Biomass for the Development and Deployment of Bio Fuels for Poverty Reduction

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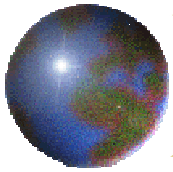


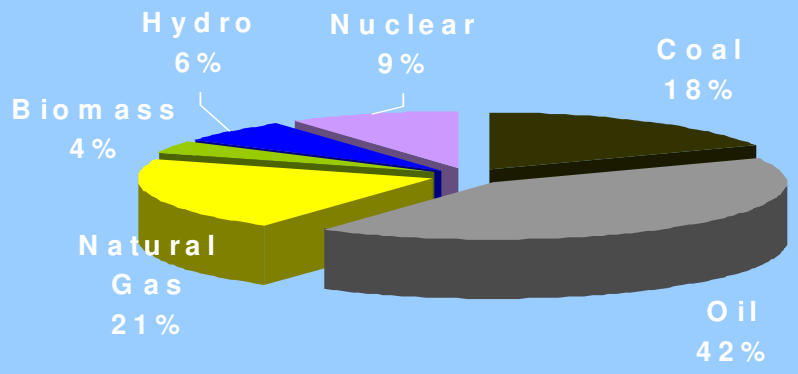
Energy for Sustainable Development

- 1.6 billion live on less than $1/day
- 2.6 billion live on less than $2/day
- 2.0 billion people worldwide lack access to electricity
- 2.0 billion depend on traditional fuels (wood, dung) for cooking and heating
- Access to affordable, adequate energy services is a prerequisite for sustainable development

Present Energy Consumption

Primary Energy Consumption

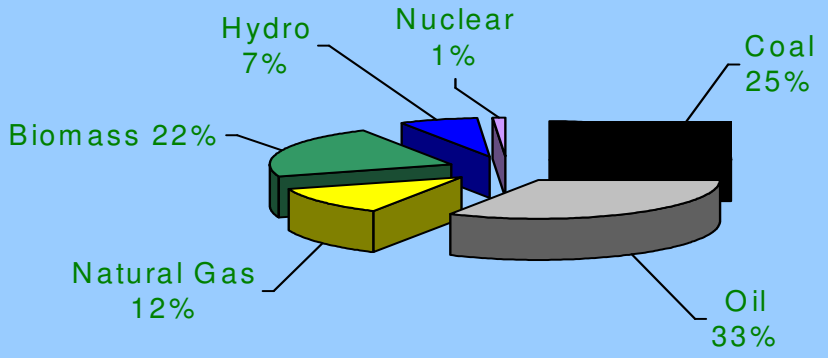
Industrialized Countries



Population: 1.34 billion
% of fossil fuels: 81%
Energy = 6,701 x 10^6 toe

5.0 toe/capita

Developing Countries



Population: 4.56 billion
% of fossil fuels: 70%
Energy = 3,861 x 10^6 toe

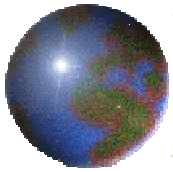
0.85 toe/capita

Energy and Poverty

- Energy services are essential to overcome poverty: the poorest countries are 80%+ dependent on traditional biomass
- Poverty: income and opportunities
  - Domestic uses (heating and cooking)
  - Productive purposes (brick and ceramics firing, metal working, crop smoking)
  - Reducing drudgery (water pumping, grinding and milling)
  - Social services (health care, education)

