

Energy for Sustainable Development

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Energy as a Development Issue

- 2 billion people have no access to electricity and an additional 2 billion people have access to unreliable electricity
- 2 billion people cook using traditional fuels
- Current patterns of energy generation, distribution and use are unsustainable in many ways

Issues related to Energy

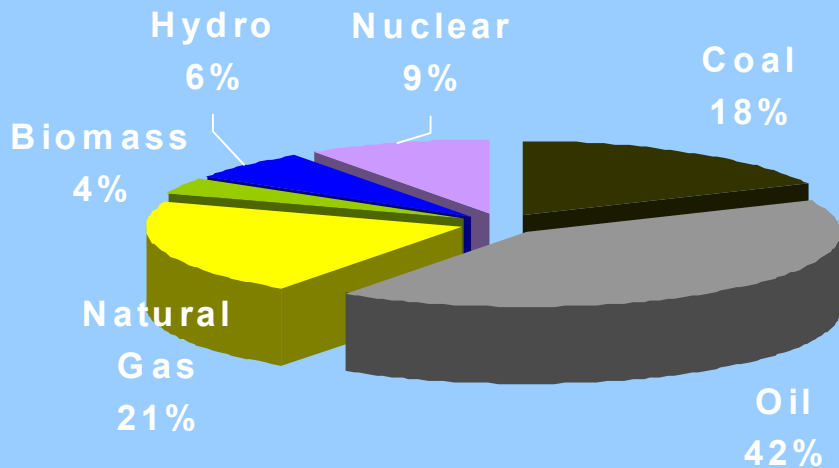
Unsustainable energy systems are connected to many important issues:

- Social inequity between gender, groups and countries
- Economic opportunities and growth
- Environmental degradation: local, national, regional and global

Present Energy Consumption

Primary Energy Consumption

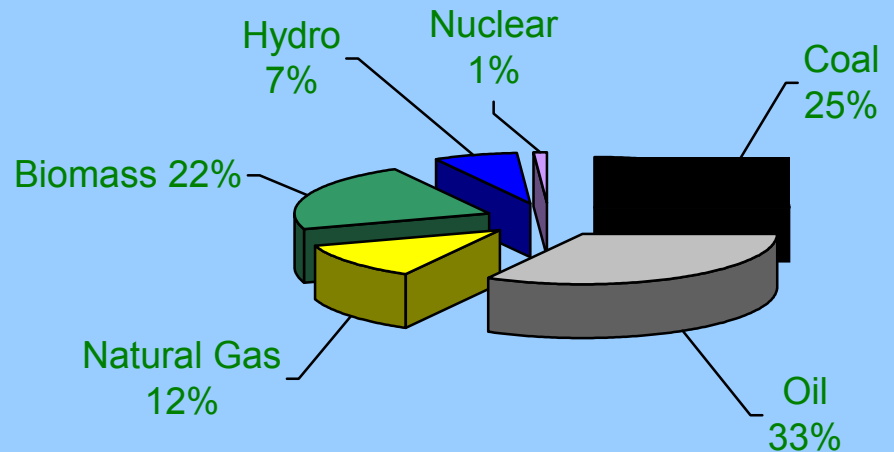
Industrialized Countries



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

5.0 toe/capita

Developing Countries



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

0.85 toe/capita

Energy for Poverty Reduction

- The global goals of poverty reduction can not be achieved without changes in energy services provisions
- Sustainable energy services must be equally distributed to women and men, and rural and urban users
- Business as usual will not deliver these services: major changes are needed
- UNDP uses energy activities to promote sustainable human development

Sustainable Energy

Energy that is produced and used in ways that simultaneously support human development over the long-term in *all* its social, economic, and environmental dimensions.





energy and the challenge of sustainability

World Energy Assessment

- Established in 1998 by UNDP, DESA, WEC
- Input to the 9th meeting of the Commission on Sustainable Development (CSD-9) and the World Summit of Sustainable Development (WSSD)
- Editorial phase: Collaborative effort to provide scientific and technical analysis for the report and discussions – September 1998 - August 2000
- Consultative and Outreach phase: Provide input to editorial phase and disseminate findings and encourage discussion and debate – April 1999 - April 2001
- Funding: Austria, Finland, Norway, Sweden, the Energy Foundation and the United Nations Foundation

Main Findings

- Total fossil fuel resources will last at least several hundreds of years
- Conventional oil and gas could last at least 50-100 years
- Renewable energy flows are some 1000 times current global energy use
- Sustainable energy futures are possible but only with major changes in the system – policy change needed
- Both conventional and fossil fuels are part of a sustainable energy solution and future

Rural Energy Challenge- Ch.10

- The largest number of poor and unserved people live in rural areas, energy lifestyles migrate to cities
- Poorest countries are 80-90% dependent on traditional biomass use for energy needs
- Traditional fuel use has direct effects on women and girls: health, education participation, literacy, fertility, economic opportunities, productivity, safety
- Land degradation, deforestation, local air pollution, GHG effect of biomass fuels, household safety, fires

Rural Energy Challenge

- Clean, safe, affordable liquid and gaseous fuels are essential for transition from traditional biomass over next 20 years
- Cooking, heating, food processing, water boiling, local industry, appliances are main uses
- Cooking needs of 2 billion = 120 million tonnes oil equiv of LPG/yr or 3% of global oil consumption
- Expansion of natural gas and petroleum production will lead to increase LPG supply
- Key barriers are policies, financing and expanding opportunities for local business development

LP Gas Challenge

- expanding accessibility, availability and affordability of LPG esp. in rural areas
- LPG an important transition fuel to biofuels, DME, and long term sustainable options
- Pricing, market access, distribution routes, and credit systems availability all crucial
- Key barriers: canister size, deposit cost, burner cost, pricing, kerosene subsidies, cash flow of consumers
- Consistent government policies, functioning markets and public-private collaboration all needed

Policies needed to support the LPG Challenge

A sustainable energy future will not happen by itself, thus policy change is required, including:

- Removal of subsidies to competing fuels, selective subsidies to LPG, barriers to competition reduced
- Subsidies limited to small canisters, burner technology and targeted to rural areas
- Complementing market approaches with regulatory measures to protect public benefits
- Microcredit systems needed to support consumers payment in line with income flow

Developing Countries Needs....

- Capacity building
- Policy support and institution building
- Good governance in public sector
- Investment-friendly environments, socially and environmentally responsible
- Technological leap-frogging
- Education and training
- Focus on local conditions

Role of Development Assistance

- To enable developing countries to meet domestic growth and poverty reduction goals
- To support energy pathways that address multiple objectives
- Address the policy, technology and capacity bottlenecks to achieve change
- To use limited grant financing to leverage loans and investment financing

Putting things in Perspective

- Energy production investments per year (public/private) \$290-430 billion
- Total foreign aid (ODA) worldwide 1997 = \$56 billion – all sources all sectors
- Value of all subsidies to energy in South \$50 billion 1990 comparable to the value of all foreign aid from all sources
- Investment in energy supply projected at \$300-500 billion per year for the next 20 years, depending on path chosen
- Most will occur in developing countries

UNDP Publications

- World Energy Assessment: Energy and the Challenge of Sustainability
- Generating Opportunities: Case Studies on Energy and Women
- Bioenergy Primer: Modernised Biomass for Sustainable Development
- Energy as it Relates to Poverty Alleviation and Environmental Protection
- Sustainable Energy Strategies: Materials for Decision Makers
- Energy for Sustainable Development: A Policy Action Agenda (forthcoming)

More Information

Additional information on the activities of UNDP in sustainable energy can be found at:

www.undp.org/seed/eap