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Financing Renewable Energy In Nepal

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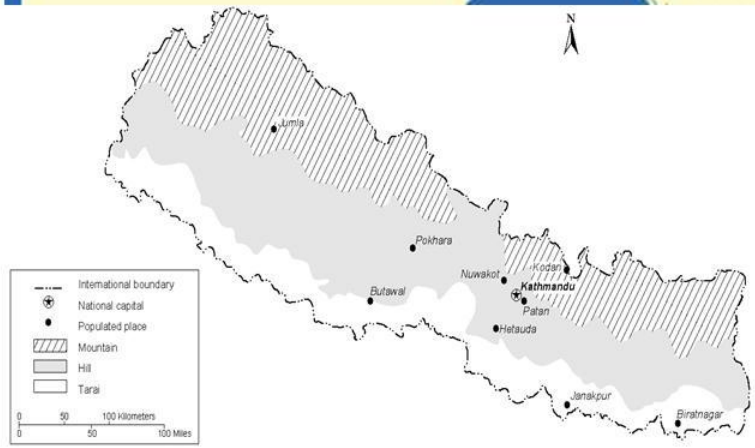
General Introduction

- Federal Democratic Republic of Nepal
- Member of SAARC
- Population 30.48 Mill. (83% rural)
- Area: 147,181 Sq. km

Nepal is poor and LDC

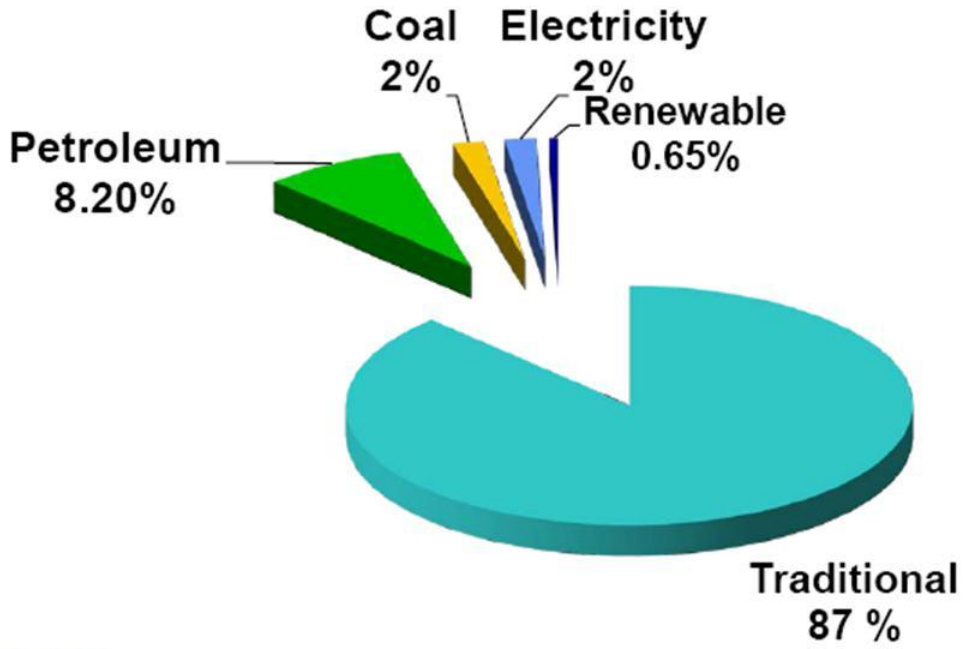
- ✓ Pervasive Inequalities
- ✓ Transitioning from political conflict
- ✓ GNI per capita: USD 642
- ✓ Economic growth 3.5%
- ✓ HDI – 157th among 183 countries
- ✓ Commercially viable hydro power 42,000 MW



