

## Paper Industry in India- Growth and Sustainability

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### Abstract

“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.”

– **Hon. Jonathon Espie Porritt**,  
Chairman, Sustainable Development Commission, U.K.

Paper is one of the core industries and is linked to the basic human needs. Paper, since time immemorial, has been a medium for transmission of thoughts and ideas and conveying feelings. Despite the continued focus on digitization, it is still the most popular mode of communication in the lettered word. India’s demand for paper is expected to rise 53 per cent in the next six years, primarily due to a sustained increase in the number of school-going children in rural areas. Therefore the biggest question arises in front of the Indian paper industry is to address the challenges of growth v/s environmental sustainability. Does the paper industry compare favorably with other industries when it comes to the question of sustainability? The main aim of this research paper is to find out how the paper is sustainable towards environment.

**KEYWORDS:** Paper, Paper Industry, Sustainability, Growth, Environment, Renewable

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### Introduction

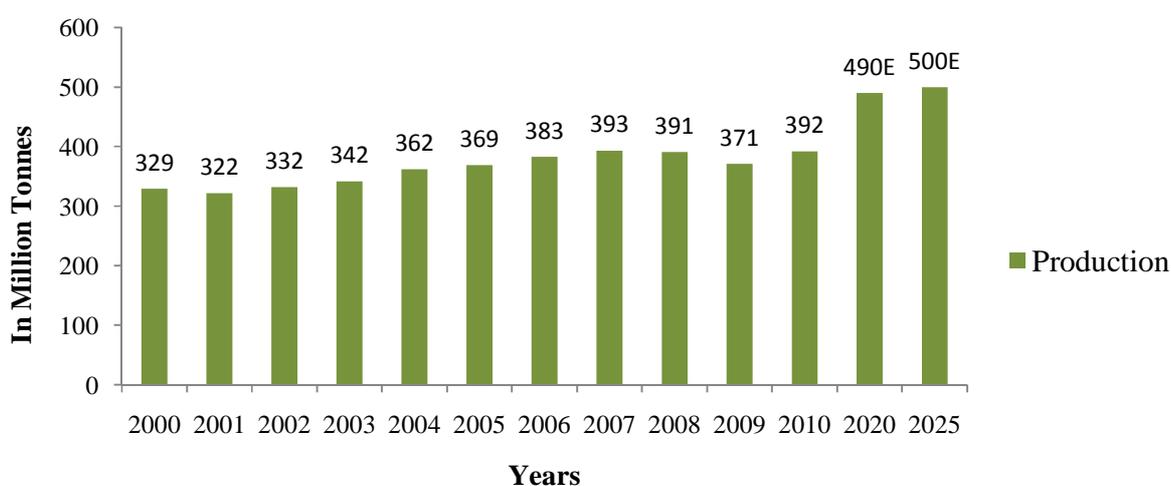
The word paper is derived from the Latin word from the name of the reedy plant ‘papyrus’ and French ‘papier’ which was formed from beaten strips of papyrus plants. (Kulshrestra: 1988). Paper is one of the significant discoveries that turned the history of the world around. Paper is thought to have been invented by Ts'ai Lun c.105 in China, where it reached an advanced stage of development. Paper is one of the best medium of communication and is here to stay, forever. Undoubtedly Paper performs multiple functions in our lives - from when we wake up and read the newspaper in the morning, for material such as documents, notebook, paper money, and even as toilet paper in the bathroom. If paper were not in existence, humankind would be unable to maintain the high cultural level of modern society - this indicates us just how important paper is to our lives. It helps all the human beings for the growth of education, reading, writing, storing, knowledge, quality of life, culture, and other sectors of the economy. Statistics say that every human living in an industrial nation uses about 20,000 kg paper in his life. Thus without paper our lives would be unimaginable.

