

SAARC Workshop

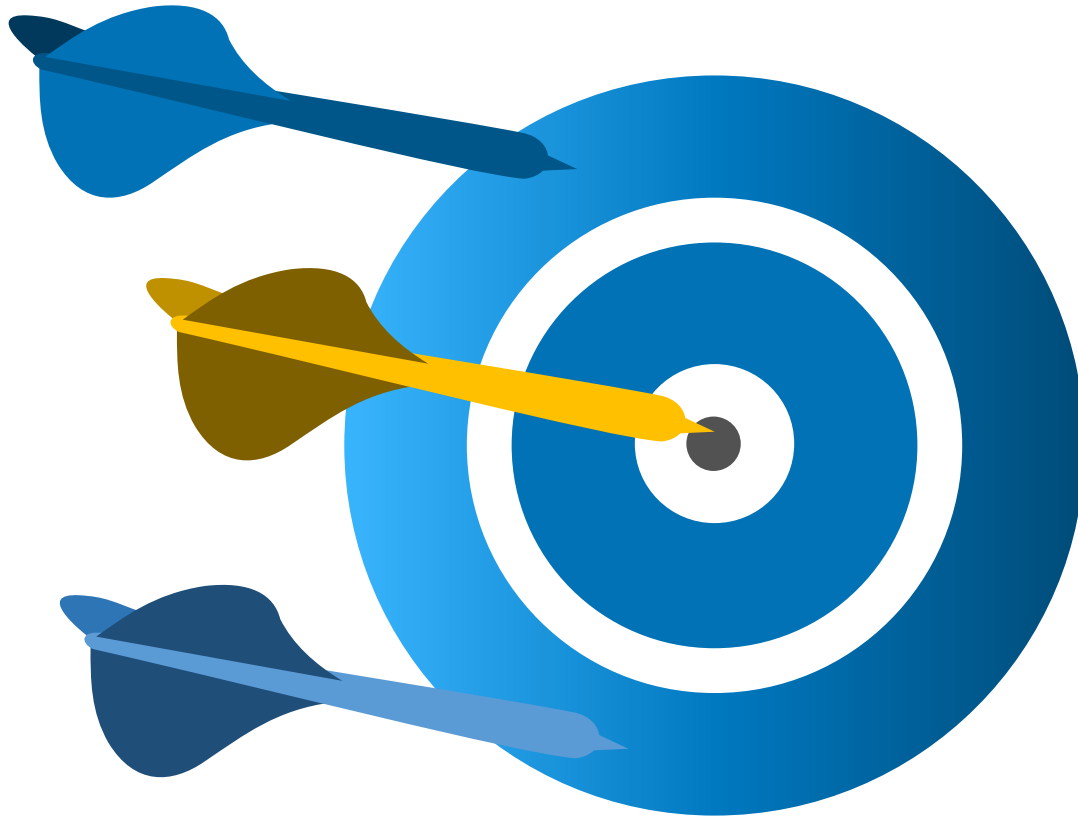
**Techniques on Energy
Conservation & Efficiency in
Buildings**

26-28 Aug, 2019
Dambulla, Sri Lanka



Barriers to Energy Efficiency

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MOICS
Government of Nepal



Common
Goal

Reduce
Energy use

Energy
Conservation

Energy
Efficiency

Turn off lights,
drive less etc.

Turn on the
lights, drive, but
use less energy

Energy Demand growing fast in South Asia

Country	Energy Consumption in 2018 (MTOE)	Energy Demand in 2030 (MTOE)	CAGR
Afghanistan	4.3	9.3	7%
Bangladesh	37,6	85.3	7%
Bhutan	0.725	1.550	6.5%
India	817	1392	4.5%
Maldives	0.543	1.116	5.7%
Nepal	13.5	21.2	3.8%
Pakistan	75	147	5.8%
Sri Lanka	11	16	3%