Energy Consumption Scenario of Nepal

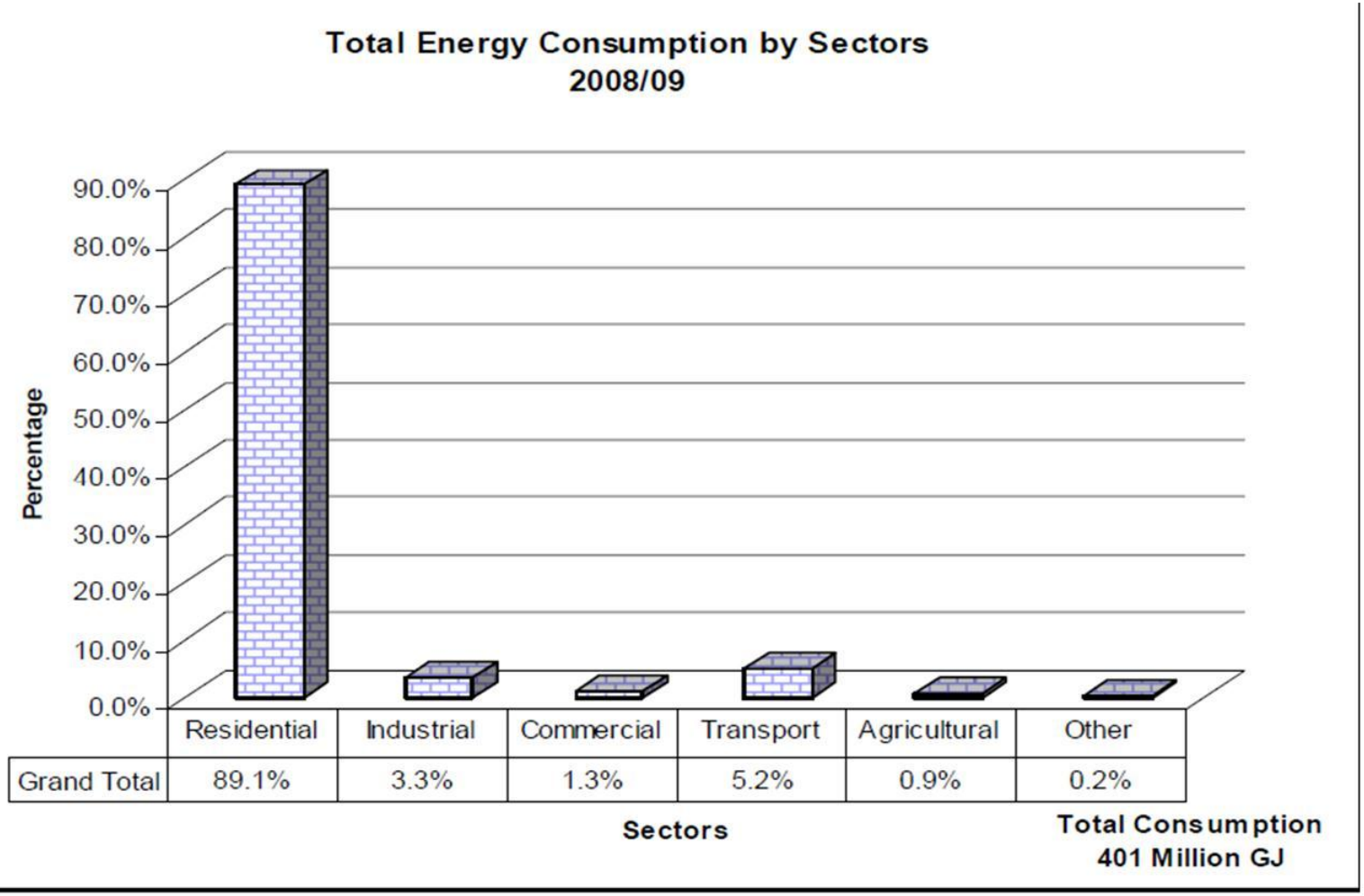
- Total energy consumption 11.9 Million Toe
- Per capita energy consumption is 14 GJ where as
- Biomass is the dominating source of energy

