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# Indian Issues & Challenges on Security & Energy Efficiency

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# *SECURITY*

# India & Cyber Security

➢ **India is facing cyber threats from**
- ▪ **cyber terrorism**
- ▪ **cyber warfare**
- ▪ **cyber espionage**

➢ **These threats are a matter of concern for the National Security of India for the Financial, Economic, Social and Political environment of India**

➢ **Critical Infrastructure**
- ▪ **India is also facing continuous and serious cyber threats that have been endangering the critical infrastructures of India.**
- ▪ **There is an urgent need to strengthen critical infrastructure protection in India.**

➢ **Urgent need for skills development for enhancing cyber security in India**

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# National Cyber Security Policy – July, 2013

## *Strategies*

- ➢ **Creating a secure cyber eco-system**
- ➢ **Creating an assurance framework**
- ➢ **Encouraging <u>open</u> standards**
- ➢ **Strengthening the Regulatory framework**
- ➢ **Creating mechanisms for security threat early warning, vulnerability management and response to security threats**
- ➢ **Securing E-Governance services**
- ➢ **<u>Protection and Resilience</u> of Critical Information Infrastructure**
- ➢ **Promotion of Research & Development in Cyber Security**
- ➢ **Reducing supply-chain risks**
- ➢ **Human-resource development**
- ➢ **Creating cyber security awareness**
- ➢ **Developing effective <u>Public Private Partnerships</u>**
- ➢ **<u>Information Sharing and Co-operation</u>**
- ➢ **<u>Prioritized approach</u> for Implementation**

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# Testing & Certification
## *the update*

➢ **Indian Government has mandated testing of <u>telecom network equipment</u> against relevant contemporary standards like ISO/IEC 15408, ISO 27000 series standards, 3GPP and 3GPP2 security standards, Common Criteria Labs testing in case of ISO/IEC 15408 standards.**

➢ **<u>CCRA</u>: India approved as CCRA in September, 2013. STQC conducted two workshops. Work on cPPs to be done.**

➢ **<u>3GPP</u>: Indian Government officials attended the 3GPP (SECAM) meeting in October, 2013. They are satisfied with the approach being taken in this forum.**

➢ **From <u>July 2014 </u> onwards, the testing is to be done by authorized and certified labs in India. Industry is in talks with vendors to set up these labs in India.**

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# Testing & Certification
## *the update*

➢ **Government : Telecom Engineering Centre (TEC) considering setting up Telecom Test Lab, and STQC accrediting CCTLs.**

➢ **Various Government initiatives:**

- ▪ **Telecom Security Board**
- ▪ **Telecom Security Network Audits**
- ▪ **Telecom Security Council of India (TSCI) : ?**

➢ **Telecom Equipment/Devices Certification : Based on SECAM (3GPP). How does the equipment stand up in the environment in the Telecom NW ?**

➢ **Cloud and Applications: Security jurisdictions and regulatory issues.**

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# Proposed Telecom Test Lab (TTL)

**Estimated Timelines:**

**Phase 1 = Networks Lab        : T0 + 180 days**
**Device Test Lab                : T0 + 150 days**

**Definitions:**

- **Telecom Test Lab = Networks Lab + Device Test Lab**
- **T0 = Business Case Approval + GO from DoT/NSA**

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# *Green Telecom – Energy Efficiency*

# India's share in the global ICT footprint is low

Other Industralised Countries 11%

OECD Europe 11%

US & Canada 13%

EIT 10%

China 29%

RoW 26%
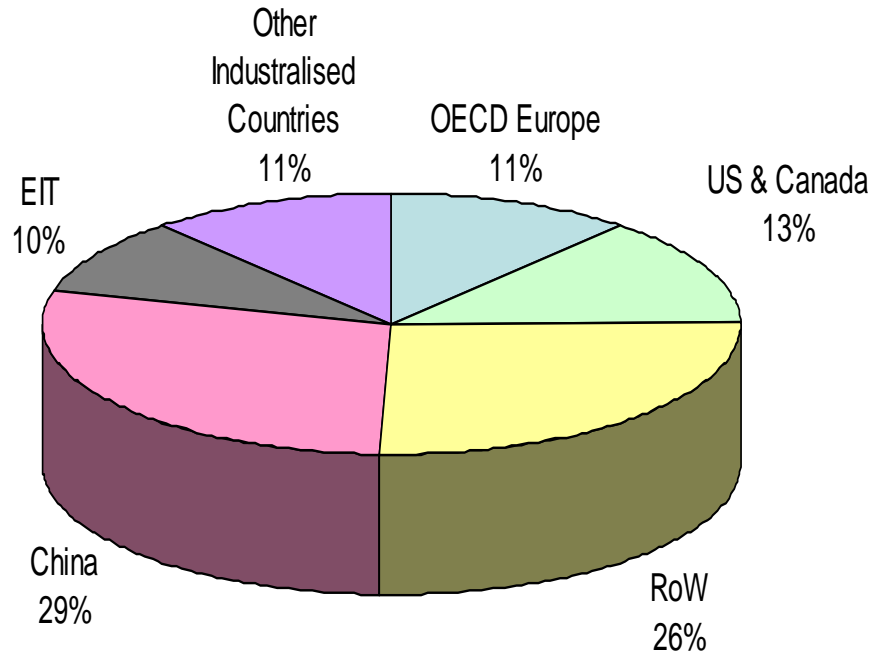
RoW = Rest of World ( includes, India Brazil, South Africa, Indonesia and Egypt
EiT = Economies in transition. (includes Russia and non-OECD Eastern Europe countries
Source: SMART 2020; Report by The Climate Group