### Global Paper Industry

The global paper and paperboard industry is dominated by North America, Europe and Asia. In 2011, global paper and paperboard production stood at approximately 400

million metric tons. Major producing countries include China, the United State and Japan. These three countries account for half the world’s total production. Interestingly, even as per capita paper consumption in the US is 300 kg, it is 35 kg in Asia, implying excellent growth prospects. The global pulp and paper industry consists of about 5000 industrial pulp and paper mills, and an equal number of very small companies. Paper and paperboard consumption continues to grow in Asia. It is estimated that global paper consumption in 2025 will amount to 500 million tones, which mean growth of about 1.6% a year. Per capita paper and paperboard consumption varies a great deal by country and region. The global average is about 55 kilograms of paper per person.

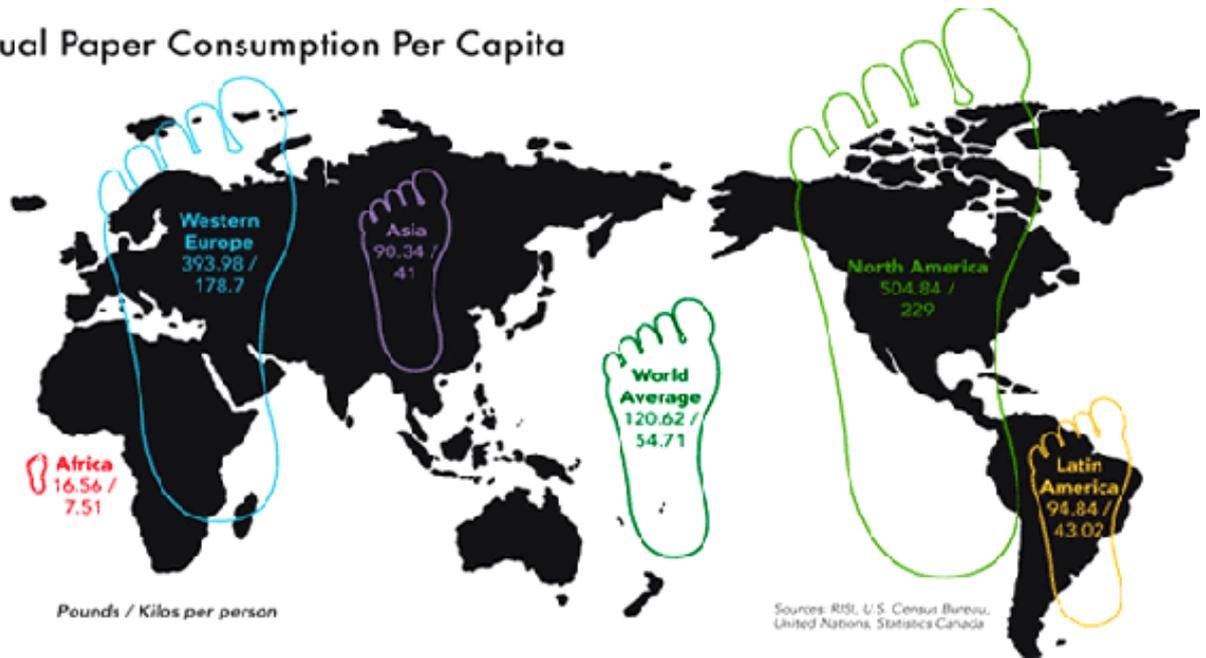
### Paper and Paperboard Production- Global Market



The annual global paper and paperboard production was approximately 383.0 million tonnes in 2006. In 2010 it was 392.0 million tones. It is expected to increase to 490.0 million tonnes by 2020.