Annual Energy Consumption in Nepal



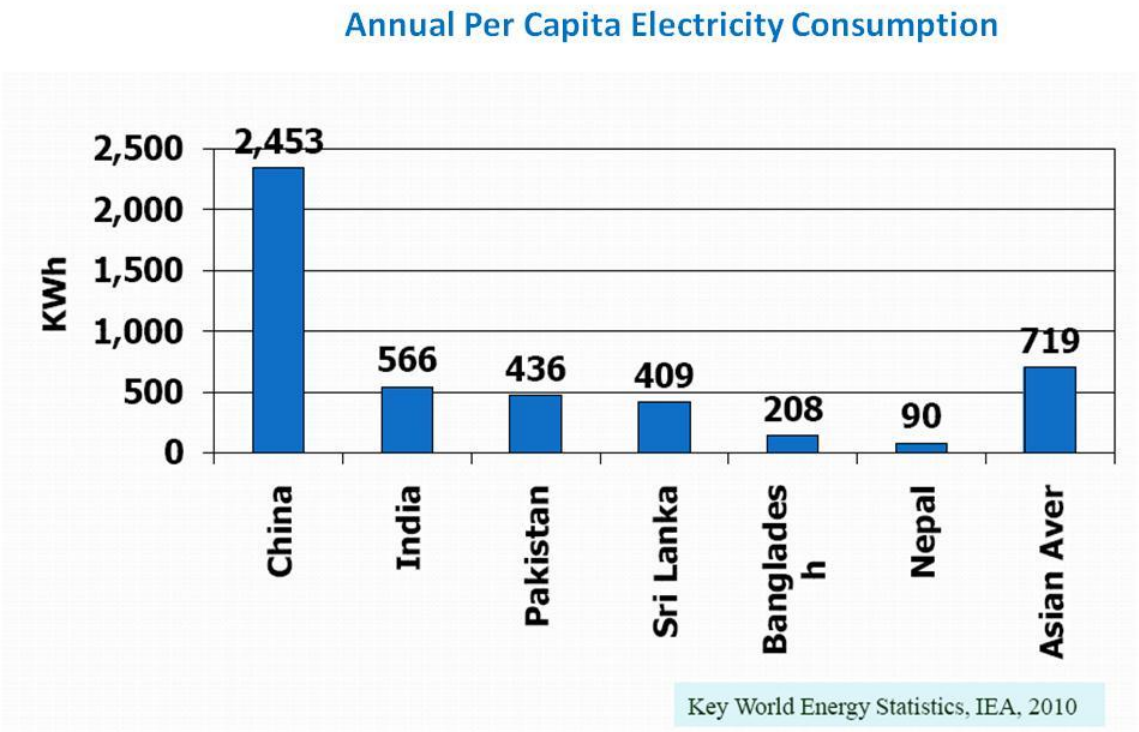
Source: Economic survey , MoF, 2011

Energy Consumption



Access to Electricity In NEPAL

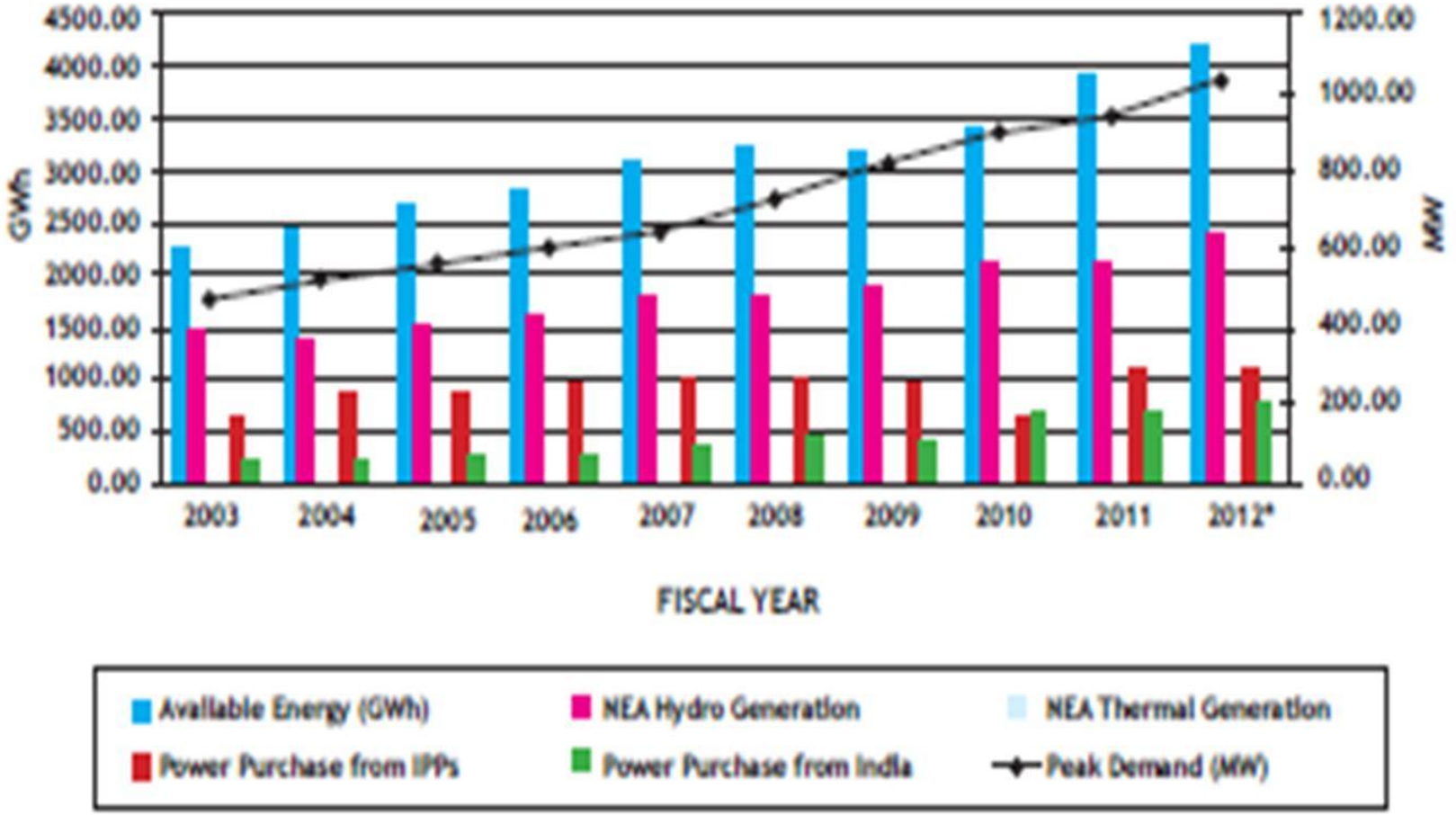
- Per capita electricity consumption 90 kWh
- Only 2% of the total energy consumed is electricity.
- Only 56% of population has access to electricity.
- Only 49% of rural population has access to electricity.
- 10% of population getting electricity from renewable such as MH & PV.



