



The Innovation and Impact of ESMAP

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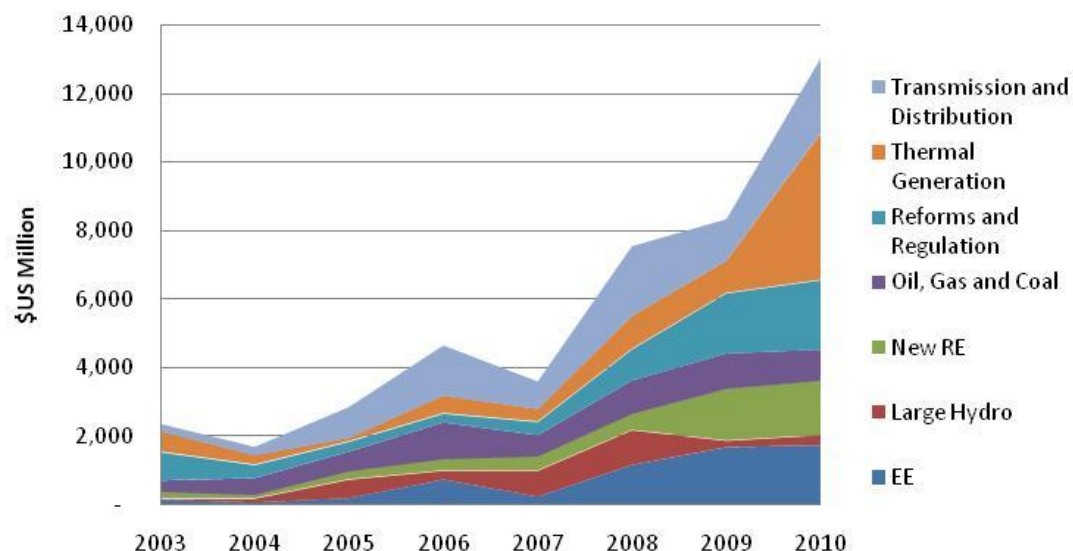
ESMAP Works Across Scales

- Household Energy (*tremendous attention, now*)
 - Cookstoves and solid biofuels
 - Solar Lanterns
 - Energy-Water-Agriculture linkages
- Critically engaged in developing new tools
 - City climate and carbon assessment tools
 - Marginal (carbon) abatement curves
 - Dynamic assessment of clean energy options
 - The grid as an energy system



The Changing WBG Lending Portfolio

World Bank Group Energy Financing Fiscal Year 2003-



Project Type	2003	2004	2005	2006	2007	2008	2009	2010	Total
EE	177	92	217	761	262	1,192	1,711	1,771	6,182
Large Hydro	23	106	538	250	751	1,007	177	284	3,137
New RE	206	115	246	344	421	473	1,517	1,584	4,906
Oil, Gas and Coal	333	496	578	1,074	627	981	1,032	914	6,035
Thermal Generation	599	272	100	511	360	957	936	4,270	8,005
Transmission and Distribution	216	248	906	1,465	809	2,031	1,204	2,171	9,050
Reforms and Regulation	816	370	278	248	375	903	1,752	2,019	6,760
Total (US\$ Million)	2,370	1,699	2,864	4,653	3,604	7,545	8,328	13,013	44,075



ESMAP has provided policy recommendations for improved cook stoves dissemination and cleaner cooking fuel adoption

Country	Activity Description	Results
India	A study that includes a review of best-performing improved biomass stove programs in six states of India. Completed in 2002.	A report – <i>India: Household Energy, Indoor Air Pollution and Health</i> - that includes lessons learned for successful implementation and replication of improved cook stoves projects
Guatemala	An analysis of household energy consumption patterns and inter-fuel substitution constraints using a living standards & measurement survey. Completed in 2003.	A report - Household fuel use and fuel switching in Guatemala –recommending that inter-fuel substitution be complemented by policies aiming to promote improved cook stoves
Guatemala	A study to better understand the implications of indoor air pollution and the mitigation options. Completed in 2005.	A report – <i>Environmental Health and Traditional Fuel use in Guatemala</i> – providing policy recommendations to facilitate the adoption of cleaner cooking fuel and improved cook stoves
Global	A study on energy policies and multi-topic household surveys. Completed in 2007.	A paper that provides guidelines on how Living Standards Measurement Studies (LSMS) can help policymakers design household energy transition policies and monitor progress towards adoption of cleaner cooking fuel



