

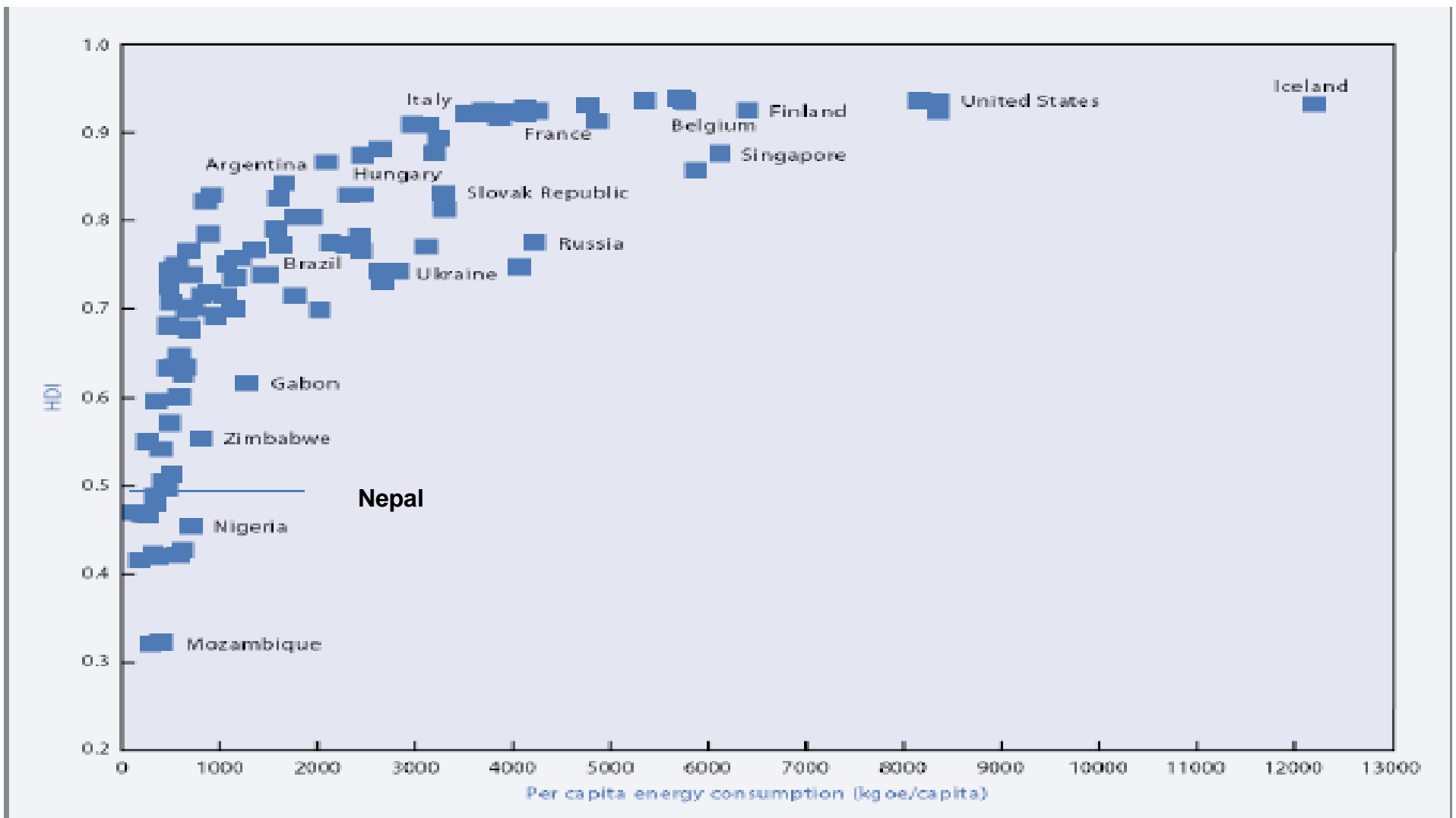
Alternative Energy Sector and Green Economy

