



Sustainable Energy: Policy and Legal Aspects India's Stride in Renewable Energy Development

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Structure of the Presentation

1. Sustainable Development
2. Renewable Energy Potential in SA
3. Legal & Policy Support for RE
Development in India

Sustainable Development

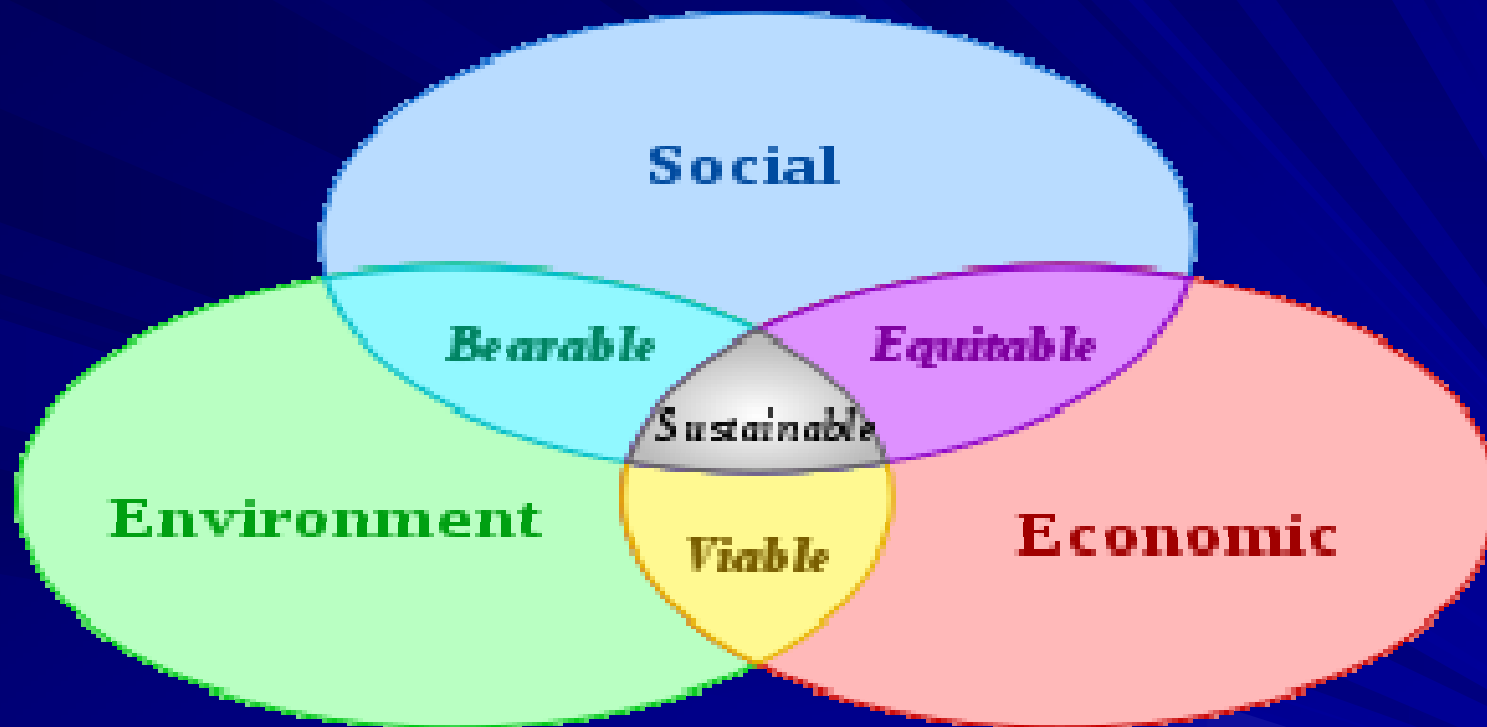
Brundtland Report released by UN in 1987 included a widely recognized definitions of Sustainable Development:

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

It contains within it two key concepts:

- i. the concept of '**needs**', in particular the essential needs of the **world's poor**, to which overriding priority should be given; and
- ii. the idea of **limitations imposed** by the state of **technology and social organization** on the environment's ability to meet present and future needs."