Source: Economic survey , MoF, 2011

Electricity Supply and Demand

About 15 Hrs load-shedding per day in dry season



Electricity Excess through National Grid

Only about 45% of HH are electrified from grid

Source: Annual report 2012, NEA

ODA portfolio of Nepal

Total Portfolio – 1.08 billion USD (2011 estimates)

- ODA – 40 donors
- 70% On-budget
- Harmonized through SWP (Education, Health, Local Governance) – Renewable Energy !
- 1/3rd of Delivery through SWAP
- 58% - Multilaterals
- 36% OECD-DAC (Bilaterals)
- 06% Bilateral through South –South Cooperation
- More than 95% ODA aligned to national priorities

ODA Portfolio

Disbursement of Funds by Donors in 2011

Multilaterals	Million US$	Bilaterals	Million US$
WB	256.1	UK	92.1
ADB	184.4	Japan	58.7
UN	112.5	India	50.7
EU	42.4	USA	48.5
Global Fund	19	Norway	32.8

Grant – 57%
Loans – 24%
TA – 19%

Budget in RE Sector till July 2012

SN	Development partners	Current Investment (mill $)	Period	Future commitments (mill $)	Support type
1	UNDP	16.54	1996-2012	5	Grant
2	DANIDA	61.20	1999-2012	34.7	Grant
3	Norway	35.80	2003-2012	24.7	Grant
4	World Bank	27.5	2003-2012	8	Grant
5	ADB			42	with credit 30 m
6	SNV/DGIS	19.52	1992-2011	1.3	Grant
7	Kfw/Germnay	31.93	1997-2012	19.2	Grant
8	GIZ/Germany	0.73	2011-2012	6.4	Grant
9	EU	20.12	2004-2012		Grant
10	DFID	3.27	2010-2011	7.6	Grant
11	USAID			0.25	TA for MH CE
12	UNEP	0.065	2005-2008		Solar/Wind
13	GoN	36.59	1996-2012	65	Tentative)
	Total	253.25		214.15	

RE Potential and Status in Nepal

S. N	RE Technologies	Unit	Potential	Status –Progress
1.	Micro Hydro	MW	>100	22 (~22%)
2.	Solar PV	MW	>2,100 (grid connected) ~4.5 kwh/m2/day)	~10 (inc. 313,000 No of SHS)
3.	Wind Energy	MW	~3,000 (considering 10% of feasible area)	~20 KW
4.	Domestic Biogas Plants	No.	>1.1 Million	247,000 (22.5%)
5.	Bio-fuel	Tons	~1.1 Million	Very low

