

Disruptive Innovations for Utilities

Design and implementation of 'South Asia Energy Database and Expert System' for promoting excellence and enhancing trade in the regional grid

Vinod Kumar Agrawal,
Technical Director, SARI/EI, IRADe
vkagrwal@irade.org

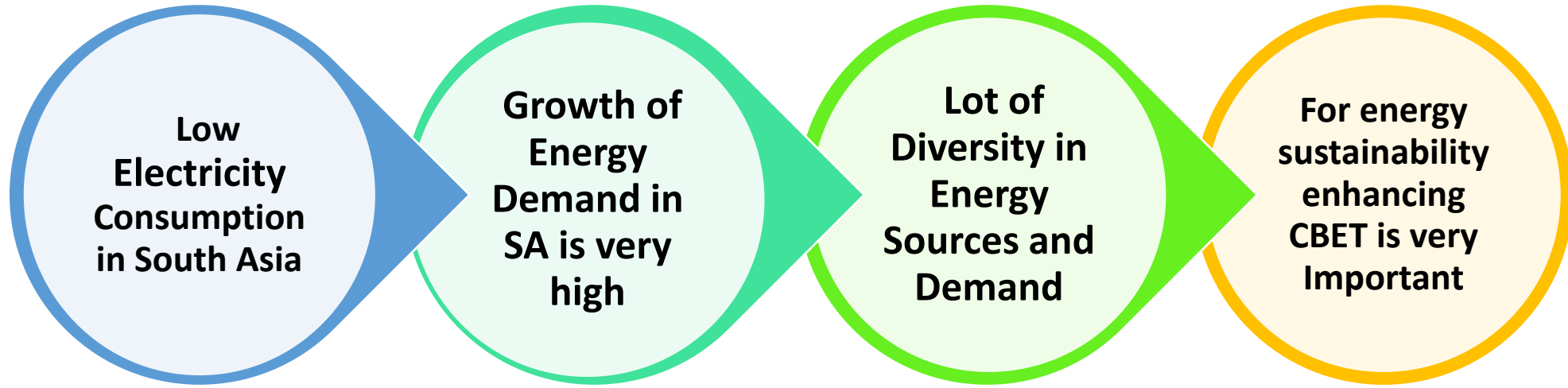
Co-Authors : Mr. Pankaj Batra & Mr. Mohnish Makwana, SARI/EI, IRADe
: Mr. Dirghayu Kumar Shrestha & Mr. Thark Bahadur Thapa, NEA, Nepal

Objectives to Develop South Asia Energy Database & Expert System :

- To act as a single source of information to provide energy related data;
- To reduces data asymmetry and promoting data transparency;
- Providing quick market related information to the utilities involved in CBET;
- Helping different countries with data and information in matters of energy trade;
- Providing vital information towards facilitating renewables integration in the Grid;
- Helping government organizations in the matters of planning;

Background

Enhancement of Cross Border Electricity Trade in South Asia Region is important for Energy Sustainability



- Per Capita Elec. Consumption in South Asia : 705 Units
- Global Average – 3132 Units
- Primary Energy Consumption in SA Countries ~ 15-25 GJ/Capita
- Global Avg. – 71.4 GJ/Capita

- Annual (Avg.) GDP Growth in SA Countries ~ 6 – 8 %
- Almost double than the other Regions and Energy consumption is also on a rising pattern

- RE Potential Capacity utilization in South Asia – 100 GW/1800 GW (5%)
- Hydro Potential Utilization - 61 GW/350 GW (18%)

- CBET enhanced in South Asia : Year 2014-2021 – 9.38 TWh to 18.74 TWh
- Enabled MIS, Database and Expert System can help enhancing CBET



South Asia Energy Database has the following main features :

- Possesses time series data related to South Asian countries energy sector;
- Presents the results in a configurable and user friendly formats;
- Equipped with powerful reporting and analytics tools;
- Near real-time updated data in case of some critical parameters;
- Presents complete picture about primary energy resources and energy balance;
- Provides information about regional electricity market and cross border trade;
- Also equipped with policy, legal and institutional related information;

<https://www.southasiaenergydatabase.org/home>

South Asia Energy Database



South Asia Energy Database



About SAED

South Asia Energy Database is a single point platform to disseminate data and information related to Energy / Power Sector in South Asia region.

