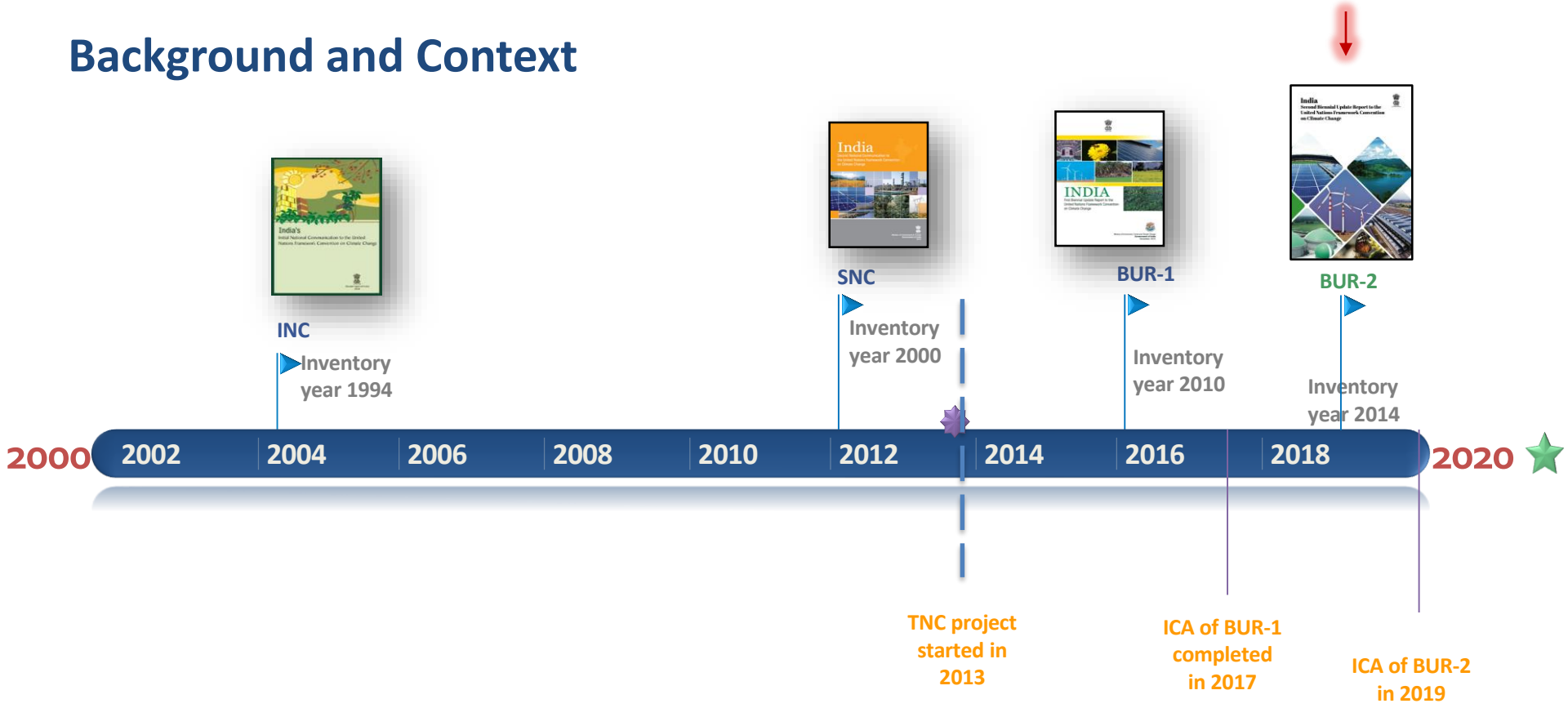
India's Second Biennial Update Report to UNFCCC

8th workshop of the facilitative sharing of views

SBI 51

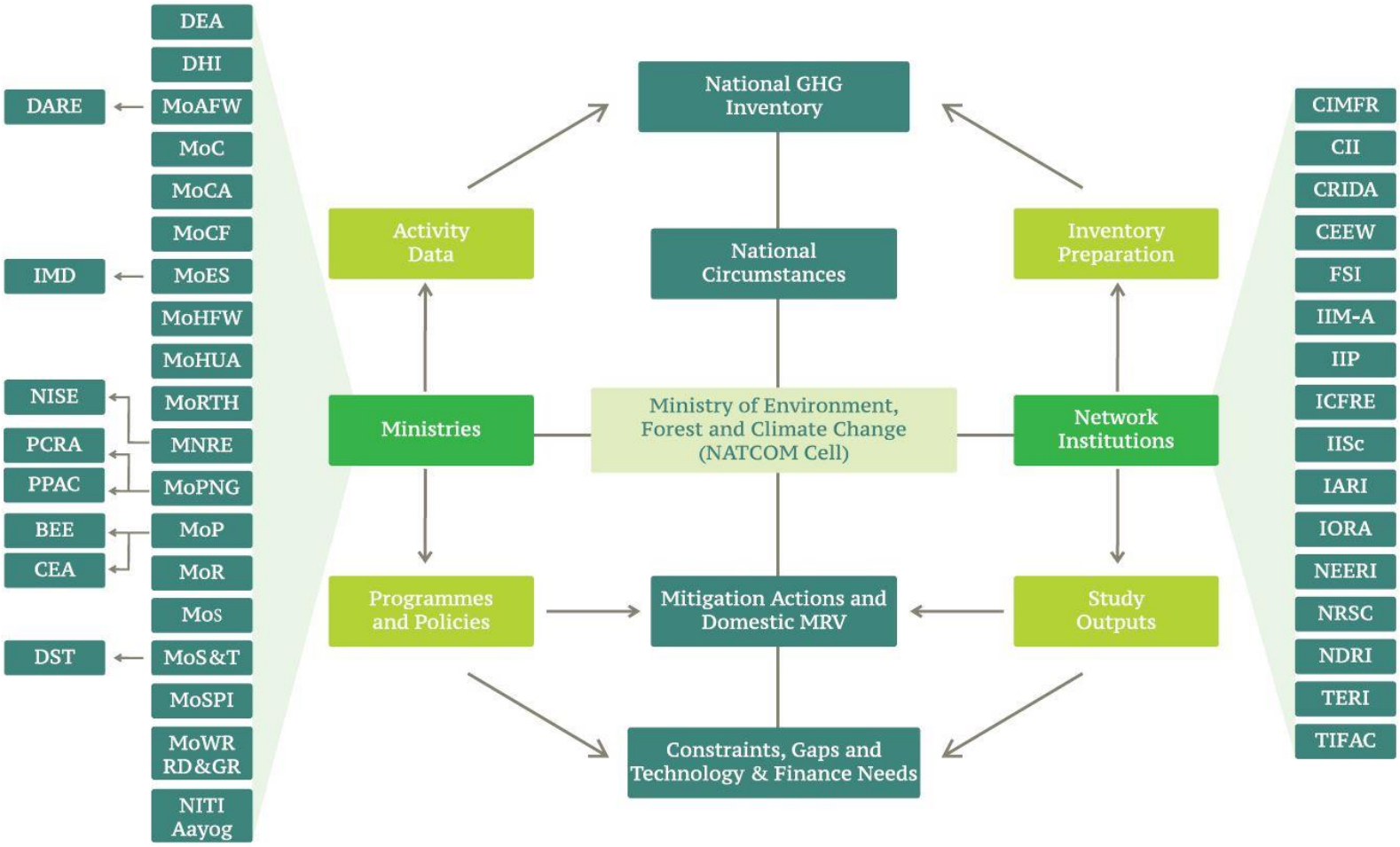
09 December 2019

Background and Context

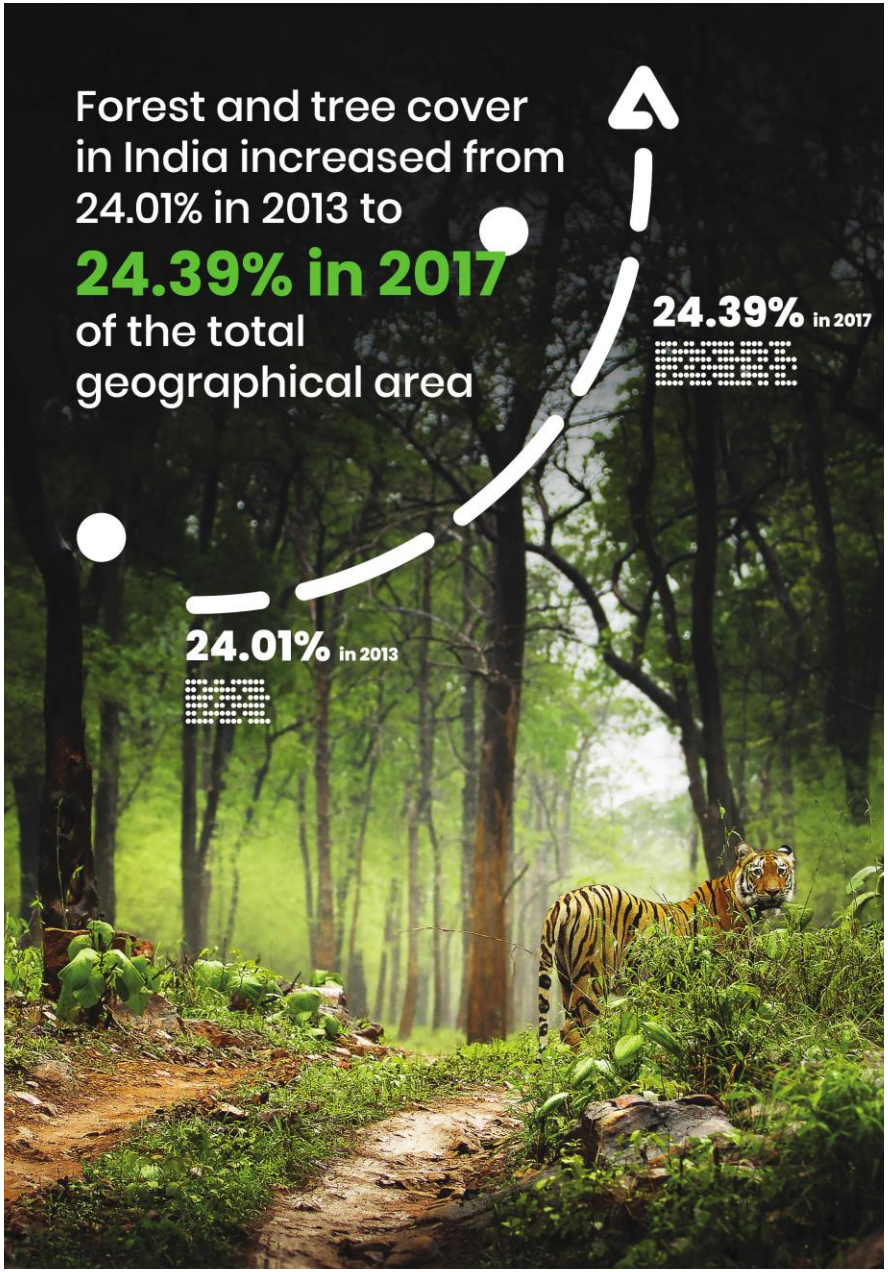


BUR-2 submission to UNFCCC:	31 December 2018
Technical Analysis by TTE:	27 to 31 May 2019
Final TA Summary Report:	02 October 2019