ESMAP's past energy SMEs activities have contributed to commercialize improved cook stove technologies

Country	Activity Description	Results
Nicaragua	Assistance to promote the commercialization of improved cook stoves. Completed in 2005.	Market assessment of improved cook stoves demand Development of Improved cook stoves models
Haiti	Technical assistance to promote the involvement of small & medium enterprises in producing and commercializing improved cook stoves. Initiated in 2008.	Dissemination of 11,000 energy efficient cook stoves 144 artisans trained Established a Quality and Energy Efficiency Label
Cambodia	Technical assistance to support SMEs involvement in energy services provision Completed in 2009.	About 8,000 improved cook stoves and 600 light emitting diode (LED) lanterns were distributed to households

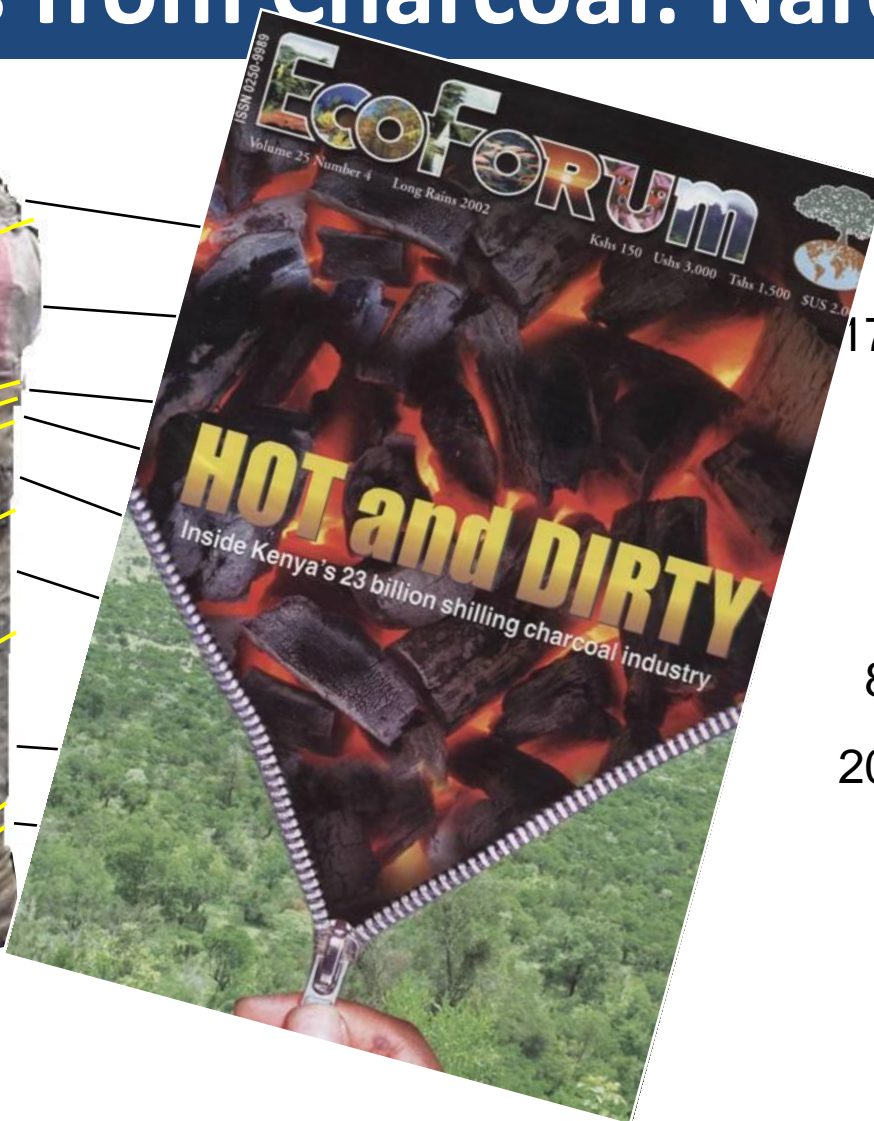


Country	Activity Description	Results
Central America	Develop a toolkit that assesses technical performance, socioeconomic, and cultural aspects of improved cook stoves. Initiated in 2010	Ongoing.
Bangladesh	A study to draw lessons from past and existing cook stove dissemination programs in Bangladesh. Initiated in 2009.	Recommendations for large-scale cook stove commercialization and policy support

Moving forward, ESMAP joined the UN's Global Alliance for Clean Cook stoves, which calls for 100 million homes to adopt clean and efficient stoves and fuels by 2020. ESMAP is revamping its energy access program, which includes improved cook stove initiatives.