It acts as an information repository to reduce data asymmetry and helps towards high quality data research and analysis about the region.

[Know More](#)



www.isgw.in



isuw@isuw.in



[@ISUW22](https://twitter.com/ISUW22)

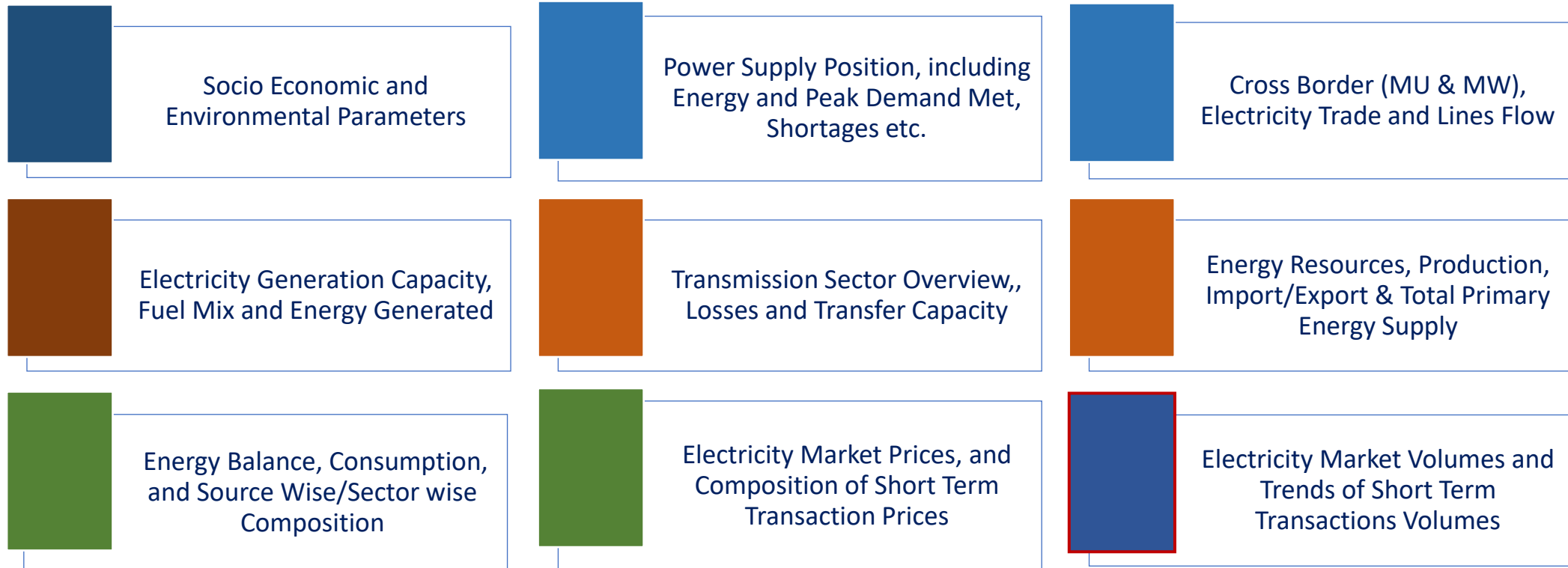


India Smart Utility Week