Energy Intensive South Asia

South Asia is the net importer of petroleum products

**Per capita primary energy consumption is low
0.45 toe vs. 1.68 toe (World Average)**

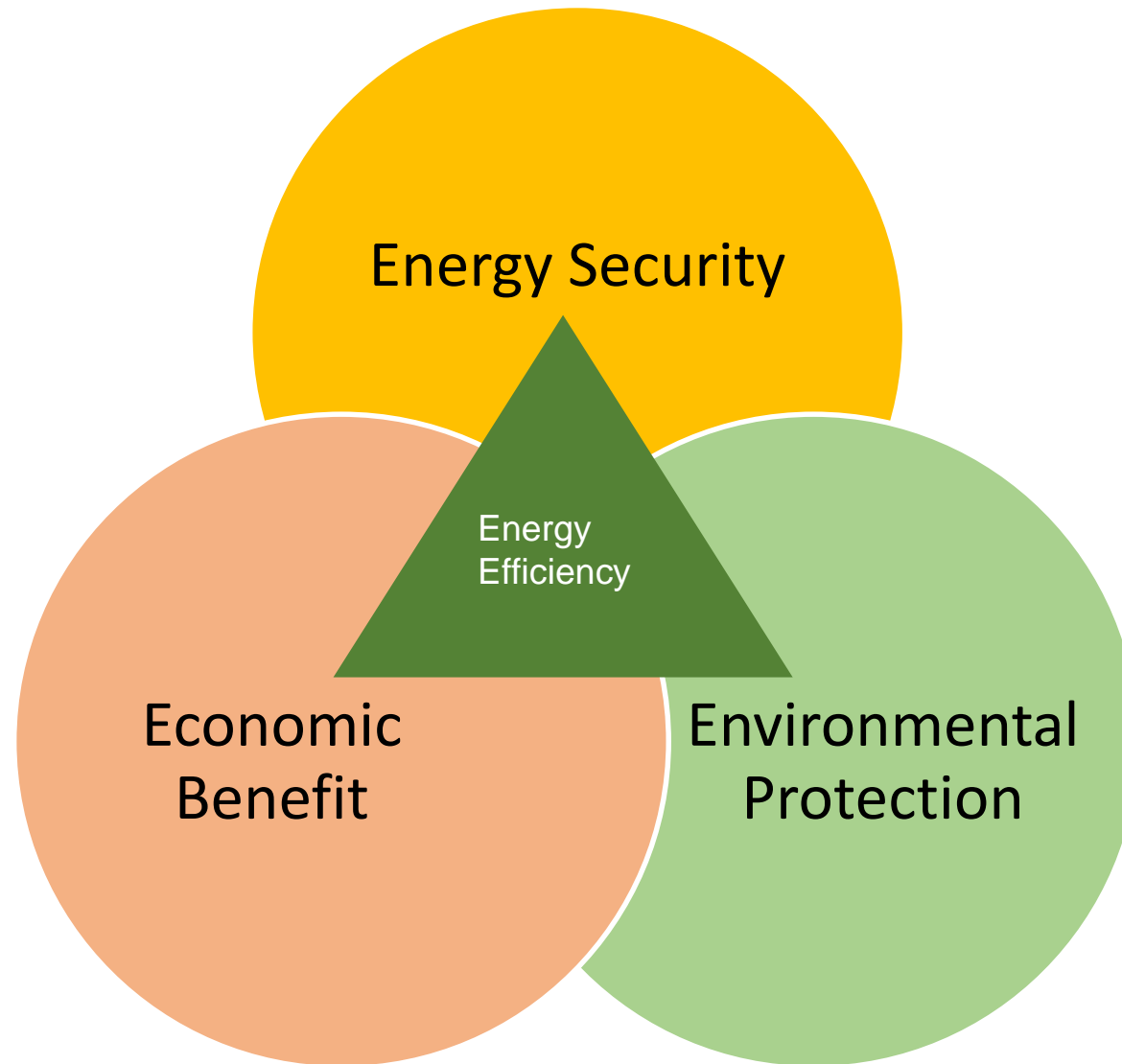
Energy demand growing at a fast pace

**Energy Intensity in the South Asia is high
0.65toe/\$1000 vs 0.29 toe/\$1000 (World Average)**

Plenty of room to improve energy intensity

EE is a cheap means to contain demand

Energy Efficiency Benefits



Economic Benefits

Reduced energy in one end use will help deliver energy for other end use

Living expenses will go down (Save money on energy bills)

