



# **INDIAN PULP & PAPER TECHNICAL ASSOCIATION**

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**AGM & SEMINAR – CHENNAI  
– MAR 03, 2017**

**Key Note Address:**

**N GOPALARATNAM**

**Chairman**

**Seshasayee Paper and Boards Limited**



# **Green and Clean Practices**

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## **Green:**

- **Sustainability**
- **'Cradle to Cradle' design**
- **Source Reduction of waste and pollutants**
- **Innovation** – to promote good health and clean environment



# Green and Clean Practices (contd)

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## Clean Technology

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- **Products / Processes / Services that reduce waste and require very few non-renewable resources**
- **Supports a sustainable business approach, including pollution control, resource reduction, end of life strategy, waste reduction, energy efficiency, carbon mitigation and economic viability**

# The RIO 'Earth Summit' 1992

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- **Environmental Convention on Biological Diversity**
- **Attended by**
  - **172 countries**
  - **108 Heads of State**
  - **2400 NGOs**
  - **17,000 Participants**
  - **10,000 On-site Journalists**
- **Action agenda on**
  - **Sustainability**
  - **Climate Change**

# Sustainability

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- Should aim at meeting today's needs without abridging the rights of tomorrow's generation to meet their needs
- Development strategy that should be
  - **Socially desirable**
  - **Economically Viable**
  - **Ecologically sustainable**

# CLIMATE CHANGE

- A significant and lasting change in the statistical distribution of weather patterns over periods ranging from decades to million years.
- **'Climate Change'** and **'Global Warming'** - are often used interchangeably
- **Global Warming** refers to surface temperature increase while **Climate Change** includes global warming and everything else that will get affected by increasing greenhouse gas emissions.

# CLIMATE CHANGE (contd)

- Accelerates seasonal rise, droughts, floods, storms, heat waves.
- Disrupts 'food production, threatens important species, habitats and eco-systems,
- Caused mainly by **Green House Gas emissions**