Institutional arrangement



NATIONAL CIRCUMSTANCES



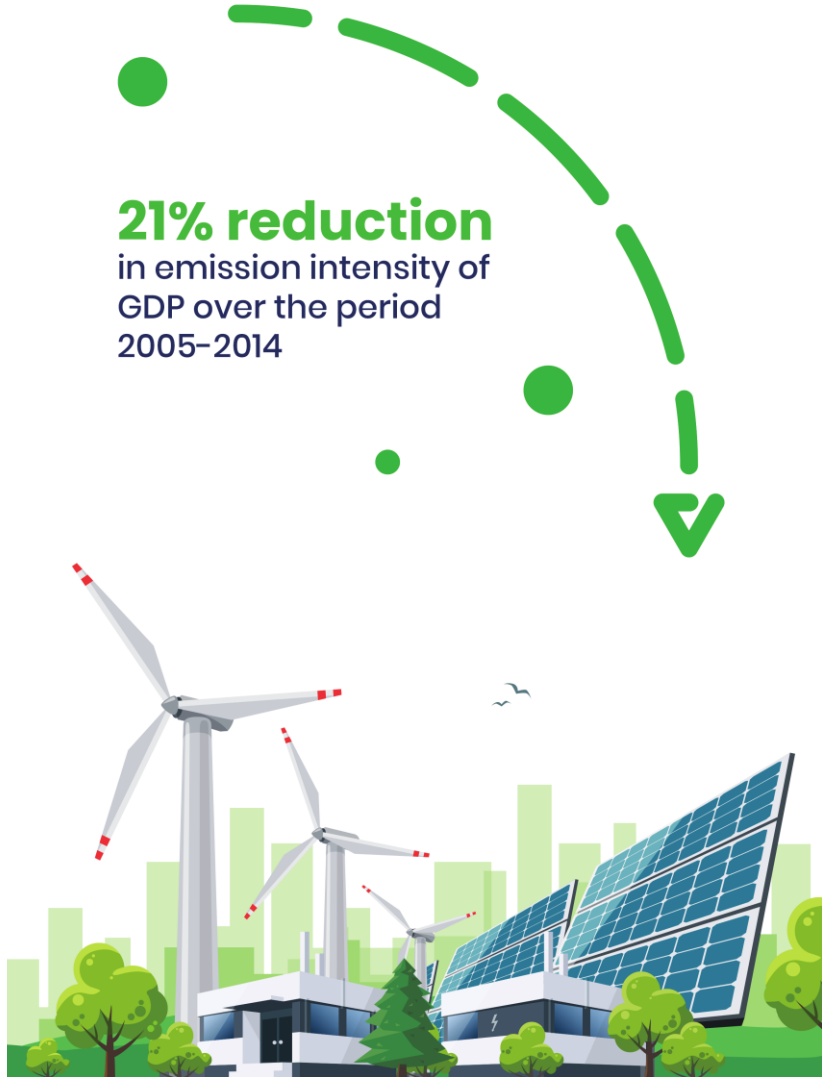
National Circumstances: Key features

Parameters	Measure
Total geographical area (Mha)	328.73
Area under agriculture (net sown area) as percentage of the total geographical area (2014-2015)	42.60%
Total cropped area (gross cropped area) (Mha, 2014-15)	198.36
Gross irrigated area (Mha, 2014-15)	96.46
Foodgrain production (million tonnes, 2016-17, fourth advance estimate)	275.68
Forest and tree cover as percentage of the total geographical area (India State of Forest Report 2017)	24.39%
Urban population as percentage of total population (2011)	31.14%
All India Poverty Head Count Ratio (2011-12)	29.50%
Life expectancy at birth in years (2012-13)	67.5
Literacy rate, 7+ years (2011)	73%
GDP in 2017-18, in trillion rupees, at constant (2011-12) prices	130.11
Share of mining and quarrying, manufacturing and construction in GVA in 2017-18 at constant (2011-12) prices	29.03%
Share of services in GVA in 2017-18 at constant (2011-12) prices	56.15%
Share of agriculture, forestry and fishing in GVA in 2017-18 at constant (2011-12) prices	14.82%
Livestock population excluding poultry (million), year 2012	512.06
Households with *kutcha* (mud huts) and semi-*pucca* (semi-concrete) houses	55%

New features added

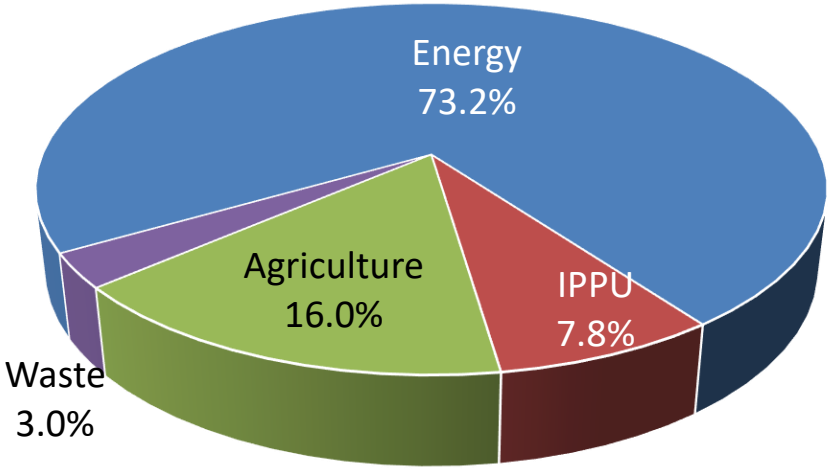
- Information on extreme weather events updated up to 2017 (BUR-1 gave details up to 2014).
- BUR-1 did not include **analysis on extreme events data**. In BUR-2 we have included the analysis done by IMD.
- New sections added on "**Development of climate resilience and disaster risk reduction** " and **"Sea Level Rise"**
- Information on **Integrated Coastal Zone Management (ICZM) Project** added under the section: Coastal and Marine Ecosystems
- New sub section opened under Agriculture: **Fisheries Resource.**
- New Sections added:
  - **India's Climate friendly lifestyle**
  - **India's Satellite Based Environmental Monitoring System**

NATIONAL GHG INVENTORY

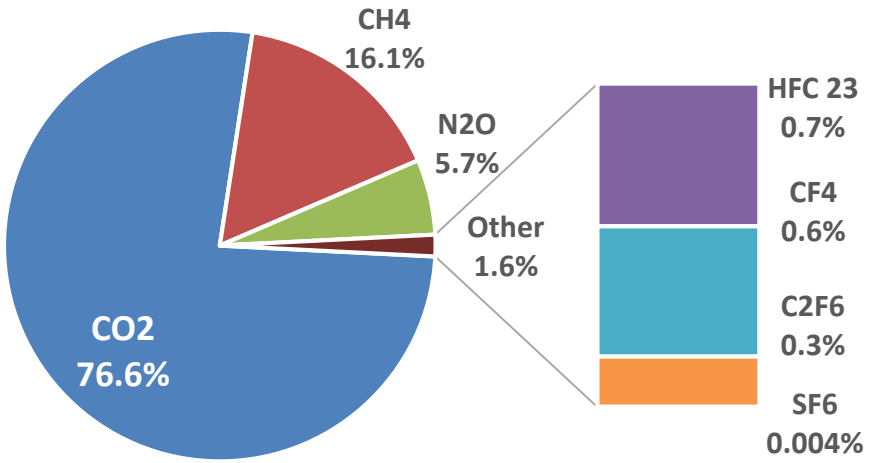


India's GHG Inventory, 2014 (Gg)

	CO_2 emission	CO_2 removal	CH_4	N_2O	HFC 23	CF_4	C_2F_6	SF_6	CO_2 equivalent
TOTAL without LULUCF (Gg)	**19,97,891.85**		**20,005.35**	**475.29**	**1.59**	**2.61**	**0.71**	**0.004**	**26,07,488.12**
TOTAL wirh LULUCF (Gg)	**20,15,107.88**	**3,19,860.23**	**20,053.54**	**476.71**	**1.59**	**2.61**	**0.71**	**0.004**	**23,06,295.43**
ENERGY	18,44,705.03		2,133.37	65.35					19,09,765.74
IPPU	1,53,186.81		177.85	10.36	1.59	2.61	0.71	0.004	2,02,277.69
AGRICULTURE			14,709.78	349.39					4,17,217.54
LULUCF	17,216.04	3,19,860.23	48.19	1.42					-3,01,192.69
WASTE			2,984.35	50.18					78,227.15

