PROMOTING LOW CARBON SUSTAINABLE TRANSPORT

Electrical Mobility in Himachal Pradesh

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PRESENTATION OUTLINE

The Case for Low Carbon Sustainable Transport

A Study of Transport Sector Intervention

Conclusions and Lessons Learnt

THE CONTEXT

India has enjoyed a 7% growth for almost a decade and became the third largest economy

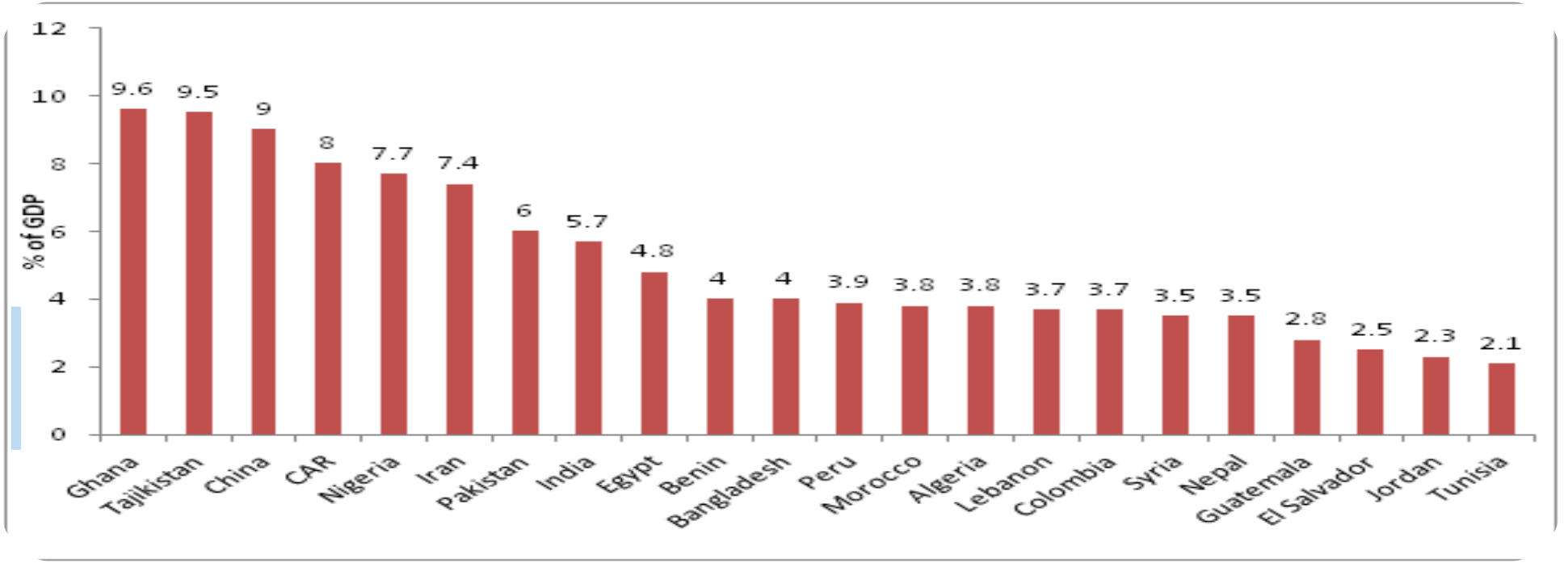
Poverty rates have almost halved, employment opportunities increased, social indicators improved considerably, performance in most MDGs good

However, in a recent survey of 132 countries whose environments were surveyed, India ranked 125th overall (only behind Kuwait, Yemen, Uzbekistan,, Turkmenistan, Iraq, and South Africa)

