

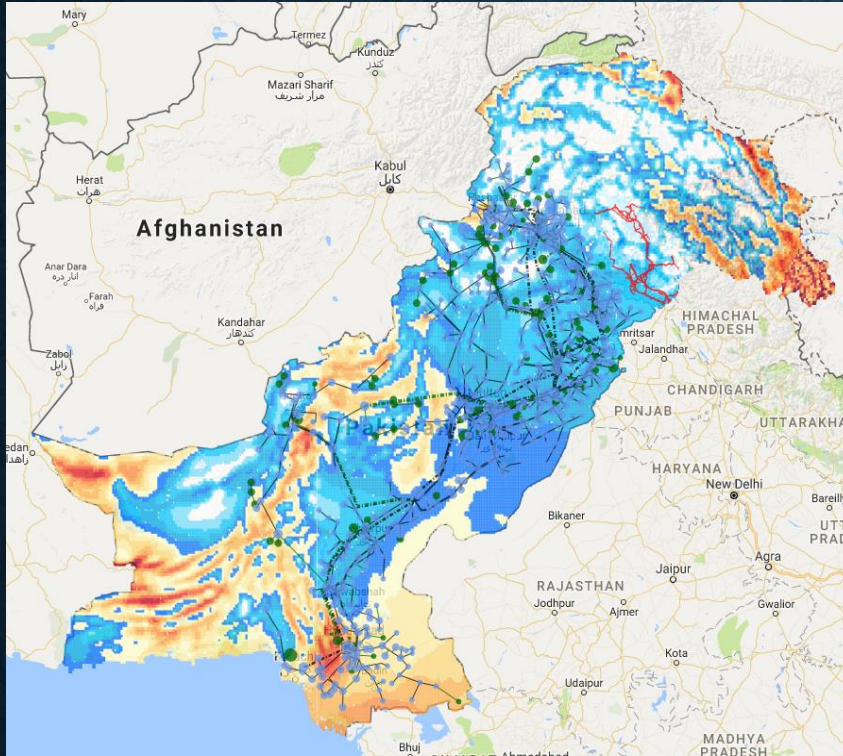
ENERGY ACCESS POLICIES – FINANCING AND SUSTAINABILITY



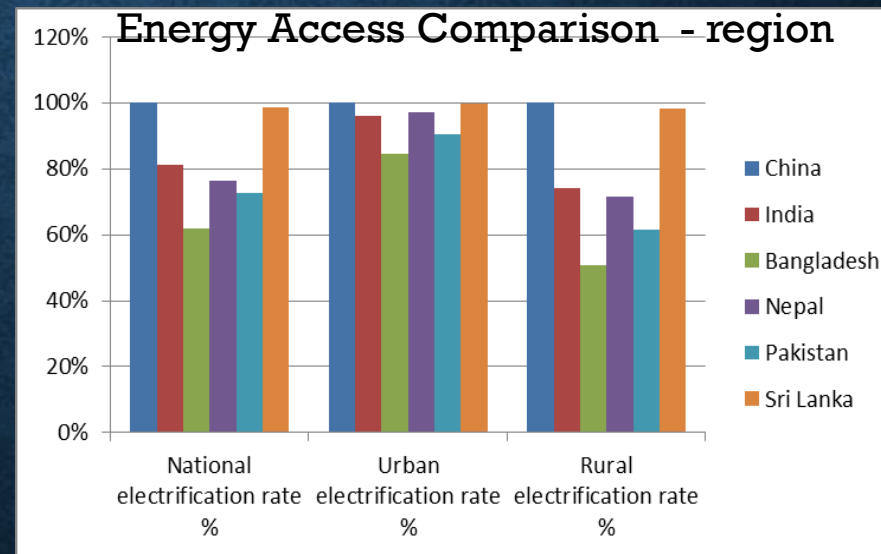
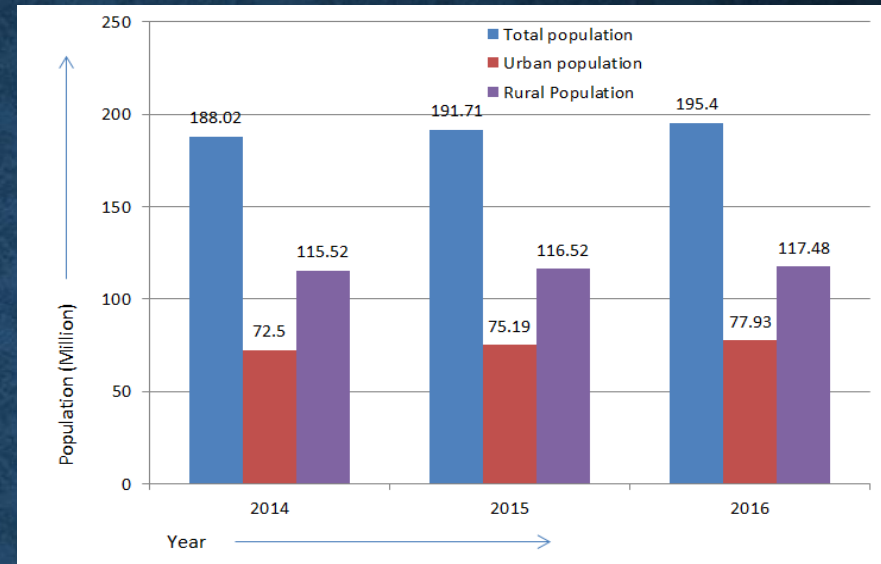
Solar lamps turning Pakistani women into green energy entrepreneurs (Reuters – 2015)