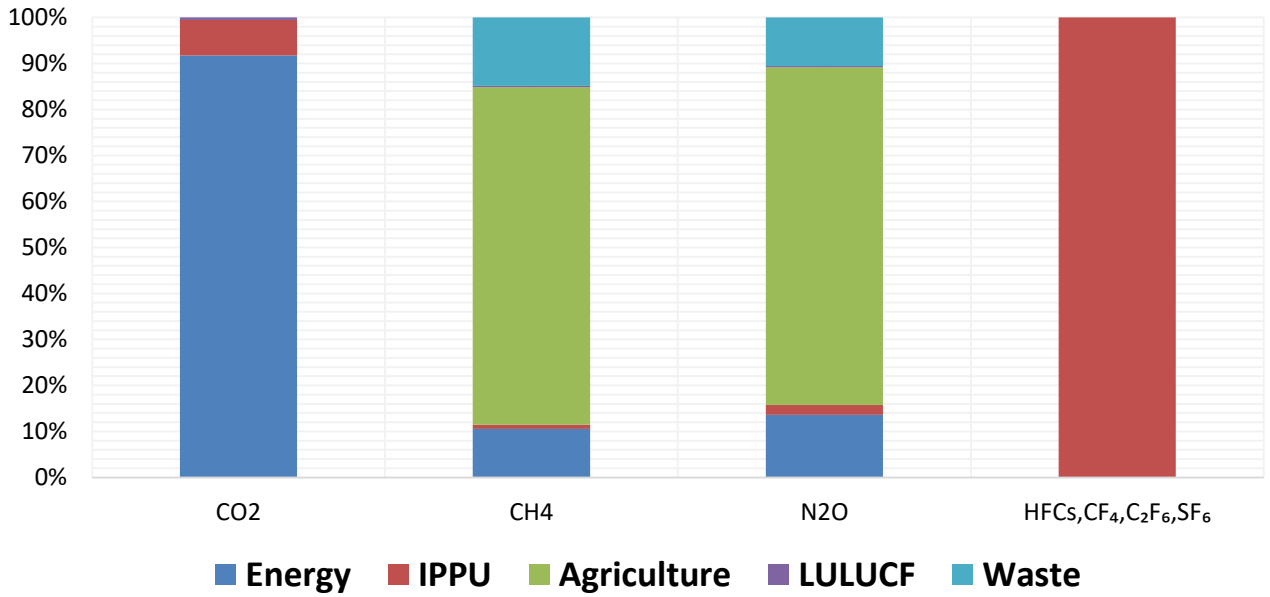


Sectoral distribution (without LULUCF), 2014

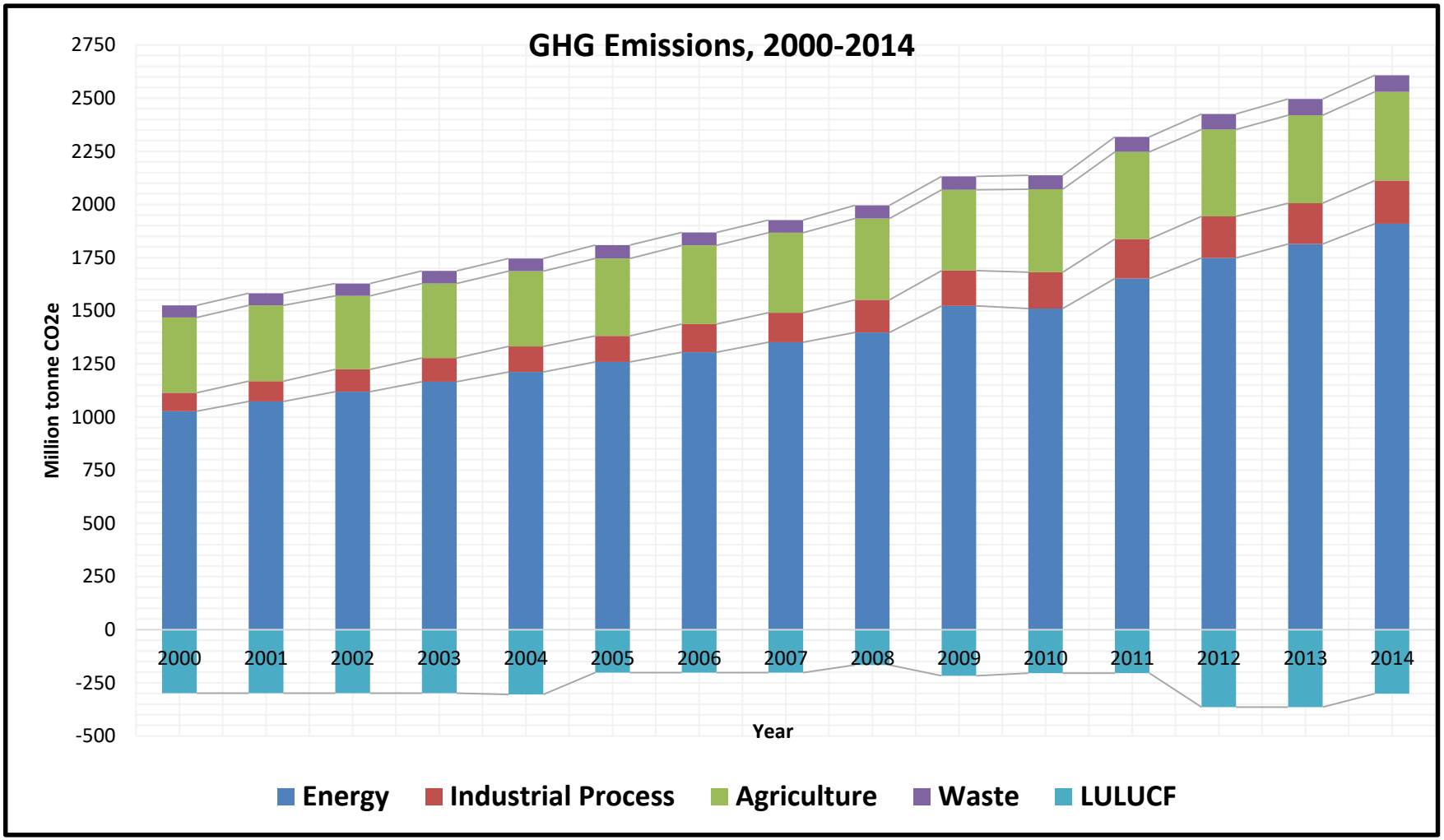


Gas-wise distribution (without LULUCF), 2014

Sector wise-Gas wise GHG Emissions (with LULUCF), 2014



Time series of emissions

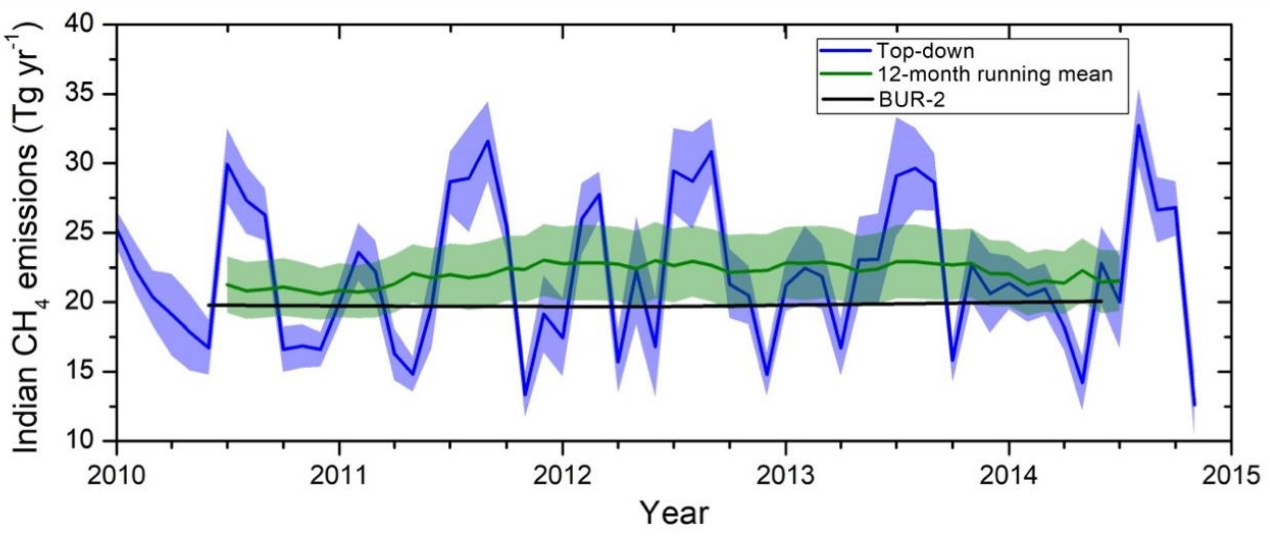


Source: Chapter 2, India's BUR-2

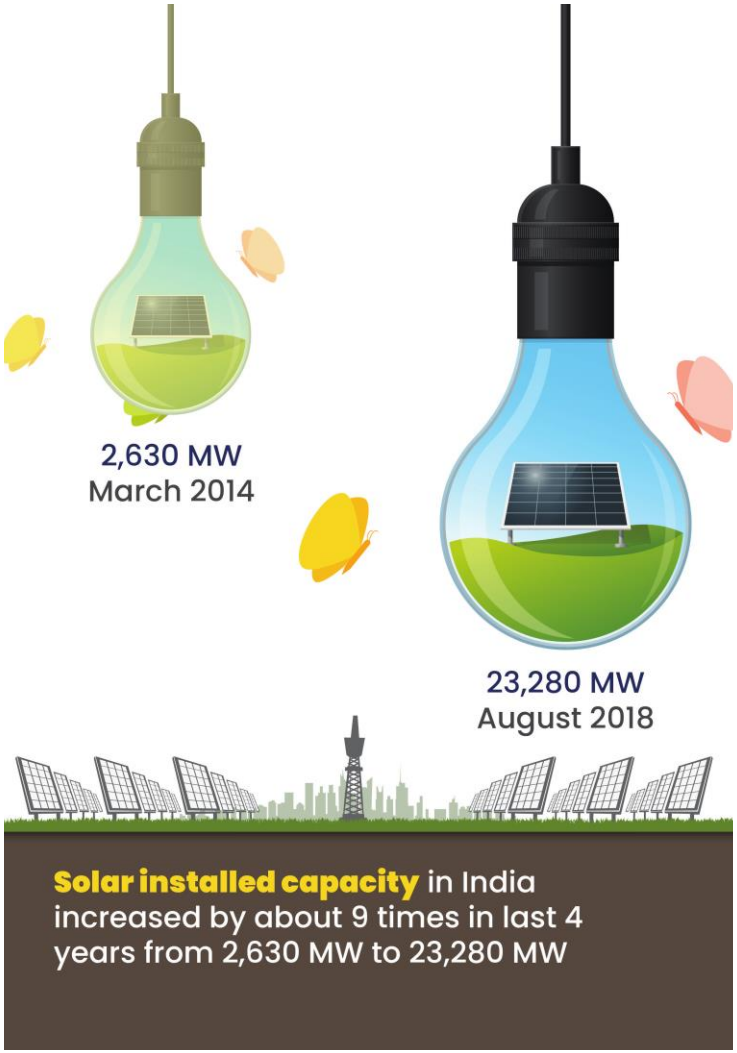
Salient features added in the chapter

- Details on methodology, activity data and emission factors including sources of activity data.
- Details on sub-sector level emission and removal estimates included.
- Table on Land use change included
- Key source analysis: level assessment and trend assessment
- Uncertainty Analysis
- Tables 1 and 2 as per the decision 17/CP.8 in addition to the combined table