Profits from Charcoal: Narok, Kenya



- 0-3%
- 17-20%
- ~2%
- ~3%
- ~16%
- 8-18%
- 20-30%
- ~2%
- ~20%

Robert Bailis, Yale University

Kibera: Nairobi's largest slum

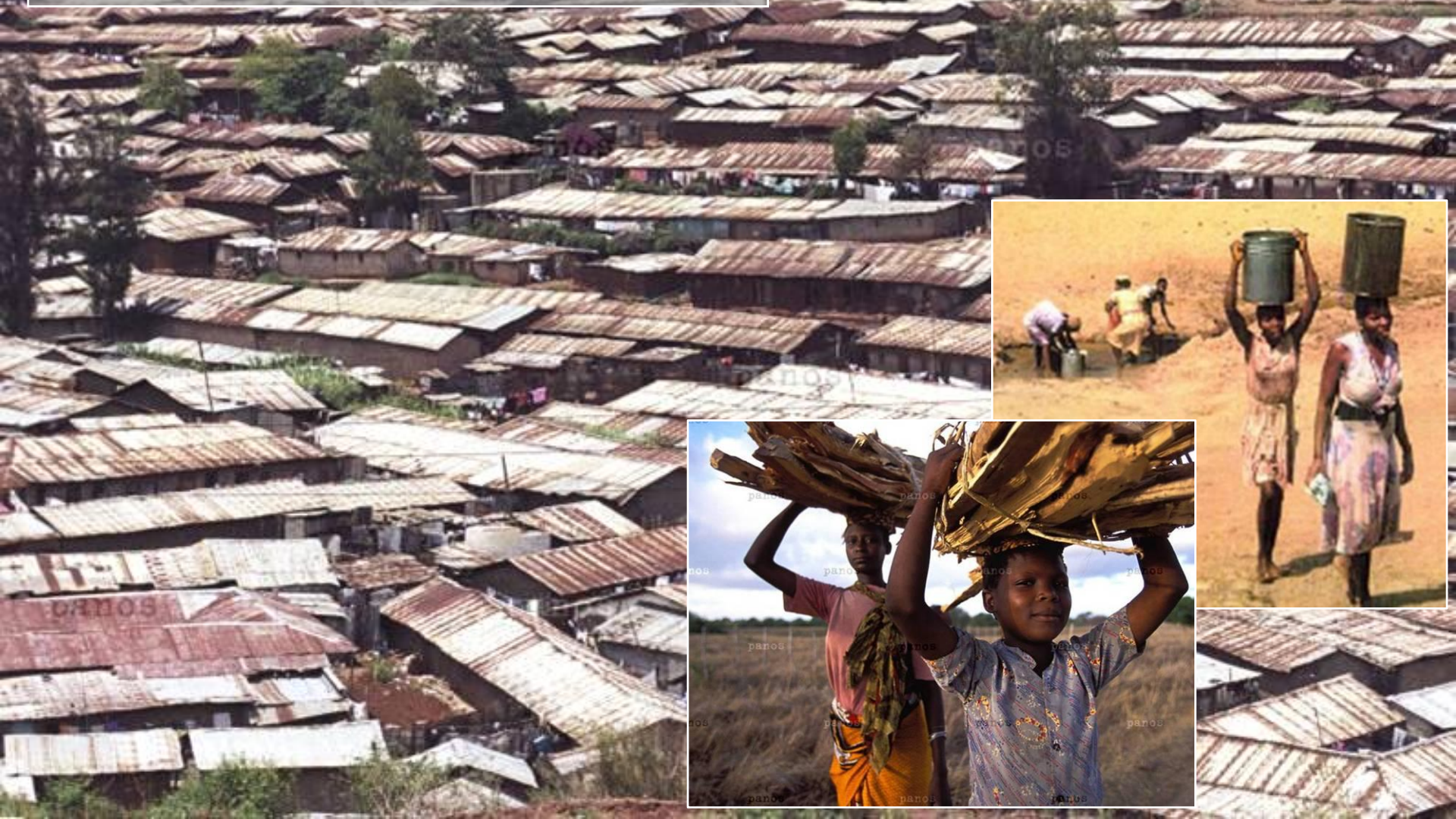
population: ~600,000

area: ~3.4 km²

population using charcoal: ~80%

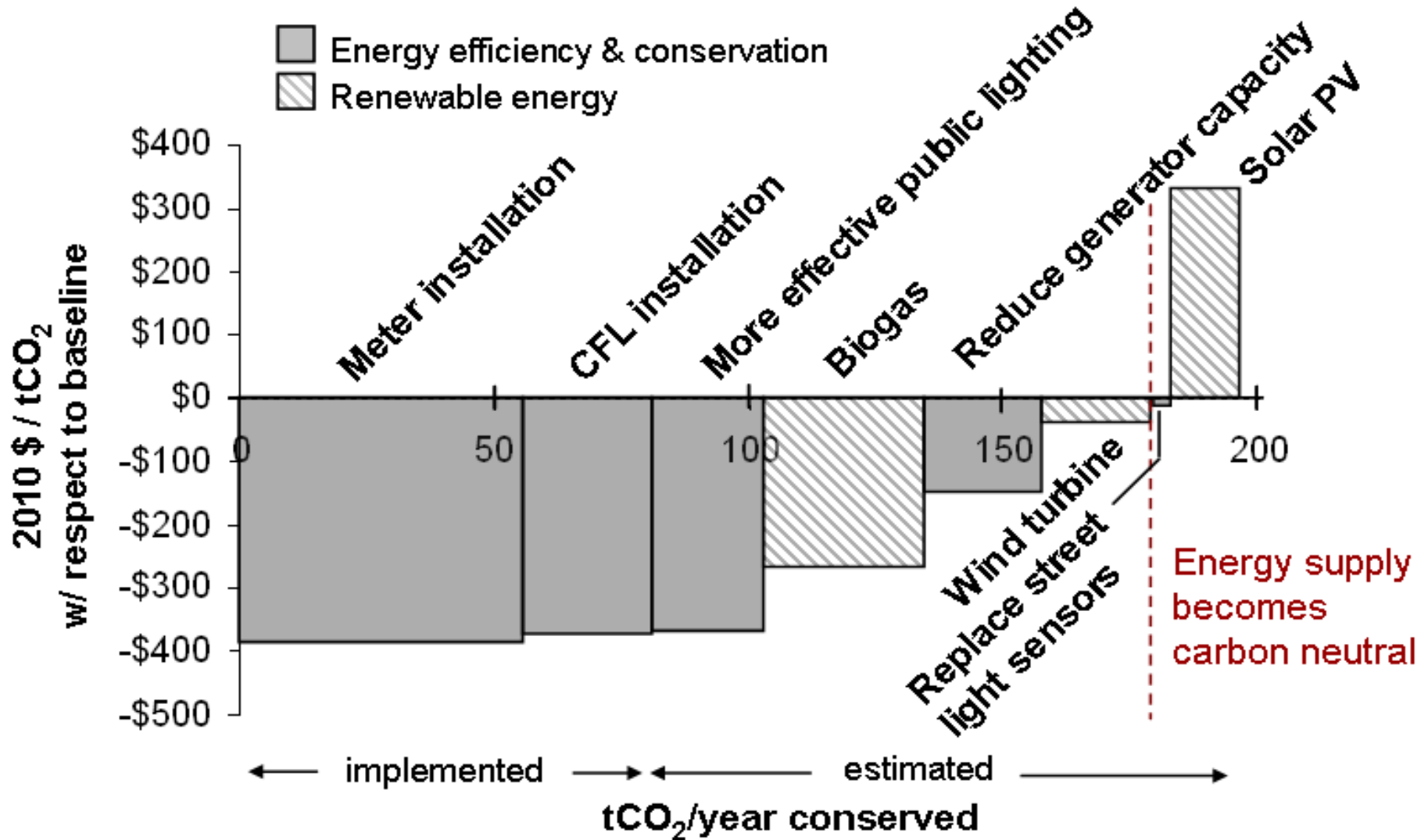
population using kerosene: ~90%

