Infosys's Ambitious Initiatives to Minimize the Effect of Carbon Emissions

By

Prashant K – EEPITM 015

Md. Naushad – EEPITM 011

Sharad Kumar - EPGP-04C-088

Tony Kunnumpuram John - EPGP-04B-118

Karthikeyan Subramaniam - EEPITM-01-007

"Our planet has enough to cater to all our needs but not enough to cater to our greed"

- Mahatma Gandhi

"In Economic Cloud, **Infosys** *Sees a* ***Green*** *Lining"*

- Information Week

Background

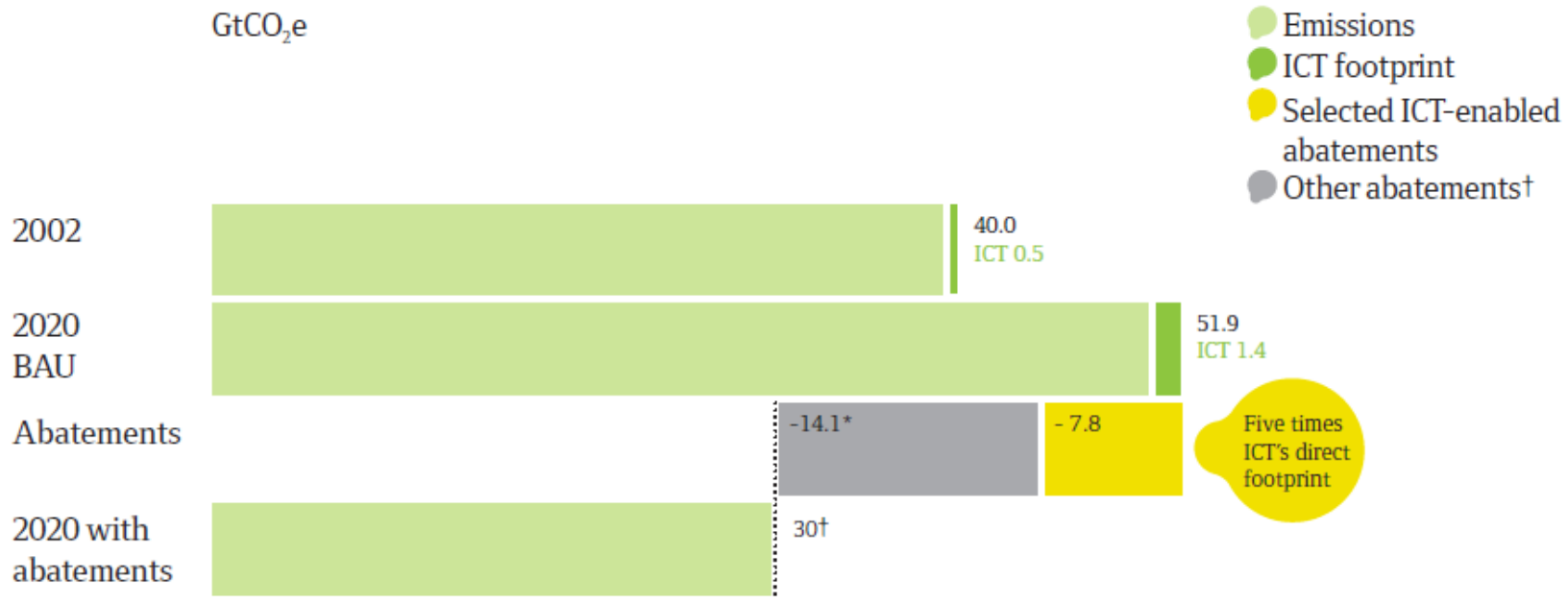
- ICT sector was one of the major sources of carbon emission with CAGR of above 6%.
- In 2007, analyst Gartner released the statistic that the ICT-sector was responsible for 2% of global carbon emissions.
- Global eSustainability Initiative (GeSI) published *SMART 2020*
  - *GeSI represents over 30 of the world's leading service providers and vendors from the Information and Communication Technology (ICT) sector*
- As reported in "*SMART 2020: Enabling the low carbon economy in the information age"*, information and communication technologies (ICT) could cut global "business as usual" greenhouse gas emissions by 15% and save up to €600 billion by 2020.
- The report predicts that the emissions from the ICT sector will represent an estimated 3% of total global emissions by 2020 but that ICT will enable others to achieve significant emissions reductions, helping other industries and consumers avoid an estimated 7.8 gigatonnes of CO2e emissions by 2020.
- The continued development of smart motors, smart logistics, smart buildings, smart grids and dematerialization would drive this reduction by decreasing the emissions generated by sectors such as transport, buildings, power and industry.
- A greater understanding of the carbon-reducing potential of these ICT products and services will greatly accelerate their adoption.