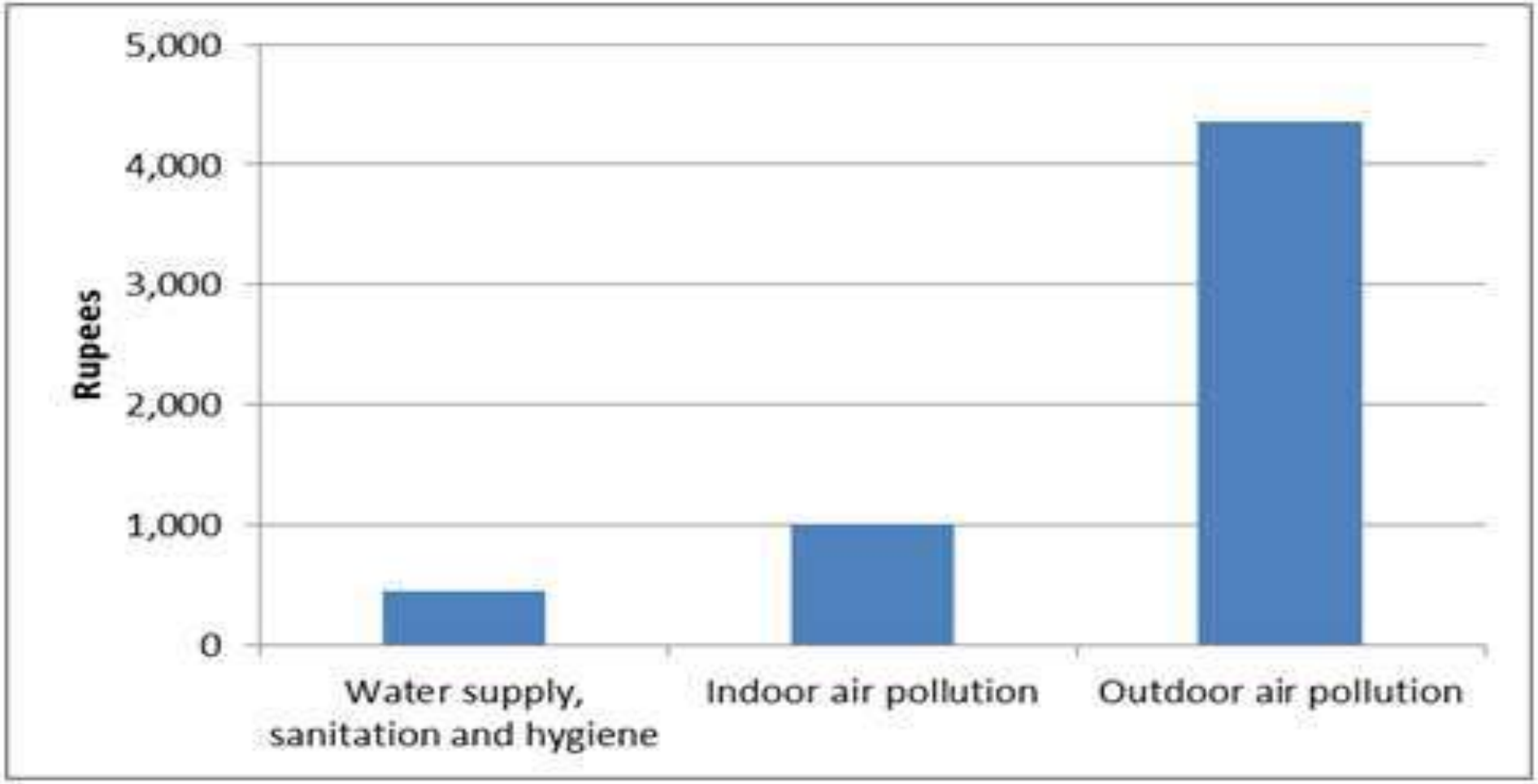
India ranks last in the 'Air Pollution (effects on human health)' ranking. Recent WHO survey of G-20 economies showed that 13 of the 20 most polluted cities are in India

GROWTH AND ENVIRONMENT

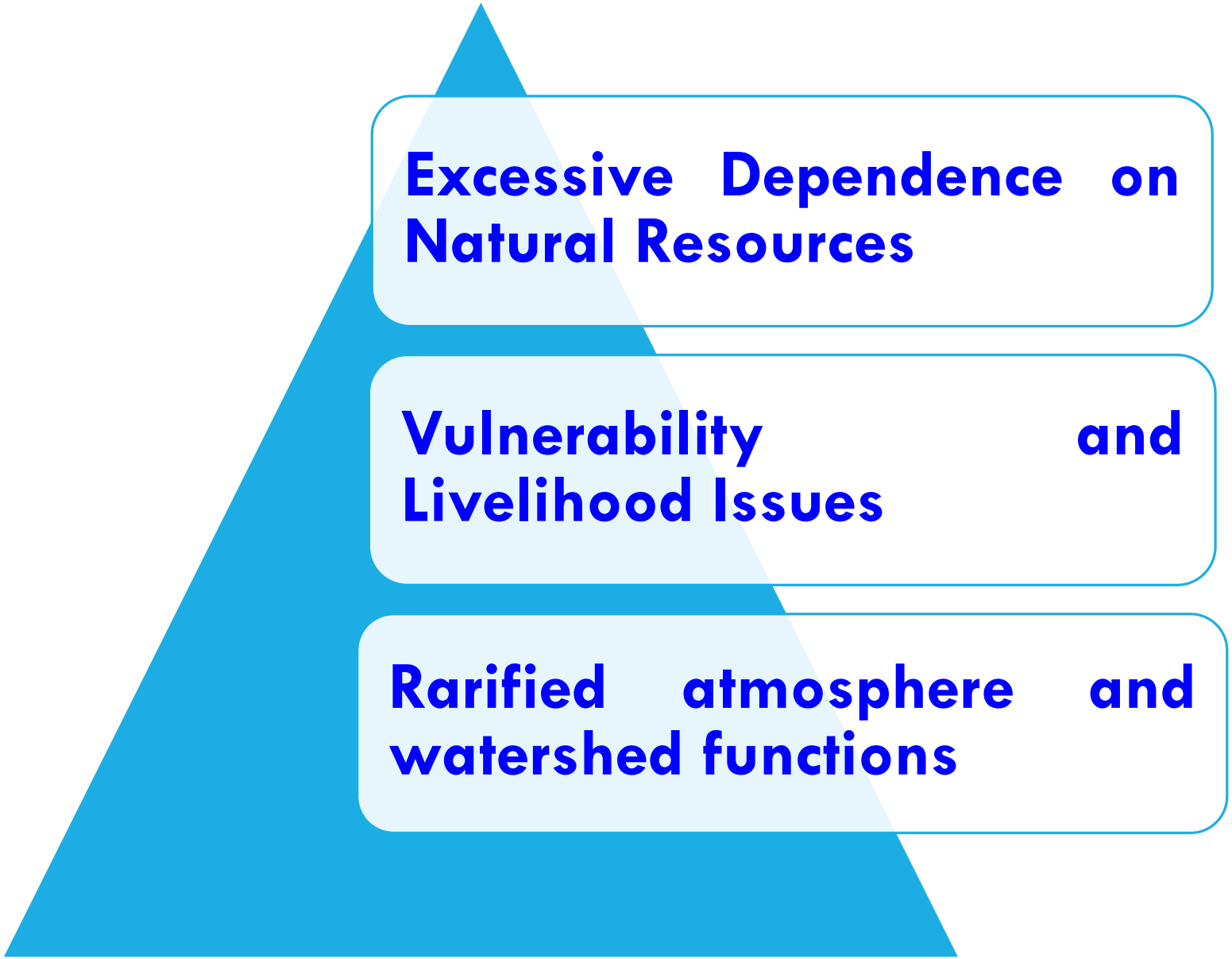
World Bank has estimated total cost of environmental degradation in India to be US$80 billion which is 5.7% of GDP



