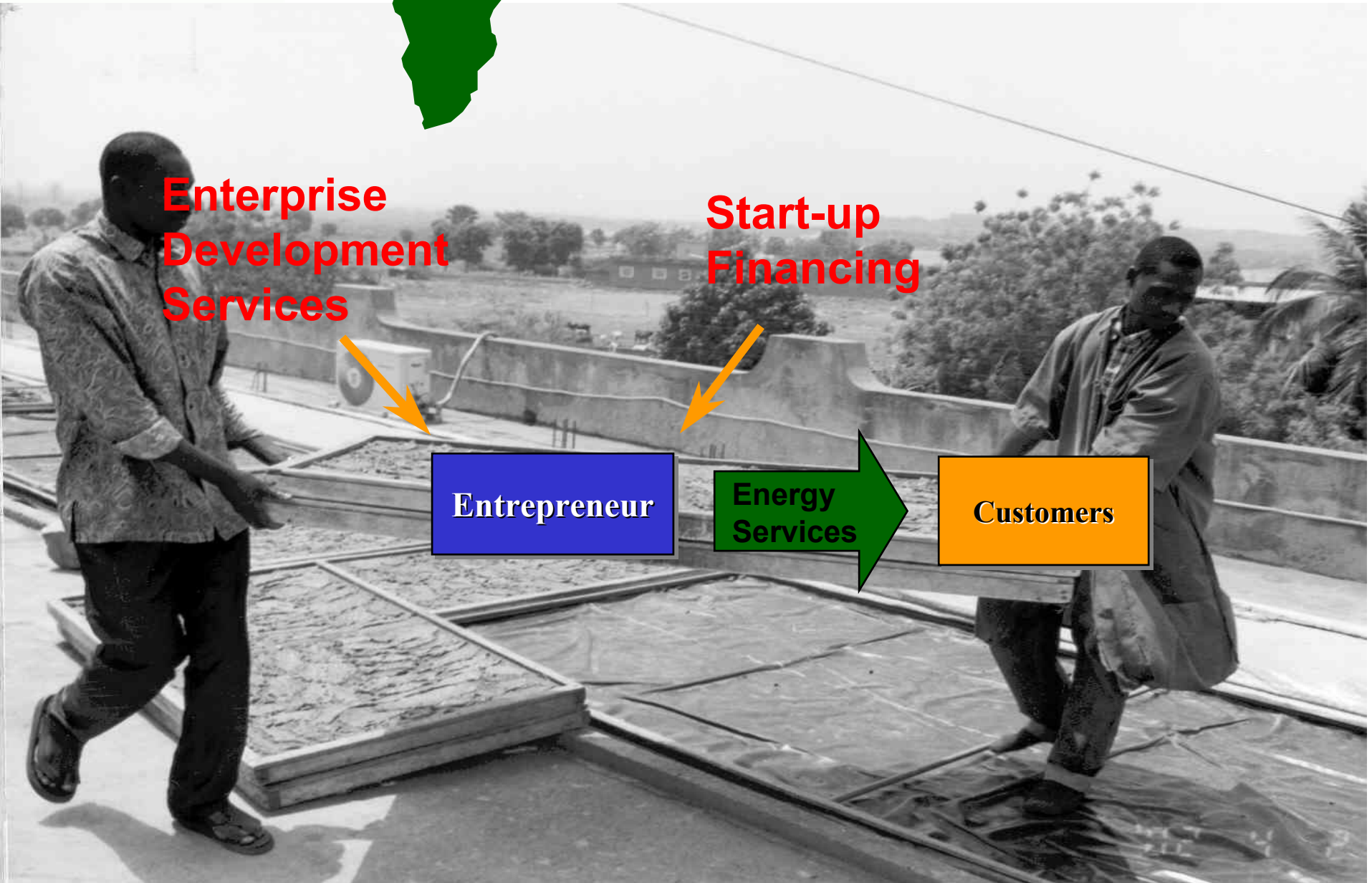
**Start-up
Financing**



Entrepreneur



Customers



The Indian Solar Loan Programme

A credit facility in Southern India (Karnataka and Kerala States)
to help rural households finance the purchase of
Solar Home Systems

- UNEP provides:
 - Interest rate subsidies for borrowers
 - Assistance with technical issues and Vendor Qualification
- Supported by United Nations Foundation and Shell Foundation
- Implemented with two of India's largest banks: Canara Bank & Syndicate Bank - more than 2,000 branch offices, plus their associated *Grameen* banks
- 15,000 SHS loans financed as of May 2005. Only 1,400 financed prior to programme which is on track to finance 20,000 + systems