10% of population have access to electricity through RETs & 7.9 million i.e. 30% of the total population have benefited from RETs

Development of Nepal's RE Sector

Description	Status in 1996 (before AEPC)	Current status of Alternate Energy / Funds
Annual Budget	US$ 0.6 million	US$ 34 million
Staffs	10	Core-32; Program-130; Local-200
Local Offices/support	No	District Energy & Environment Units-75 and 8 Regional Renewable Energy Service Centers
Donors/Development Partners	SNV/DGIS, UNDP	ADB, DANIDA, DFID, EU, GTZ, KFW, Norway, SNV, USAID, UNDP, WB
RETs installation	MH-5MW; Biogas-25,000 HHs; IWM-700 Nos ; SHS-11,000HHs	MH-22MW; Biogas-247,000HHs; IWM-7,520Nos; ICS-330,000HHs; SHS-313,000HHs
Subsidy mechanism	Traditional (50% of E/M cost)	RET users friendly; including initiation of Smart Subsidy (upto 50% of total cost)
Credit mechanism	No	Revolving fund channeled through Micro Finance Institutes (MFIs) to users , Micro hydro debt fund through Banks
Involvement of Private Sector	MH-4; Solar-3; Biogas-11; Employment- 500	MH-65; Solar-59; Biogas-80; Employment-30,000
Priority of GoN		High & first priority program in "3 Year National Plan"

Outcomes and Impacts

Policy and Institutions

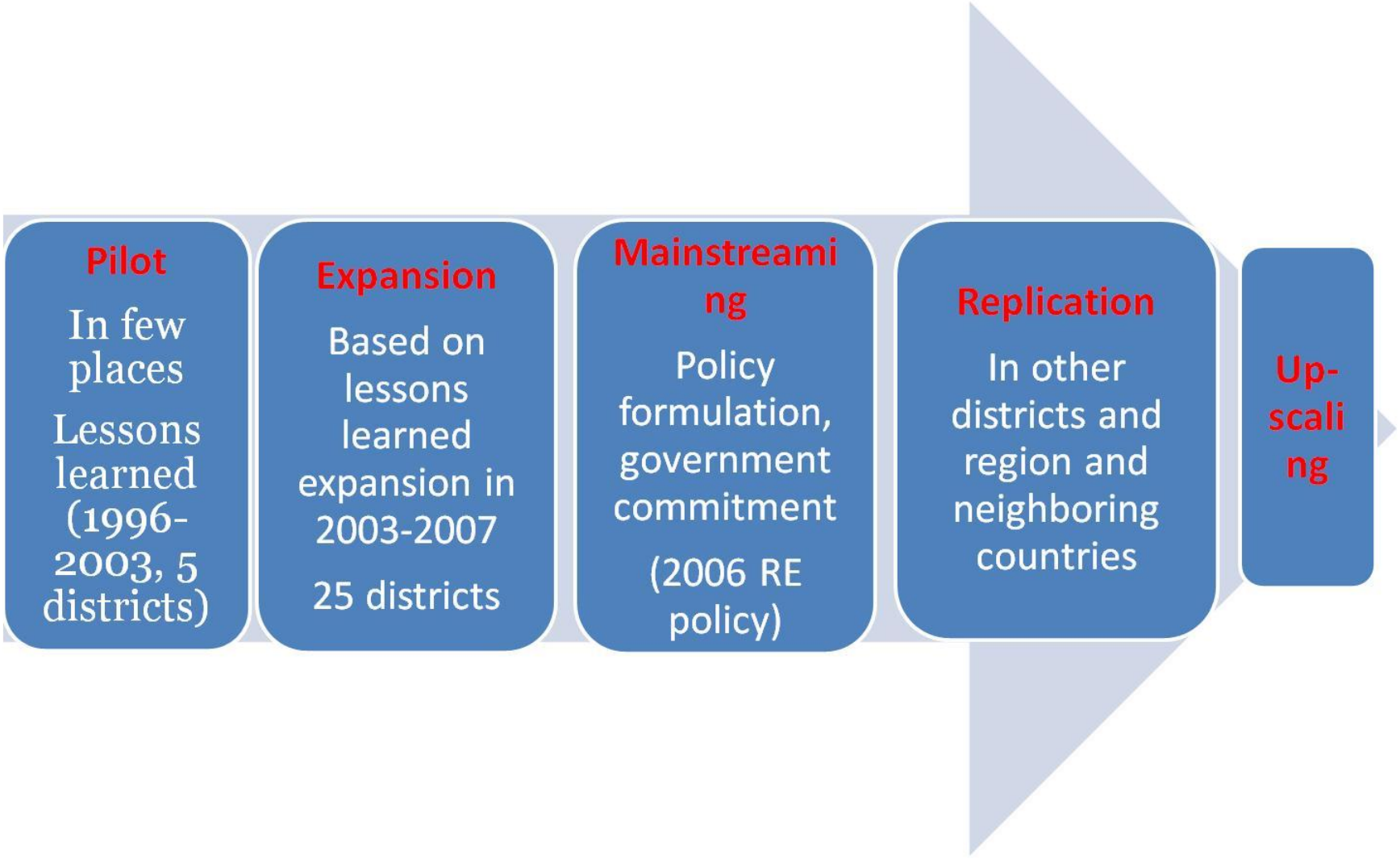
Major Areas	Before AEPC (1996)	Till 2012
1. Policy	No Policy	Rural Energy Policy 2006
2. Regulations	Guidelines in planning, implementation and fund management	Guidelines on District Planning, Management, Implementation,, Community Mobilization, etc.
3. Institutions	No dedicated institutions	TRC, DEES/DEEU, DEF, MHFG, CEF
4. Focus	Reduction of fossil fuel, and reduce forest destruction	Enhanced livelihoods based on holistic development
6. Small/ Micro Enterprise Support	No	Up to 3000 US $ (250,000 NRs per plant)
7. Services	Lighting	Achievements of MDGs