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Outline

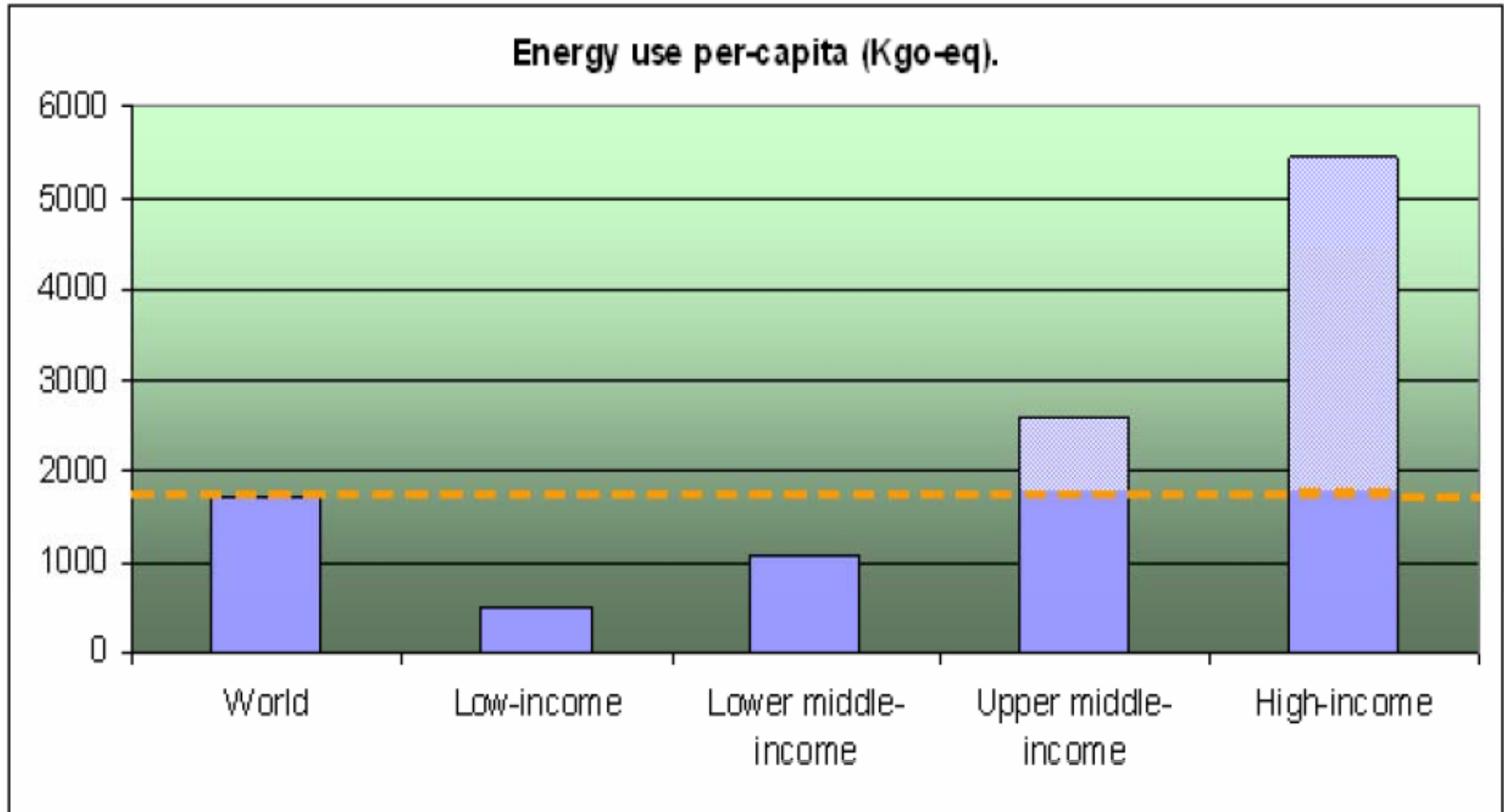
- Energy and Development
- Per Capita Energy Consumption Vs Income
- Energy Sources and Services
- World Energy Consumption
- Role of RE within the portfolio of zero or Low Carbon mitigation options
- Alternative energy technology development
- RE and Sustainable Development
- GHG Emission Reduction Potential & Progress from RETs in Nepal
- Alternative Energy linking Environment, Climate and Poverty Considerations
- Alternative Energy Linkages for MDGs
- AET for income generation/Job creation
- Role of RETs on CC Mitigation, Adaption and livelihood improvement of the Poor

Energy and Development



Relationship to HDI and per Capita Energy use, adapted from UNDP, 2004.