# Green House Gases (GHGs)

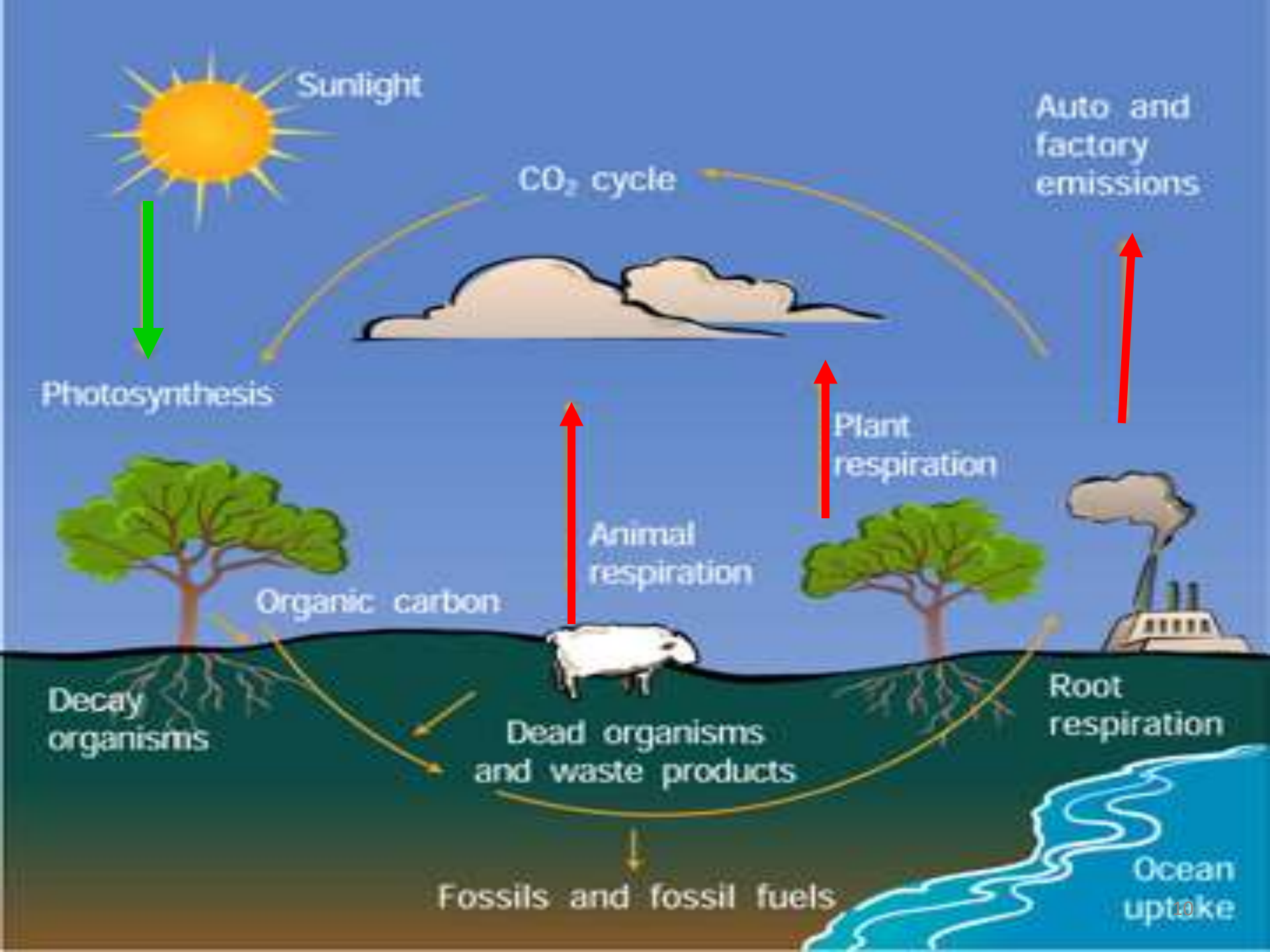
- Act in the same way as glass in a green house
- Allows in light and keeps heat from escaping, providing warmth
- Similar process occurs when Sun's energy reaches Earth
- Natural levels of greenhouse gases maintain eco-system temperatures



# **Green House Gases (GHGs) (contd)**

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- Higher levels cause atmosphere to 'thicken' trapping more heat and warming the planet
- CO<sub>2</sub>, Water Vapour, Methane, Nitrous-oxide, Ozone and fluoro-carbons are some of the GHGs which are responsible for climate change



# **CLIMATE CHANGE IMPACTS** (contd)

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## **- On Water**

- **Extremes of drought and flooding**
- **Negative impacts on Rivers, Lakes, Seas, Oceans**

## **- On Forests**

- **Forests: purify our air – improve water quality- keep soils intact and provide us with food, wood products, medicines etc.**
- **Home to world's most endangered wildlife**
- **1.6 billion people – said to rely on forest for livelihoods**
- **Protects planet earth from climate change by absorbing massive amount of carbon dioxide**

# **CLIMATE CHANGE IMPACTS- (contd)**

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- **Climate Change causes degradation of forests**
- **Increased Soil Erosion**
- **Disturbed livelihoods**
- **Bio-diversity will decline**
- **On Food Security**
  - **Food availability, food accessibility and food cultivation – in danger**
  - **Risk of increased crop failure, loss of livestock and impacts local food security**