ANNUAL HEALTH LOSSES PER PERSON DUE TO POLLUTION



KEY CONCERNS IN HIMALAYAN SETTING



GREEN TRANSPORT PROJECT: A CASE STUDY

Himachal Pradesh (India) is known for its scenic beauty, biodiversity, hydro power potential and horticulture in the country.

Situated in the high hills of the Himalayas, ecosystems here are very fragile and amenable to damage due to pollution and resource degradation.

Road transport is the only mode of transport dominated by personalised vehicles.

Seventy five percent of air pollution caused here is attributed to this sector.

Public transport mostly used by poor is with a public sector undertaking operating on huge cumulative losses resulting in poor quality operation dominated by highly polluting, obsolete and unsafe fleet.

KEY FINDINGS ON MOTORISATION

Features

- Motorised movement of people and goods increased by 100 times while human population increased 4 times over the 20th century
- While the rate of motorisation is increasing, the per capita ownership of cars is low. Modal share of public transport and NMT is higher.

Impacts

- NMT and para transit r vital but unregulated hence do not meet safety and emission standards.
- Transport sector is currently responsible for 13% GHG emissions and 23% CO2 emission from global energy consumption. It is expected to grow to 80% by 2050.

Public sector transport dilemma:

Old fleet, high maintenance cost, unsafe, unable to meet the demand, highly polluting, unplanned

AVAILING RECENT POLICY INITIATIVES ON E MOBILITY

- National e mobility mission plan 2012 set targets of achieving 6-7 million ev by 2020,
- Faster Adoption of manufacturing of e vehicles launched 2015