SMART 2020 (*Standardize, Monitor, Accountability, Rethink, Transformation*)

- SMART 2020 identifies the following areas as fertile grounds for emissions savings:
  - Smart motors – technologies that reduce the energy consumed by industrial motors, or support industrial process automation. These motors can, for example, run at variable speeds, using only the energy required for the task in hand, rather than operating at full capacity regardless of load.
  - Smart logistics – technologies that enable fuel reductions and energy efficiency through better route and load planning. For example, operations management software can reduce inventory storage, fuel consumption, kilometers driven and number of vehicles traveling empty or partially loaded.
  - Smart buildings – solutions that maximize energy efficiency in buildings, such as building management systems that run heating and cooling systems according to occupants' needs .
  - Smart grids – digital technology that allows greater visibility of energy use and power flows. For example smart meters give consumers real-time information on the energy they use, while demand management systems automate the reduction of appliances' energy load at peak times.
  - Dematerialization – the substitution of high-carbon products and activities with low-carbon alternatives, such as replacing paper bills with e-billing.

ICT impact

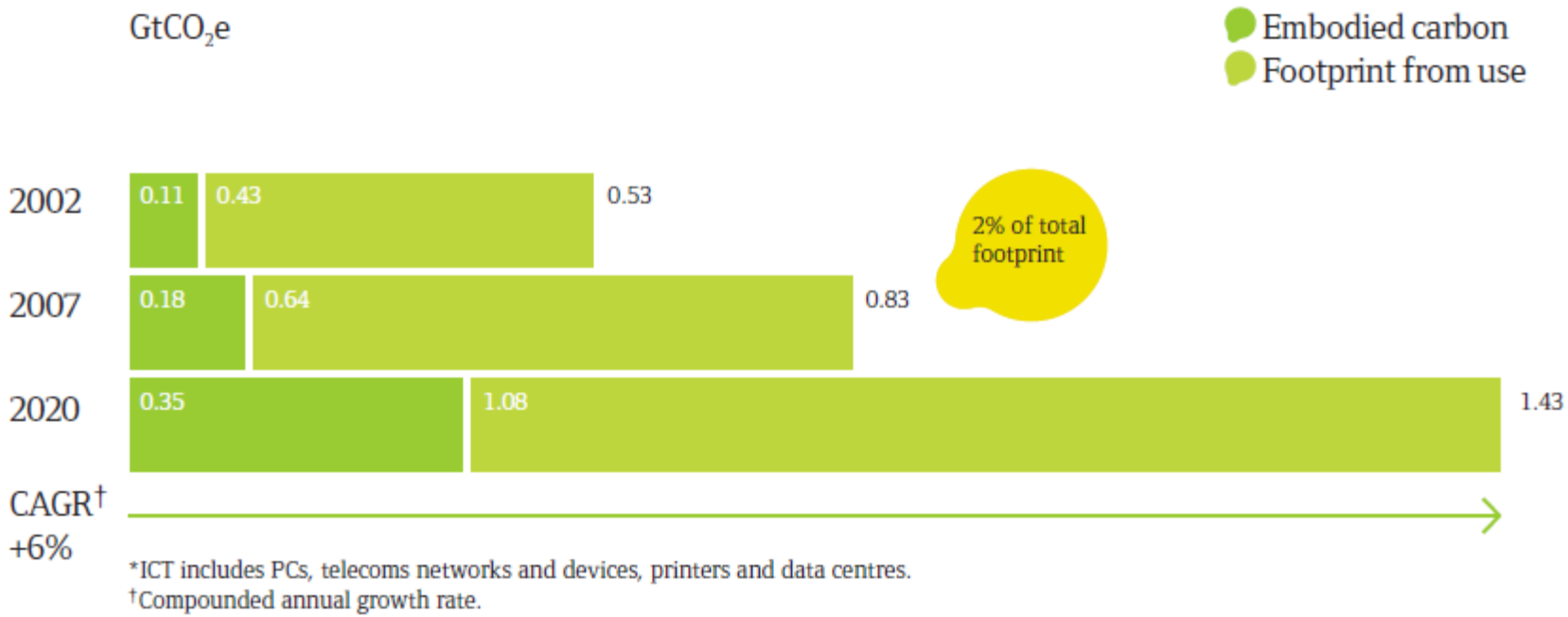
Fig. 1 ICT impact: The global footprint and the enabling effect