# **CLIMATE CHANGE IMPACTS - (contd)**

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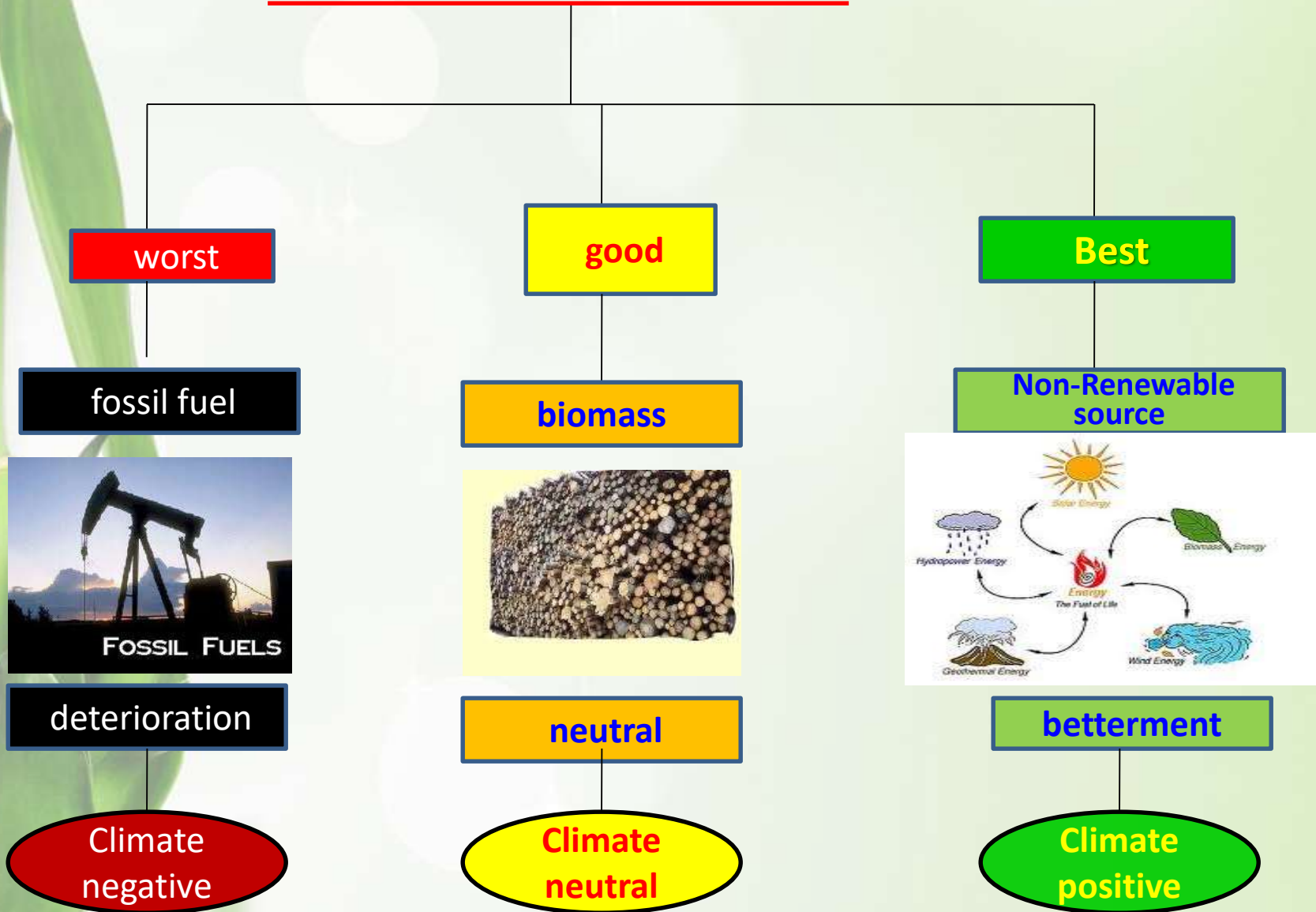
## **- On Agriculture**

- Many rely on rain-fed agriculture.**
- 70% of population lives by Farming**
- 40% of all exports are Agri products**
- Poorest members of the society are those who depend on agriculture for jobs and income**