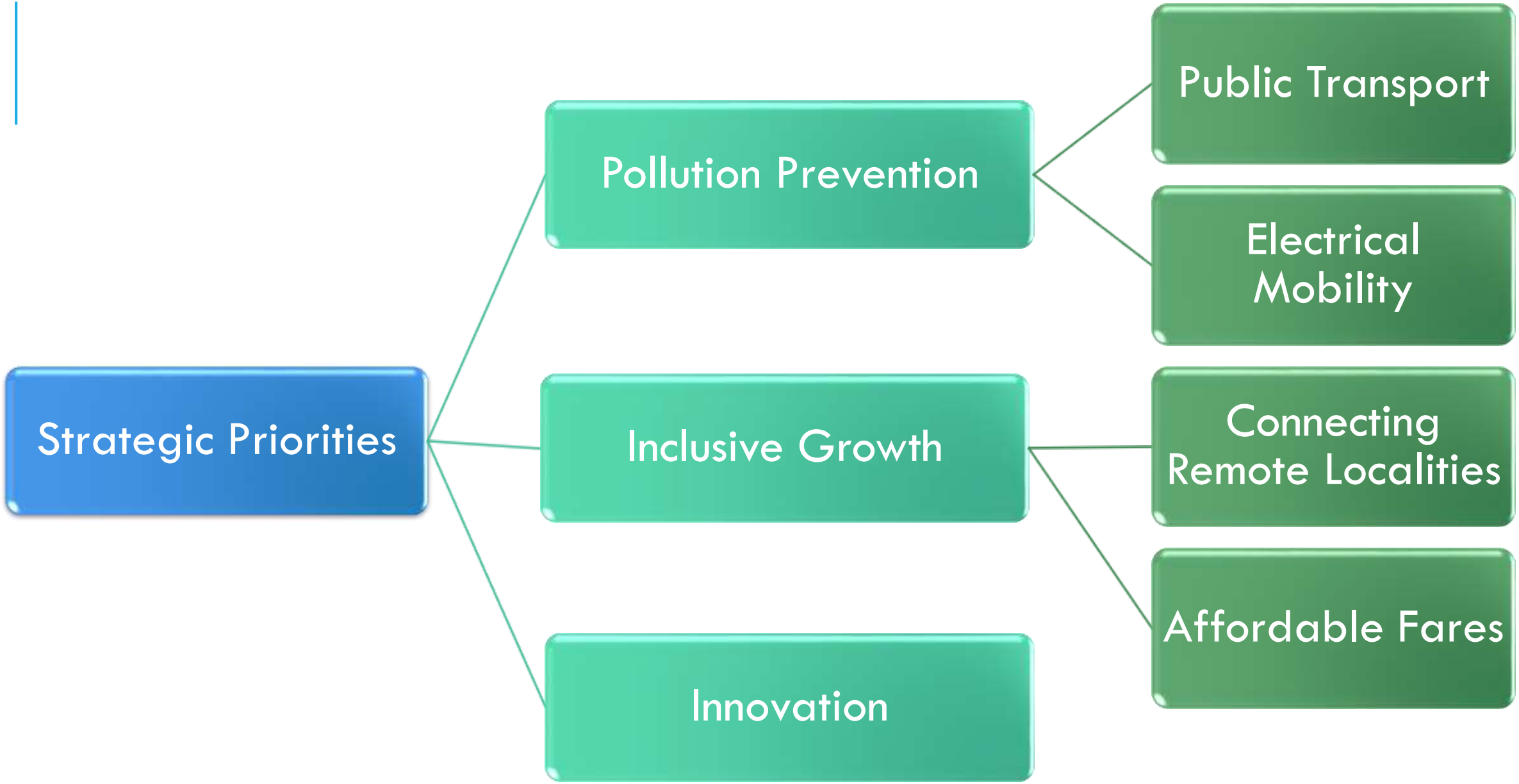
E mobility planning

Outcome

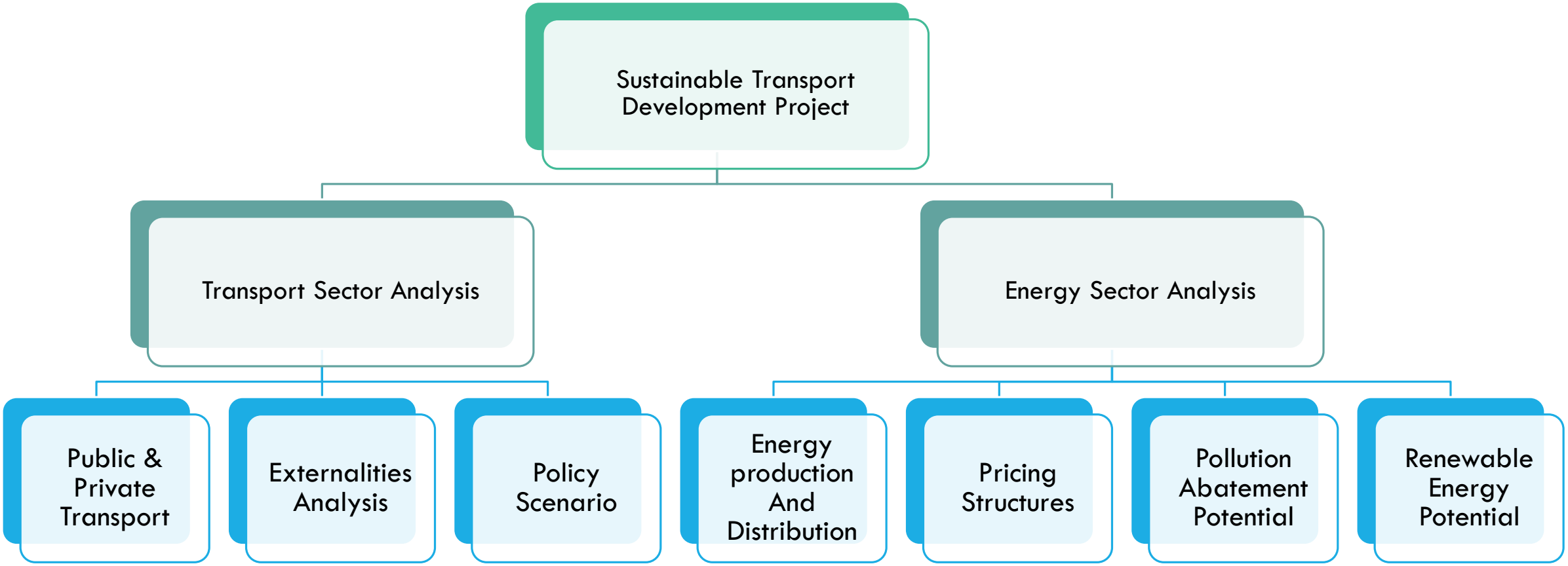
- E vehicles population grew from 370 in 2008 to 6000 in 2015,
- 4050 lakh e two wheelers sold till 2016

- India can save 64% of anticipated passenger road based mobility related energy demand and 37% carbon emission by 2030.