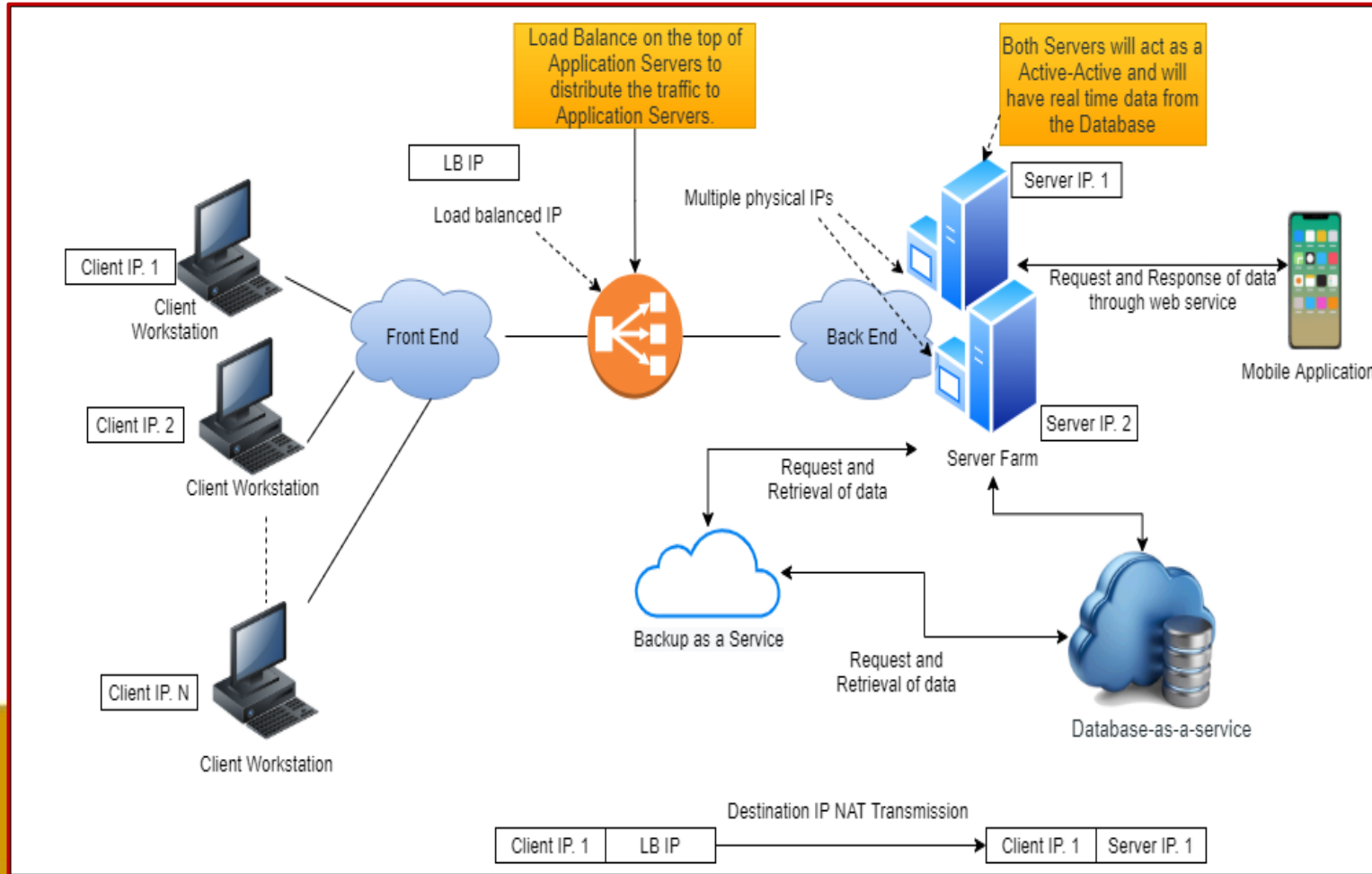
SAED : Key Parameters & Indicators

Aims to Create a Comprehensive Energy Sector Data Base

{Online–user friendly , Info graphics, Indicative Graphs, Charts and Figures, Data Analytics, Reports, Institutional Details, Annual Energy Data Book }