**ONE OF THE BIGGEST THREATS TO  
HUMANITY AND NATURE**



# Climate Change



# CULPRIT - COAL

- Global power sector generates **40% of all global electricity** from coal
- This power sector responsible for **37%** of all man-made **CO<sub>2</sub> emissions** (34 million tonnes of CO<sub>2</sub> emission / year equivalent to 1050 t / sec)
- Carbon emissions in Asia Pacific set to increase by **85%** in the next 2 decades
- SO<sub>2</sub>, NO<sub>x</sub> emissions from coal-based power plants cause **acid rain**
- A **third of China** is said to be affected by acid rain

# Paper Industry and Climate Change

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- Heavy impact on **GHG emissions** due to high energy requirements
- **Consumption of fossil fuels** in boilers, gas turbines, incinerators, lime kiln
- Methane generation during treatment of waste waters or on disposal into a landfill.
- Irresponsible sourcing of forest raw material procurement



# European Pulp & Paper Industry & Climate Change

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- **Largest consumer & producer of renewable energy (55.0% of total energy)**
- **Part of EU Emissions Trading System (ETS)**
- **Constant focus on energy efficiency**
- **Paper & Board (coming from sustainably managed resources) – is a climate friendly industry**

***Ref: CEPI***



## **EU's Targets**

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- **Minus 30% CO<sub>2</sub> in 2020 Vs 1990**
- **Minus 50% CO<sub>2</sub> in 2050 Vs 2020**

## **Strategy**

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- **Use best available technology**
- **Install CO<sub>2</sub> capture and storage**
- **Fuel switch**
- **Increase recycling**
- **Develop new technology**
- **Introduce bio-refinery concepts**

# Agenda 2020 Vision





# US Pulp & Paper Industry

- Many more **environmentally responsible P&W papers** available now
- Large end users are committed to **responsible paper procurement**
- **Market driven campaign** led to great action to secure legal protections for millions of acres
- Several agreements reached between NGOs and paper industry for increased **protection of forests**

*Ref:CEPI*



# US Pulp & Paper Industry

- Rapid growth in demand for **FSC certified products**
- Increasing innovation and investment in agricultural residue papers
- Strong demand for **recycled content paper**
- Continuing growth in **waste paper industry**

*Ref: CEPI*

# USA - FUTURE ACTION AGENDA

(as per Environmental Paper Network)

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- Reducing paper consumption in North America by ending wasteful practices and inefficiency
- Increasing utilisation of recycled fibre in P&W papers
- Halting conversion and loss of natural forests to mono-culture plantations
- Preventing entry of illegal and controversial fibre from outside North America
- Measuring & reducing GHG emissions from using forests for bio-energy



## **FUTURE ACTION AGENDA – (contd)**

- **Eliminating all discharges of dioxins to the environment**
- **Optimising paper recycling system**
- **Increasing capital investment in energy efficiency and recycled paper production**
- **Resisting the spread of genetically engineered trees into commercial production**

***(Ref: Environmental Paper Network 2011 Report )***



# INDIA's Intended Nationally Determined Contributions (INDC)

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- To reduce emissions intensity of % GDP by 33/35% by year 2030 from 2005 level
- To achieve **40%** cumulative electric power installed capacity from **non-fossil fuel based** energy resources by 2030
- To create an additional carbon sink of 2.5 to **3 billion tonnes** of CO<sub>2</sub> equivalent through additional forest and tree cover by 2030



# **INDC – Policy interventions proposed**

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- Introduce new, **more efficient and cleaner** technologies in thermal power generation
- Promote **renewable energy** generation and increasing the share of alternative fuels in over all fuel mix
- Reduce emissions from **transportation** sector

# **INDC – Policy interventions proposed**

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- Promote **energy efficiency** in the economy, notably in industry, transportation, buildings and appliances
- Reduce **emissions** from waste
- Develop climate resistant **infrastructure**
- Full implementation of **Green India Mission**

# **GreenCo Certification**

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## **Focuses on:**

- **Minimizing Environmental Impact and Global Warming**
- **Elimination of Wastes**
- **Maximising Green Resources in our business**
- **Sustainable Development**