population with access to electricity: 5%





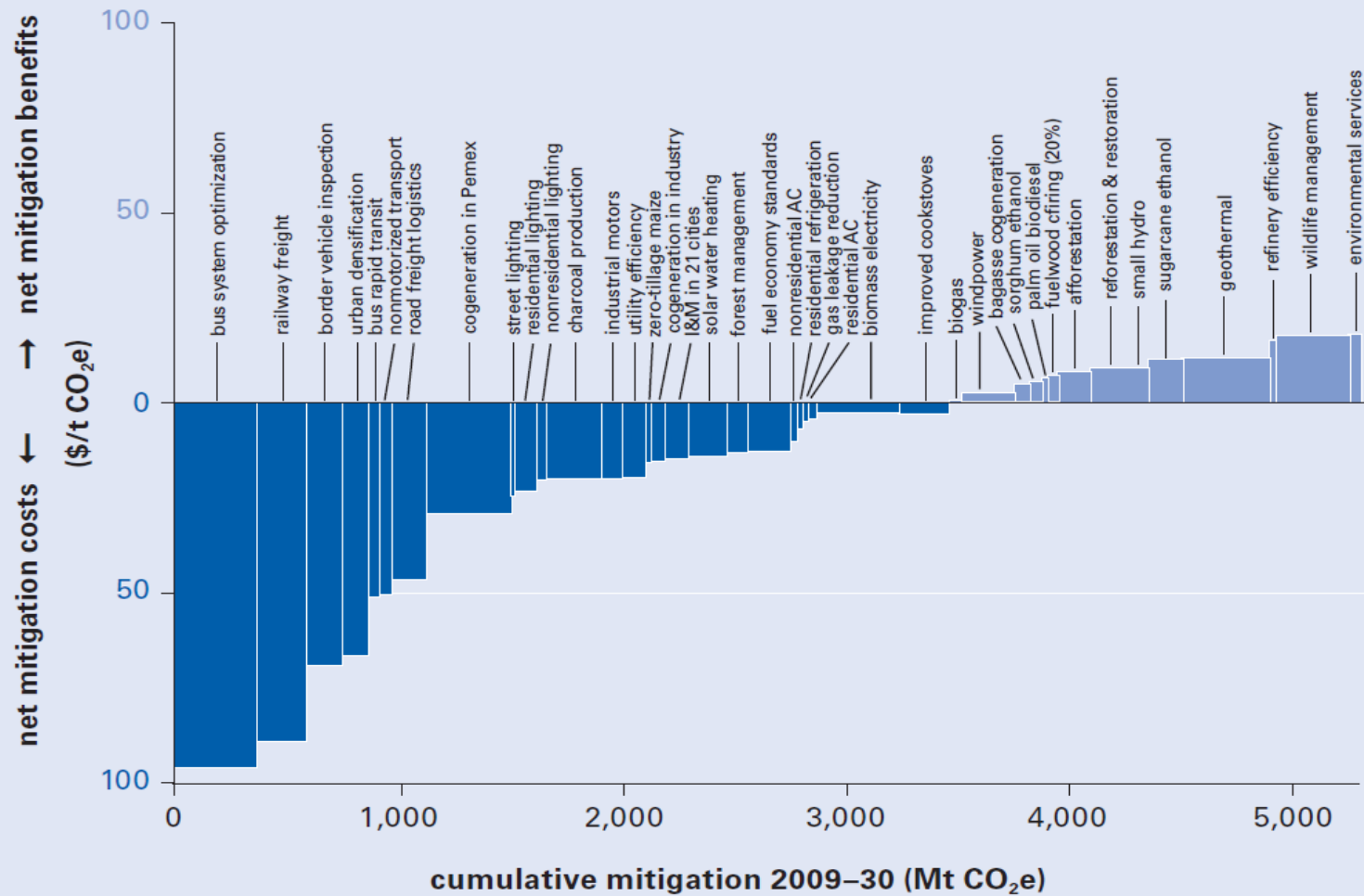
VILLAGE LEVEL: Carbon Marginal Abatement Curves: Communities of Orinoco & Marshall Point, Nicaragua