* For example, avoided deforestation, wind power or biofuels.
† 21.9 $GtCO_2e$ abatements were identified in the McKinsey abatement cost curve and from estimates in this study. Source: Enkvist P., T. Naucler and J. Rosander (2007), *'A Cost Curve for Greenhouse Gas Reduction'*, The McKinsey Quarterly, Number 1.

The global ICT footprint*

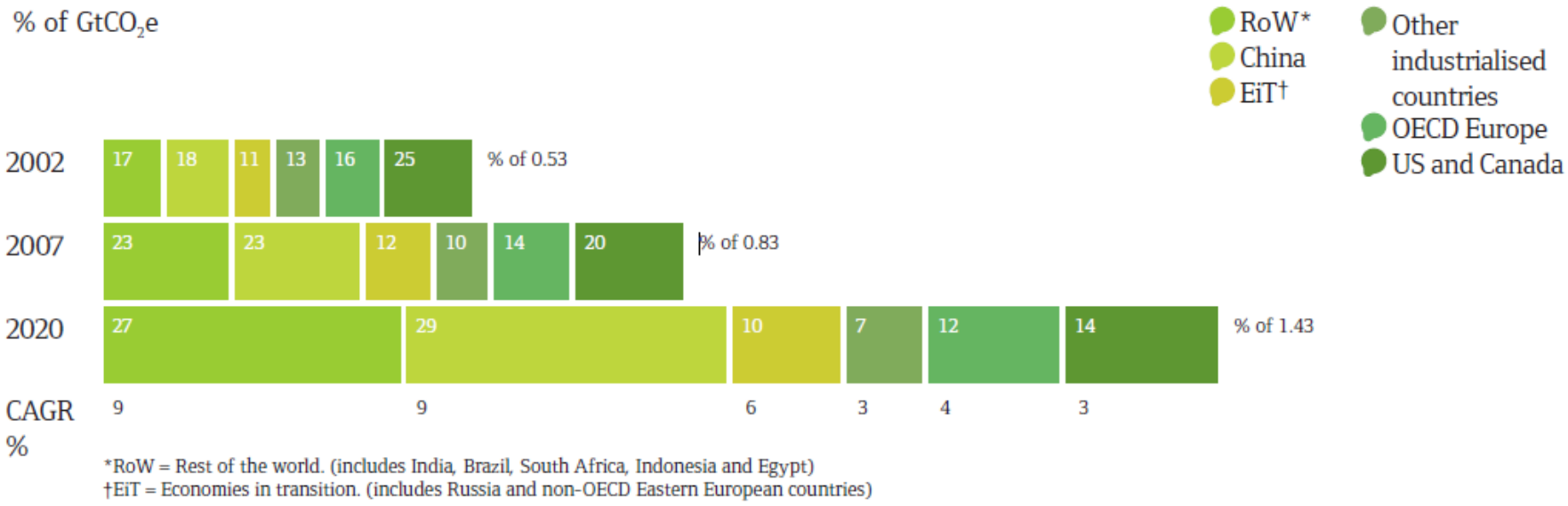
Fig. 2.1 The global ICT footprint*



*ICT includes PCs, telecoms networks and devices, printers and data centres.
†Compounded annual growth rate.