Fuels for Cooking

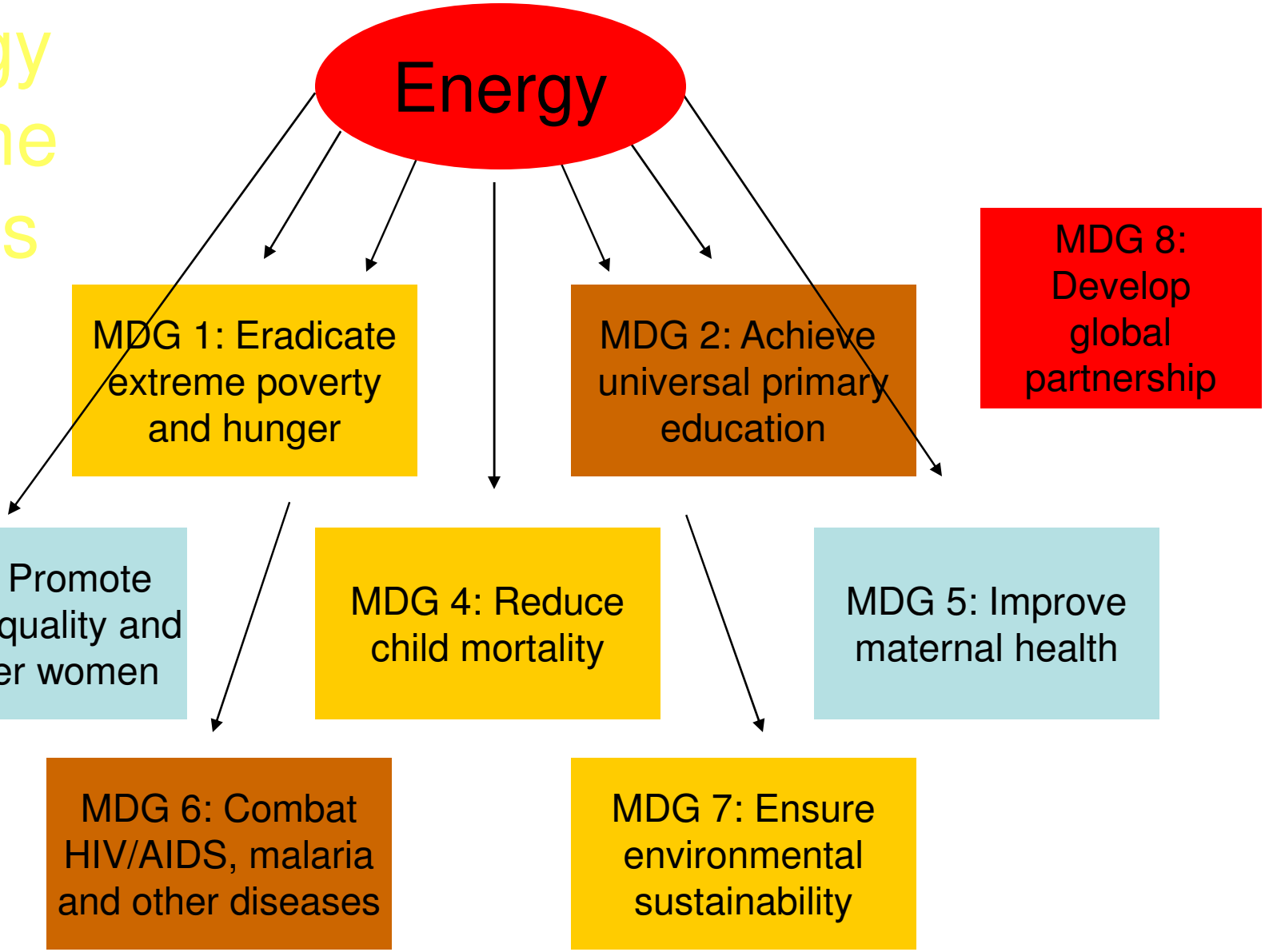
Respiratory disease from cooking on traditional fuels kills over 2 million people annually in India alone



Energy and the MDGs

- The Millenium Development Goals (MDGs) are a series of quantified development targets agreed at the UN General Assembly in 2000.
- There is no MDGs on energy
- Greatly increased quality and quantity of energy services will be required to meet all of the MDGs
- Energy services (e.g. light, heat, mechanical power, telecoms) can be generated from conventional or renewable energy
- The quality, reliability and affordability of the services are what matter from a human development point of view
- Rural areas generally have both the lowest levels of modern energy services and greatest degree of poverty