Sustainable Development



Renewable Energy Potential in South Asia

Resource	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Wind	4 m/s @ 20 m	2.46-3.96 m/s average speed	<45000 MW (gross potential)	225 – 350 W/m ² (5.8 – 6.7)		1100- 40000 MW	24250 MW
Solar	4.1 to 4.6 kWh/m ² /day	4 kWh/m ² /day	4-7 kWh/ m ² /day	5-5.5 kWh/ m ² /day			4.5-6 kWh/ m ² /day
Small hydro		-	15000 MW (up to 25 MW)			~1000	300
Hydro (including large hydro)	775	30000 MW (gross potential)	84000 MW	0	42915	40000	2000
Biomass			52000 MW			~25 MT/year	141.8PJ 1800MW [^] 12.0 MT/year
Bagasse			5000 MW			5206 GWh	

Sources: Promotion of various non-conventional sources of energy; *Mahesh Vipradas, Fellow TERI*

Environmentally Friendly Energy Sources

Electricity Act, 2003, policies framed under the Act, and National Action Plan on Climate Change (NAPCC) provide for a roadmap for increasing the share of renewable in the total generation capacity.

These include:



Hydro	Geothermal	Waste to Power
Wind	Biomass	Other RE systems
Solar	Bio Fuels	

Deployment of RE Systems/Devices (31.12.2010)

<i>RE Program/ Systems</i>	<i>2010-11</i>		<i>Cumulative (31-12-10)</i>
	<i>Target</i>	<i>Achieved (31.12.2010)</i>	
<i>I. POWER FROM RENEWABLES:</i>			
<i>A. GRID-INTERACTIVE POWER (CAPACITIES IN MW)</i>			
<i>Wind Power</i>	2000	1259.03	13065.78
<i>Small Hydro Power</i>	300	203.92	2939.33
<i>Biomass Power</i>	455	143.5	997.1
<i>Bagasse Cogeneration</i>		216	1562.03
<i>Waste to Power-Urban</i>		-	19
<i>-Industrial</i>	17	7.5	53.46
<i>Solar Power (SPV)</i>	200	5.54	17.82
<i>Total</i>	2972	1835.49	18654.52
			<i>Source: MNRE, GOI</i>

RE Systems/Devices Deployed (31.12.2010)

B. OFF-GRID/ CAPTIVE POWER (CAPACITIES IN MWEQ)			
Waste to Energy-Urban		-	3.5
-Industrial	13	21.27	64.49
Biomass (non-bagasse) Cogeneration	75	53.34	274.22
Biomass Gasifiers-Rural	4	0.97	14.07
- Industrial	15	5.75	114.09
Aero-Genrators/Hybrid systems	0.5	-	1.07
SPV Systems (>1kW)	32	1.23	4.42
Water mills/micro hydel	2.5	-	10(1750 Nos)
Total	142	81.33	483.83

II. REMOTE VILLAGE ELECTRIFICATION

No. of Remote Villages/ Hamlets provided with RE Systems	1500	1466 Villages & Hamlets	8033 Villages & Hamlets
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RE Systems/Devices Deployed (31.12.2010)

III. OTHER RENEWABLE ENERGY SYSTEMS

<i>SPV Home Lighting System (Nos)</i>	--		37279	6,56,707
<i>SPV Lanterns(Nos)</i>	-		3898	8,17,369
<i>SPV Street Lighting System(Nos)</i>	-		1471	1,22,697
<i>SPV Pumps(Nos)</i>	-			7495
<i>Family Biogas Plants(Nos in lakh)</i>		1.50	0.57	43.10
<i>Solar Water Heating – Coll. Area(in million m2)</i>		1.00	0.50	3.97