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Pakistan Energy Scenario



- 51 Million without access to electricity;
- 32,889 Rural Villages cannot be connected to the grid technically and economically
- Nearly 40% of rural population is deprived from electricity



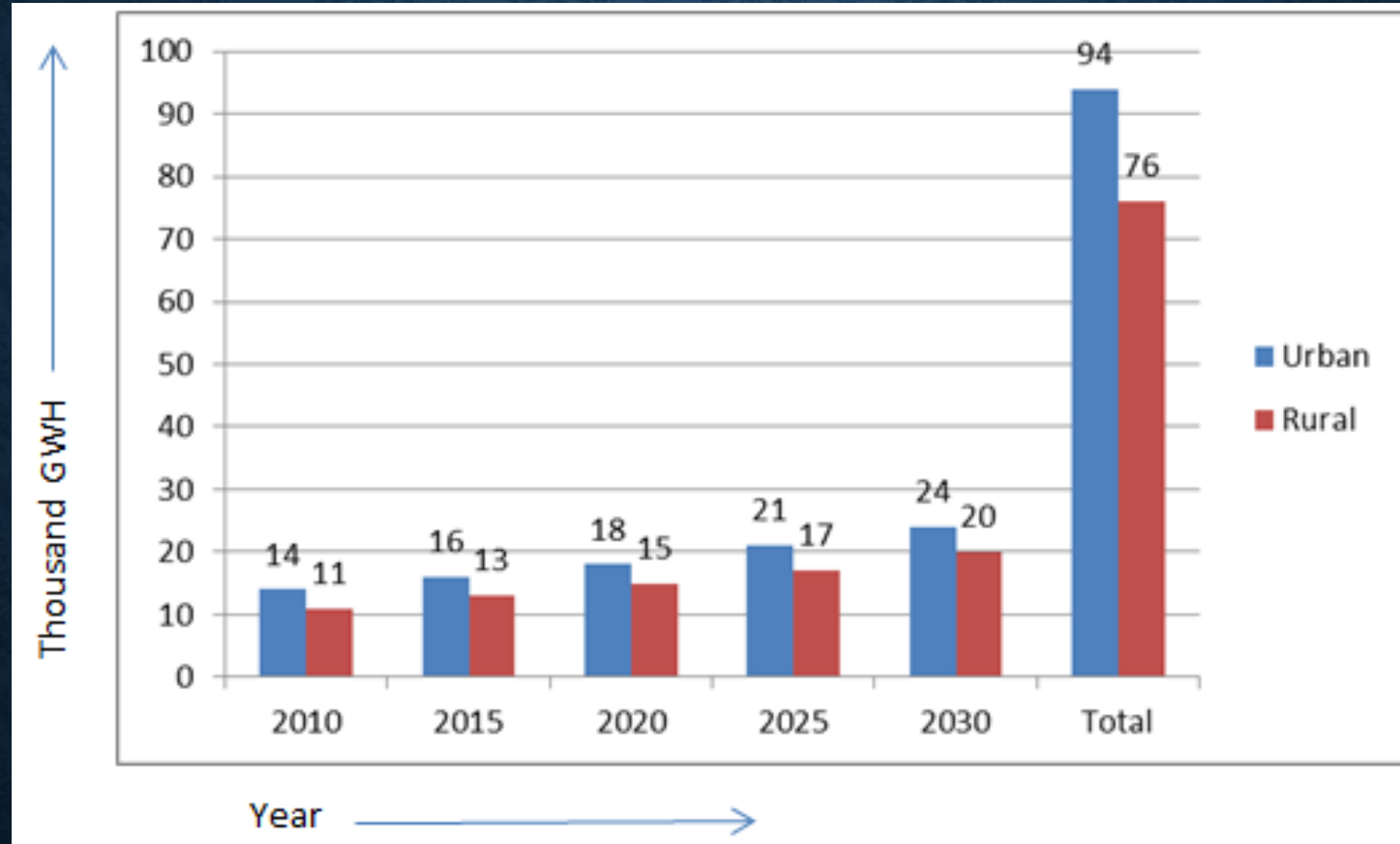
References:

- Map: <https://maps-stage.nrel.gov/gst-pakistan>
- Graph 1: Economic survey of Pakistan - http://www.finance.gov.pk/survey/chapters_15/12_Population.pdf;
- Graph 2: <http://www.worldenergyoutlook.org/resources/energydevelopment/energyaccessdatabase>
- Bullet points: World Energy Outlook (2016) statistics, World Bank 2014 (<http://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?view=map>)

DEFINING THE ENERGY ACCESS

- No single definition;
- Several aspects considered like:
 - Meets minimum requirements, is safe and sustainable for households;
 - Productivity – agriculture, industry, commercial;
 - Helps support and sustain basic services – health, education, security, water;
 - Support to smaller businesses

HOUSEHOLD REQUIREMENTS



Reference: Rural and Urban Household Demand Analysis for Electricity in Pakistan, Rabail Urooj, Rabia Shabbir, Mehwish Taneez, and Sheikh Saeed Ahmad -

International Journal of Emerging Trends in Engineering and Development

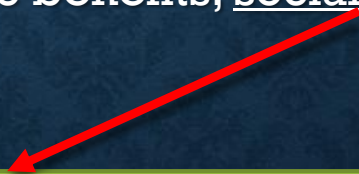
RELEVANT POLICIES

- **Power Policy 2013**

- Goal No. 3: Ensure the generation of inexpensive and affordable electricity for domestic, commercial, and industrial use by using indigenous resources
- Target - Affordability: Decrease cost of generation from 12c / unit today to ~10c / unit by 2017
- Strategy – Affordable power strategy: Move towards cheaper fuel, gas conservation for power
- Principle – Sustainability: low cost energy, fair and level playing Field, demand management

- **Policy for Development of Renewable Energy for Power Generation**

- Principles: energy security, economic benefits, social equity, environmental benefits



Equal rights and access for all citizens to modern energy supplies, improved human development indicators, poverty alleviation amongst deprived sections of society, and reduced burden on rural women for biomass fuel collection and use