Less pressure of investment in the supply side

Energy efficiency can induce job creation

Reduced domestic use may trigger energy export

Energy Security

Growth of energy demand controlled

Reduction in the import of energy

Reliability of energy supply enhanced

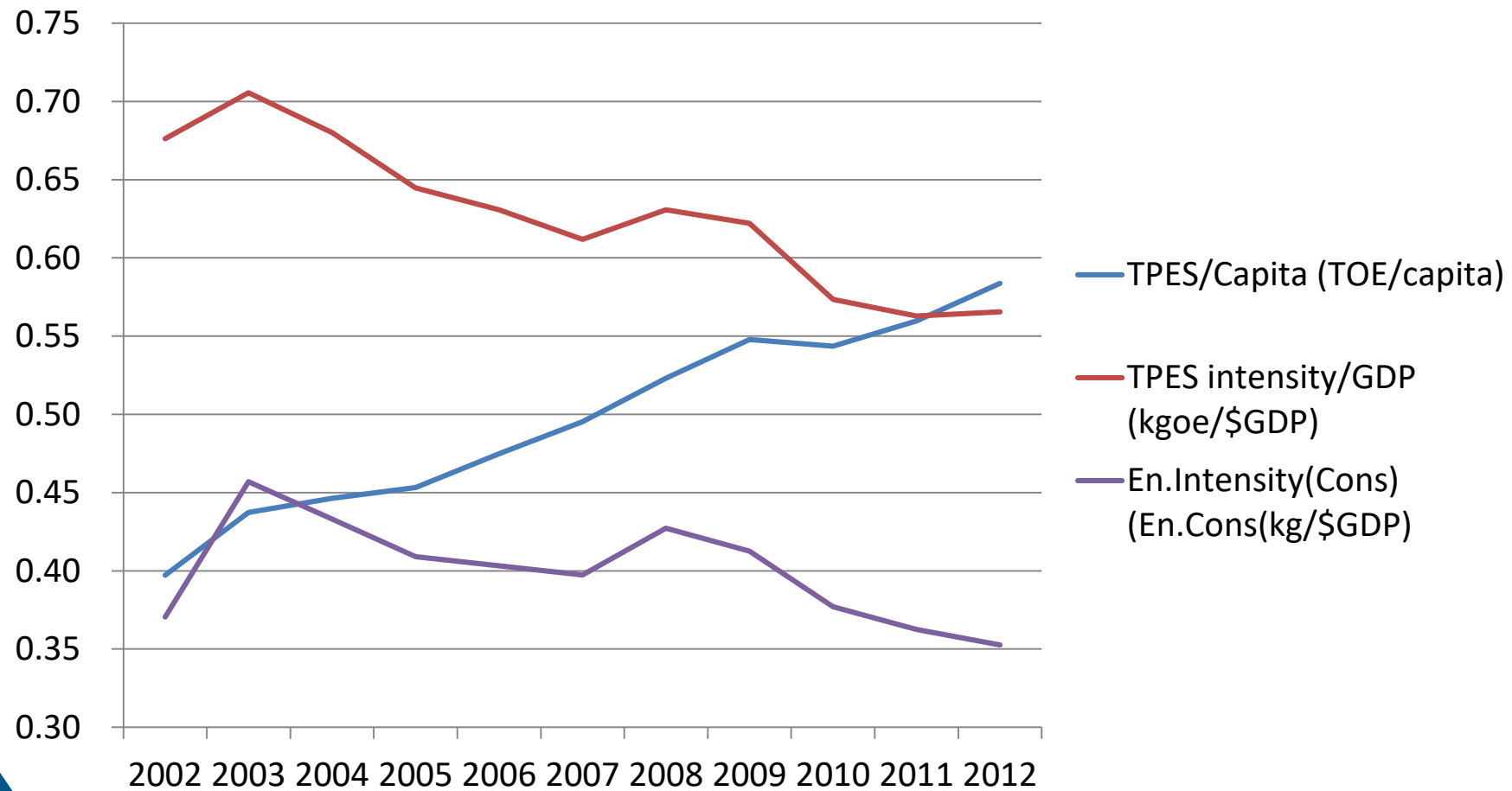
Capacity and supply shortfalls managed

Environmental Benefits

Less fuels burnt results in the emission of less GHG

Efficient use of fuels improves air quality (indoor and outdoor)