Comparison of BUR-1 estimates with independent studies (paper published in Nature Communications).
A section has been added on **comparison of India's CH_4 emissions: Top-down with BUR-2 .**

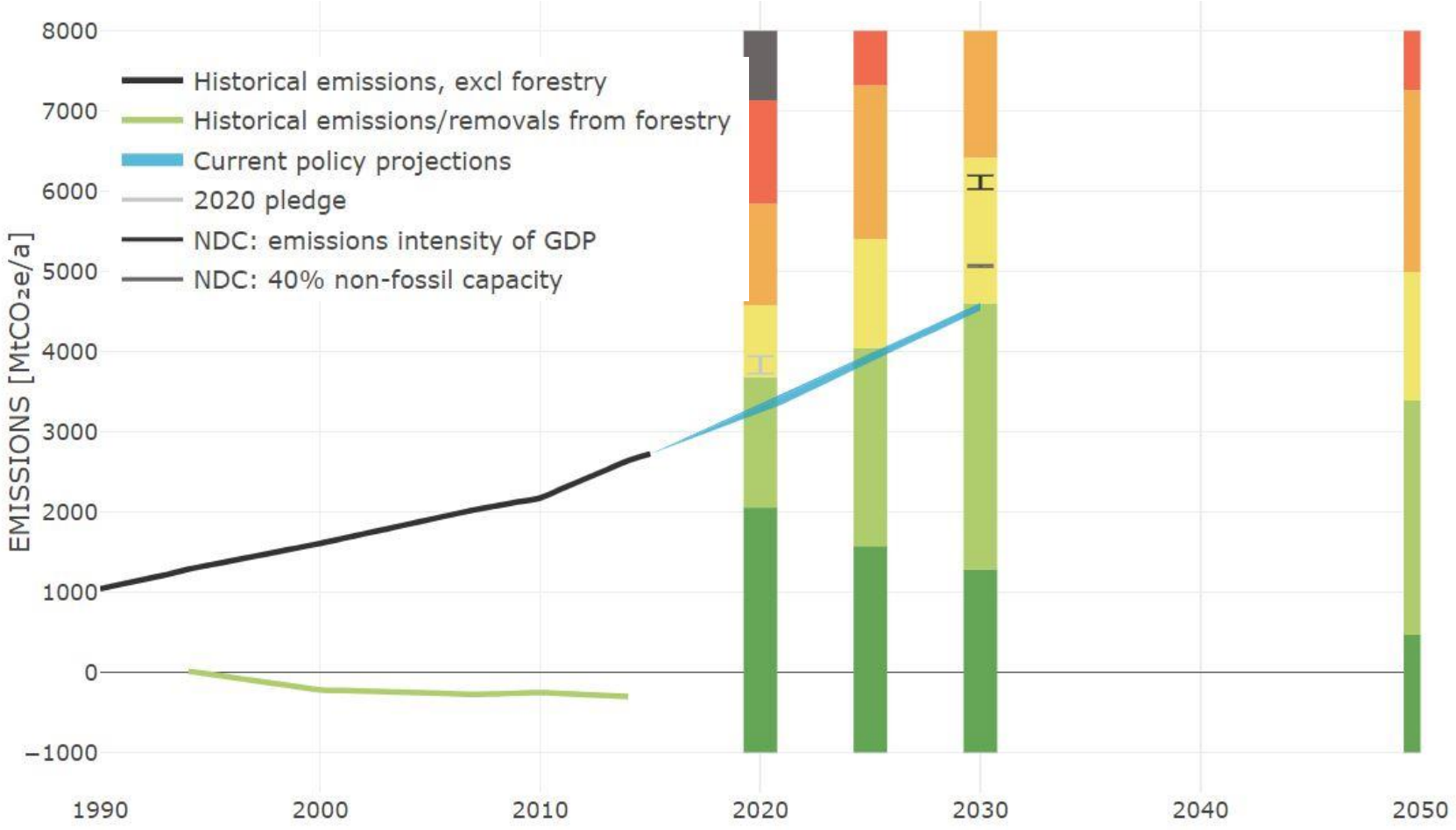


SUSTAINABLE DEVELOPMENT AND MITIGATION ACTIONS



Economy wide Assessment

"India remains on track to overachieve its "2˚C compatible" rated Paris Agreement NDC climate action targets"



Source: Climate Action Tracker

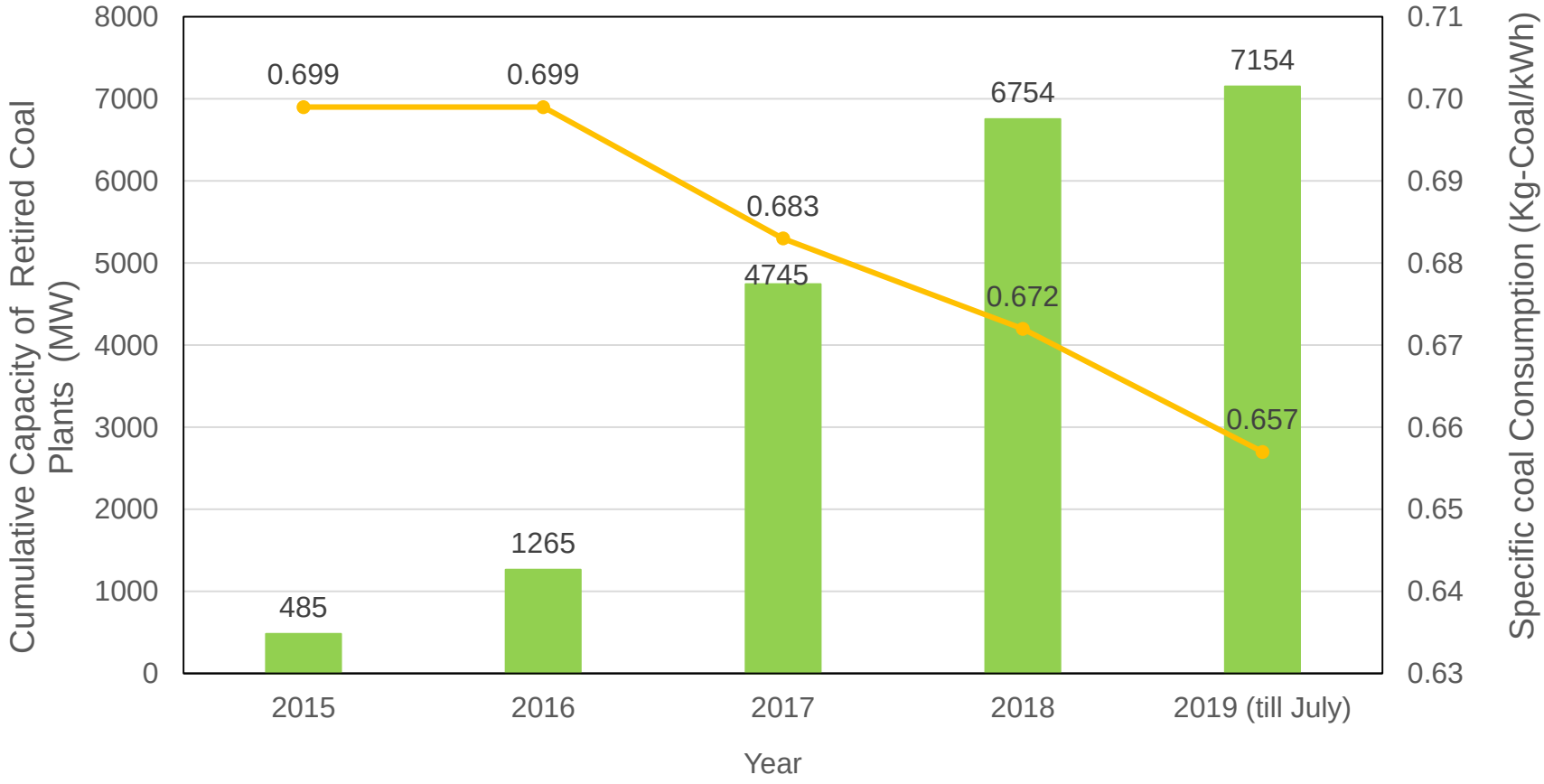
Renewable Energy

- **Rising share of non-fossil sources in installed capacity:** 30.5% in March 2015 to 37.1% in October 2019 (NDC: 40% by 2030)
- **Jump in Solar capacity addition:** 12 times in last 5 years (2.63 GW in March 2014 to over 31.7 GW in October 2019), CAGR of 65% is way above average global growth rate of 25-30%
- **Falling solar power tariffs:** US$ 0.24/kWh in 2009 to US$ 0.034/kWh in May 2017 (levelized tariff in respect of Bhadla Solar Park, Rajasthan) following market forces.
- **International partnerships:** International Solar Alliance (ISA)
- **Corporate voluntary commitments:** Some Indian conglomerates have committed to 100% electricity consumption from renewables (TATA Motors and Infosys by 2030, Mahindra & Mahindra by 2040)

Source: MoEFCC; MoSPI, Government of India

Clean Coal Technologies

India has retired over 170 old and inefficient thermal power units and is improving the performance of existing and new plants through mandate and markets