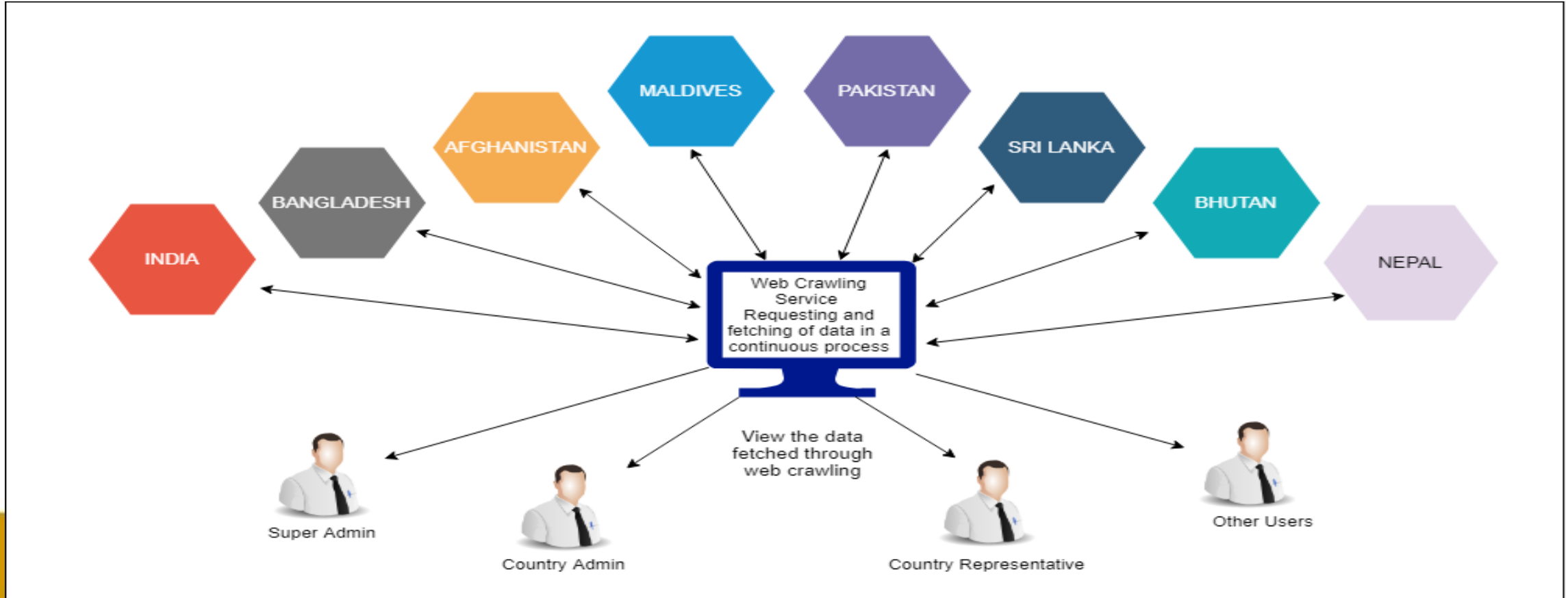


SAED : Cloud Based Architecture

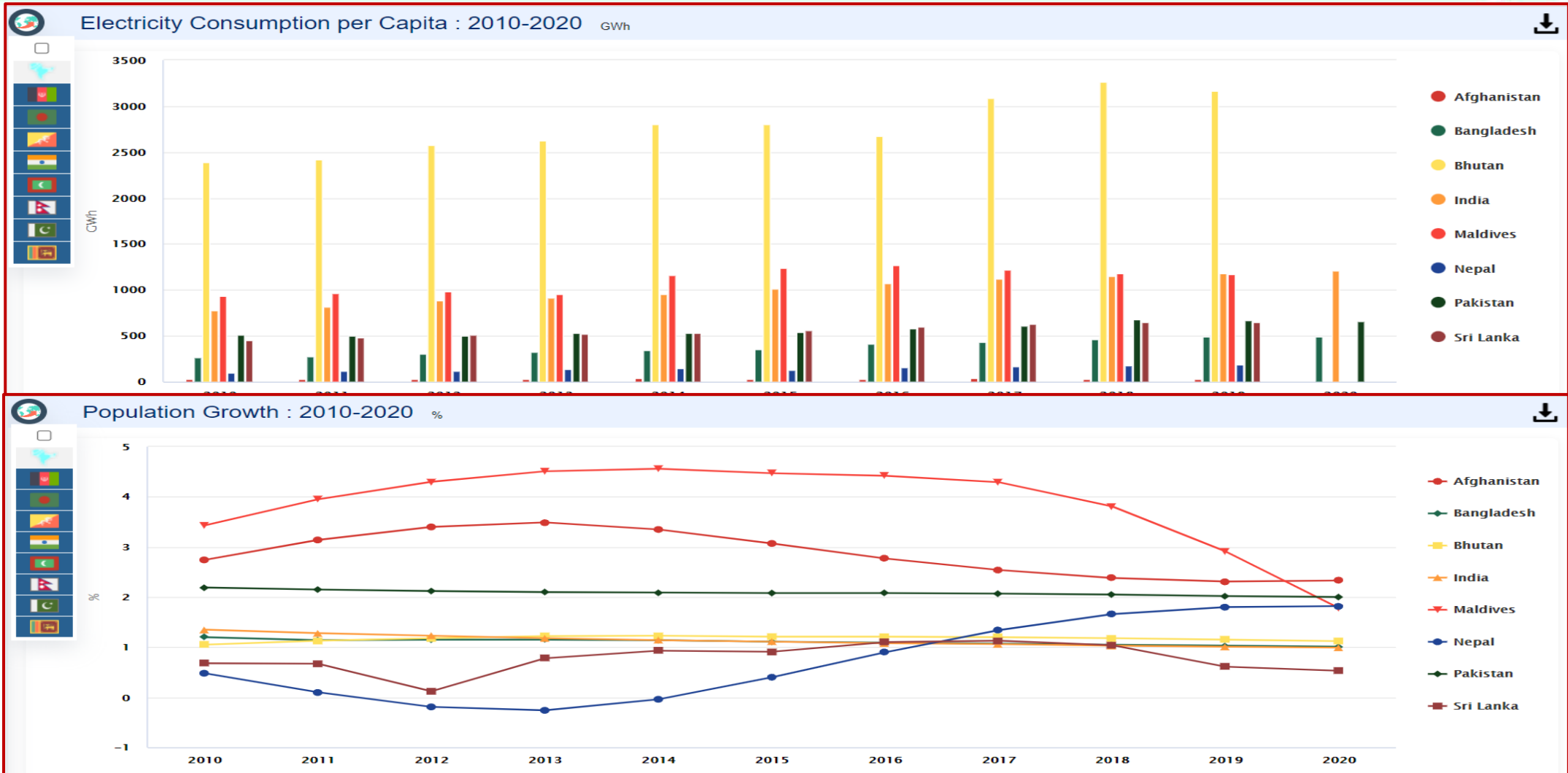


Sl No.	Description	Tools
SAED Portal		
1	Backend Coding Language	PHP 7.4
2	Database	Postgre SQL
3	Front End Technology	HTML 5, CSS 3, Angular JS 1.7, Ubuntu 18.04, Apache 2.4
Mobile App		
4	Operating System	Android 6 & above; iOS 6 & above
5	Database	SQLite 3.34.1
6	Coding Language	Hybrid App (React Native Java Script & HTML Tags)