Sustainable development



Barriers to Energy Efficiency

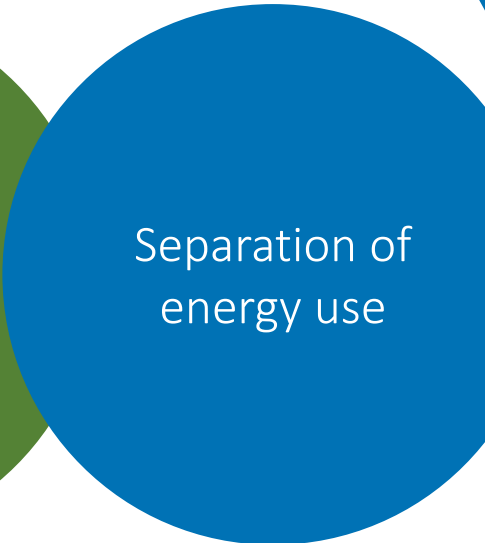
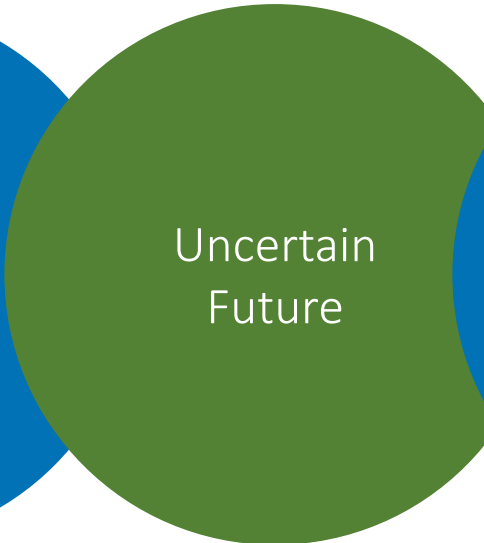
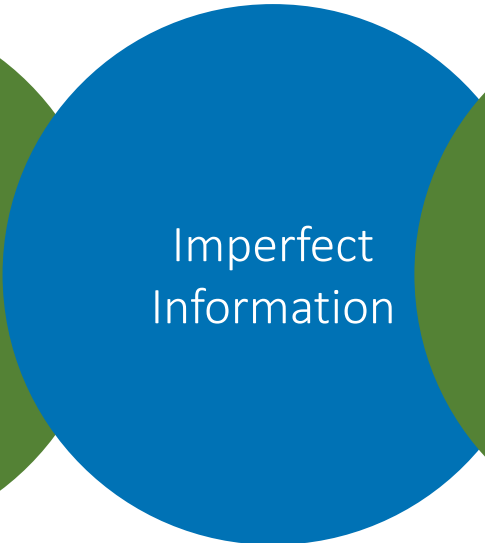
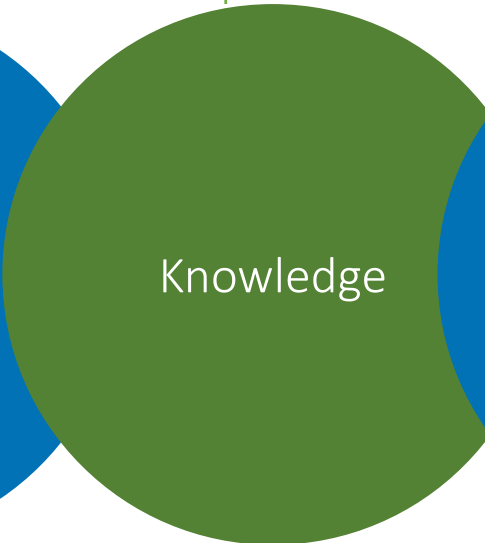
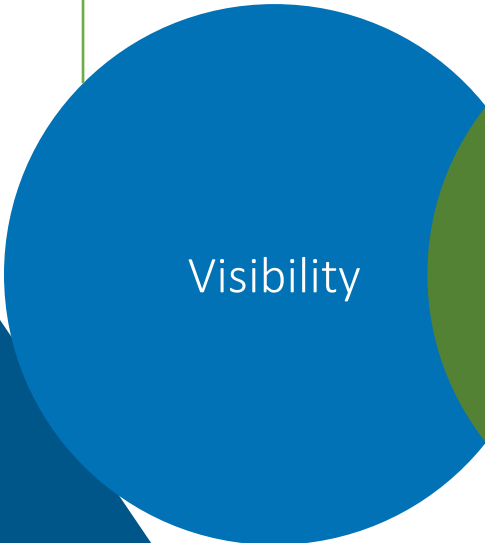
- *Knowledge Barriers*
- *Market Barriers*
- *Financial Barriers*