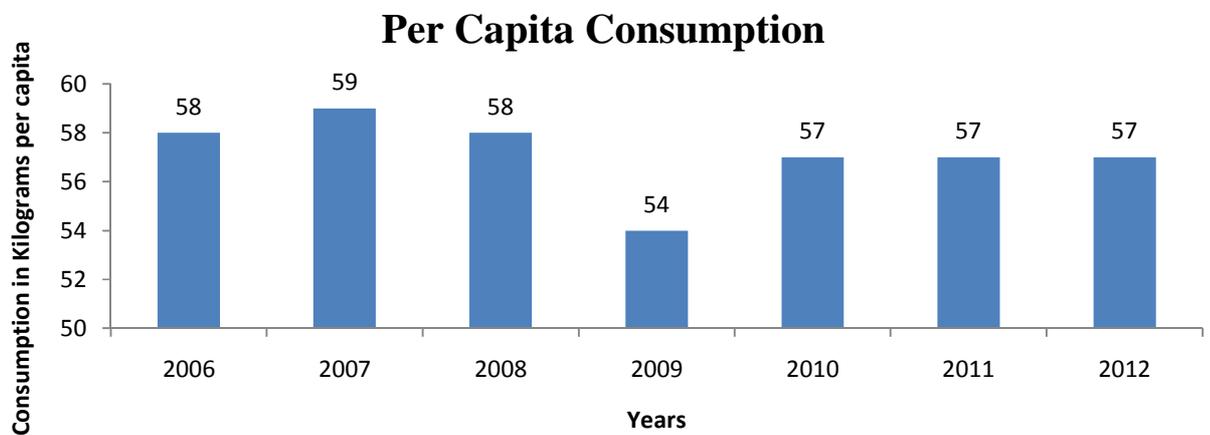
### Worldwide Annual Per Capita Consumption of Paper

### Annual Paper Consumption Per Capita



Sources: RISI and the U.S Census Bureau (Via Environmental Paper Network)

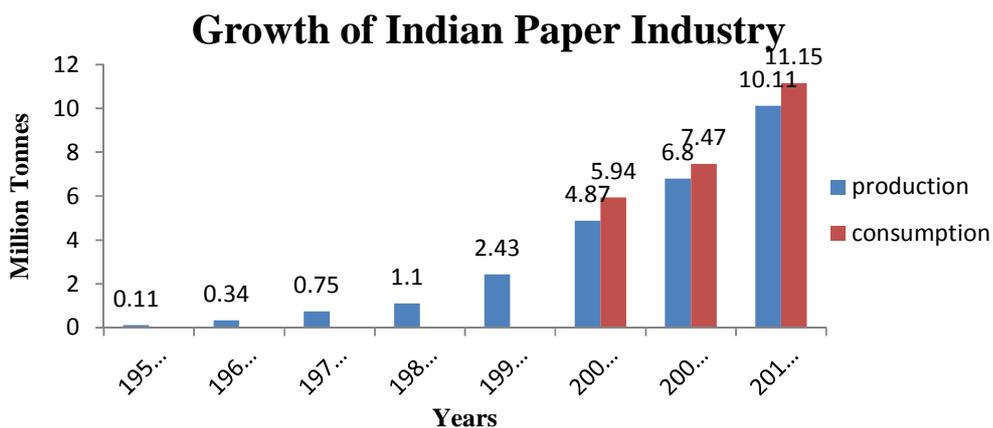
### Consumption of Paper and Cardboard Worldwide from 2006 to 2012 (in kilograms per capita)



The above statistic shows the global consumption of paper and cardboard per capita, from 2006 to 2012. In 2008, the average paper and cardboard consumption was 58 kilograms per capita worldwide. In 2009, there was a record low consumption with some 54 kilograms of paper consumed per capita. (<http://www.statista.com/statistics/270321/consumption-of-paper-and-cardboard-per-capita-since-2006/>)

## Indian Paper Industry

The Indian paper industry is approximately 148 years old with the first mill having been commissioned in 1867. While India has 15% of the world population, it consumes only 1.6% of the world paper production. India's paper industry is the 15th largest paper industry in the world. It provides employment to nearly 0.37 million people directly and 1.3 million people indirectly, and contributed almost INR 40,000 million to the exchequer in FY'2013. The government had completely delicensed the paper industry from July 17, 1997; foreign participation is permissible. The paper industry in India can be broadly classified into 4 categories namely, paperboard and industrial packaging papers, writing and printing papers, newsprint, and specialty papers. The low per capita consumption of paper and paperboard in the country is bound to increase with growth in population, literacy, living standards and overall industrial and business growth. Though India's per capita consumption is quite low compared to global peers, things are looking up and demand is set to rise from the current 13 million tonnes (mt) to an estimated 20 mt by 2020. The Indian paper industry is growing at a robust pace with an increasing demand, attracting and creating opportunities to the international players.