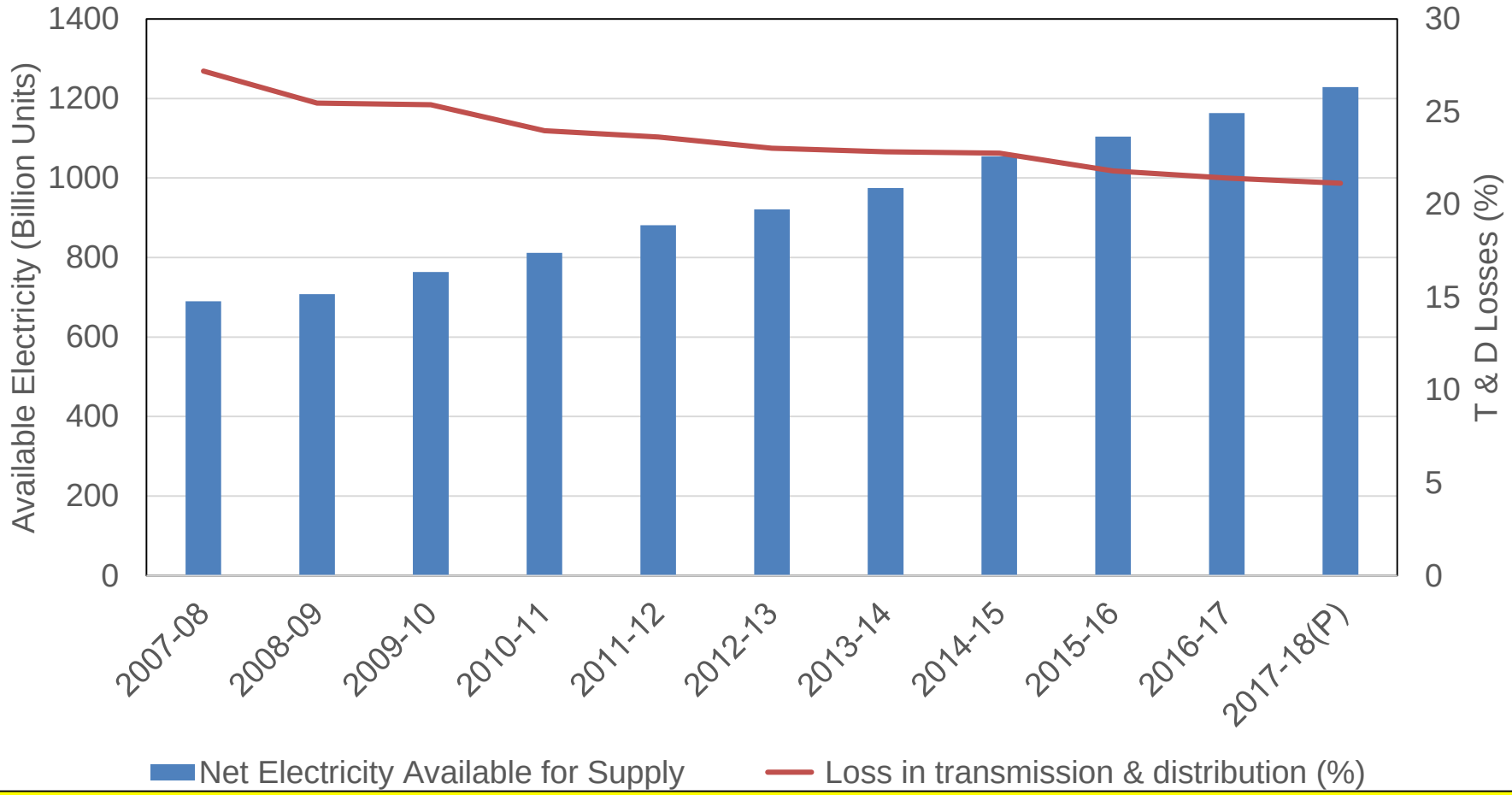
Source: MoEFCC, Government of India; Coal Swarm Database

Clean Coal Technologies

- **Coal Cess on every ton of coal used in India:** equal to around 30% of average pithead price of non-coking coal (Cess around US$ 6/tonne of coal)
- **Co-firing of biomass** pellets in coal power plants – target to reach 5-10% co-firing
- **Supercritical technology** has already been adopted to enhance the efficiency of coal fired thermal power plants
- Department of Science and Technology (DST) is exploring **Carbon Capture, Utilization and Storage (CCUS)** technologies
- Regulations to **reduce SO_2 emissions** using flue Gas Desulphurization (FGD) from coal plants in India since 2015

Source: MoSPI, Government of India

Electricity Transmission and Distribution (T&D) Losses

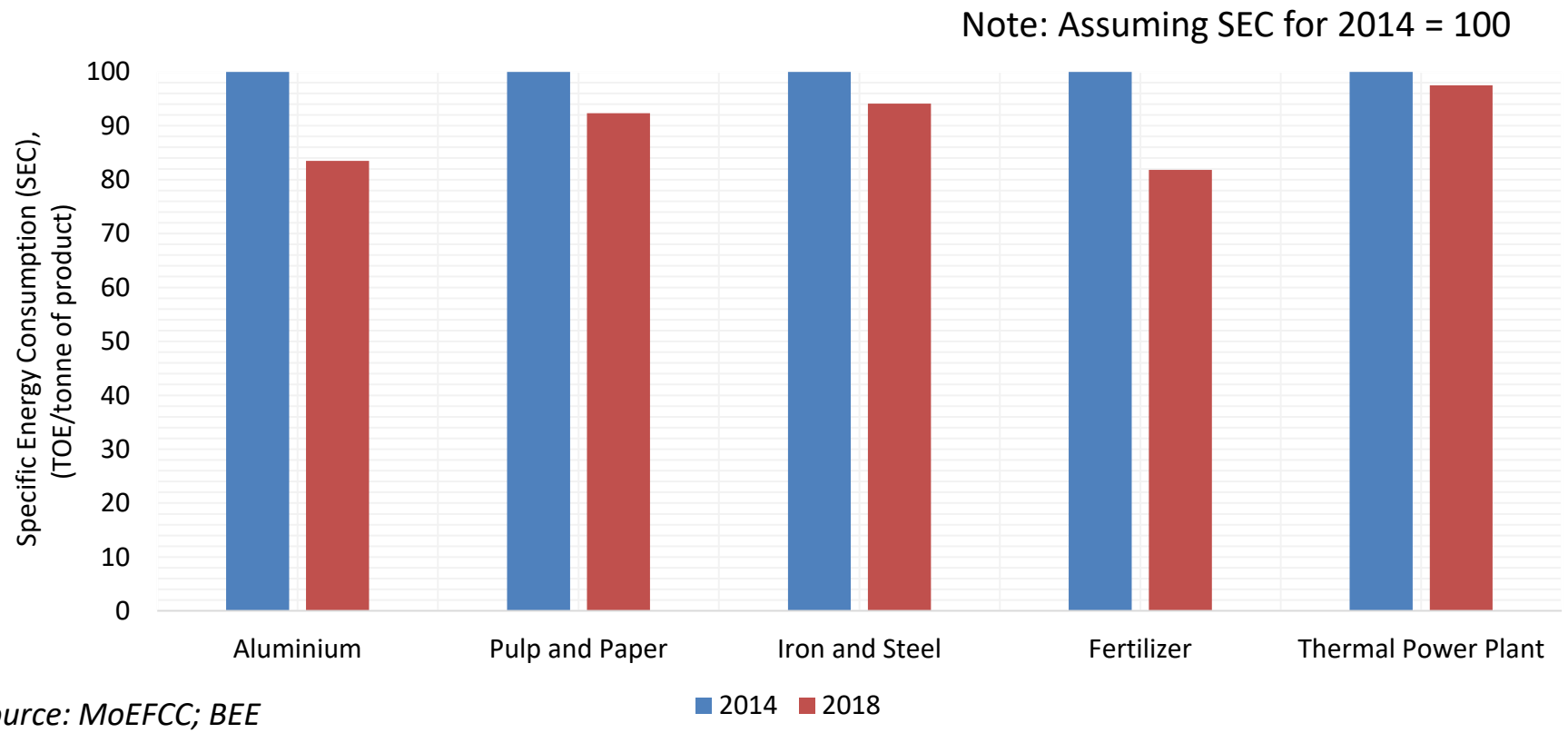


One percentage point reduction saves about 11 million ton CO_2 per year and can power almost a million electric cars for a year

Source: MoSPI, Government of India

Sectoral Energy Efficiency Improvements

- **Perform, Achieve and Trade (PAT)** to improve industrial energy efficiency
- 31 $MtCO_2$ of emission reduction in PAT-I (2012-15), 60 $MtCO_2$ projected reductions in PAT-II (2016-19)
- Investment of US$ 3.5 and 4.3 billion by Indian industry in PAT-I and II, respectively



Source: MoEFCC; BEE

Clean and Efficient Energy for All

- **UJJWALA: Subsidized LPG connections to the poor for cooking.** Provided to over 80 million poor households under PMUY. 86% of PMUY Beneficiaries who are at least one year old returned for the second refill
- **SAUBHAGYA: 99.99% households electrified** under Saubhagya Scheme
- **UJALA: Over 361 million LED bulbs distributed** till 30th November 2019, resulting in energy saving of about 47 billion kWh and reduction of 38 $MtCO_2$ per year
- **Street Lighting National Programme: 10.55 million LED streetlights installed**, leading to an annual emission reduction of 4.88 $MtCO_2e$
- **Standards and Labelling (S&L)** for efficient appliances continuously improves the appliance standards and implementation in the market
- **Energy Conservation Building Codes** (ECBC) for new and retrofitted buildings implemented.
- India achieved about 6 billion sq. ft. of Green Building footprints (**about a third of total floor space**), and with more than 5400 new green building projects it will touch 10 Billion sq. ft. by 2022.

Source: MoEFCC; BEE

Transport Sector

Biofuels Policy and Clean Fuel Standards

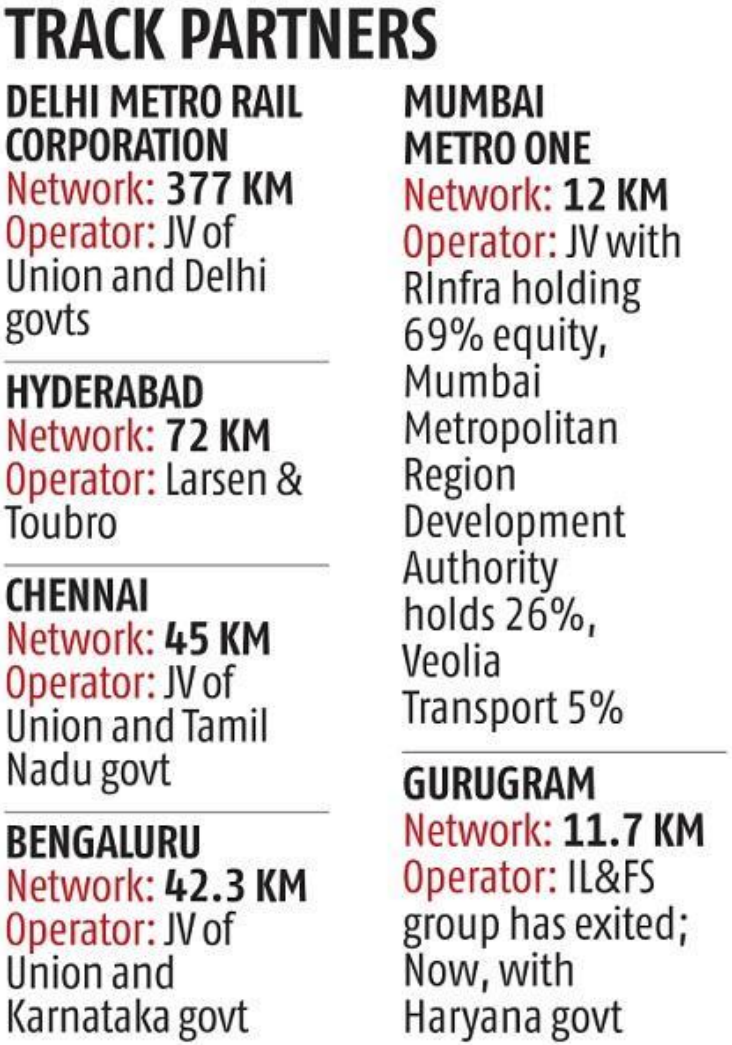
- **Biofuel Policy 2018:** 20 per cent ethanol blending with petrol by 2030, 10 per cent of ethanol blending with petrol by 2022
- **Ethanol blending with petrol expected to reach 7.2% soon** (2.37 billion litre) as against 4.2% in 2017-18 (1.5 billion litre)
- Government has decided to leapfrog directly to Euro-6 equivalent (BS-VI) fuel efficiency norms **from 1st April 2020** in the entire country