PROGRAMS IN PAKISTAN

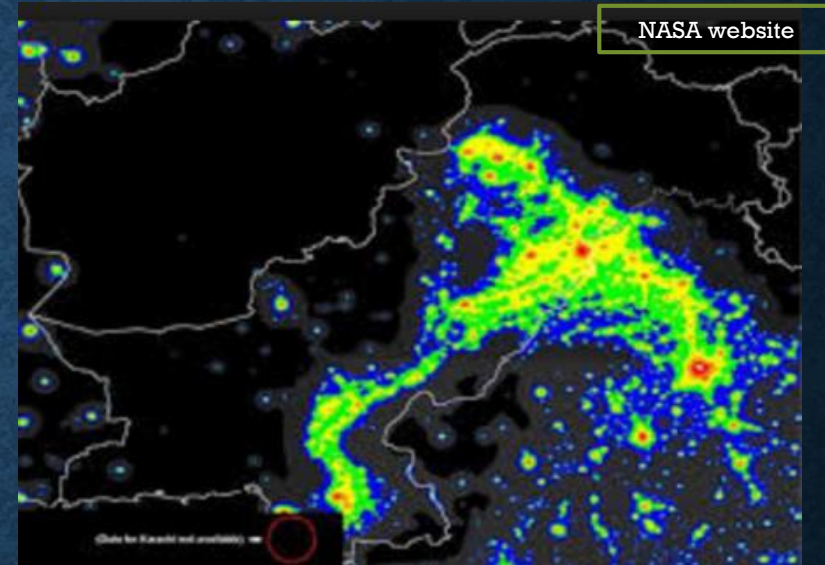
- Alternative Energy Development Board: +7,800 villages electrified in Sindh and Baluchistan;
- Parliamentarians Schemes: village electrification schemes;
- Prime Minister's National Development Program: two-year special development program supporting the sustainable development goals including affordable and clean energy;
- Sustainable Energy for All (SE4ALL) – World Bank;
- Planning Commission/GOP's Five Year Development Plan (2013-18): make the energy affordable, generation mix to be improved, IEP, EE&C;
- Village electrification programs by the distribution companies - energy loss reduction (ELR); secondary transmission grid (STG; 66-kV and 132-kV network), distribution of power to new consumers (DOP); and **rural electrification (RE)**;
- Aga Khan Rural Support Program – micro hydel power projects in northern areas
- Sarhad Rural Support - implemented 166 micro-hydro projects

FUNDING SOURCES

- International financial development institutions: World Bank, ADB, IsDB...
- Economic assistance from friendly countries: USA, Japan, Germany, France and Gulf countries...
- These assistance is estimated at US\$24 billion in shape of loans and grants (source: Planning Commission of Pakistan);
- CPEC funding;
- Every source of funding has its own flavour:
 - ranging from large infrastructure projects to technical assistance;
 - small/medium scale interventions is specific technologies/geographic areas

TYPICAL IMPEDIMENTS

- Scattered population;
- Low load density;
- Access to finance – availability, consistency;
- Selection of financing model: community vs. individual – willingness to pay – consumer attitude - affordability;
- Lack of continued institutional support – major focus?
- Understanding the actual needs - water – energy
- Technology – is it appropriate, back up support

