

**SteuerBoard
Energie**

Governance Mechanisms
in a Future Polycentric
Energy System

FINANCIAL PARTICIPATION OF CITIZENS

Najam Memon

Examples from Pakistan

30TH AUGUST 2023

PROJECTPARTNERS



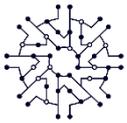
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AGENDA

1. **Background**
 - a. SDG7
 - b. Multi-tier Framework

2. Location and Overview
 - a. Geographical Profile of Pakistan
 - b. Stakeholders; Community Energy Models
 - c. Impressions from the Field



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SDG7: CASE OF PAKISTAN

_ Sustainable Development Goal (SDG) 7: affordable, sustainable, reliable and modern energy

_ Access to electricity in Pakistan: **94.92%** (rural areas: 60.82%, urban areas: 100%)

_ Access to clean cooking in Pakistan: **49.1%**

<https://www.macrotrends.net/countries/PAK/pakistan/electricity-access-statistics>

<https://ourworldindata.org/grapher/access-to-electricity-urban-vs-rural>

<https://www.iea.org/reports/sdg7-data-and-projections/access-to-clean-cooking>

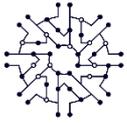
MULTI-TIER FRAMEWORK: DEFINING ACCESS TO ELECTRICITY

- _ Developed by Energy Sector Management and Assistance Programme (ESMAP)
- _ **Multi-tier Framework (MTF):** Defining access to electricity (and cooking fuels)
- _ **Connected or not connected** for electricity access and **solid vs. nonsolid fuels** for cooking
- _ Six levels: Tier 0 to Tier 5, combining multiple attributes including availability, reliability, affordability, safety and quality of electricity
- _ 58% of population in Pakistan in Tier 3 or below

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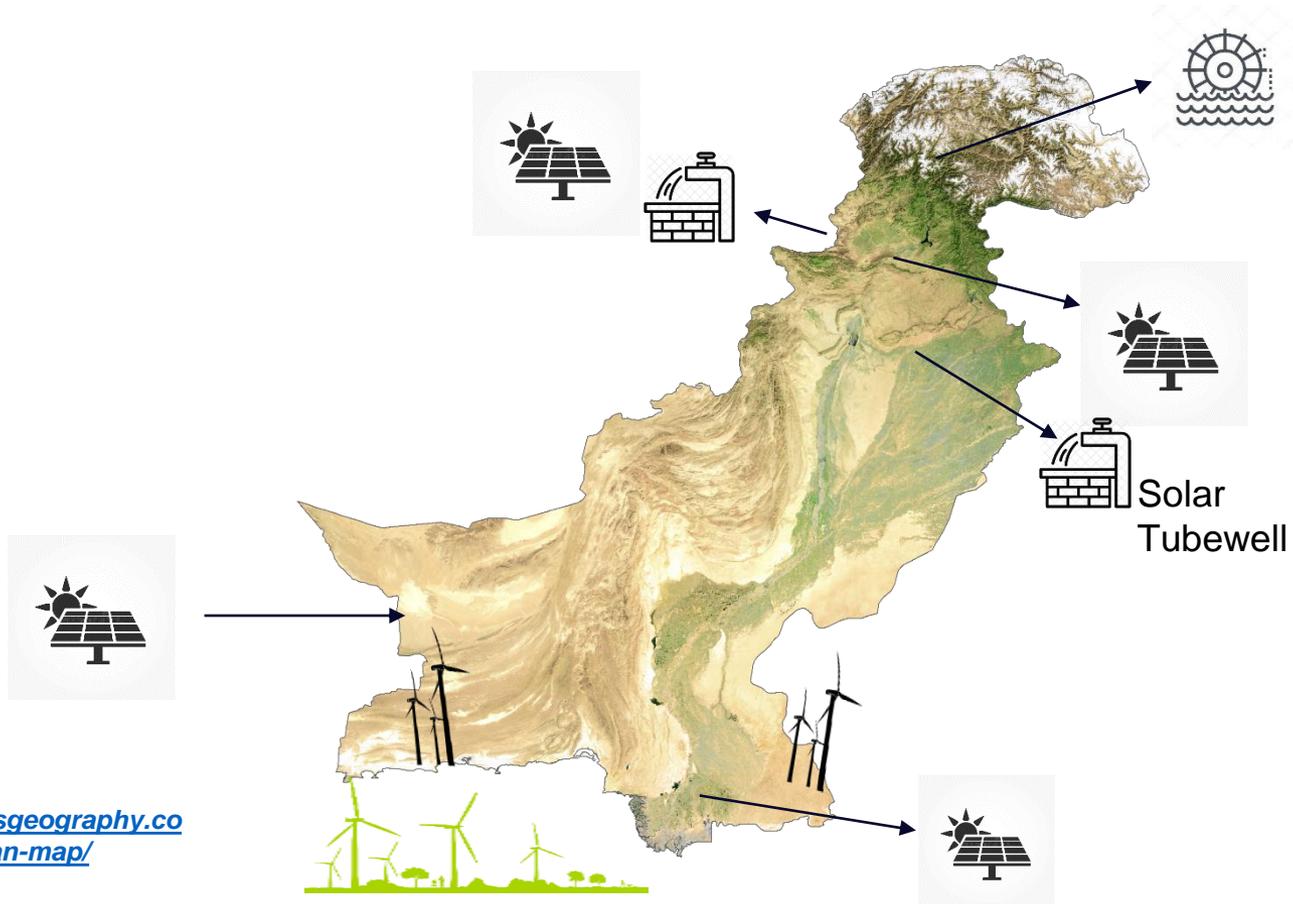
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GEOGRAPHICAL PROFILE OF PAKISTAN



