

UNEP's approach to bioenergy

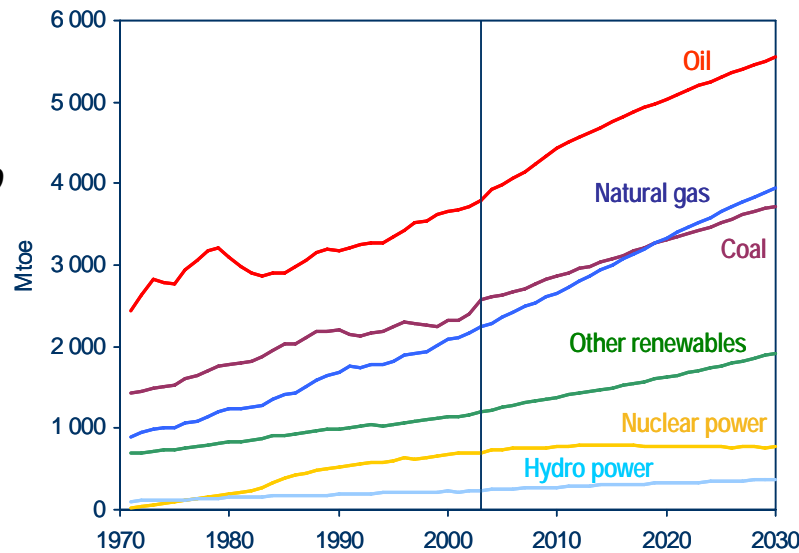
UNEP is working with governments, the private sector, NGOs and UN sister agencies on:

- sustainability criteria and certification options
- bioenergy planning: research and tools to provide decision-makers in governments and the private sector with appropriate information
- development benefits: creating markets and developing sustainable business models for renewable energy development in developing countries



potential benefits - energy security

Energy underpins economic activity, enhances productivity, and provides access to markets for trading purposes (transport).



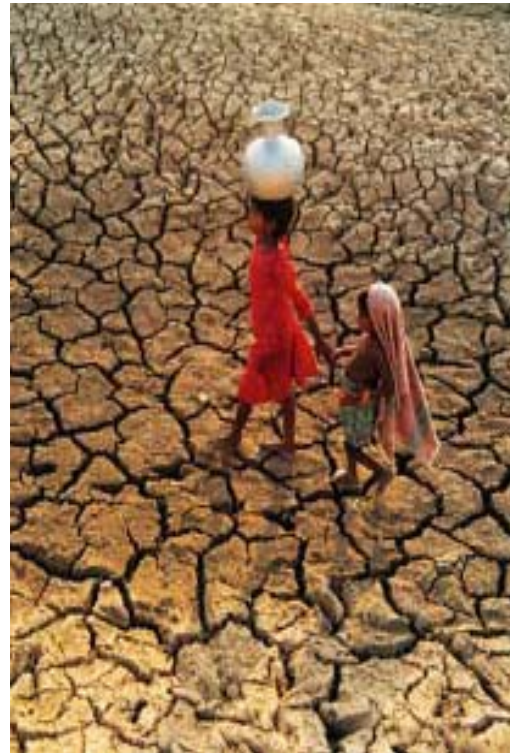
Source: IEA

Contribution to energy security by diversifying sources, increasing the number of producing countries and a potential to 'homegrow' energy lowering import bills which are particularly a drain on developing country budgets

potential benefits - climate change

Stern report: cost of inaction will exceed cost of mitigation

IPCC report confirms the need to dramatically reduce CO2 emissions



GHG reduction potential varies from crop to crop and with agricultural practices, conversion processes and end-use practices; LCA necessary

potential benefits - development



*expanding energy access in developing regions:
eliminating energy poverty; reduced health impacts
from indoor air pollution*