The global ICT footprint by geography

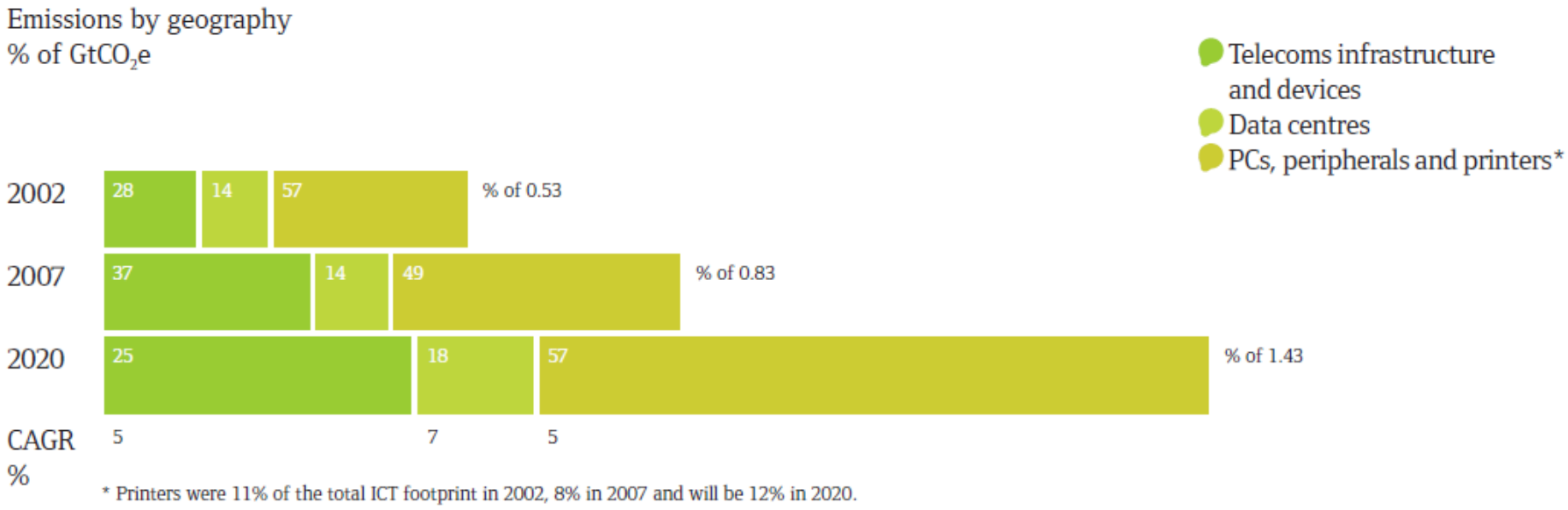
Fig. 2.2 The global ICT footprint by geography



*RoW = Rest of the world. (includes India, Brazil, South Africa, Indonesia and Egypt)
†EiT = Economies in transition. (includes Russia and non-OECD Eastern European countries)

The global footprint by subsector

Fig. 2.3 The global footprint by subsector



* Printers were 11% of the total ICT footprint in 2002, 8% in 2007 and will be 12% in 2020.

Role of ICT

Role of ICT in Emission Reductions

Role of ICT sector in enabling emission reductions thru SMART Technologies

Standardise	Monitor	Account	Rethink	Transform
•ICT can provide information in *standard forms on energy consumption and emissions*, across sectors	•ICT can incorporate *monitoring information into the design and control for energy use*	•ICT can provide the *capabilities and platforms to improve accountability of energy and carbon*	•ICT can offer *innovations that capture energy efficiency opportunities across buildings/homes, transport, power, manufacturing and other infrastructure* and provide alternatives to current ways of operating, learning, living, working and travelling	•ICT can apply *smart and integrated approaches to energy management of systems and processes,* including benefits from both automation and behaviour change and develop alternatives to high carbon activities, across all sectors of the economy.

Smart Motors, Industrial process automation, Smart Logistics, Transport optimization, traffic flow monitoring, Smart Buildings, Smart Grid, Emission & Energy Monitoring and reporting, teleworking – VC, WFH; e-billing – paper reduction, supply chain management, etc

Ref: Smart2020Report

Indian Scenario

- In India an estimated .33 trillion of e-waste was generated in addition about 50000 tonnes by way of dumping and only 40% was recycled
- Bangalore alone generated 8000 tonnes of e-waste annually and globally 20-50 million tons of e-waste was discharged by the companies.
- The GoI (Govt. of India) felt the need for proper legislation for handling of e-waste.
- Responsibility was given to Greenpeace along with MAIT, GTZ submitted report to GoI in 2009.
- Thus e-Waste policy came out in April, 2010.