STAKEHOLDERS; COMMUNITY ENERGY MODELS

_NGOs: rural support organisations

_Agha Khan Rural Support Organisation (AKRSP)

_ Gilgit-Baltistan Rural Support Organisation (GBRSP)

_ Sarhad Rural Support Organisation (SRSP)

_Provincial governments

_ Pakhtunkhwa Energy Development Organization (PEDO)

_Water & Power Department Gilgit (WPDGB)

_AJK Power Development Organisation

_International donors (especially: GIZ, UNDP, UNIDO, World Bank Group)

_Special programmes (Pakistan Poverty Alleviation Fund (PPAF), PEDO, EU, UNHCR, CIDA, USAID, Rehabilitation Schemes)

CONTINUE I

_Agha Khan Rural Support Organisation (AKRSP)

_Pioneers of MHPs in Northern areas of Pakistan since 1990s; focus on welfare-oriented activities (education, health, tree plantation, water supply, energy supply etc.)

_Location: Gilgit-Baltistan, Chitral

_Number of units = **174- Chitral Highest Concentration**

_Electricity capacity = **21 MW**

_Model(s)

_Committee-based community models: “run and operate”

_Community-based power utility company (240 kW and above): **Mough, AhmadAbad, Shogore**

CONTINUE II

_ Sarhad Rural Support Organisation (SRSP)

_Welfare-oriented activities (education, health, tree plantation, water supply, cottage industry, energy supply etc.)

_Location: Malakand, Chitral, Upper Dir, Swat, Shangla, Hazara, Tribal Belt

_Number of units = **353 Mini/Micro Hydro Power Projects (MMHPPs) - 143,122 Households (HH)**

_Electricity capacity = **29.27 MW** (as of September 2022)

_ Model(s)

_Fully community managed/committee-based community model (up to 100 kW), tariff, bill collection, free mechanism for communities

_Partially-managed model (100 kW and above) - SRSP technical support

_Hybrid model for larger MHPs (300 kW and above) - initially government projects/ often imported units handed over to SRSP for upgradation and managing. „**Water to Weir**“- distribution, generation, O&M by SRSP

*Based on interview;
July 2023*

CONTINUE III

_Pakhtunkhwa Energy Development Organization (PEDO)

_Welfare-oriented activities (education, health, tree plantation, water supply, cottage industry, energy supply etc.)

_Location: entire province along with tribal areas

_1. MMHPPS: 1028 micro-hydel (total: 87.8 MW)

_Phase 1 (March 2015): constituting 356 MHPs (34.7 MW)

_Phase 2 (June 2021): constituting 672 MHPs (53.13 MW)

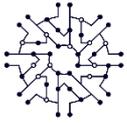
_2. Solarization Scheme/Program (December 2017)