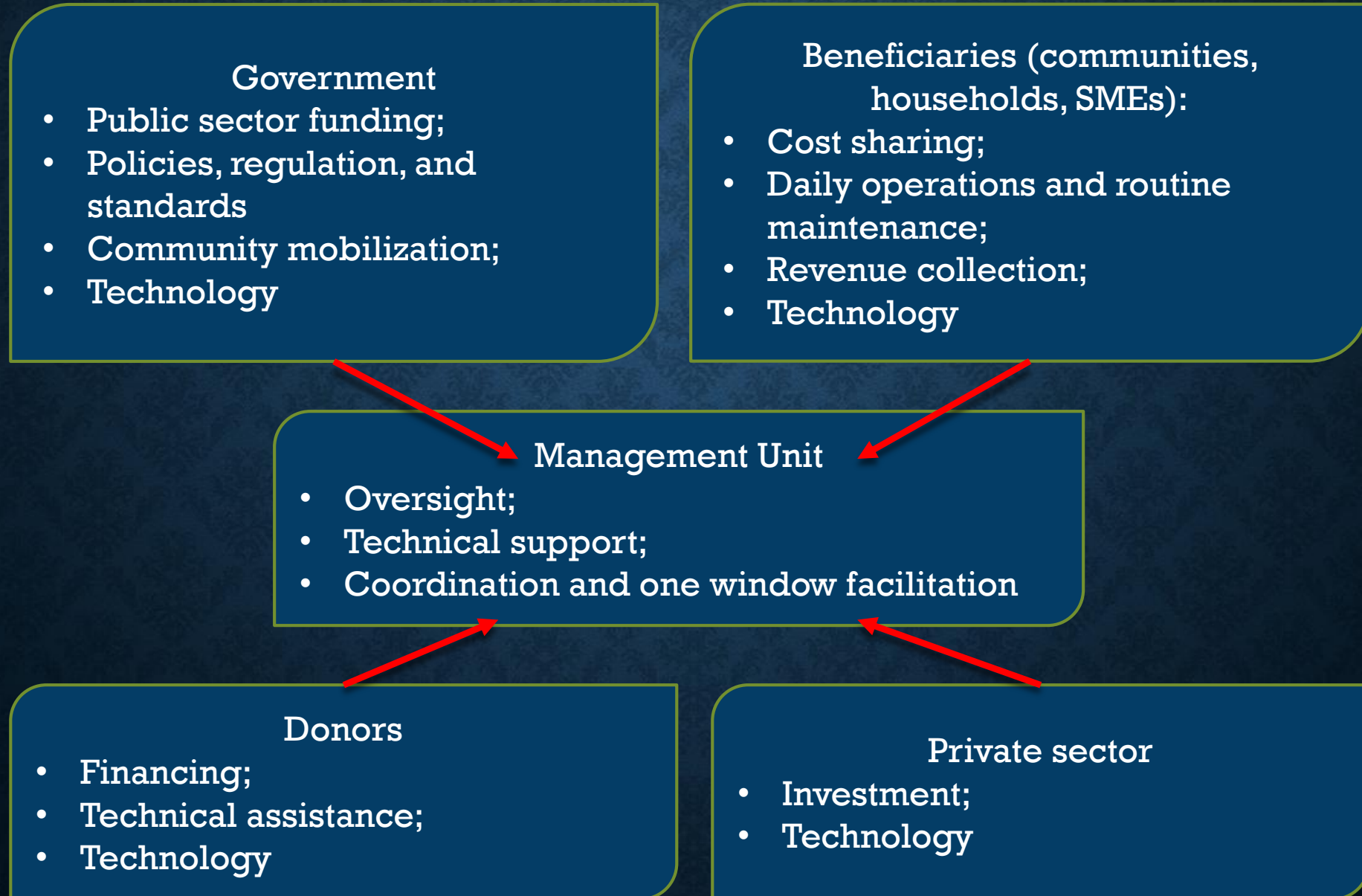


ADDRESSING THE SUSTAINABILITY FINANCING SOURCES

- **Conventional**
 - *Risk guarantees to mobilize financing;*
 - *Public-Private Partnerships;*
 - *Business-to-Business (B2B) models*
- **Non-Conventional**
 - *Mobilizing Diaspora;*
 - *Channelizing Philanthropic donations*

FINANCING AND OPERATING MODELS

(DONORS, GOVERNMENT, PRIVATE SECTOR, COMMUNITY)

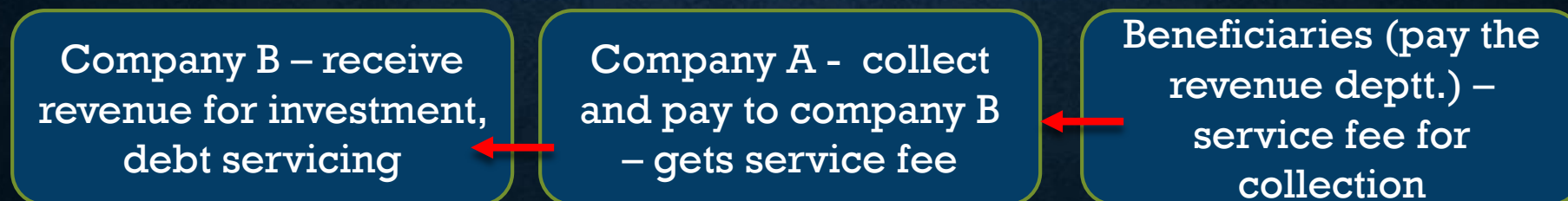


FINANCING AND OPERATING MODELS

(GOVERNMENT, PRIVATE SECTOR – REGISTERED COMPANIES/JOINT VENTURES – PUBLIC PRIVATE PARTNERSHIP)

What	Who	How
Company A <ul style="list-style-type: none">• Land allocation• Access• Licenses• Certification• Taxation	Government	<ul style="list-style-type: none">• Policy• Regulation• Revenue collection (provincial revenue departments)• Infrastructure Development
Company B <ul style="list-style-type: none">• Infrastructure development• System/technology deployment	Private sector	<ul style="list-style-type: none">• Operations• Investment• Borrowing

Cash flows (Management unit and oversight unit)



ADDRESSING THE SUSTAINABILITY TECHNOLOGY

- Appropriate technology – level of understanding and capability to operate
- After sales service
- Standardization
- Local context – market forces – other cheap technologies available;
- Awareness and training
- Revenue generation for community – cost benefit analysis?

Thankyou

Q&A