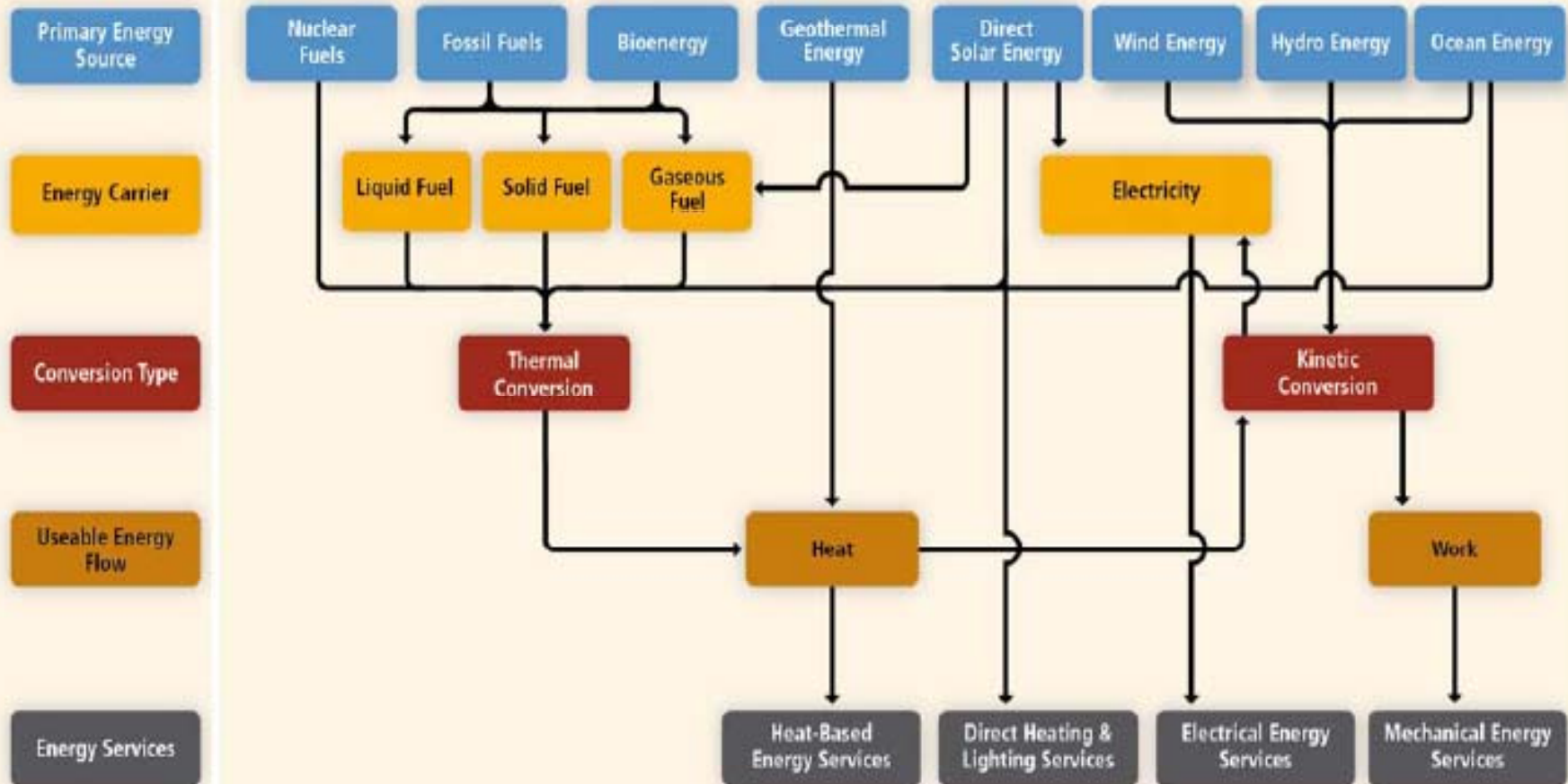
Per Capita Energy Consumption Vs income for 2005