- *Regulatory and Institutional Barriers*
- *Technical Barriers*

Knowledge Barrier

The performance of different equipment, technologies, buildings and other systems not known

EE cannot be seen



energy savings are difficult to measure,

future energy prices are unknown

Energy use of individual devices is often hard to separate

Market Barrier

Price
Distortion

Imperfect competition
Customers are prevented from
appraising the true value of
energy efficiency

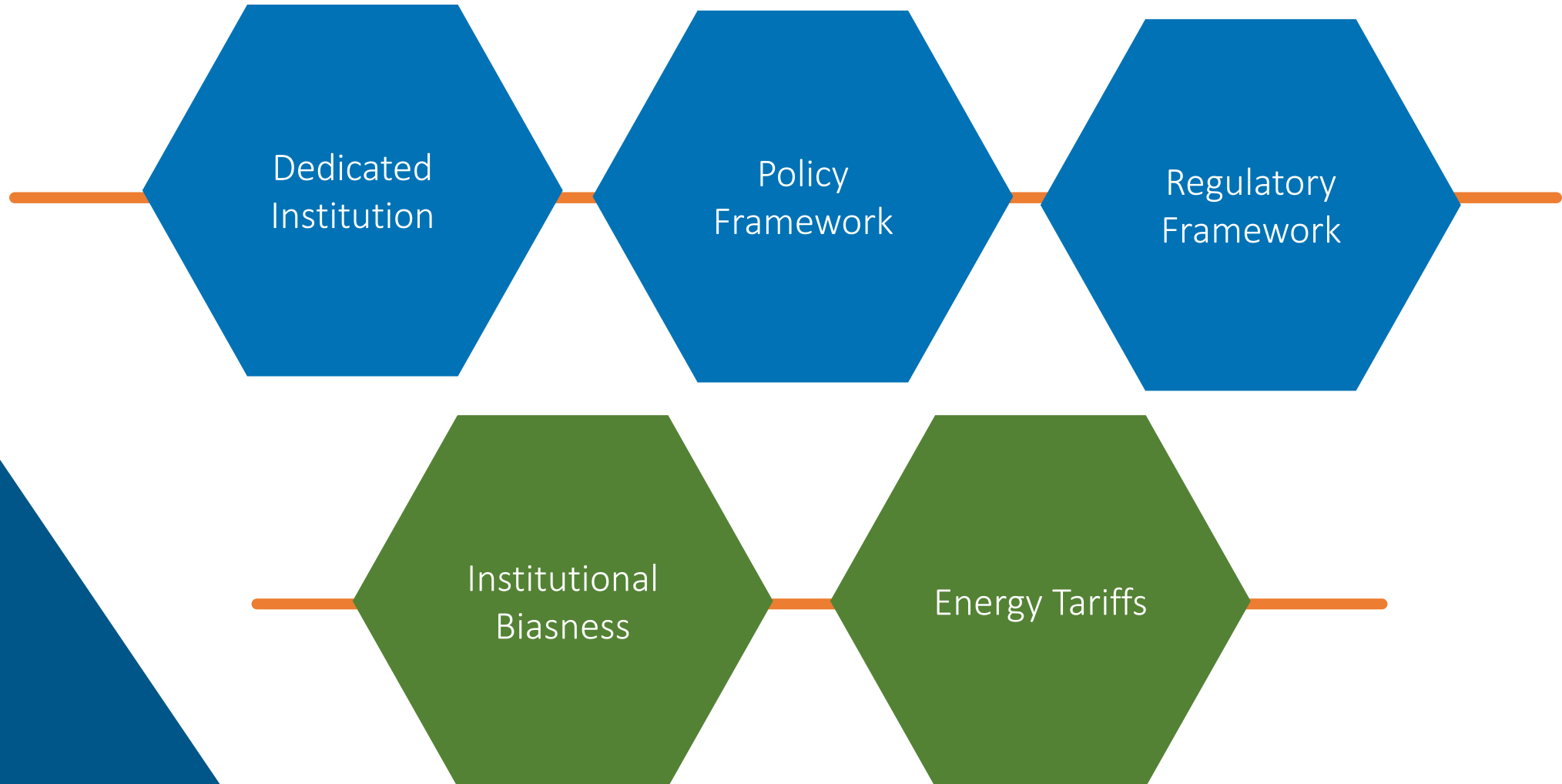
Agency
Theory / Split
Incentive

The investor does not
reap the rewards of
improved efficiency

Financial Barrier

- Lack of understanding of EE investments
- High risk perceived by FIs
- Financing mechanism

Regulatory and Institutional Barriers



Technical Barriers

Lack of
affordable or
suitable EE
technologies

Insufficient local
capacities for
implementing EE
investments.