Source: MoEFCC; MoPNG

Transport Sector

Mass Rapid Transport Systems

- **As of February 2019, 585 km of Metro lines are operational**
- There are about 600 km lines under construction which will be operational in next five years
- About 1000 km of metro line proposals under planning
- Will cover around 20 cities
- Modal shift is happening



Source: MoEFCC; Business Standard

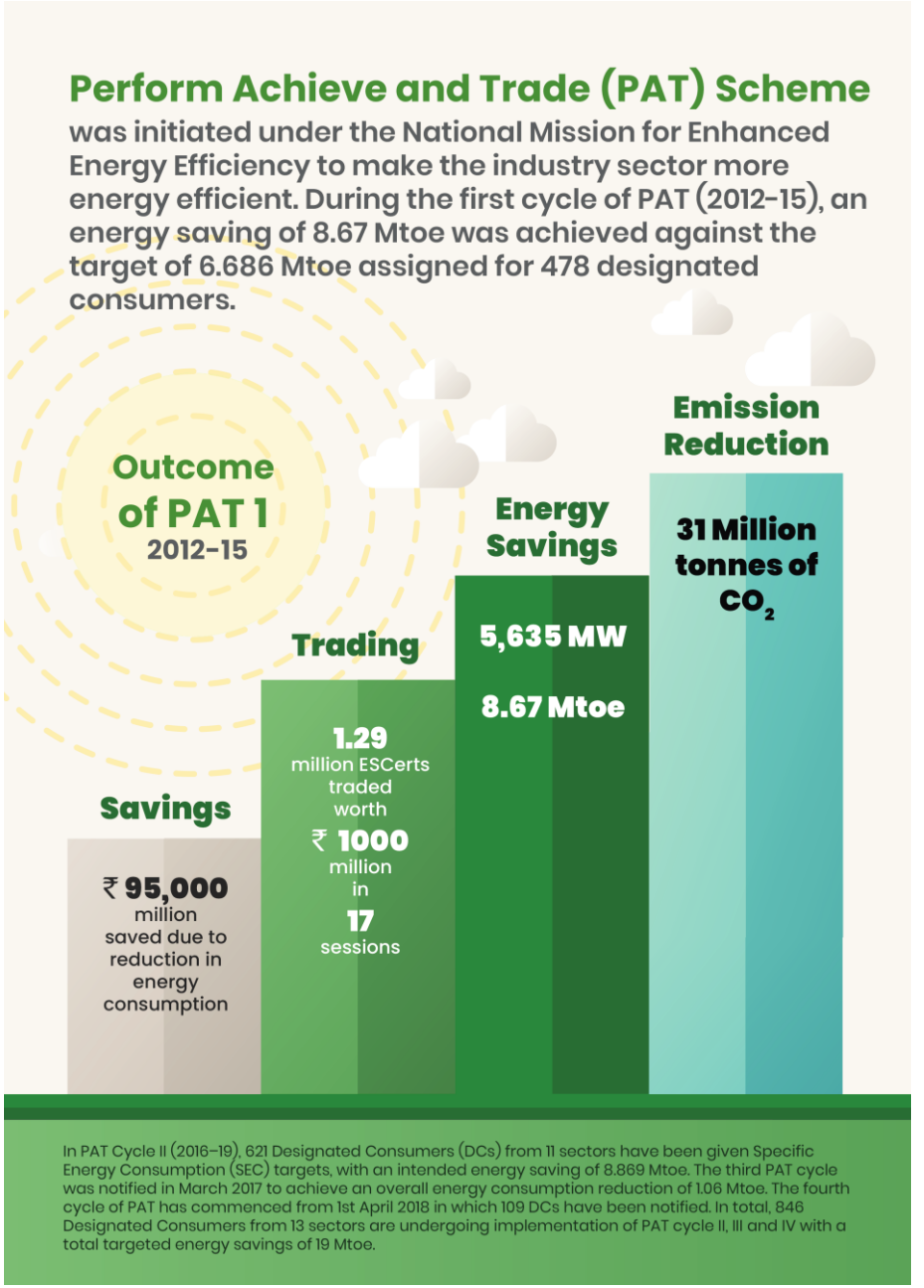
Transport Sector

Electric Vehicles

- National Electric Mobility Mission Plan (2020)
- Faster Adoption and Manufacturing of Hybrid and Electric vehicles (FAME)
- Electric buses
- Installation of EV chargers

- **Agriculture Sector**
  - National Mission on Sustainable Agriculture (NMSA)
  - Paramparagat Krishi Vikas Yojana (PKVY)
  - National Innovations in Climate Resilient Agriculture (NICRA)
  - Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)
  - Crop Diversification Programme
  - System of Rice Intensification (SRI)
  - Direct Seeded Rice (DSR) cultivation
  - Production of neem-coated urea
  - Avoiding crop residue burning
  - National Horticulture Mission
- **Forestry Sector**
  - Thrust on Forests, Trees outside forests, and Agroforestry (TFA)
  - Compensatory Afforestation Fund Act 2016
  - National Afforestation Programme
  - Green Highways (Plantation & Maintenance) Policy, 2015
  - National Mission for a Green India
  - National REDD+ Strategy

DOMESTIC MEASUREMENT, REPORTING AND VERIFICATION ARRANGEMENTS



Name of the Sector	Schemes and Processes	Objective	MRV	Measuring and reporting agencies	Frequency/ Events of measuring and reporting	Verifi-cation agencies	Type of verification
Power sector	User Guide for CO_2 Baseline	Developing CO_2 baseline database for the power sector	M&R Identified	CEA	Annual monitoring and reporting	CEA	Self-verification
	Adoption of clean coal technologies	Achieving resource efficient generation	M&R Identified	CEA, CERC, SERC	Annual monitoring and reporting	CEA	Self-verification
Renewable energy	Renewable Purchase Obligation (RPO)	To promote renewable sources of energy by creating a quota for it	MRV Identified	SERC, DISCOMs, POSOCO, CAG	Annual monitoring and reporting 2015 - CAG conducted an audit	POSOCO, CAG	Third Party Verification

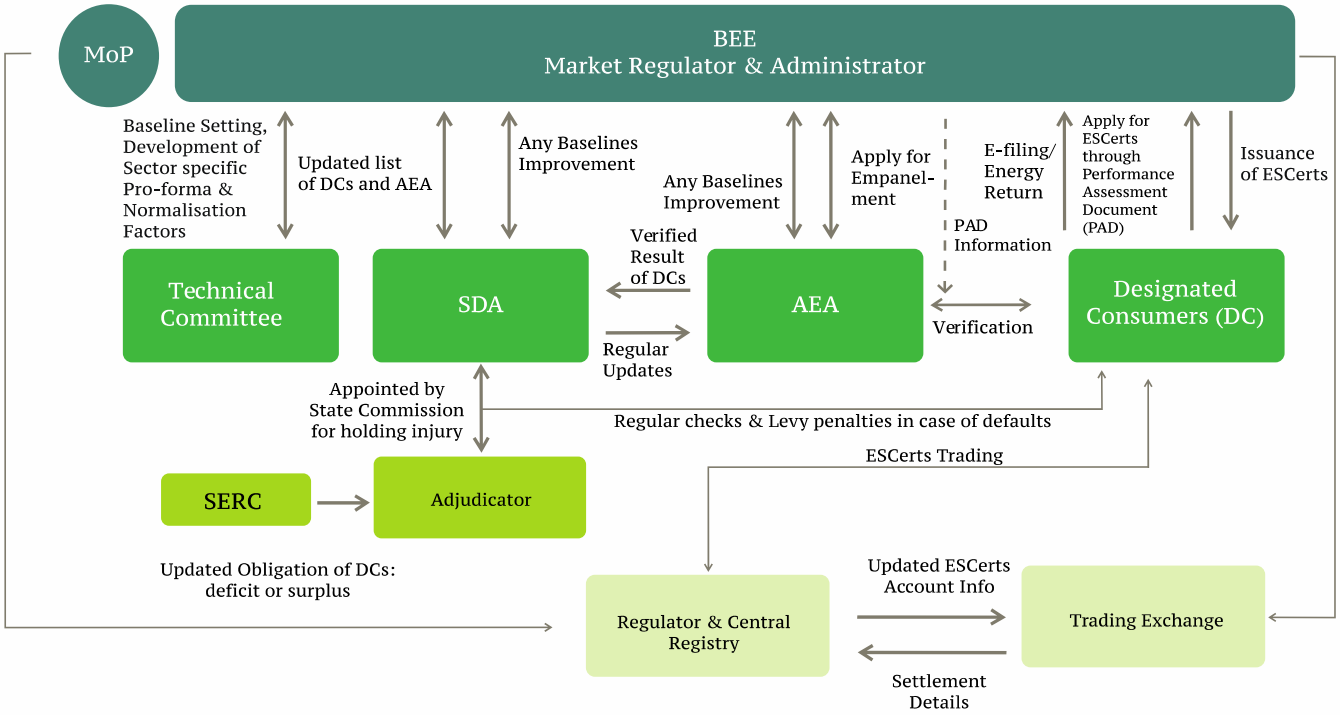
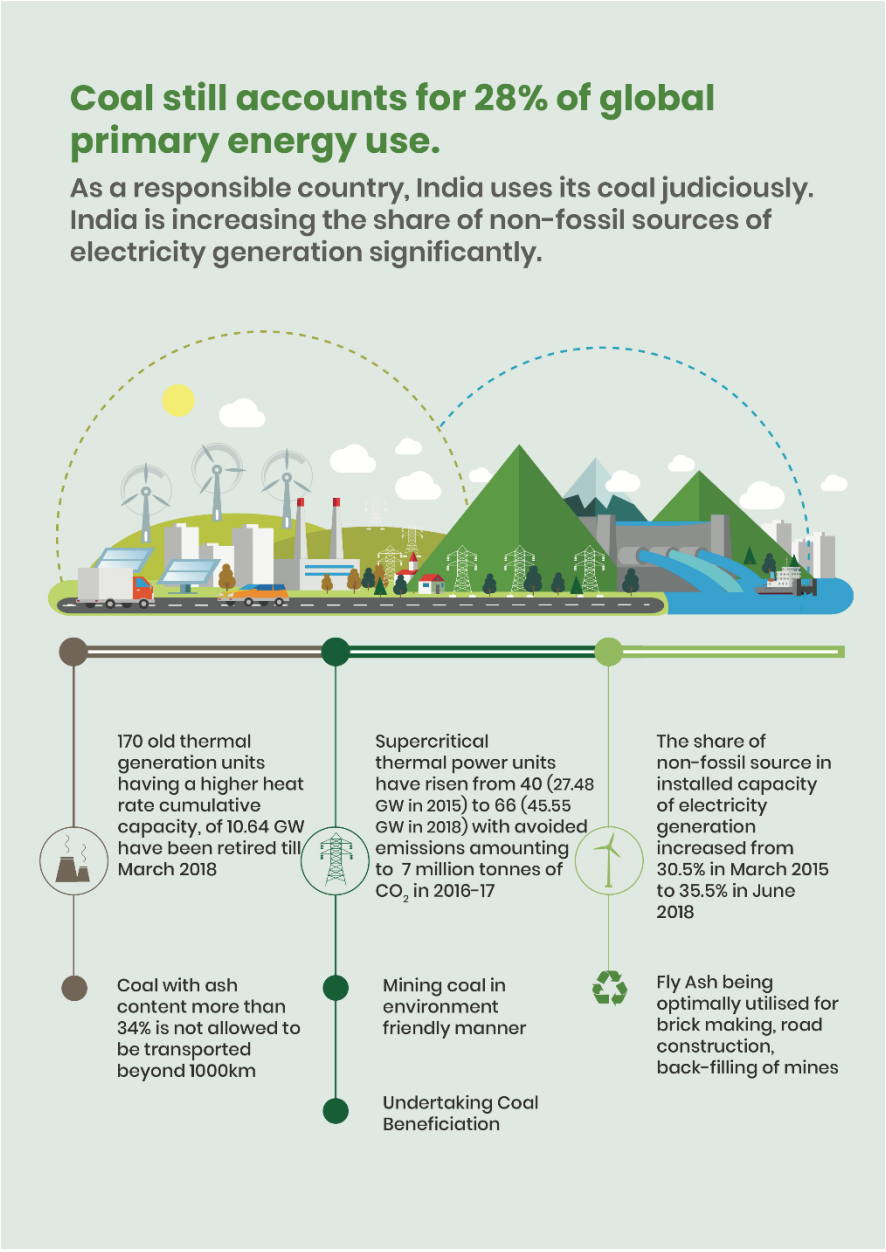