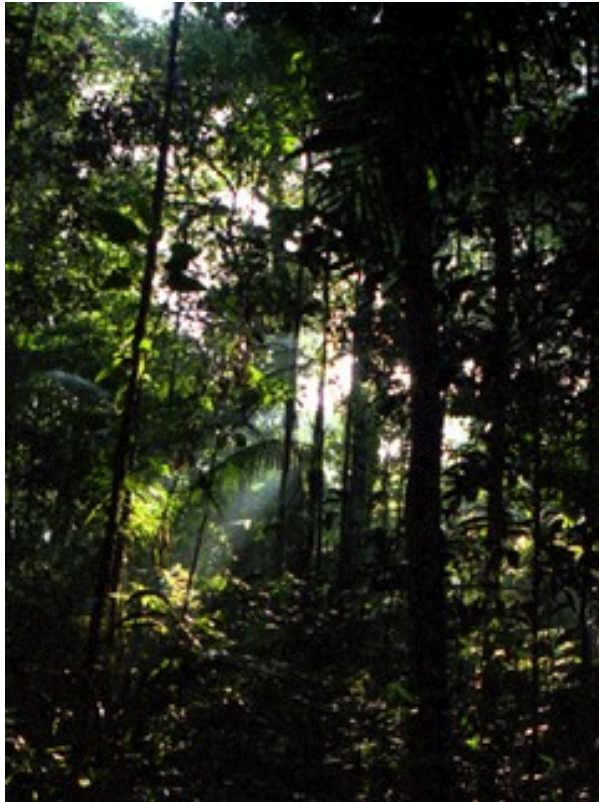


*revalorizing
agriculture:
improved
productivity and
incomes
(incl. trade
opportunities)*



*powering secondary
industries, businesses,
infrastructure:
economic
diversification, growth
and sustainability*

potential risks



- increased GHG emissions, exacerbating climate risks, particularly impacts on vulnerable regions and people
- loss of biodiversity, which provides the basis for ecosystems and the services they provide



due to

- direct land use changes
- indirect land use changes

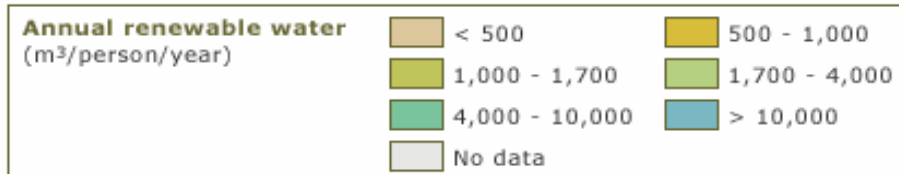
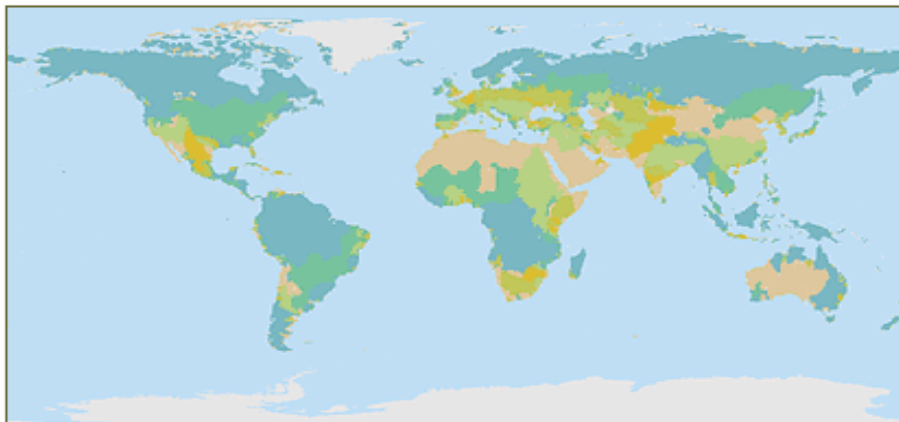
potential risks

Food security:
Availability
Accessibility
Stability
Utilization



Land tenure:
transparent, consultative
and participatory processes
that involve all relevant
stakeholders