Energy Conservation Act, 2001

India

- Create awareness and disseminate information on energy efficiency and conservation
- Arrange and organize training of personnel and specialists in the techniques for efficient use of energy and its conservation
- Strengthen consultancy services in the field of energy conservation
- Promote research and development
- Develop testing and certification procedures and promote testing facilities
- Formulate and facilitate implementation of pilot projects and demonstration projects
- Promote use of energy efficient processes, equipment, devices and systems
- Take steps to encourage preferential treatment for use of energy efficient equipment or appliances
- Promote innovative financing of energy efficiency projects
- Give financial assistance to institutions for promoting efficient use of energy and its conservation
- Prepare educational curriculum on efficient use of energy and its conservation
- Implement international co-operation programmes relating to efficient use of energy and its conservation



SRI LANKA
SUSTAINABLE
ENERGY
AUTHORITY ACT

Sri Lanka

- Energy Conservation Fund in 1985
- SLSEA Act, Energy management and efficiency improvement by SEA
- Promotional and regulatory activities on EE
- Energy performance standards and Labeling
- Manages the energy manager and energy auditor accreditation process
- Establish regulations to enforce mandatory energy reporting by large energy users
- Set national energy management targets



National Energy Conservation Centre, 1986 (Now, National Energy Efficiency and Conservation Authority)

Enhancing customer awareness

Registration of energy audit firms, energy manager certification

Advisory service to energy professionals and the general public on energy savings

.

Estimates the national energy conservation potential in different subsectors

Operates the Energy Conservation Fund

Extend credit for lease finance facilities (at below-market rates) for the Energy Efficiency equipment

Bangladesh, in 2014, established the Sustainable and Renewable Energy Development Authority under its act of 2012.

Development and enforcement of standards for end-use Appliances

Energy Management

Energy Auditing

Afghanistan, Bhutan, Maldives, Nepal

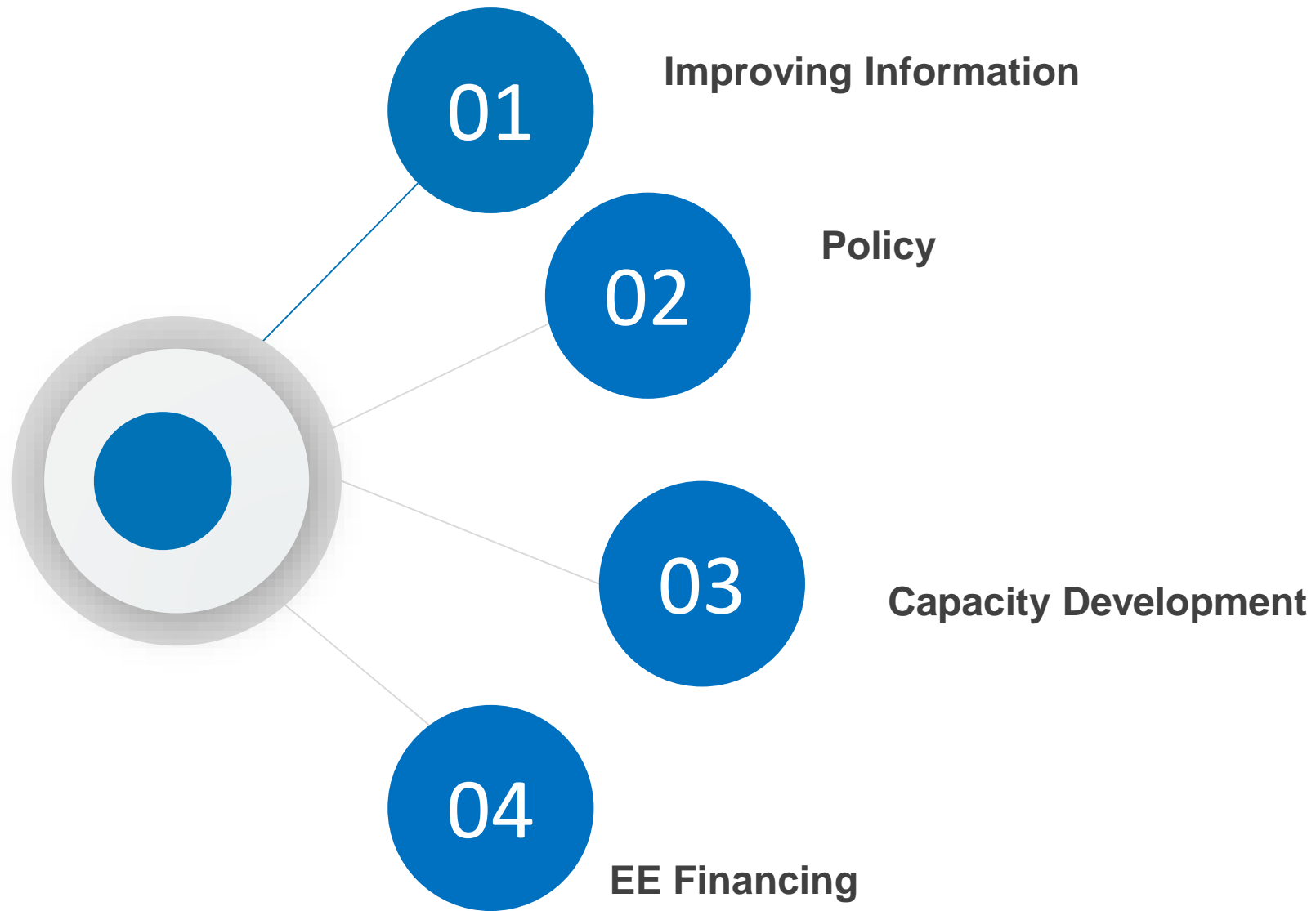
Do not have agencies to specifically regulate and promote the efficient use of energy