Outcomes and Impacts

Partnership

Particulars	Before AEPC (1996)	Till 2012
1. Central Government	Policy and Implementation	Policy Formulation and Resource Mobilization
2. Local Government	No role	Decentralized energy planning, promotion, resources mobilization
3. NGOs	Not active	Capacity building and community mobilization
4. Private Sector	Few Companies in city centers	More companies and more RESCs at district and local levels
5. Community	No involvement	Community involvement and ownership of micro hydro systems
6. Development Partners	Project based	Programme based - SWaP

From Pilot to Replication – UNDP Experience



Barriers in Promotion of RET

Financial :

- **Poverty** : Enhancing access to energy in remote poor mountains is extremely challenging (1/4th of population living below poverty line can not share the costs.

- **Low demand for electricity**: Initial demand for electricity by low-income households in remote areas tends to be small, which has the effect of making the average cost per unit consumed high.

- Demand for electricity increases at a rather slow pace in lack of 'complementary' inputs required to promote economic growth such as roads, access to markets etc.

Barriers in Promotion of RET

Inaccessibility: Remoteness and inaccessibility -

- Obstructs mobility, leads to higher costs of transportation, imposes isolation and restricts scope for higher productivity– **High Per Unit Cost**

Technical : Very few supplier trained personnel in rural areas-

- Mostly centered in capital city of Kathmandu; trained manpower to survey, design, install, operate and manage RE systems almost non-existent

Policy : Overlapping and duplication -

- In lack of a coherent policy a) for co-ordination among ministries (such as forestry, environment, energy) and b) commercial development of RET (so far used to meet basic needs

Sustainable Financing Practices in RETs

Quite new and at learning stage:

- AEPC facilitates credit financing for Biogas and Solar (KfW); and initiation for IWM (ADB) and for Micro hydro (GIZ)
- Credit provision for biogas through Micro Finance Institutions (MFIs)-262 MFIs investing for more than 20,000 Biogas plants
- Gold Standard CDM project supported for 7,000 Biogas
- Subsidy on Micro Hydro covers 40-50% of total cost, rest 50% of total cost is born by community or loan
- AEPC has Initiated for establishment of Micro hydro Debt Fund with financial (€500,000.00) and technical support from GIZ (Two banks selected to manage the fund)

Up-scaling Challenges

- Expanding energy access for poor and marginalized population with respect to availability & affordability
- Access to financing of RETs including credit financing
- Promotion of productive economic end uses of the RETs
- Making RE as a mainstream supply in the rural areas (enhance availability, reliability and quality (through **minigrids)**
- Development of RE for commercial purpose (Development of mini hydro, Urban solar, Scale-up RE Project)
- Need of grid connection policy, Feed in Tariff (FIT), Renewable Energy Act
- Need for Rural Electrification Master Plan

THANKS