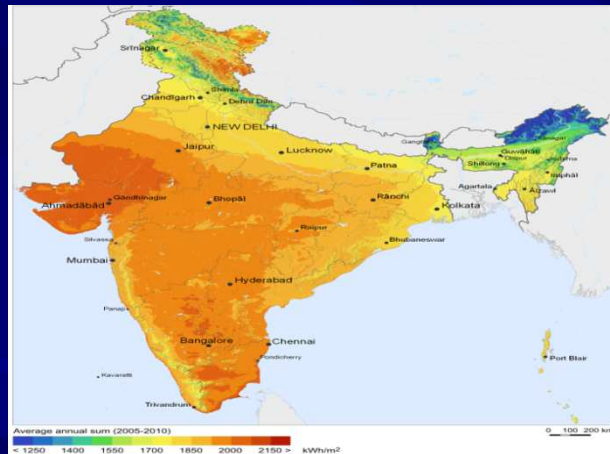
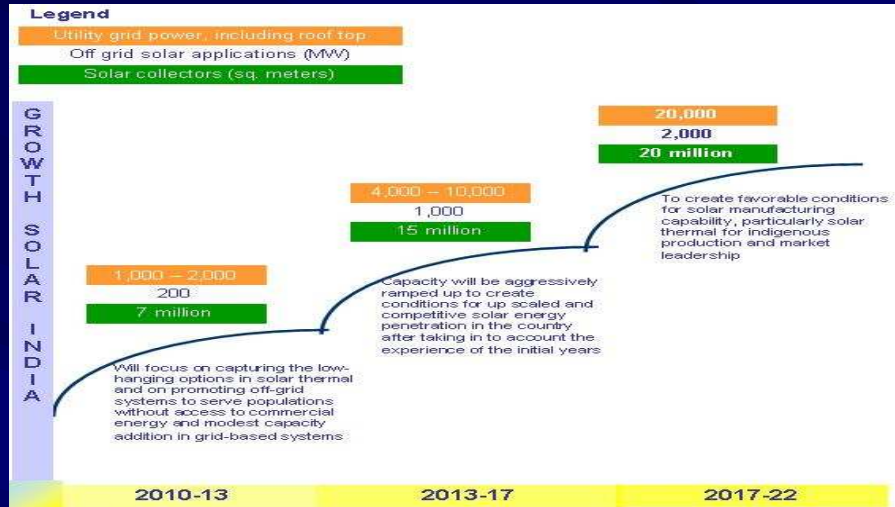
50,000 MW Hydropower Initiative



The main features:

- Additional budgetary financial support for ongoing and new projects
- Basin-wise develop. of hydro potential (Ranking studies -399 Schemes)
- Advance action for capacity addition – 10 year ahead of execution
- Resolution of inter-state issues on sharing of water and power
- Renovation, Modernization & Up-rating of existing HEPs
- HEPs of <25 MW categorized “non conventional” qualifying for benefits
- Simplified procedures for clearances by CEA
- Rationalization of hydro tariff -premium during peaking period
- Promoting hydel projects in joint venture
- Selection of developer through MOU/Bidding route
- Govt. support for land acquisition/resettlement/rehabilitation/ catchment area development, etc.
- CERC approved 5% hydro development surcharge on central hydropower generation.

Jawaharlal National Solar Mission



Highlights:

- To create enabling policy for deployment of 20,000 MW by 2020
- Grid-connected solar generation to 1000 MW – by 2013 & 3000 MW by 2017 through renewable purchase obligation backed by preferential tariff.
- Create favorable conditions for solar manufacturing capability
- Promote programs for off grid applications, reaching 1000 MW by 2017 and 2000 MW by 2022.
- Achieve 15 million sq. meters solar thermal collector area by 2017 and 20 million by 2022.
- To deploy 20 million solar lighting systems for rural areas by 2022.
- Tariff based bidding adopted for selection of Developers
- Rs.16/17 per KWh tariff offered in First Round of bidding
- Rs.8/12 per KWh tariff offered in Second Round of

Wind Power Development



Key Features

- Earnings exempt from IT for any single 10 year period during the first 15 years
- Soft loan from IREDA: 11.75-12.9%, repayment-10 year, moratorium 1 year, equity 30%
- GBI of Rs 0.50/KWh capped at Rs. 6.2m/MW spread over a minimum of 4 yrs
- Grid connected wind project can avail accelerated depreciation or GBI
- Provision of accelerated depreciation in parallel with GBI will continue until the 11th Plan period or the introduction of Direct Tax Code, whichever is earlier
- GBI is over and above the feed-in tariff specified by the respective SERCs
- The scheme is not applicable for third party sale and merchant plants but is applicable for Captive

Major Policies to Support RE Development

- Accelerated Depreciation
- Tax Holidays for designated period of time
- Preferential higher tariffs
- Mandatory purchase obligation
- Renewable Energy Certificates
- Other Incentives

All the above Incentives are legally binding on
respective Agencies

Thank You!

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