Infosys – Case in Point

- In 1981, seven engineers started Infosys Limited with just US$250. From the beginning, the company was founded on the principle of building and implementing great ideas that drive progress for clients and enhance lives through enterprise solutions.
- Infosys is a global leader in consulting, technology and outsourcing solutions. As a proven partner focused on building tomorrow's enterprise, Infosys enables clients in more than 30 countries to outperform the competition and stay ahead of the innovation curve.
- With US$7.4bn in annual revenues and 155,000+ employees, Infosys provides enterprises with strategic insights on what lies ahead.
- *Motivated by the SMART Report*, Infosys being a responsible stakeholder of society, and known for its myriad CSR activities, embarked on the ambitious initiative to be the bellwether towards free society.
- **Target** : Carbon free by 2012 keeping 2007 as the base year !

Infosys : ‘Fact’ Food

Fast facts

Revenue :
US $7,398 million

Net income :
US $1,725 million

Market cap :
US $30,561 million

Global employee base representing :
100 countries

Total number of clients :
798

Total number of employees including subsidiaries :
156,688

Global presence :
94 cities in 35 countries

Infosys Carbon Footprint

- **Electricity (75%)**
  - HVAC (50%)
  - Lighting (15%)
  - Computers and Data centers (30%)
  - Misc equipment (5%)
- **Mobility (25%)**
  - Business travel (68%)
  - Employee commute (32%)

Infosys - Initiatives

- One of the first companies to show environmental concerns by starting to measure its carbon emissions in 2004 and taking steps towards Green Computing.
- Infosys, as a part of its policy to be carbon neutral began to adopt green IT initiatives.
- The green IT solutions at INFY had 5 tracks :
  - Energy
  - Water
  - Emission
  - Biodiversity
  - Waste

Infosys - Initiatives

Environmental Sustainability at Infosys

Focus Areas	Long-term goal	Strategy
Energy and Emissions	Become carbon neutral	• Energy efficiency initiatives • Promoting renewable energy
Water	Become water sustainable in new campuses	• Rainwater harvesting • Reduce, reuse, recycle
Biodiversity	Preserve and promote the natural habitat	• Plant native trees • Protect endangered species
Waste	Minimize solid waste and responsible disposal of e-waste	• Reduce, Reuse, Recycle • Responsible e-waste management

Infosys - Initiatives

Infosys Green IT Maturity Model

The Infosys Green IT Maturity Model (GITMM) expands on the established Green Grid Data Center maturity model. The Infosys GITMM is based on five pillars; Data Center, EUC, Asset Lifecycle, ITSM, and People Practices. The Data Center pillar is aligned with the Green Grid maturity model with overlap with ITSM and People Practices. Each pillar contains 2 categories of model components; Required Components and Expected Components.