Vision


Strategic Priorities
Pollution Prevention
Inclusive Growth
Innovation
Public Transport
Electrical Mobility
Connecting Remote Localities
Affordable Fares

OUTCOME FOCUSED INCLUSIVE INTERVENTIONS IN THE TRANSPORT SECTOR



METHODOLOGY

Studies were done by collecting secondary data from the Transport and Power Departments though in some cases, primary data from commuters and Regulator in the power sector was also collected.

Alongside interviews, Focussed Group Discussions (FGDs) with the stakeholders were held to get their views on the current scenario and the future projections.

the institutions of the Local Self Governance, educational institutions and the major government and private entities were consulted to identify mismatch of demand and supply.

FINDINGS

Administered Prices

- Over the years, all input costs across the country (e.g. wage rates, interest rates, dollar value and petroleum product prices) have moved from the **administered price regime** to **market determined rates resulting in enhancement of prices to almost do**uble the administered price levels.

Policy Failure

- However, the price of the final product (the passenger travel) is still in the **administered price regime as fares are fixed by Governments under the provisions of the Motor Vehicles Act.**

Market Failure

- Therefore, fare rates do not match the increase in costs (due to hikes in the prices of **diesel, wage rates, interest rates and exchange rates),as hikes in these input costs are very frequent and it is difficult to increase fares commensu**rate with these hikes;

Market Failure

- Due to this mismatch, the fare rates are less than the cost of production making **an implicit element of subsidy being passed on to the consumer by the o**perator which makes the entire operation uneconomical and eats away the much needed liquidity for future operation.

Poor Transport Infrastructure

- No wonder, the public transport in the entire country runs in losses as a **major chunk of its costs remains unrecovered. It ultimately affects the** quality of operation and, over a long run, even the quantity of the service provided gets severely affected.

Inadequate services

- The **study discovered that there are at least 294 remote roads opened in the last** few years but no service has been provided by the HRTC so far;

High Taxes

- Public transport is subject to a **very high tax regime: the public transport vehicles pay taxes on monthly basis as against one time nomi**nal tax levied on the private vehicles. Even the taxes levied on the interstate routes are also very high, almost double the normal Special Road Tax (SRT).

Tax Exporting

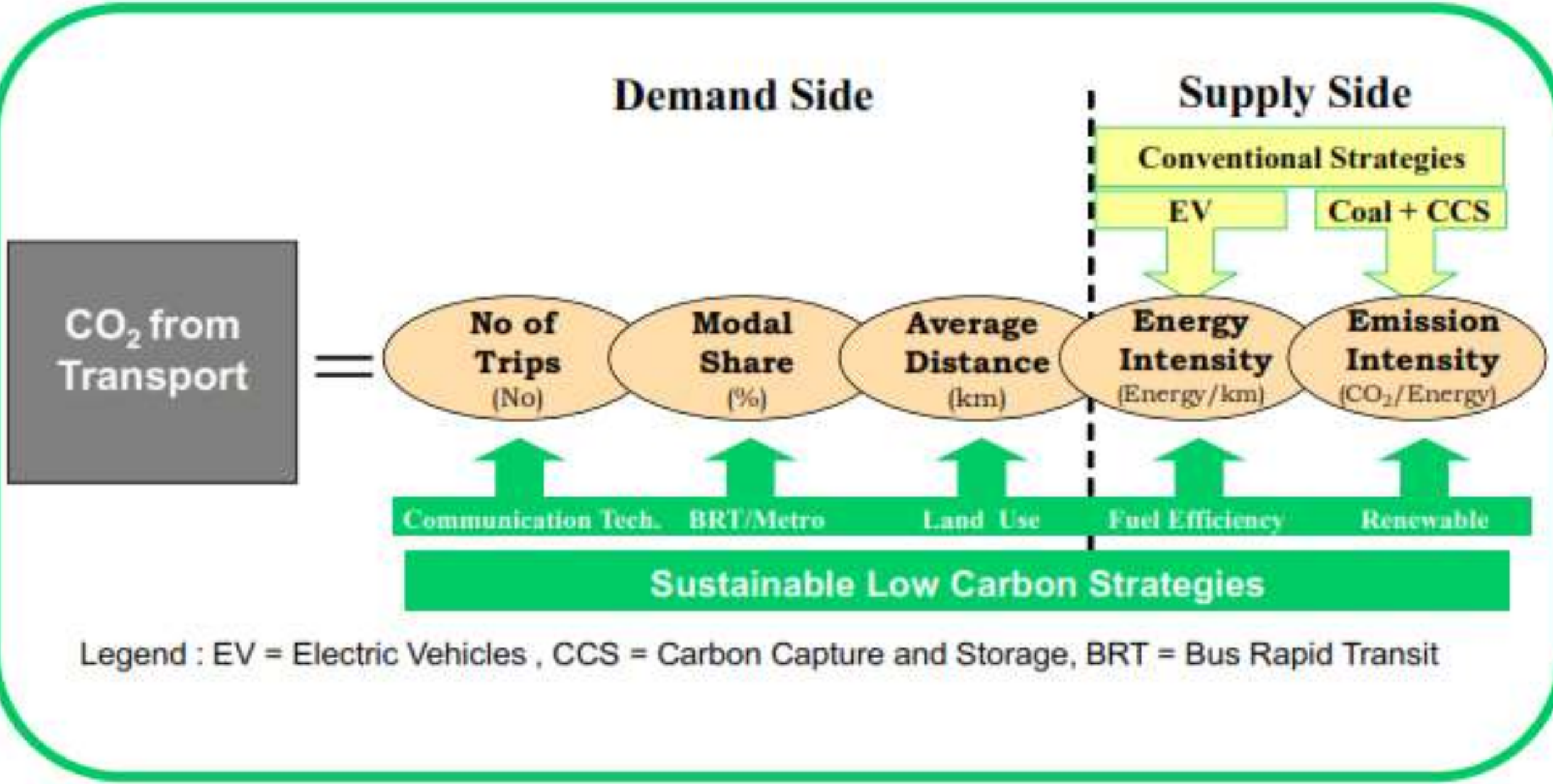
- In addition, inter-state movement of **public transport in India (both buses and Trucks) is subject to a severe problem of 'tax exporting'**