Figure 4.2: MRV structure of the Perform, Achieve and Trade scheme. *Source: (BEE, 2016)*

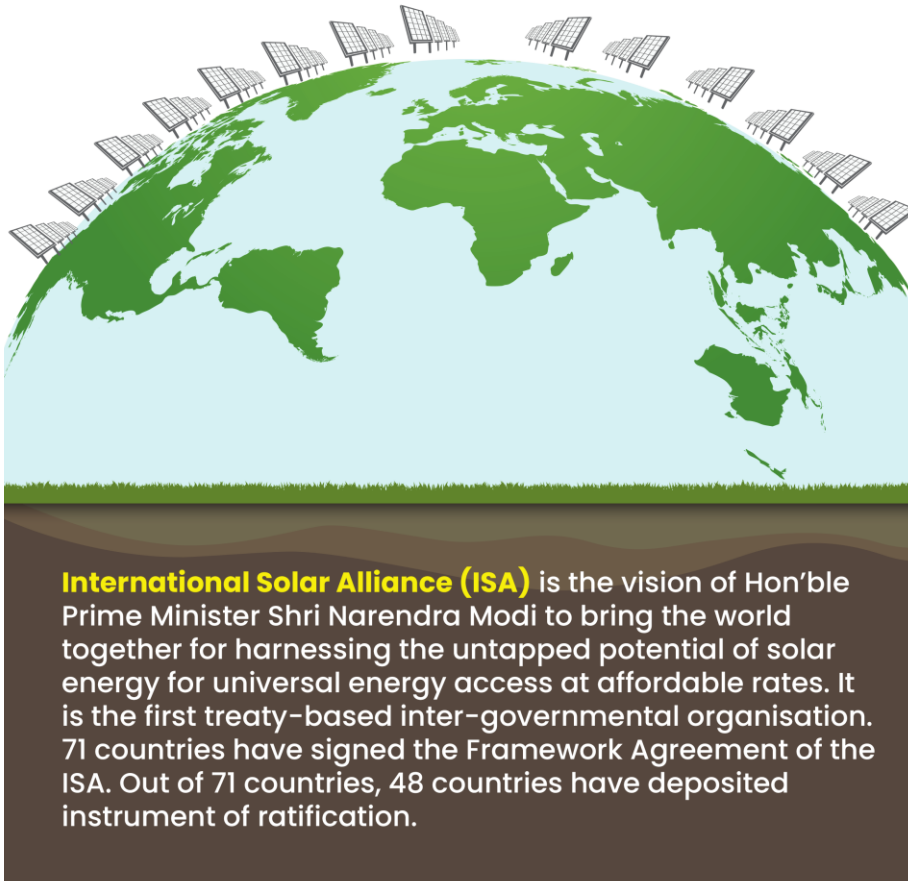
FINANCE, TECHNOLOGY AND CAPACITY BUILDING NEEDS AND SUPPORT RECEIVED



Main highlights

- **Technology needs as identified in BUR-1 have neither been transferred nor facilitated and remain unfulfilled.**
- **BUR-2 presents additional technology-related needs.**
- Capacity-building needs reported in second National Communication are still relevant beyond BUR1 and BUR2. It is a dynamic evolving process with new needs continuing to emerge with time. India considers all capacity-building needs equally important.
- India has harvested most of the low-hanging fruits by optimally deploying its domestic resources and has **achieved a reduction in emission intensity of GDP by 21% over the period 2005-2014.** To continue meeting its Paris commitment and implement NDCs in a time-bound manner, **India requires new, additional, predictable and climate-specific financial resources which are not forthcoming.**

OTHER INFORMATION



Currently 84 Signatories and 63 ratifications

Additional Information relevant to climate change and India

- Enabling policies
- Awareness initiatives (SECAS train, Green Good Deeds)
- International cooperation- ISA, Multilateral Environmental Agreements, Bilateral cooperation (sector wise).
- Initiatives for Disaster Risk Reduction- Coalition for Disaster Resilient Infrastructure
- Climate Change Action Programme
- Climate Research
- List of important policies and measures at national and state levels (incremental to BUR-1)

Experience and lessons learned in participating in the ICA process

Preparing for the ICA process

- Participation in the ICA process has raised the profile of climate actions at the domestic level:
  - *Enhanced reporting of actions from various government departments and state agencies*
  - *Initiation of conceptualizing a sustainable National Inventory Management System, with the help of international support*
- BUR preparation has enhanced domestic coordination/ domestic MRV in providing climate related information:
  - *More number of institutions have been identified and included in the NATCOM process.*
  - *Awareness level has risen in various departments and state governments on the matters related to national communication and BUR processes.*

Enhancing transparency of reporting and areas for improvement

- The Secretariat has been cooperative, facilitative and supportive during the process of Technical Analysis.

  - Technical analysis process helped collating and consolidating capacity-building needs.

Questions received

Country	General	National circumstances and institutional arrangements	National GHG Inventory	Mitigation actions and their effects	Constraints and gaps, and related financial, technical and capacity building needs, including support needed and received	Any other information	TOTAL
Canada			1 (Key category analysis)		1 (Enhancing capacities for inventories)		2
EU		1 (State level action plans)	1 (Transparency of methodologies)	1 (Reduction potential of mitigation actions)			3
New Zealand					1 (F-gas Emissions)		1
Turkey			1 (The role of official statistics in the preparation of the National GHG Inventory)	1 (Implementation of the National Action Plan on Climate Change (NAPCC))		1 (Gender considerations)	3
USA	1 (BUR arrangements and compilation processes)		1 (Transportation)				2
TOTAL	1	1	4	2	2	1	11

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YEARS OF
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THANK YOU

Country	Date	Category	Subject	FSV Question	Answer
Canada	9.11.2019	Constraints and gaps, and related financial, technical and capacity building needs, including support needed and received	Enhancing capacities for inventories	India's Second BUR states "establishing an integrated domestic MRV system for assessment of GHG mitigation actions is a capacity building need for India" (pg. 15). Can India elaborate on what benefits they see to an improved domestic MRV system? Does India see a close relationship to building MRV capacity and its National Inventory Management System (NIMS), currently being developed?	Although most existing Measurement, Reporting and Verification (MRV) systems do not directly track GHG emissions and mitigation impact, existing reporting is useful in arriving at reasonable estimates of the impact of policies. An accomplished MRV arrangement enables transparent accounting of the mitigation actions through end-to-end information management of a given system. For India, an improved domestic MRV system and a robust National Inventory Management System (NIMS) are complementary to each other.
Canada	9.11.2019	National GHG inventories	Key category analysis	Canada commends India for their use of the 2006 IPCC Guidelines for sections of their national inventory. In India's Second BUR, India identifies key category analysis. Can India share how this analysis is taken into account as part of their inventory improvement planning?	Key category analysis has been carried out to identify sources with significant impact (up to 95%) on total emission levels or trends. The primary purpose of key category analysis is to prioritize application of higher tier methodologies for key sectors, to design additional requirements of QA/QC for these key categories, and to allocate and make the best use of available resources for sources with significant impact on total emission estimate. This would lead to a reduction in the uncertainties in the estimates to the maximum extent possible. For details, please refer to BUR-2 section 2.4.