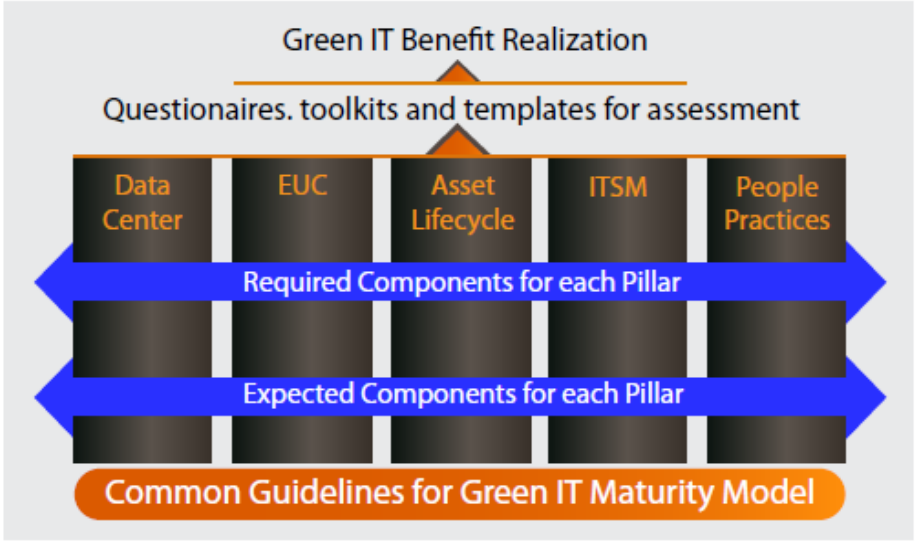
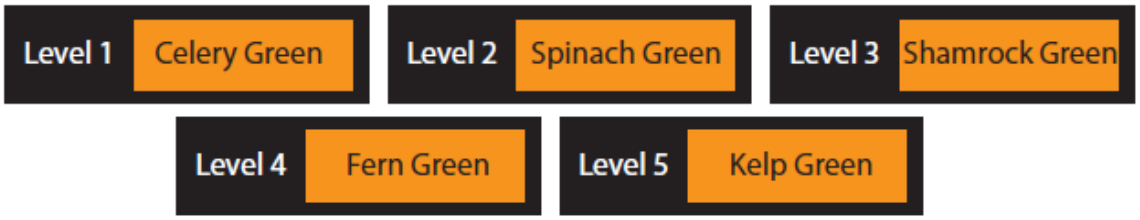


Figure 4 – Infosys Green IT Maturity Model

It aims to assess the greenness of individual functions within an organization. The model is built such that each function within the organization is graded individually and an overall maturity score is obtained for the organization as a whole. The model also helps benchmark an organization's initiatives or programs against industry best practices. The individual functions which are assessed are: ***Data Center & Facilities, End User Computing, IT Service Management, Asset Lifecycle, People Practices and Culture***

The model breaks down maturity for each of the above mentioned functions into five levels as follows:



Infosys - Actions

- All buildings built after 1st 2008 complied with minimum gold rating which shoots the construction cost by 7% but they did it.
- Minimum 30% green cover was maintained at all development centers.
- They forced the construction vendors and architects to design innovative building which act as a energy savers, have maximum natural light ,reduced heating by sun resulting into substantial reduction in cooling requirement.
- Even furniture designs ordered with less width or length.
- They deployed sensors to automatically turn off monitors, lights, IP phones when employees were not @ desk .
- Old desktop were replaced by new model ones
- Did server consolidation
- Implemented virtualization
- Encouraged mass transportation and car pooling
- Use of bicycle within campus
- Used LogO to reduce transportation cost and green house emission
- Used water cycling method to user water efficiently.

Infosys - Actions

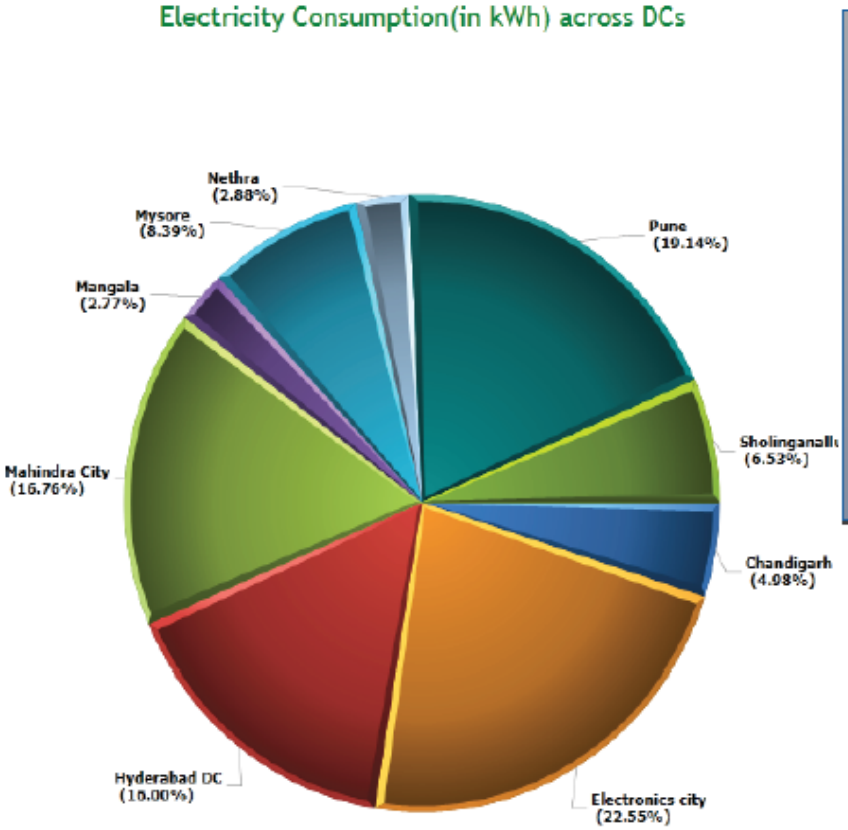
- Rainwater harvesting was common practice .75% water consumed was recycled and used for landscaping
  Build a biodiversity park in Mangalore campus.
- Started planting trees and sapling in already green campus to neutralize emission.
- Started “The Climate change” program to educate the society about climate change
- Saved the transport cost of 3803363 miles.
- Infosys total energy emission for 2009-08 was 269 KT and achieved 13% reduction in energy emission against the target set of only 5%.
- Infosys Bangalore became a home of 40 different species of butterflies
- The amount of hazardous waste disposed in 2008/09 was more than 2007/08.
- 18800 sheets of paper were saved alone in Bangalore campus (37% reduction in printouts)