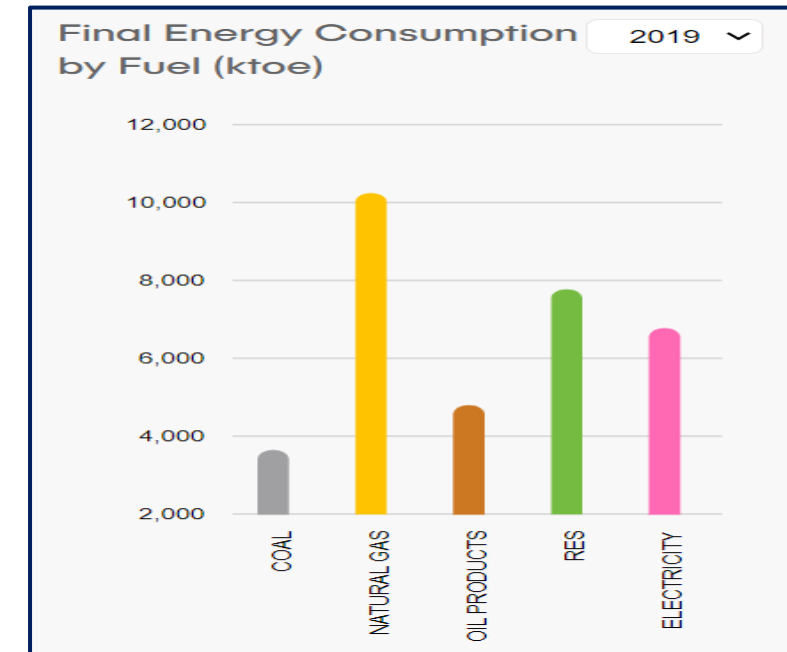
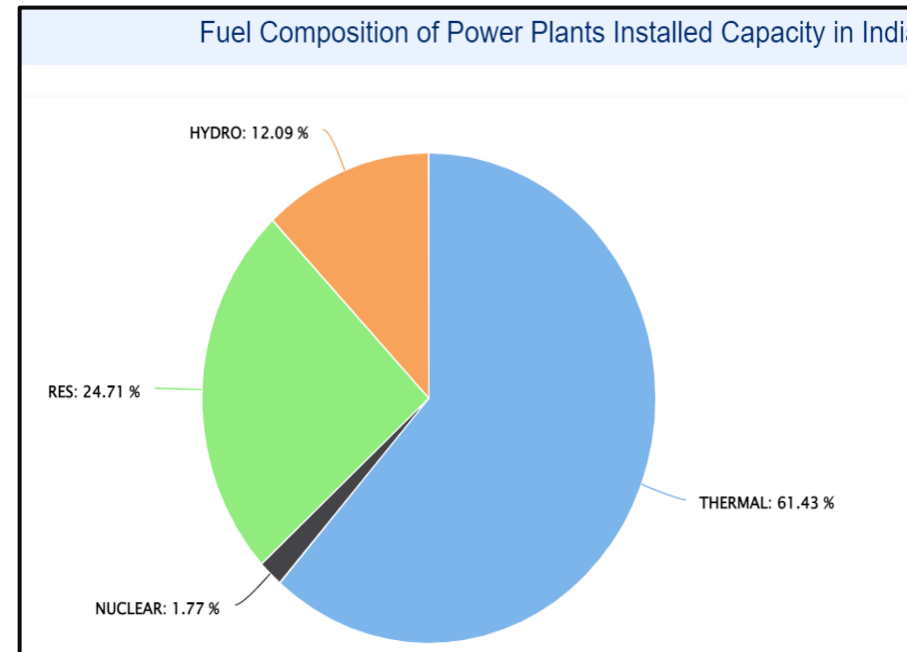
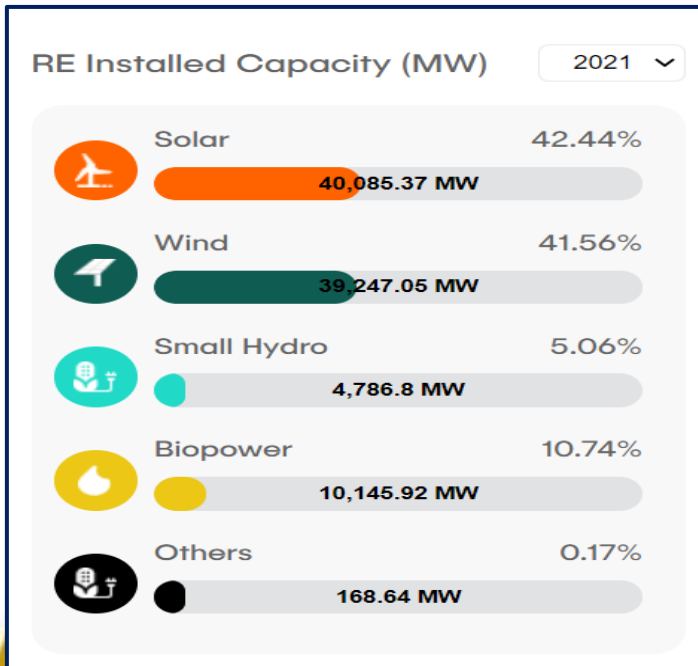
SAED : Collection of Data from Public Domain



Database – Typical Outcomes 1



Database – Typical Outcome 2



Key Takeaways

Direct Benefits from South Asia Energy Database to stakeholders in SA :

- Provide an easy access to data and portability in energy sector in the region;
- Provides quick information about regional electricity market prices and trade;
- Assist utilities in expediting the decisions towards CBET based on historical data;
- Help countries in SA to enhance regional trade by using vital information;
- Help government organisations in planning and decision making based on facts;
- Promote excellence in the Power System operation based on analytics & reports;

Thank You

*For discussions/suggestions/queries email: www.indiasmartgrid.org
www.isgw.in*

vkagrawal@irade.org

India Smart Grid Forum
CBIP Building, Malcha Marg,
Chanakyapuri,
Delhi-110021
Website: www.indiasmartgrid.org