- **India is included in RoW with other countries, with the share being only 27% of 1.43%. This amounts to only 0.38%.**

- **The US and China collectively contribute around four times more emission than India does.**

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# Telecom sector in India contributes to negligible amount of GHG emission

## Sector-wise CO2e emissions in India
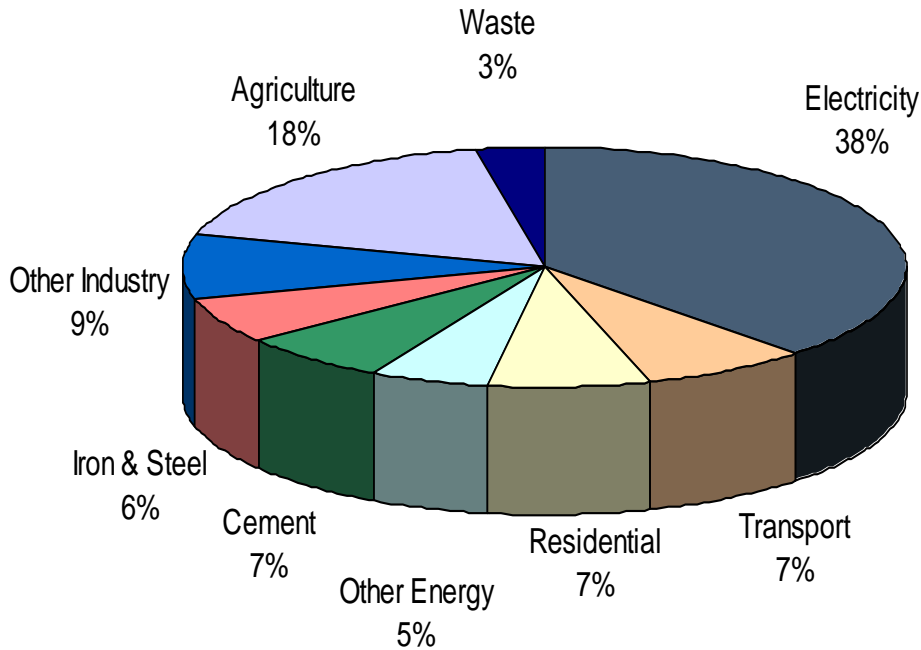


Source: INCCA – India GHG Emission, 2007 - MOEF

- ICT in India accounts for 1.5% of the country's total energy bill. This is expected to increase to 2.7% by 2020.

- Energy expenses range from 15% to 30% of all operational expenses.

- Sector-Wise CO2 (e) emissions in India are almost similar to Global pattern

- Agriculture, Electricity, Transport and Cement account for 70% of CO2 emissions in India.

- **Telecom included in "Other Industry" with a share of just 9%.**

- Share of Telecom sector in the overall CO2 emissions is negligible.