# **GreenCo Modules**

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- **Energy Efficiency**
- **Water Conservation**
- **Renewable Energy**
- **GHG Mitigation**
- **Waste Management**
- **Material Conservation and Recycling**
- **Green Supply Chain**
- **Product Stewardship and Life Cycle Assessment**
- **Greenery and Innovations**

# PRODUCT STEWARDSHIP

- Producers responsible for all phases of products life cycle from design to end of life.
- Environmentally conscious design
- Environment Risk Assessment
- Influence consumer behaviour
- Reduce toxicity and hazardous substances used in the product and process

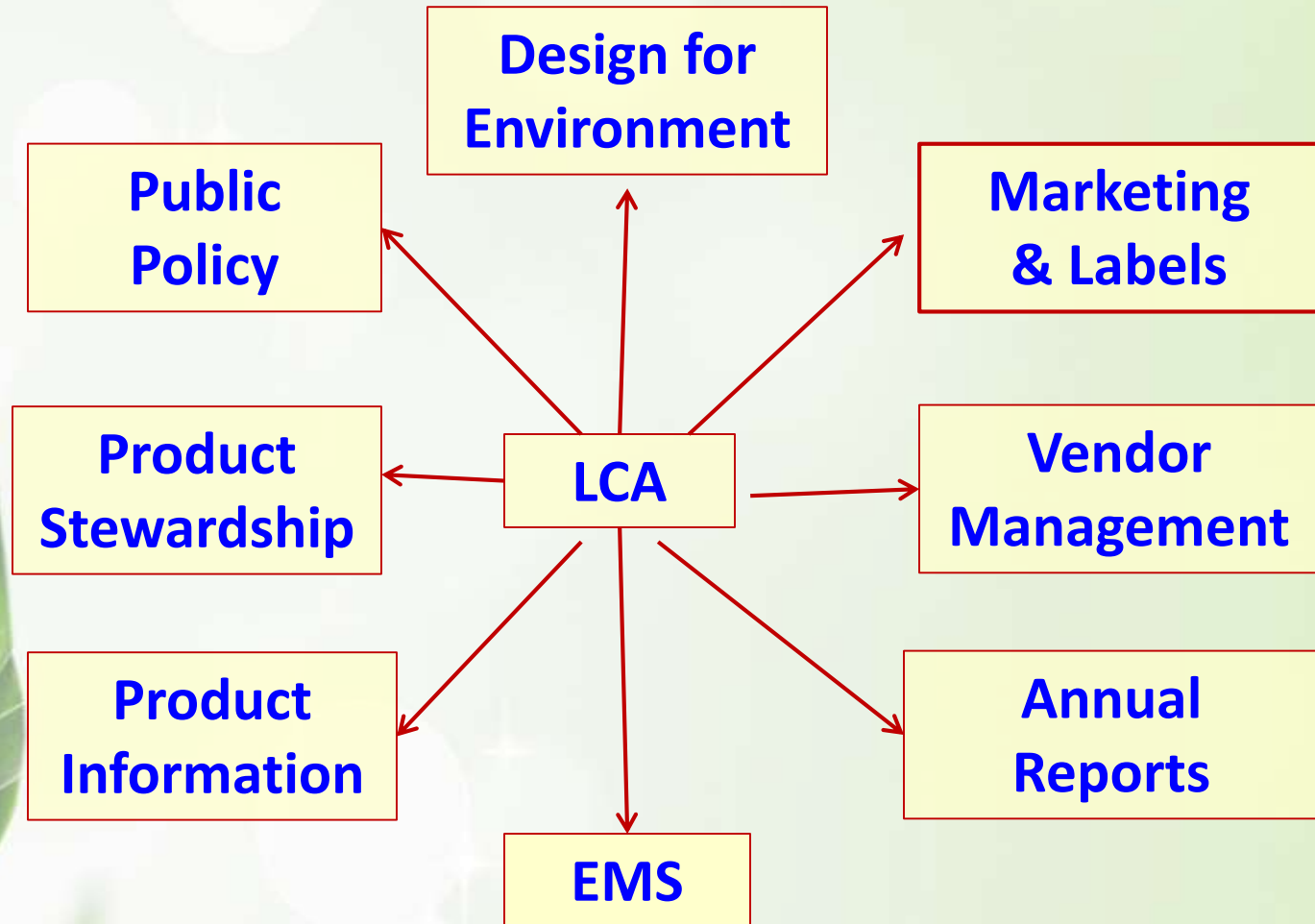
# **Life Cycle Assessment (LCA)**

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- **LCA – Most comprehensive method to assess environmental impacts of a product, process or activity throughout its life cycle**
- **(from raw materials to processing to transport, use and disposal)**

# Life Cycle Assessment (LCA) (contd)

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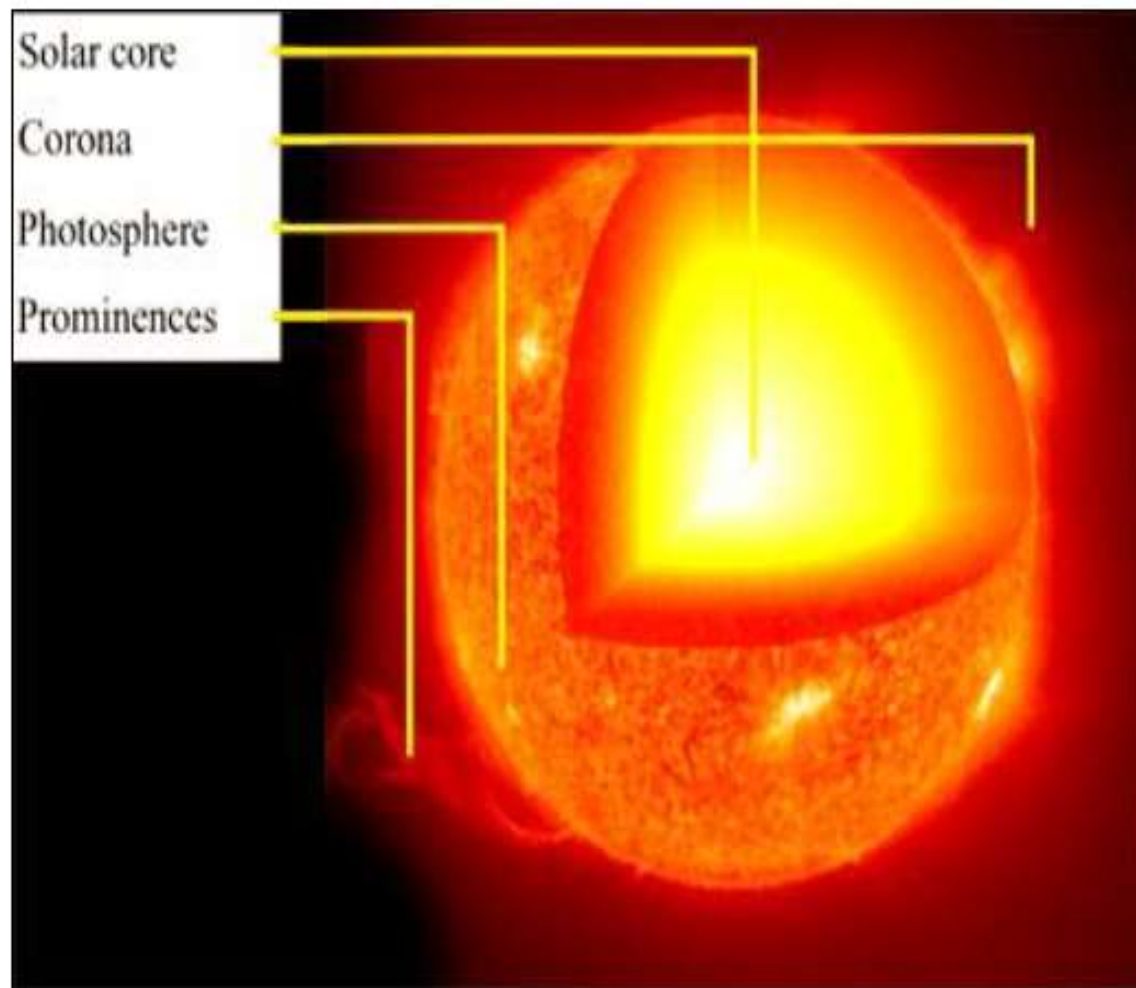