Source: World Bank, 2006

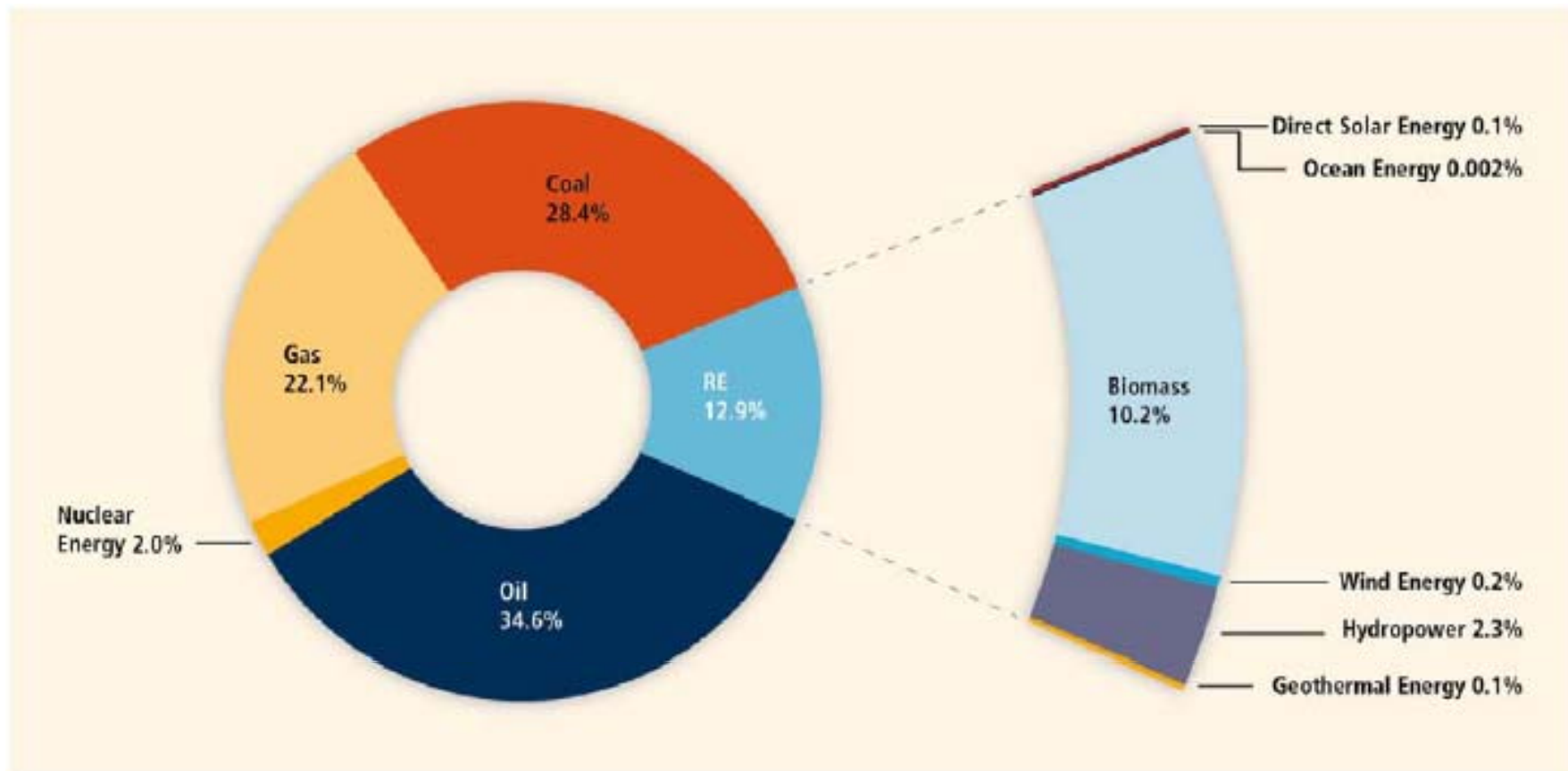
Energy Sources and Services

Key to Figure



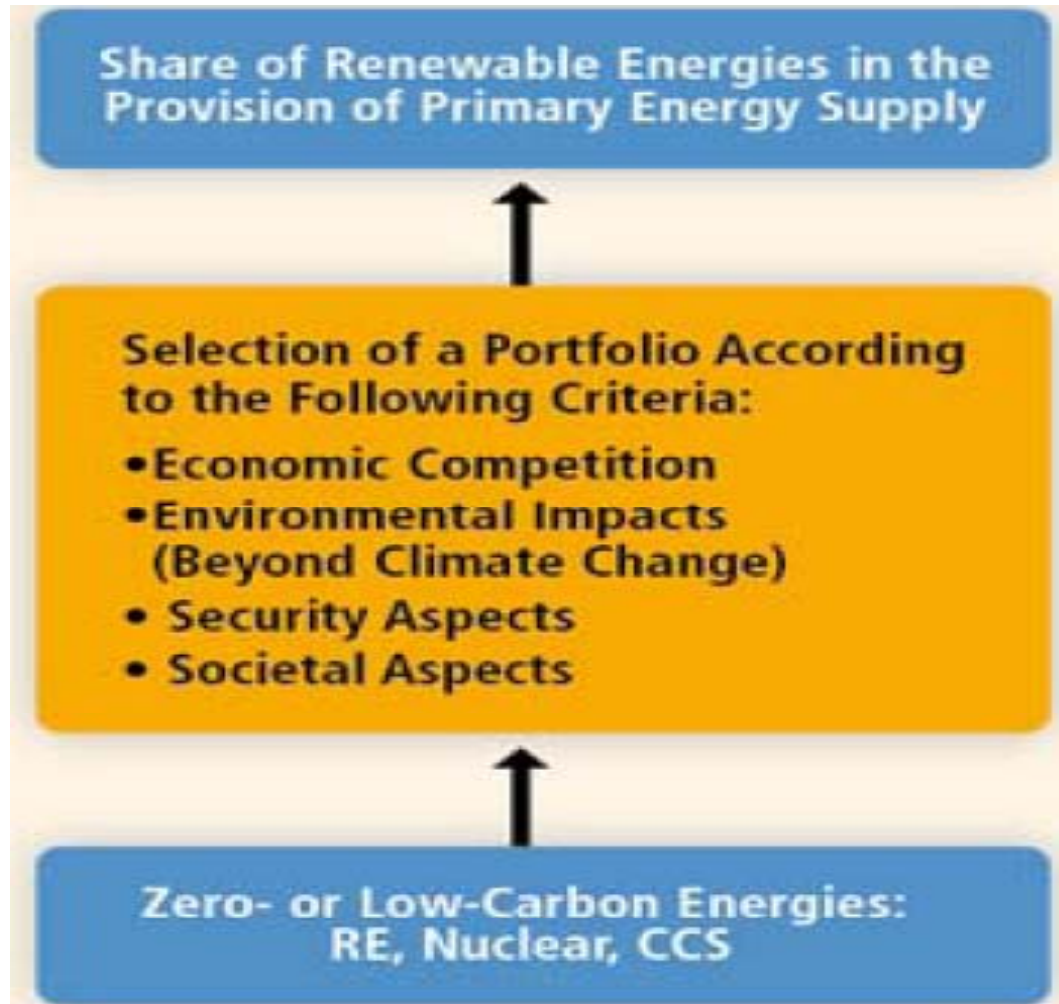
World Energy Consumption

- ✓ 492 Exajules in 2008 (Primary Energy Supply)
- ✓ Share of RE was 12.9 %



Source: SRREN, 2011

Role of RE within the Portfolio of zero or low carbon mitigation options.



Source: SRREN, 2011

RE and Sustainable Development

Three Pillar of SD

- Economy
- Ecology
- Society

RE contribute to:

- Social and Economic development
- Energy Access
- Energy security
- CC Mitigation and reduction of Environmental and health impacts

Alternative Energy Technology Development