Labour conditions:
human rights/ILO standards/
decent work and well-being

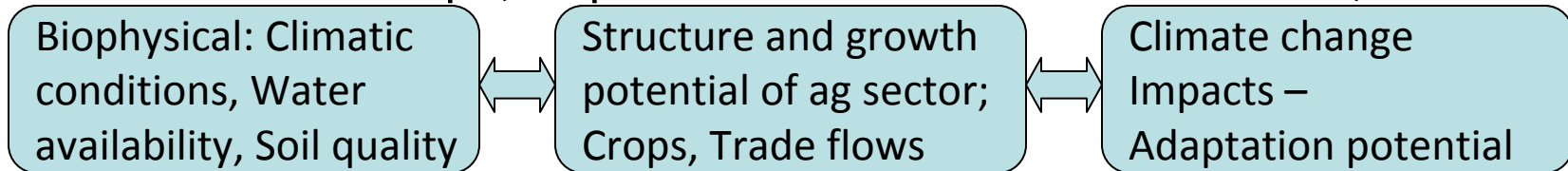


- competition for water
(food production, drinking)

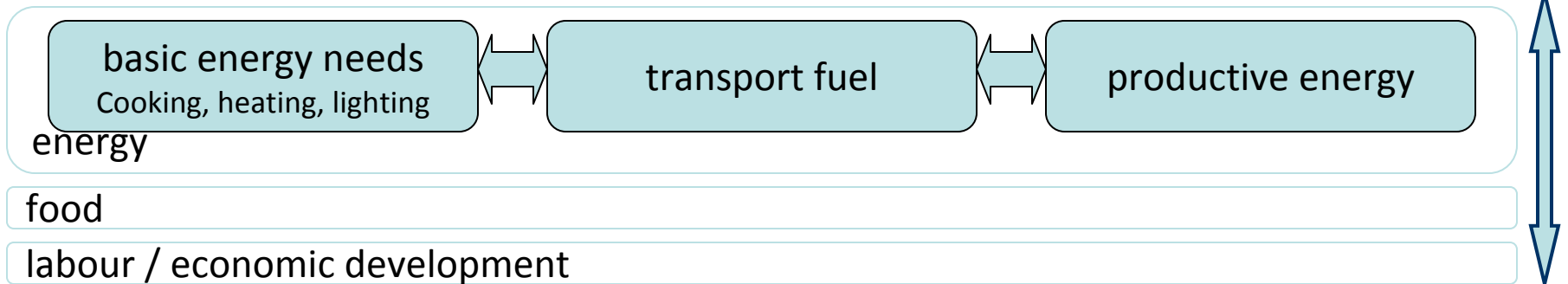
agriculture currently uses 70% of the
world's (85% of the developing world's)
fresh water, and climate change impacts
will create further pressure in areas that
are already suffering from droughts

need for good planning and management

- Choice of the area ('no go areas', e.g. PA, HCVA; 'no regrets', e.g. marginal land)
- Choice of the crop (adapted to local conditions and needs)



- Good agricultural practices (water, soil, new technologies, methods serving double purpose)
- Choice of the end use (local – national – international markets)



- Involvement of local communities in planning, production (business models incl. equity, outgrowers concepts) and use

tools to ensure social and environmental benefits materialize

- appropriate policies, institutional and legal frameworks
 - Bioenergy plans, developed involving different ministries (agriculture, energy, environment, transport, economics, trade)
 - Water conservation and protection
 - Biodiversity conservation
 - Climate regime
- enforcement of environmental laws and regulations
- institutional capacity building

- internationally agreed system (standard, certification) to ensure sustainability of biomass intended for biofuels production
- harmonised methodology for LCAs for biofuels
- land use mapping
- ecosystem service values / internalizing externalities / cost benefit analysis taking into account co-benefits

- near-term research involving developing countries
- technology transfer (N-S-S)

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