_Solarization of schools and primary health facilities,

_Solarization of 4,000 mosques

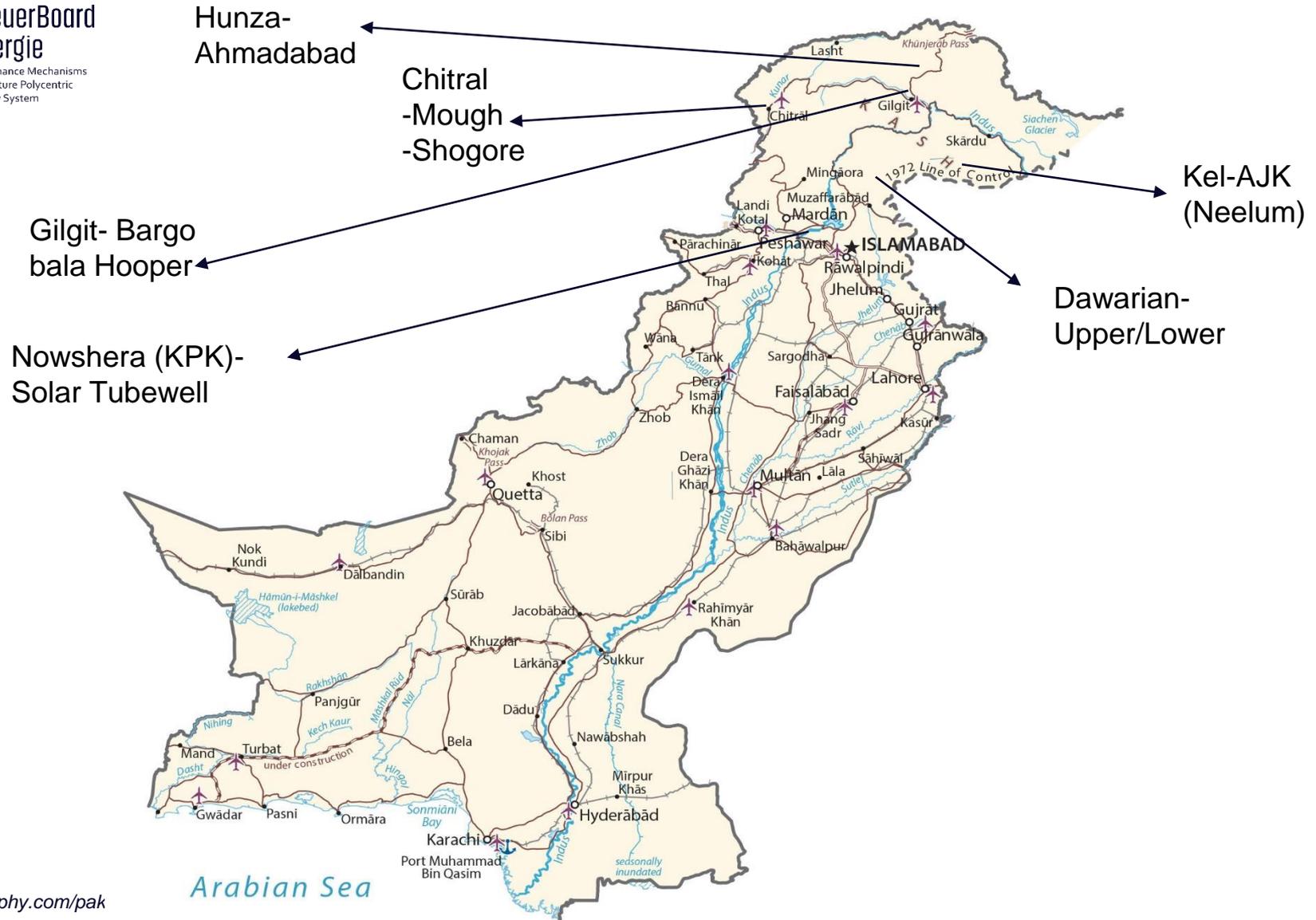
_Solarization of government buildings

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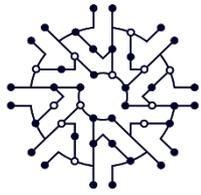


Taken During Field Research, June 2023









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Thank you.

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MTF ATTRIBUTES

Multi-Tier Framework for Measuring Access to Electricity

ATTRIBUTES		TIER 0	TIER 1	TIER 2	TIER 3 ^b	TIER 4	TIER 5
Capacity	Power capacity ratings (W or daily Wh)	Less than 3 W	At least 3 W	At least 50 W	At least 200 W	At least 800 W	At least 2 kW
		Less than 12 Wh	At least 12 Wh	At least 200 Wh	At least 1 kWh	At least 3.4 kWh	At least 8.2 kWh
	Services		Lighting of 1,000 lmhr per day	Electrical lighting, air circulation, television, and phone charging are possible			
Availability ^a	Daily Availability	Less than 4 hours	At least 4 hours		At least 8 hours	At least 16 hours	At least 23 hours
	Evening Availability	Less than 1 hour	At least 1 hour	At least 2 hours	At least 3 hours	At least 4 hours	
Reliability		More than 14 disruptions per week			At most 14 disruptions per week or At most 3 disruptions per week with total duration of more than 2 hours"	(> 3 to 14 disruptions / week) or ≤ 3 disruptions / week with > 2 hours of outage	At most 3 disruptions per week with total duration of less than 2 hours
Quality		Household experiences voltage problems that damage appliances				Voltage problems do not affect the use of desired appliances	
Affordability		Cost of a standard consumption package of 365 kWh per year is more than 5% of household income			Cost of a standard consumption package of 365 kWh per year is less than 5% of household income		
Formality		No bill payments made for the use of electricity				Bill is paid to the utility, prepaid card seller, or authorized representative	
Health and Safety		Serious or fatal accidents due to electricity connection				Absence of past accidents	