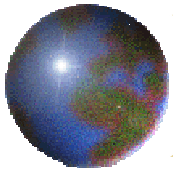
Energy and the MDGs



Energy Interventions to Support MDGs

- Micro finance for small business
- Efficient fuel stoves (wood, LPG, biogas)
- Management of local fuel resources and generation of biofuels
- Village mechanical power (MFP)
- Electrification of schools and clinics
- Technical assessment and capacity building for costing energy service delivery alternatives

Rural Energy: Traditional Fuels



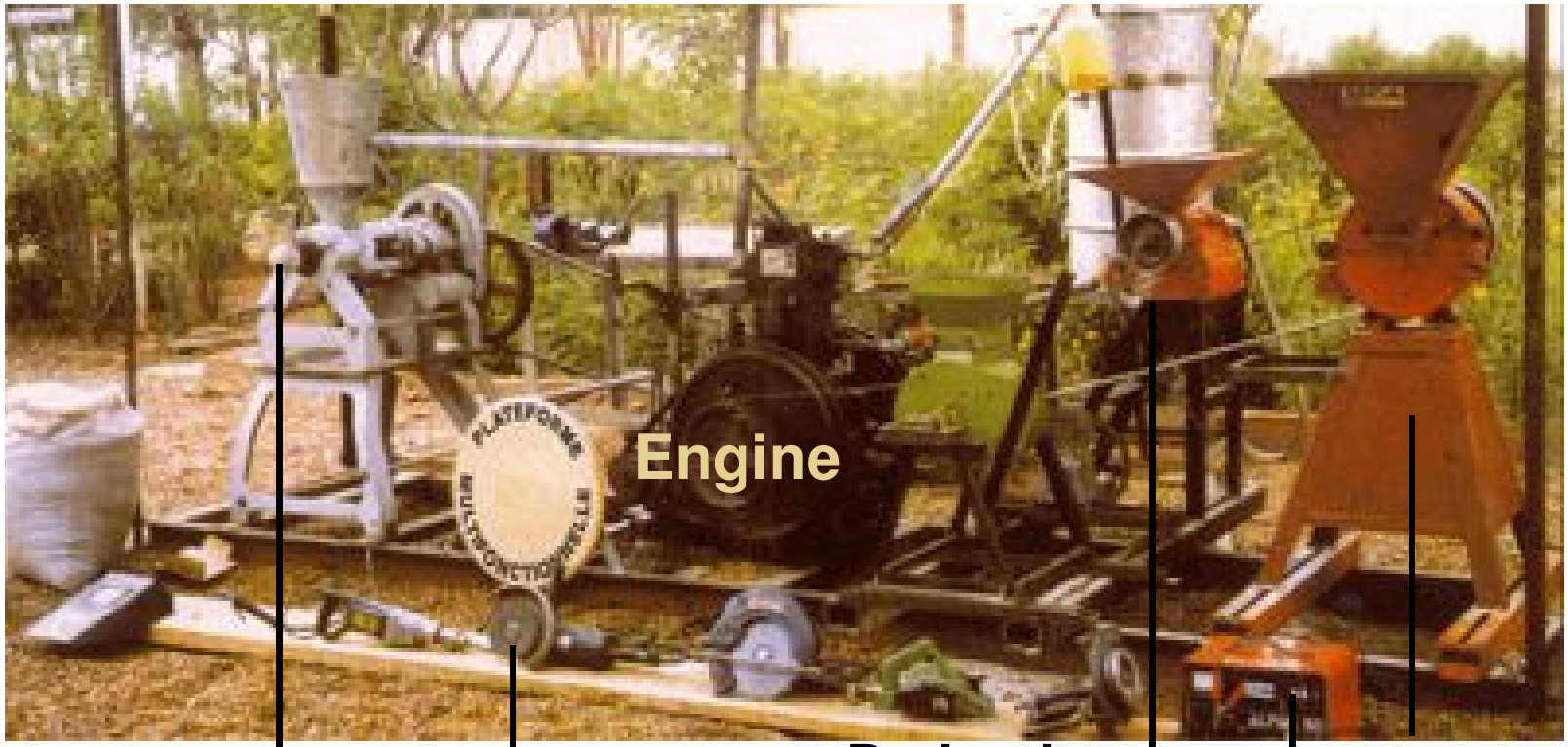
Rural Energy Challenges

- Access to electricity and the services it provides is extremely limited. Africa: less than 5% rural electrification
- Majority of heat energy needs come from traditional biomass (cooking, heating, agricultural processing) such as wood, agricultural residues, charcoal and dung
- Family energy needs met largley by women and girls
- Fuel and water collection limit girls participation in school, impact literacy, fertility and economic options
- Low levels of public services (education, health, etc) impacted by lack of energy
- Rural jobs and agricultural value added limited by lack of energy

Example: Mali Multifunctional Platform

- Reducing drudgery of rural women by providing simple, affordable energy
- Time saved is devoted to education, health and child care and to generating extra agricultural production and income
- Mali, Burkina Faso, Senegal, Guinea, Cote d'Ivoire
- Expanding to East Africa

The Multifunctional Platform supports a **simple diesel engine** that can power different tools: cereal grinding mills, de-huskers, oil presses, joinery and carpentry tools …



Example: Mali Multifunctional Platform

- Simple diesel engine powering different tools: cereal grinding mills, dehuskers, oil presses, joinery and carpentry tools … and lighting and water distribution
- Simplicity, sturdiness and multiple uses
- Decentralized implementation of the project, in order to adapt to the local conditions and to the available economic and technical resources
- Low cost: about $4,000 per platform, half paid by community. Local revenue, jobs and services created through operation – business model
- Strengthening of local capacities, through training and participatory studies and monitoring