- Deployment of the AETs has been increased due to:
 - ✓ Government Policies
 - ✓ Declining the cost of RE technology
 - ✓ Changes in fossil fuel price
 - ✓ Increase in Energy Demand
 - ✓ Environmental consideration (CC mitigation and Adaptation)

Renewable Energy Potential and Progress in Nepal



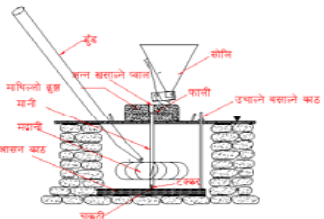
Micro-hydro (Potential 100MW & Progress- 0.13million hhs:13MW)



HHs Biogas (Potential 1.1 million & Progress-0.22 million hhs)



Wind (Potential 3000MW & Progress-Pilot projects)



IWS (Potential 25,000 & Progress- 0.2million hhs:6200 Systems)



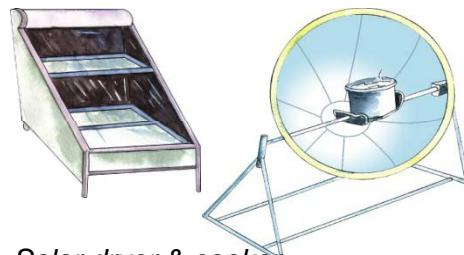
ICS (Potential 2500,000 & Progress-400,000 hhs)