Results

- Infosys bags platinum **LEED** Ratings for 'green' buildings
- They saved tremendous amount of money through energy regulation and operational efficiencies.
- Total desktop power consumption were reduced by 18-29%
- Server consolidation saved 80% of power
- Per capita electricity consumption got reduced by 5% and per capita energy consumption got reduced by 17% in 2009-10
- Introduction to virtual platform the average number of video conferences increased 3 folds.
- 80% employees stared using mass transportation and car pooling came into picture

Results

Monitoring energy consumption



- Infosys saved about 2.25 MUSD in the financial year '09 (Apr1, 2008 to Mar31, 2009)
- Enabled 10% savings in energy cost Y-On-Y across its development centers in India.
- 17% reduction in per capita power consumption in last 2 years

Tangible Results 2013

- Infosys, a global leader in consulting and technology, has been named a 2013 Environmental Tracking (ET) Carbon Ranking Leader for its greenhouse gas emissions and disclosure practices.
  - Environmental Investment Organisation (EIO), a London-based climate change and finance think-tank, ranked Infosys among top five of the 300 large firms it assessed for carbon footprint,

    Read more at: http://ibnlive.in.com/news/infosys-ranked-leader-for-reducing-carbon-footprint/388612-7.html?utm_source=ref_article

- Key carbon reduction projects at Infosys include:
  - The first use of radiant cooling air conditioning in a commercial building; utilizing a new technique that involves circulating water in embedded pipes to chill rooms and reduce energy use
  - Establishment of a 250 Kw solar plant on a campus in Jaipur and a 125 kW solar photo voltaic plant in Trivandrum
  - Creation of an innovative way to notify employees leaving a building that they have left their computer on, and a system for them to remotely switch it off using their phone
  - Rainwater harvesting in Mysore that reduced its fresh water consumption by 18 per cent in its first year, saving nearly 300 million litres of fresh water

Challenges

- Being a global organization Infosys fell under environmental compliance of various countries such as RoHS, WEE of European countries as many imposes their own regulation of disposable waste according their own standard. And some countries asked the manufacturers to bear the cost of collecting, recycling of waste.
- Challenge in getting the vendors supporting green initiatives.
- Challenge in educating the society.
- Costs

References

- Infosys YOY reports on sustainability
- http://sustainabilitynext.in/case-study/infosys-takes-big-strides-and-has-numbers-to-prove/
- http://articles.timesofindia.indiatimes.com/2013-08-21/infrastructure/41432926_1_ramadas-kamath-infosys-software-development-block
- SMART 2020 report
- Greenpeace
- http://www.infosys.com/infosys-labs/publications/Documents/green-it/green-it-maturity-model.pdf
- http://www.greenbiz.com/blog/2012/04/03/how-infosys-aims-reach-carbon-neutrality?page=0%2C1

THE GRASS IS **GREEN** *ON THIS SIDE*

THANK YOU