# SOLAR ENERGY

## The Sun

- The **sun** is a **star**
- **Source of energy** in the sun is at its **core**
- This energy is **released** into space primarily as **electromagnetic radiation**
- We experience this **radiation** as **heat** and **light**



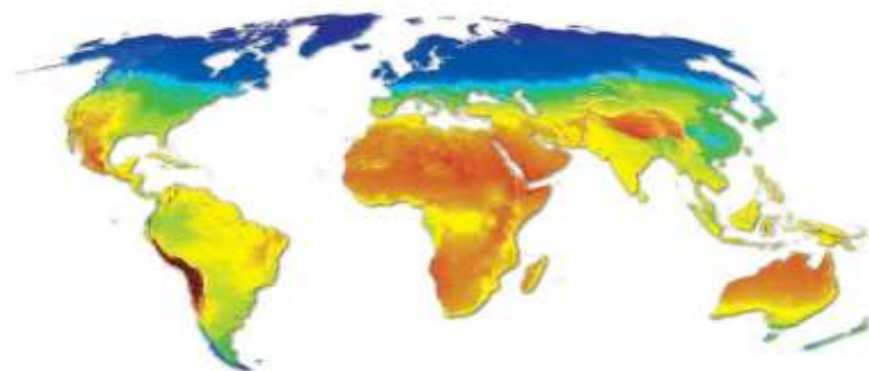


# SOLAR ENERGY

## How Powerful is Solar Energy?

- **Every hour** enough **sunlight energy** reaches the earth to meet the **world's energy demand** for a **whole year**