Biofuel (Potential 1100,000 tons & Progress-



SHS (Potential 4.5 kWh/m²/day & Progress-0.2 million hhs)



Solar dryer & cooker (3000 HHs)



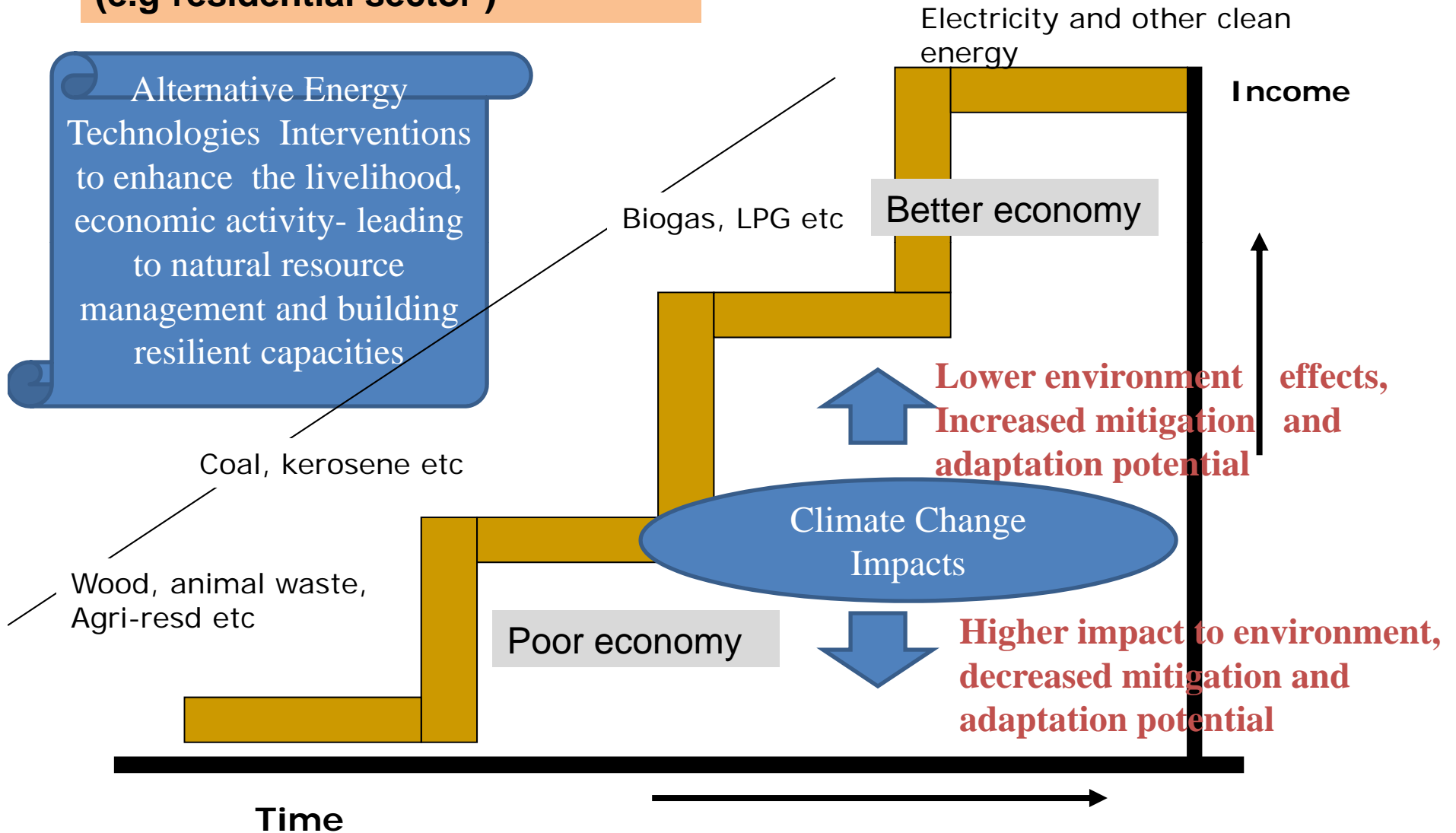
Institutional Solar System/Solar water pumping (200, 000 HHs)