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# Diesel Consumption by Mobile Towers is only 1.5% of total country's consumption.

| Rank | Sector | End-use segment | % Share |
|------|--------|-----------------|---------|
| | **DIESEL (Retail + Direct)** | | |
| | Aggregated results for Diesel based on survey conducted by | | |
| | Nielson (India) Pvt. Ltd. for Retail sales and data on Direct sales by Oil Companies | | |
| 1 | Commercial Vehicles | Trucks: HCV/LCV | 28.25 |
| 2 | Cars/UVs (Passenger Vehicles) | Private | 13.15 |
| 3 | Agriculture | Tractors / Agricultural Implements, Agricultural Pump sets | 13 |
| 4 | | Buses/ State Transport Undertakings | 9.55 |
| 5 | | Commercial | 8.94 |
| 6 | Others | Crushers/ Construction/ Boring / Drilling/ Private Imports | 6.45 |
| 7 | | 3-Wheelers | 6.39 |
| 8 | Industry – Other Purpose | Industry | 4.96 |
| 9 | Industry - Genset | Gensets | 4.06 |
| 10 | Railways | Railways | 3.24 |
| 11 | **Mobile Towers** | **Mobile Towers** | **1.54** |
| 12 | Other Transport | Aviation/ Shipping | 0.48 |
| | | Grand Total | 100 |

Source: All India Study conducted by M/s Nielsen (India) Pvt Ltd for Petroleum Planning and Analysis Cell (PPAC) of Petroleum Ministry

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# The many faces of green telecom...

## Networks

- ▶ Minimize energy consumption.
- ▶ Use energy-efficient technology.
- ▶ Use renewable sources of energy.
- ▶ Use eco-friendly consumables.

## Manufacturing

- ▶ Use eco-friendly and energy-efficient manufacturing equipment.
- ▶ Recycle and dispose of electronic and mechanical waste.
- ▶ Reduce the use of hazardous substances such as chromium, lead and mercury.
- ▶ Reduce harmful radio emission.

**Green telecom**

## Buildings

- ▶ Optimize energy power consumption and thermal emissions.
- ▶ Minimize GHG emissions.

## Waste disposal

- ▶ Dispose of mobile phones and network equipment in an environment-friendly manner.

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# Equipment vendors, tower companies and network service providers are investing heavily in bringing out "green products".

**Ericsson**

Developed the Ericsson **tower tube**, which uses natural convection cooling, to reduce feeder loss, resulting in a reduction of up to 40 percent in power consumption.

**Huawei**

Developed **single RAN** solution based on software-defined radio **(SDR)** system to truly integrate multiple networks.

**Nokia Siemens Networks**

Green energy solutions deployed more than 400 sites running on renewable energy, in **25 countries** in Asia-Pacific, China, Europe, Middle East Africa and Latin America., already providing 1.7GWh of energy.

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# Mobile Energy Efficiency

- **To help MNOs reduce their energy costs and greenhouse gas emissions, the GSMA runs two key Mobile Energy Efficiency (MEE) services:**

  ➢ **MEE BENCHMARKING**

  ➢ **MEE OPTIMISATION**

The GSMA is currently collaborating with the European Commission, the International Telecommunication Union and the European Telecommunications Standards Institute on standardization, including methodologies to assess environmental impact.

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# Key MEE Benchmarking Benefits for Operators

1) A detailed analysis of the operator's relative network performance against a large dataset, compared anonymously to maintain confidentiality. This is done by comparing networks against four main performance indicators: Energy consumption:

   I) **per mobile connection** II) **per unit of mobile traffic** III) **per cell site or per number of technologies** IV) **per unit of mobile revenue.**

1) A unique **'normalization'** approach which enables a **like-for-like** comparison using multi-variable **regression** techniques.

2) <u>Annual participation</u> to track improvements over time and quantify the success of cost reduction initiatives.

3) Insights to improve energy efficiency, including access to case studies **from top performing networks.**

4) The option to participate in MEE Optimization, which implements energy reduction projects.

5) Demonstration of **positive action** on energy and emissions reduction to **stakeholders.**

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# Positive Action in MEE from India

# DoT's Direction : "Green Passport"

- All telecom products, equipment's and services in the telecom network should be certified **"Green Passport [GP]"** by the year **2015**. Telecommunication Engineering Centre will **certify** telecom products, equipment's and services on the basis of ECR ratings.

- A core group has been constituted under the chairmanship of DDG(FLA), TEC for formulating the specifications/norms/standards in accordance with  the directions issued by DOT.

- The core group needs to recommend the framework for:

  i) **Standardizing the specifications** for Telecom Equipment in respect of power consumption level and to formulate the norms/ standards based on ECR rating in the form of ECR documents.

  ii) **Framing of guidelines** on the standards/certification to certify telecom products, equipment's and services such as the "Green Passport [GP]" on the basis of ECR ratings,

  iii) Appointment of **independent certifying agencies** under TEC's guidance to certify the telecom products, equipment's and services "Green Pass port" based on ECR rating,

  iv) **Studying** the total power consumption of each BTSs and ensure with service providers that the power level of BTS of 2+2+2 configuration shall **not exceed 500W by the year 2020**.

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# Thank You !

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