The Platform Process at the community level

- Demand-driven: Women group request
- Participatory Pre-feasibility and Feasibility assessments
- Decision on specific configurations of a multifunctional platform that addresses community needs
- Establishing ownership and management mechanism by women
- Capacity building for women and operators of the multifunctional platform
- Business implementation using a multifunctional platform-based rural energy enterprise
- Local capacity building for private artisans
- Monitoring and Evaluation

UNDP GEF SGP

Biofuel Production for Farming in Poland

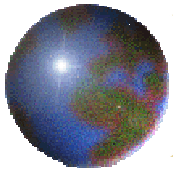
- Small-scale oil extraction from rapeseed
- Oil used to power tractors
- One ha. rape straw yields 800 dm^3 of fuel, enough to work 6.7 ha. of farmland.
- Installation cost ~US$ 11,000.

UNDP GEF work in Biomethanation

- China – Methane Recovery and Utilization from Mixed Municipal Waste
- India – High Rate Biomethanation Programme (16 demos)
- Jordan – Landfill gas methane for power generation

The LP Gas Rural Energy Challenge

- A Public – Private Partnership (UNDP/WLPGA)
- Create viable and sustainable LP Gas markets
  - for domestic consumption
  - for industrial productive uses
- Improve living standards in pilot countries



The LPG Challenge

- Use of traditional fuels results in: respiratory disease from indoor and local air pollution, drudgery, reduced productivity, land degradation, and constrained income-generation
- A readily available, clean-burning modern energy carrier—Liquefied Petroleum Gas (LPG)—is one option to support sustainable rural development
- LPG has demonstrated health and environmental benefits compared to traditional fuels
- However, availability of fuel, financing of first costs, and refilling costs are constraint to LPG use

WEA Findings on Rural Energy

- Technology is necessary, but is not the only ingredient for increased energy equity
  - New institutional measures
  - Financing to cover initial capital costs of devices and equipment
  - Energy initiatives are most successful when combined integrated with other policies
  - Local populations must be involved in making decisions about energy systems

More information

Visit our website at

www.undp.org/energy