Vehicular Pollution

- **No limit on age. Owing to this, the problem of 'free rider'. with owners of antiquated vehicles plying highly polluting, old technology unsafe vehicles by having to pay less private marginal cost at very high social cost. Externalities in the shape of pollution, road accidents and congestion enhance the marginal social costs. Data shows that buses up to 20 years of registration are still in operation while trucks of more than 30 years registration are still on roads;**

The study results revealed that there is an overlap in the operation of **buses plied by different operators run parallel to each other and hence not only affect the business, but also cause avoidable fuel consumption and pollution emission.**

Such a tendency also leads to **buses chasing each other to pick up passengers exposing the operation to accident risk. Therefore, if a route planning exercise could be undertaken, it wi**ll not only increase profitability and reduce fuel consumption and emission, but will also enhance passenger comfort by matching supply with demand and thus reducing waiting time;



Legend : EV = Electric Vehicles , CCS = Carbon Capture and Storage, BRT = Bus Rapid Transit

Strategies For Reducing Emmissions From Transport

TRANSPORT SECTOR PROJECT

Project Outline

Transport Policy that aims at achieving **fiscal and regulatory reforms to usher in an era of Green Growth;**

- Preparing a Detailed Project Report (DPR) for **seeking funding from agencies for procuring at least 1000 buses of to** replace the existing aged fleet;
- **Tax and regulatory reforms to incentivise public transport over the** private modes of transport;

Promoting renewable energy by availing roof top solar power generating plants under existing schemes of the state and federal government;

- **Skill up gradation of staff to handle new technology fleet; Inspection and Fitness centres with state of the art pollution check facility;**
- **DPR on electrical buses to be prepared and submitted to the government of India to avail benefit under the existing scheme;**

HP Transport

OUTCOME

Notification of a comprehensive Transport Policy outlining wide ranging reforms in regulatory framework and tax laws;

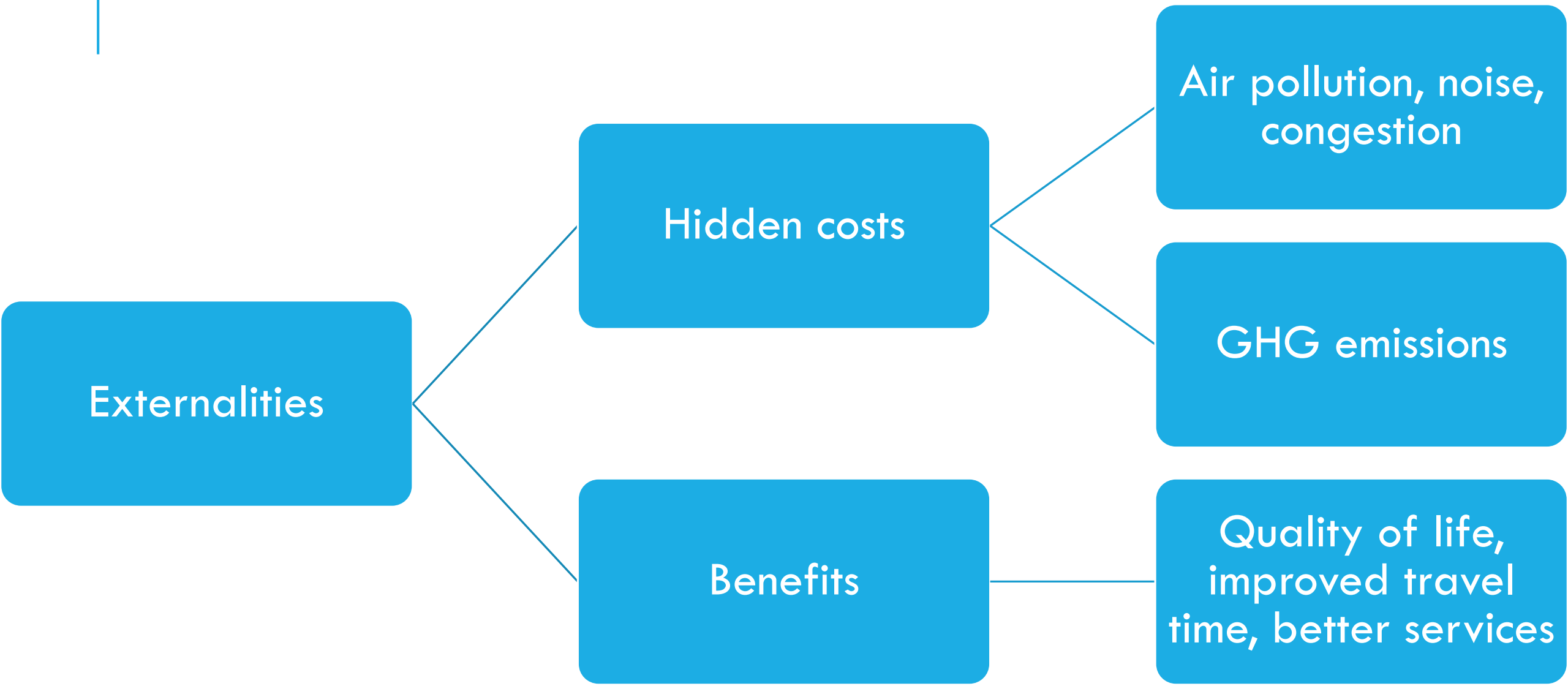
Prepared a Detailed Project Report for replacement of old fleet with latest technology Euro –IV buses (1350 new buses were purchased);