Global Solar Irradiance

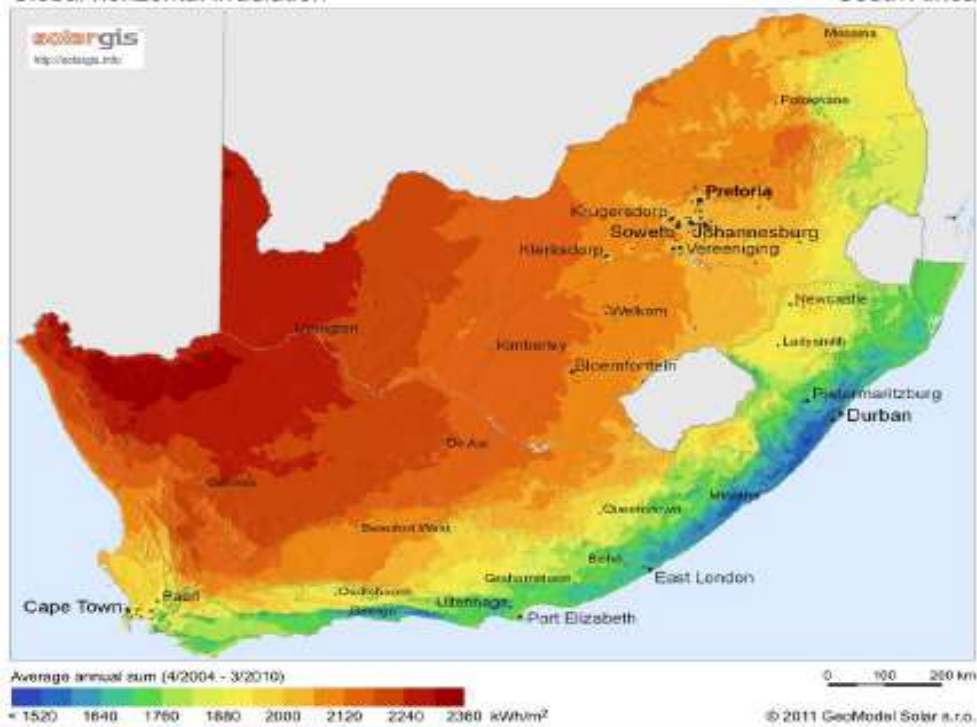


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Global Horizontal Irradiance  
0 100 200 kWh/m<sup>2</sup>

Global horizontal irradiation

South Africa



- **South Africa** represents the spot of **highest solar insolation** in the world.
- **South Africa** has the **perfect climate** for **solar energy**

# SOLAR ENERGY

## Uses for Solar Energy

Three main uses:

- Heating of water
- Solar thermal power stations
- Photovoltaic panels



# PAPER

- Paper is re-useable, re-cyclable and bio-degradable
- It is made from renewable raw materials like Trees, Agro residues besides recovered paper
- Paper Industry, worldwide plants more trees every day than what it harvests for paper manufacture
- Trees absorb CO<sub>2</sub> emissions and help in mitigating GHG emissions
- Young Trees absorb more CO<sub>2</sub> than older Trees
- It is 'OK' to print mails and take copies. After use, paper should be sent for recycling



## PAPER (contd)

### Key findings of Recent Study ( May 2015)

- **81%** prefer to read on paper
- **83%** believe retention is better when read on paper
- **81%** say they are relaxed when reading print on paper
- **74%** say 'print on paper' is easier to read
- **55%** believe 'print on paper' documents are more secure
- **56%** believe 'print on paper' documents are better for 'storage and archiving'

# PAPER (contd)

## Paper Vs Pixels

- **Paper** is truly sustainable; its raw materials are renewable; biggest user of low-carbon energy; nearly **60%** of all paper **is recycled**
- **Electronic Media-** uses **very little** renewable raw materials; uses more than **90% of fossil** fuel energy produced from Grid; end of life – only **18% recycled**; **“e-waste” biggest threat** to environment

# What can Paper Mills do?

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- To achieve continuous improvements in efficient use of Energy, Water, Air etc.
- To go for energy efficient plants and processes.
- To minimise Fossil fuel usage
- To maximise use of Bio Fuel
- When procuring coal – go for low ash, low sulphur, high CV coal
- To go for high pressure steam generation and high level of co-generation

## What can Paper Mills do (contd)

- To maximise use of Renewable Energy (Solar & Wind Energy)
- To maximise use of Recovered Paper in the Furnish
- To maximise use of Green Resources in Supply Chain Management
- To pursue optimisation of Logistics in 'inwards' and 'outwards'
- To practise 'Tree Farming' to achieve carbon positive status.
- To go for Eco-Labeling / GreenCo Certification



# Paper Industry is Sustainable

- There are not many industries around the World that can aspire to becoming genuinely sustainable.
- The Pulp and Paper Industry, however, is one of them. It is inherently sustainable.

**JONATHAN PORRIT  
CHAIRMAN,  
UK SUSTAINABILITY DEVELOPMENT COMMISSION**



**नमस्ते वायो ।  
त्वमेव प्रत्यक्षं ब्रह्मासि ।**

**-Taittiriya Upanishad**

**‘O, Vayu, you are the directly perceivable Brahman.’**



हरिदश्वः सहस्रार्चिः सप्तसप्तिर्मरीचिमान्

तिमिरोन्मथनः शंभुस्त्वष्टा मार्ताण्ड अंशुमान्

*Sun is present everywhere,*

*his countless rays reaches all places,*

*Sun is the force,*

*The destroyer of darkness &  
bestows happiness & wealth*

*Sun infuses life and removes all problems*

*– Aditya Hridayam*



तमसो मा ज्योतिर्गमय ।

THANK YOU