Country	Date	Category	Subject	FSV Question	Answer
EU	8.11.2019	Mitigation actions and their effects	Reduction potential of mitigation actions	Whilst emission reduction potential of mitigation actions are reported in the BUR2, it is not clearly reported if the implementation of these actions will lead to the fulfilment of India's emission intensity target mentioned in Chapter 1.12, page 48 of BUR2. Does India already know if further action is required?	We would like to draw the attention on section 3.1 on page 99 of BUR-2. India took a voluntary pledge to reduce the emission intensity of its GDP by 20-25% by 2020 from 2005 levels (excluding emissions from agriculture) in 2010. In 2015, India further enhanced ambition in its NDCs to reduce emission intensity of its GDP by 33-35% by 2030 from the 2005 level. India's emission intensity reduction targets are economy-wide. As a result of proactive policies and action by India in various sectors, an emission intensity reduction of 21% between 2005 and 2014 has been achieved. The decrease in the emission intensity of India's GDP has been made possible through consistent efforts by the government towards establishing commensurate policies and their implementation, institutions and capacities across all sectors. Therefore, over the years, the Government of India and various state governments have undertaken proactive policies and measures. These efforts to implement the Convention, keeping in mind the national circumstances, have spanned across sectors and regions. Substantial resources are being committed from domestic resources towards this, each year.
EU	8.11.2019	National circumstances and institutional arrangements	State level action plans	It is noted that as part of the NAPCCC 32 states and union territories of India, of which there are 36 entities in total, are preparing state level action plans. Does India see potential to further engage the remaining four states in this process? What opportunities does India see for joint learning in state level engagement, and are there any plans for this coordination?	The States/Union Territories have prepared their State Action Plan on Climate Change (SAPCC) in line with the NAPCC taking into account State's specific issues relating to climate change. The remaining States/ UTs are also in the process of developing their SAPCCs. There is a duly coordinated process which is followed in formulating SAPCCs. All the SAPCCs are endorsed by the Expert Committee on Climate Change (ECCC). Based on the recommendations of this committee, the National Steering Committee on Climate Change (NSCCC) considers and endorses the SAPCC.

Country	Date	Category	Subject	FSV Question	Answer
EU	8.11.2019	National GHG inventories	Transparency of methodologies	It is noted that the transparency of methodologies, including documentation of activity data and emission factors, for estimating greenhouse gas emissions and removals varies between the inventory sectors presented in Chapter 2 of the BUR2. For example, the section on emissions from the IPPU sector does not present any activity data or emission factors in tabular form. Does India have a plan to ensure that activity data and emission factors used are consistently and transparently documented throughout the inventory chapter in future BUR submissions?	Activity data and emission factors are integral parts of GHG inventory preparation. The challenge lies in the enormity of the data for these sectors. Presenting the activity data and emission factor (especially for each sub sector of inventory categories separately) is not a mandatory requirement. As a progressive reporting practice, however, the activity data and emission factors have been documented in the inventory chapter of BUR-2 keeping the sectoral reporting consistent across sectors to the extent possible. Because of the diversity inherent in the sector, qualitative information on activity data for IPPU sector has been given in BUR-2 on page 66.
New Zealand	8.11.2019	Constraints and gaps, and related financial, technical and capacity building needs, including support needed and received	F-gas Emissions	Can India please clarify the barriers it has in estimating and reporting all F-gas emissions (HFCs, PFCs and SF6)? What capacity-building needs, if any, has India identified to enable estimating and reporting these emissions in future reporting cycles?	Most of the fluorinated gases from the sectors where these are occurring have been duly estimated and reported in BUR-2 (page 65). However, due to lack of organized data and their dispersed nature, there are some challenges and capacity-building needs. For instance, Indian electronic products contributing to F-gas emissions covered under this category are a part of global supply chain and most of the manufacturing involves assembling of imported electronic components, data on gases involved are not available. In addition, mobilization of this industry has been a challenge as it is difficult to find GHG emission inventory experts for this sector. There is a need for training in GHG estimations for this sector. In addition, dedicated studies would also be needed for Refrigeration and Air Conditioning industry and Electrical Equipment categories.

Country	Date	Category	Subject	FSV Question	Answer
Turkey	8.11.2019	National GHG inventories	The role of official statistics in the preparation of the National GHG Inventory	What is the role of National Statistical Office in the preparation of India's National GHG Inventory? May India provide information to what extent activity data used in the latest GHG Inventory are gathered from official statistics?	**S**ecretary, Ministry of Statistics and Programme Implementation (MoSPI) is a member of the National Steering Committee, the apex body to oversee and guide the preparation of the BUR including the national GHG inventory. MoSPI publishes Energy Statistics that is used as a data source for inventory preparation. Further, different Ministries also have their own statistical offices/ divisions that publish reports on related official data e.g. the Economics and Statistics Division of Ministry of Petroleum and Natural Gas publishes the Indian Petroleum and Natural Gas Statistics which was used in preparation of national inventory. In addition to this, official statistics of the Ministry of Road Transport and Highways and Ministry of Agriculture and Farmers Welfare was also used. Statistics from industry associations such as Fertilizer Association of India and Society of Indian Automobile Manufacturers was also utilized. Thus, a mix of official government statistics and the statistics of industry associations and other organizations, as appropriate, is used for preparation of the National GHG Inventory.
Turkey	8.11.2019	Mitigation actions and their effects	Implementation of the National Action Plan on Climate Change (NAPCC)	Turkey would like to ask India about the challenges on implementing its NAPCC. Furthermore, could India share information on key lessons learned from implementing state action plans prioritizing the transport sector?	As explained in section 5.2.2 of BUR-2, India's climate actions are largely financed from its own domestic sources, including budgetary support as well as a mix of market mechanisms together with fiscal instruments and policy interventions. The eight missions under the National Action Plan on Climate Change (NAPCC) on solar energy, energy efficiency, habitat, water, agriculture, forestry, Himalayan ecosystem and knowledge management have a specific budgetary allocation and other mobilized resources. India is a responsible country and is doing its due share, but climate change is a global problem. Addressing it requires time-bound global action and new and additional financial support. Independent studies rate India's efforts highly, and compliant with the requirements under the Convention and the Paris Agreement. Some of India's identified technology needs are presented in the chapter 5 of BUR-2. Mainstreaming and integrating climate imperatives into developmental sectors require technological support, skill and capacity development and upgradation, and substantial financial investments. The finance and technology support are key challenges in implementation of NAPCC. Although many States have included transportation as one of the sectors in their SAPCCs, but State plans are largely adaptation centric as enabling preparedness for adaptation is a major challenge.

Country	Date	Category	Subject	FSV Question	Answer
Turkey	8.11.2019	Any other information	Gender considerations	May India provide information, if available, on how it addresses gender considerations within the climate change framework?	India is committed to inclusive development and is implementing a number of initiatives, that systematically integrate gender considerations, strengthening the specialized skills and capacities of women in different spheres. Although incorporation of a gender perspective is relevant to all sectors, the following sectors merit special mention: a) Energy: continuous efforts towards providing cleaner energy from non-traditional fuel sources to women, especially in rural areas. b) Water, health and sanitation: providing drinking water, water for domestic use, schemes for nutrition and hygiene, curbing indoor air pollution and coping with emerging pandemics. c) Technology: improved access to modern technologies, including climate-smart technologies, infrastructure and services, including agricultural extension. d) Forestry, agriculture and livelihoods: forest restoration, Joint Forest Management, aquaculture, Afforestation, Agro-forestry, improved extension services, post-harvest storage and management, conservation of traditional knowledge etc. e) Disaster risk reduction: implementation of early-warning systems, resilience building, enhancing adaptive capacity, development of climate resilient infrastructure etc. Policies and measures are in place for gender inclusion for addressing climate change related concerns. For instance, the Pradhan Mantri Ujjwala Yojana (Prime-Minister's Ujjwala Programme) was launched in 2016 to safeguard the health of women and children in rural and poor households, who depend on firewood and other biomass for cooking, by providing them with clean cooking fuel – Liquefied Petroleum Gas. Under this scheme, more than 50 million LPG connections have been provided to Below Poverty Line (BPL) families. The Mahatma Gandhi National Rural Employment Guarantee Act, 2005 (MNREGA) and the large scale employment provided under its provisions is of importance to rural women. This employment provides livelihood support to hundreds of thousands of vulnerable rural women especially in women-headed households (with and without adult males), widows and women from vulnerable social groups. Independent studies have concluded that the MNREGA is a credible safety net for vulnerable rural women. Livelihood diversification through dairying is a significant way of coping with extremes that affect crop production, and has several co-benefits. India is undertaking several initiatives for women in the dairy sector for the development of livelihoods. As per BUR-2 section 1.7.2, the total number of women members in dairy cooperatives across the country was 5.01 million. "Stand Up India" is a typical scheme that promotes entrepreneurship and job creation for women.

Country	Date	Category	Subject	FSV Question	Answer
USA	9.11.2019	General	BUR arrangements and compilation processes	Congratulations on submitting your 2nd BUR. Given this is your 2nd BUR, are there any changes, updates you made to compilation procedures based on the initial BUR compilation? Were there any efficiencies gained in the compilation of this latest GHG inventory? Were there any other specific lessons learned to share with other countries? You can address this in your FSV presentation.	Thank you very much. One would notice that the second BUR has more detailed information both on methods and on results of estimation of GHG inventory in comparison to the first BUR. In BUR-2, details of the emission factors and sources of activity data have been duly included. Key category analysis and uncertainty assessments have been included in this BUR. The BUR-2 also has additional information given on QA, QC and validation, including the inverse modelling for methane. We acknowledge that reporting is an evolving process for all countries.
USA	9.11.2019	National GHG inventories	Transportation	India reports that transportation emissions are one of the fastest-growing sectors. In 2014 emissions from the transportation sector represented 13% of total emissions from the energy sector with road transport accounting for 90% of transport emissions. India also lists several mitigation policies in place to deal with transportation emissions including biofuel policy and EV penetration. Are road transport emissions driven mainly by personal vehicle or freight transport? Similarly, is fuel use mainly gasoline or diesel fuel use for road transport? Are there lessons learned from implications the fuel and vehicle type mix have on policy?	Emission from road transport is a key category in GHG inventory of 2014. Road transport is a mix of both personal vehicle and freight movement. Large/ heavy duty vehicles are major consumers of diesel while a large section of four-wheelers and two wheelers run on petrol. Passenger vehicles and two wheelers are about 90% of total vehicle population while remaining are commercial vehicles and other vehicles. Diesel is about 68% of total fuel energy consumed in road transport while petrol is about 29%. Fuel and vehicle type mix is a part of policy planning and India calibrates its policy dynamically, e.g. leapfrogging to from BS IV to BS VI (Euro VI) by April 2020 throughout the country, greater stress on public transport like metro rail, buses etc. and a strong push for the electric vehicles. Please see section 3.7 of BUR-2 for further details.