GHG Emission Reduction Potential & Progress from RETs in Nepal

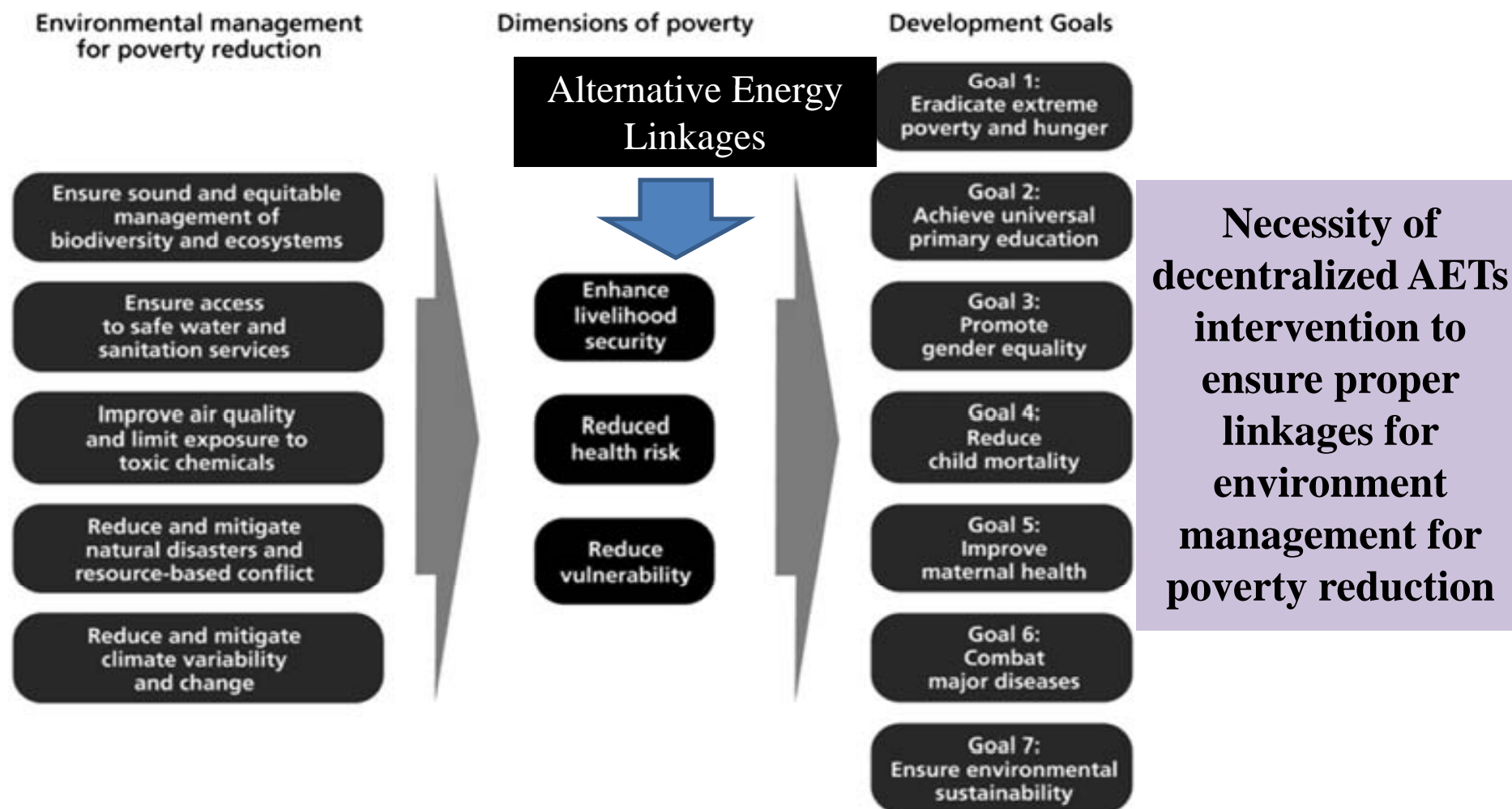
| RE technologies | GHG ER /Unit | GHG ER Potential | GHG ER progress | Assumption |
|-------------------------|----------------------------|------------------|-----------------|---------------------------------|
| Domestic biogas plant | 2.3ton CO2 eq/plant/year | 50,600,000 | 10,120,000 | Life: 20, Potential 1.1 million |
| Micro-hydro power plant | 2.3ton CO2 eq/Kw/year | 3,450,000 | 517,500 | Life: 15, Potential: 100MW |
| Improved Cooking Stove | 1.2 ton CO2 eq/plant/year | 5,400,000 | 1,188,000 | Life: 3, Potential: 1.5 million |
| Solar Home System | 0.22 ton CO2 eq/plant/year | 3,300,000 | 660,000 | Life: 15, Potential: 1million |
| Improved Water Mills | 8 ton CO2 eq/plant/year | 2,000,000 | 496,000 | Life: 10, potential: 25000 |