Nepal-- Nepal Electricity Authority and the Water and Energy Commission Secretariat

Bhutan -- Department of Renewable Energy

Maldives--Maldives Energy Authority

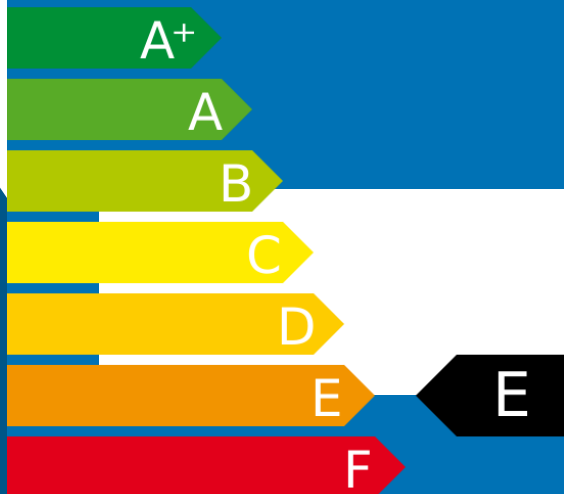
Overcoming the Barriers



01

Improve Information

Improve EE statistics
Awareness and advocacy
Unfetter energy data
Labels



Policy

➤ Improve legal and regulatory framework by designating a leading institution

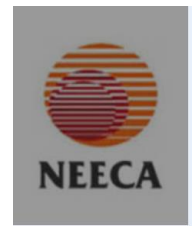
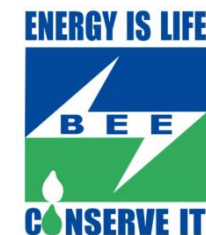


➤ Create incentives for EE adoption

➤ Promote energy efficiency service market

➤ Promote metering and DSM measures

➤ Eliminate subsidies on energy prices



➤ Develop MEPS for appliances and equipment

➤ Charge/ tax emissions

Capacity

- Capacitate leading agencies for
 - Setting up EE targets
 - Developing programmes
 - Implementing programmes
- Develop energy managers and energy auditors through training
- Develop the capacity of financial institutions to be informed of and understand EE and EE Financing

EE Financing

- **Develop financing mechanisms such as**
 - **Loan**
 - **Vendor credits**
 - **Credit guarantees**
 - **Leasing**
- **Incorporate energy costs into mortgage underwriting**



Thank you!!

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