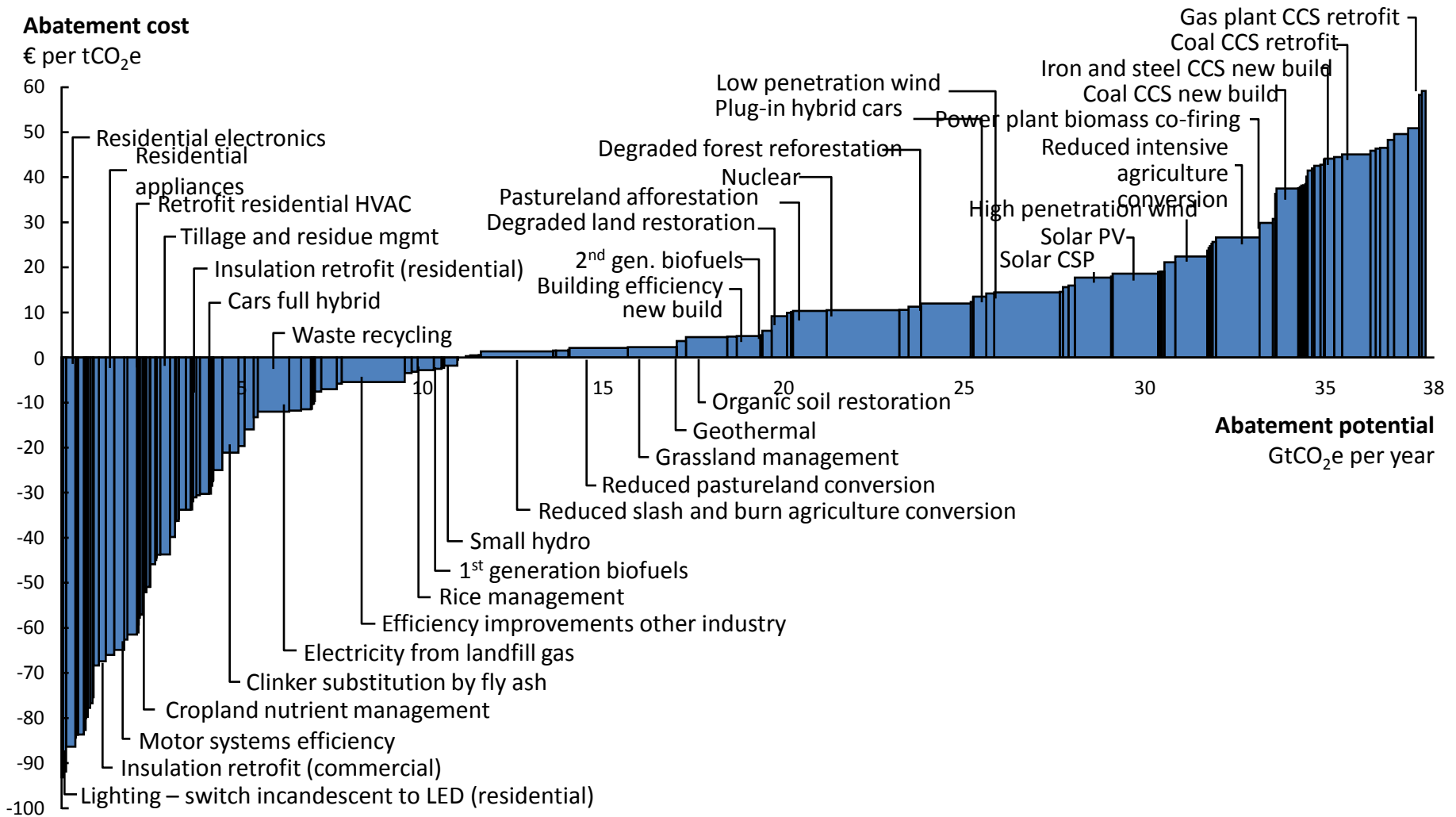
COUNTRY LEVEL: Carbon Marginal Abatement Curves: MEXICO

Figure 2 Marginal Abatement Cost Curve





GLOBAL LEVEL: Carbon Marginal Abatement Curves:





ESMAP Directions

- **Life-Cycle Tools** for impacts of energy systems
- **Building Capacity** at the community to global scale
- **Integration of Energy Systems**
- **Bridge Between Technical, Social and Economic Approaches**