Alternative Energy linking Environment, Climate and Poverty Considerations

Linking Energy End-Use Devices (e.g-residential sector)



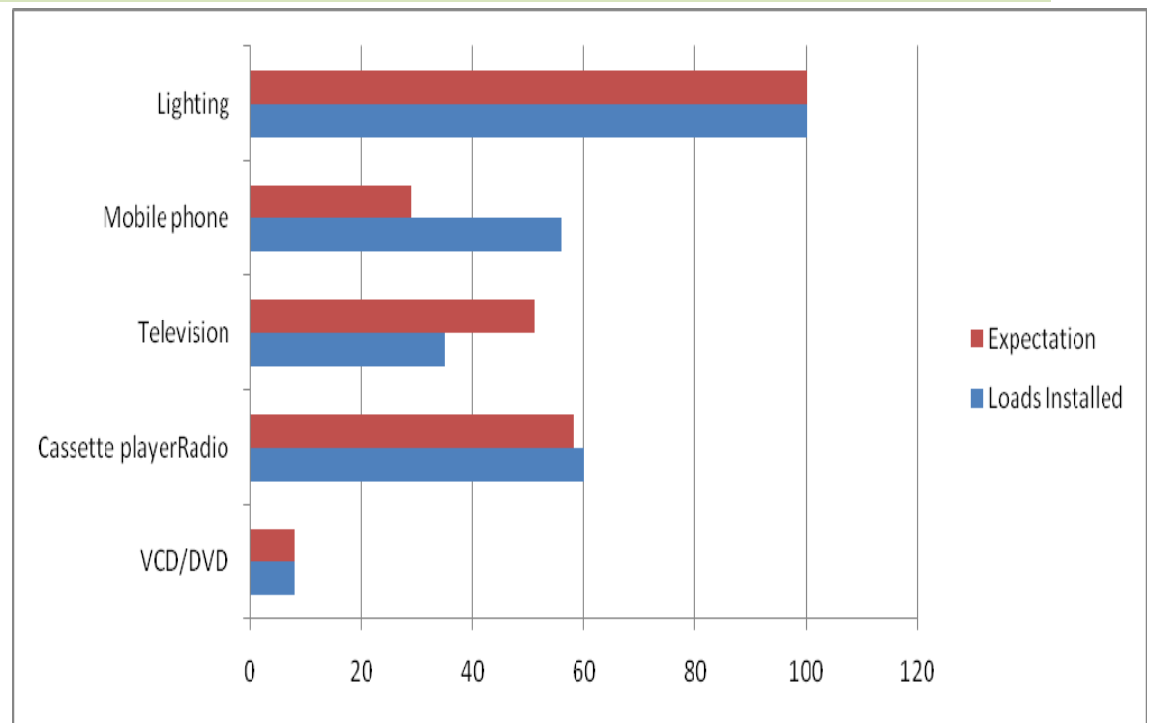
Alternative Energy Linkages for MDGs



Environment and MDG linkages. *Source: Venema. H. et al, 2007 and further edited*

AET for Income Generation/Job creation

- RE Industries
- End Use Promotion and diversification
- Consulting Services
- Information Dissemination
- CDM



Socio-economic impacts of SHS in Nepal, 2010

According to Stakeholders Mapping by AEPC in 2008, there were 614 Stakeholders in AETs in Nepal

Role of AETs on CC Mitigation, Adaption and livelihood improvement of the Poor

- Reduce deforestation
- Reduce use of fossil fuel (kerosene, diesel, LPG)
- Reduce indoor air pollution thus related diseases
- Contribute on GHG emission reduction
- Establishment of micro-enterprises e.g. agro-processing, bakery, saw mill etc
- Access to information (TV, Radio, Telephone)
- Utilize saved time in income generating and community development activities
- Saving on regular expenses (energy, health etc) of HHs
- Reduce indoor pollution and improve physical environment of surroundings
- Women empowerment and opportunity for education to girl children
- Contribute positively on gender and social inclusion
- **Positive impact on Balance of Payment of the country**
- **Ultimately increase adaptive capacity to climate change through poverty reduction**

Thank You

Questions & Suggestions ?