An innovative project for introduction of electrical buses was submitted for funding by the Government of India. A US$5.17 Million grant was approved. This project is first of its kind in India and aims at utilising surplus power otherwise being surrendered by the state free of cost;

Performance in terms of fuel consumption, occupancy and road safety improved substantially within one year of the project implementation;

As a part of the project, 10 solar power plants were also approved.

RECOGNITION OF HIDDEN COSTS AND BENEFITS



POWER MANAGEMENT ANALYSIS

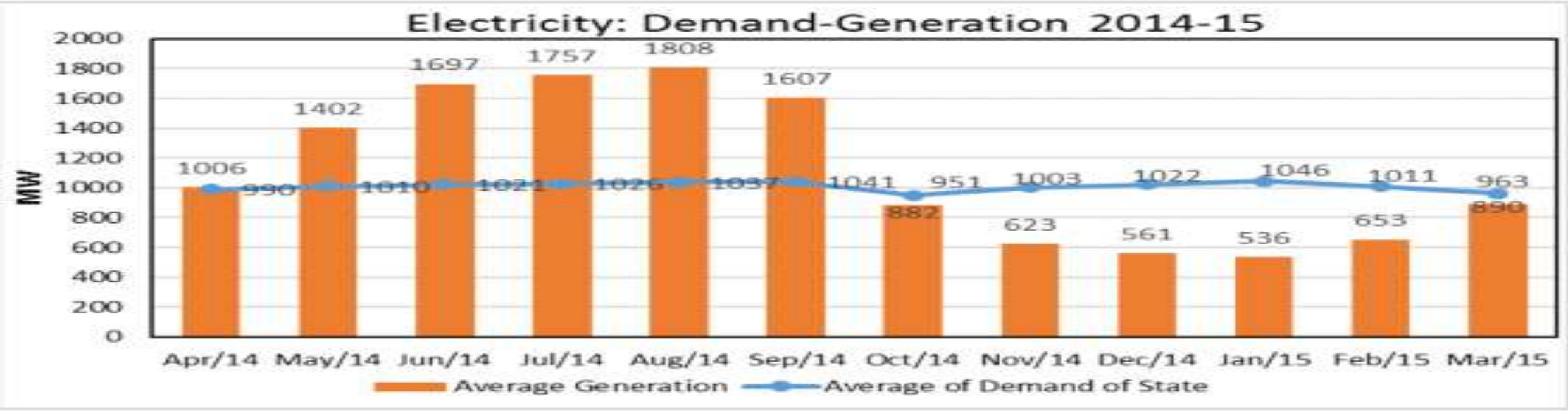
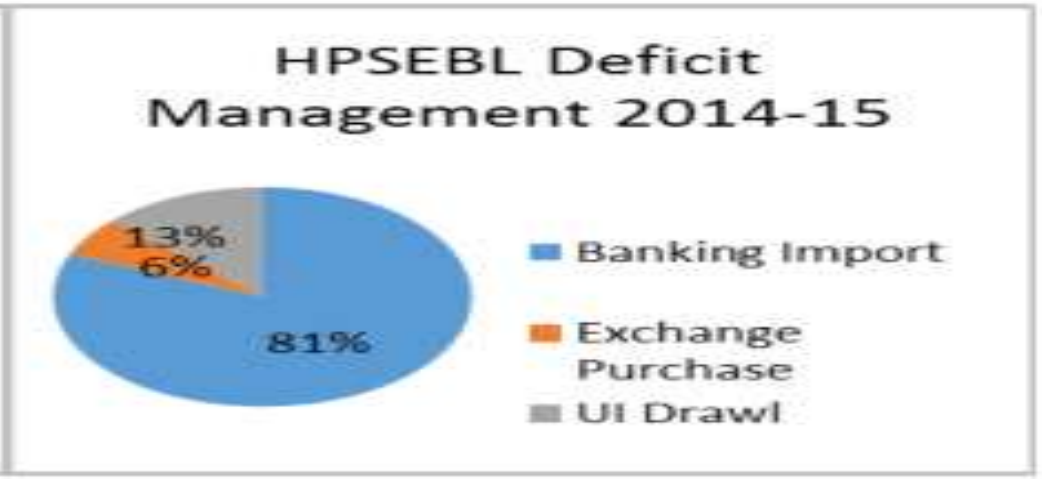


Figure 1: Electricity Demand and Generation-2014-15

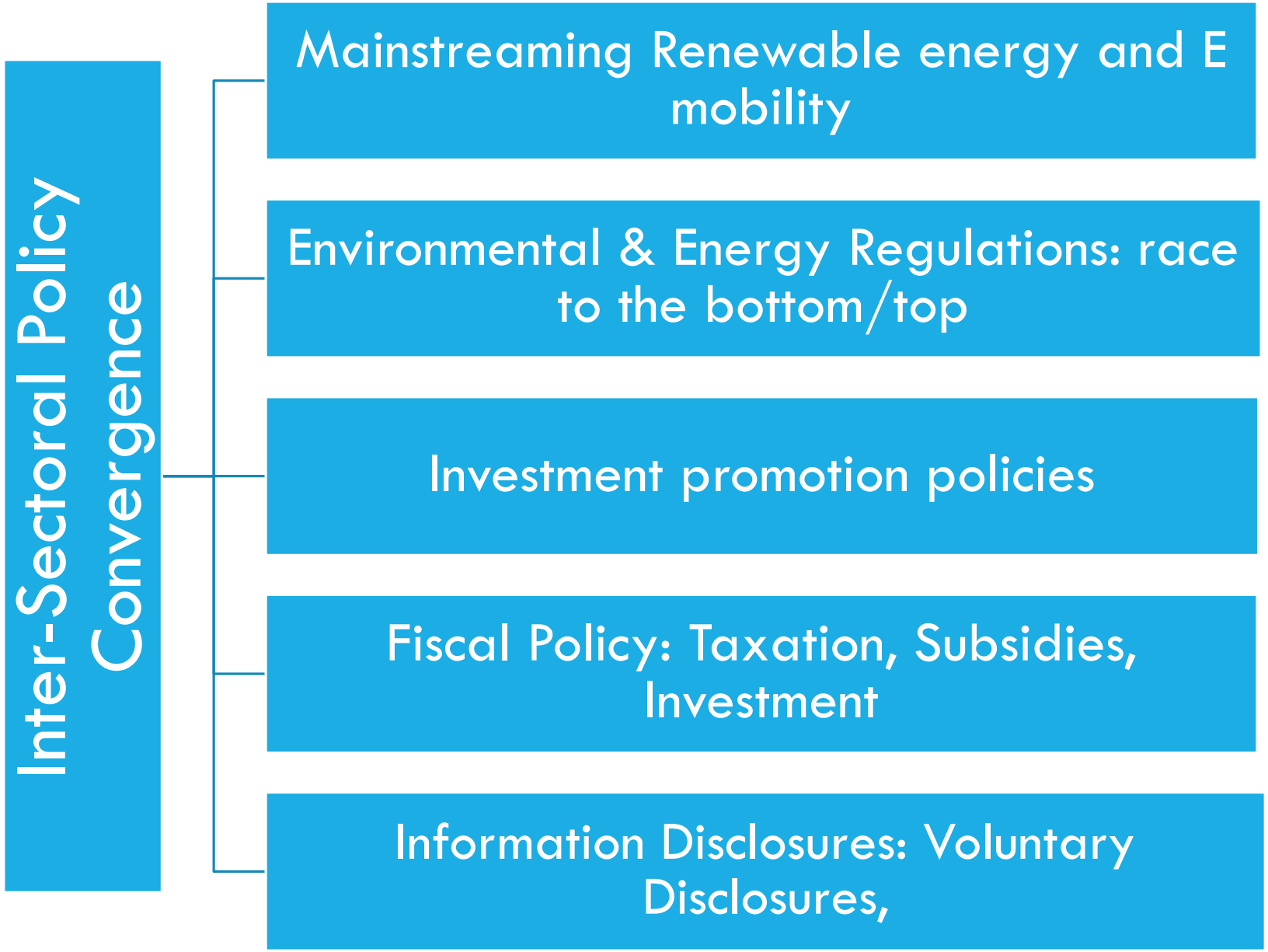


COMPARATIVE ANALYSIS

Parameters	E Bus	Diesel bus
Electricity	8/km	-
Diesel	Nil	20/km
Store	Nil	2/km
Emission	Nil	77 ton co2/yr
Price	1.90 crore	25 lakhs
ROI	25yrs	10yrs


BORDER ROADS ORGANISATION
ROHTANG PASS
(13058 FEET)
Mytrah NN4ENERGY
Pure Electric
Goldstone

LESSONS LEARNT: POLICY MATRIX FOR E MOBILITY



RECENT INITIATIVES

- Large scale Solar Energy Promotion through mainstreaming
- Stakeholders involvement through IEC activities
- Mobility Planning and Spatial Development

Thanks