Source: CMIE/ Industry/CPPRI

## Growth v/s Sustainability

Paper products are crucial to society, as they have enabled literacy and cultural development. However, without changing current paper production and consumption practices, our growing demand for paper threatens the earth's last remaining natural forests and endangered wildlife. ([http://wwf.panda.org/what\\_we\\_do/footprint/forestry/sustainablepulppaper/](http://wwf.panda.org/what_we_do/footprint/forestry/sustainablepulppaper/)). There is a need to understand and believe that economic growth and development can be achieved by focusing on sustainability of our environment. Indian paper industry has a 1:1 correlation the economy. The future of paper industry is linked to the future of Indian economy. Thus today, environment sustainability has become a big challenge, mainly due to callous approach of industry in this regard, paper industry being no exception.

Pulp and paper manufacturing, by its nature, present complex sustainability challenges. Nevertheless, despite the complexities, paper manufacturing can be

conducted in a way that is economically, socially and environmentally sustainable over the long run. Now the question arises in once mind why is paper and paper industry sustainable? What does sustainable development means? Does the paper industry compare favorably with other industries when it comes to the question of sustainability? Is making paper destroy forest?

Indian paper industry realizing its responsibility towards environment. Sustainable development is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Sustainability is based on a simple principle; everything that we need for our survival and wellbeing depends, either directly or indirectly, on our natural environment. Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations. Sustainability is important to making sure that we have and will continue to have, the water, material, and resources to protect human health and our environment. (<http://papermart.in/2013/06/28/indian-paper-industry-sustainability-growth/>). Paper has been a viable medium because it is user friendly, economical to produce and environmentally sustainable. It is made from natural and renewable material i.e. wood fibre which is built from carbon molecules. Therefore, every piece of paper is a tiny store of carbon. The concept of managed forests means that for every tree harvested, several more are planted or naturally regenerated in their place. In today's world, it is very challenging to have a balance between industrial development and environmental sustainability.

### What are the Solutions?

Paper is portable, secure, consistent and permanent. It's 100% recyclable. For every tree that is harvested in a well-managed forest, several more are replanted or naturally regenerated. It is product of sunlight, soil, nutrients and water. It is environment-friendly on a number of counts: it is a renewable resource; it consumes a relatively low amount of chemicals in the pulping and bleaching process; its effluents are less harmful. As young trees grow, they absorb CO<sub>2</sub> from the atmosphere. Furthermore, as a wood-based product, paper also continues to store carbon throughout its lifetime. Planting new trees can significantly help to combat global warming. For every ton of wood a forest produces, it removes 1.47 ton of CO<sub>2</sub> from the air and replaces it with 1.07 ton of oxygen.

Wood fibres can be grown, sourced and re used in a responsible way. With the use of **clean technology**, the manufacturing processes can minimize pulp and paper products' impacts on climate change and water. On net use basis, paper industry no longer consumes substantial quantity of water as it is generally believed. **Sustainable consumption** practices can also help to reduce the environmental impact of paper. In this regard number of paper industries has taken various steps.

Ballarpur industries limited continue to work with the farming community for planting tree species that are suitable for industrial wood through its subsidiary, BILT Tree Tech Limited (BTTL). Thousands of growers are associated with BTTL's farm forestry programme for over a decade. ITC have been working on creating sustainable raw material sources for pulp and paper industry through farm and social forestry schemes. It covers 145000 hectares of land with eucalyptus and subabul plantations. In addition to this it initiated WOW- Wealth Out Of Waste program to source, segregate recyclable

waste and put it back to the industry for recycling in the process avoiding dependence on scarce natural resources. Vice president of rainbow paper limited said that they have implemented various innovative ideas and approaches towards productive usage of byproducts generated at various stages. Few of them are;

- Installed brick manufacturing plant to consume the fly ash
- Installed board machine to consume the sludge within our premises
- Installed fiber sheet plant to process the recovered fiber completely within the premises

Some pollution prevention advances that have been implemented within the pulp and paper industry worldwide:

- Chemical recovery systems
- Prevention of chlorinated compounds
- Secondary fiber substitution
- Extended Delignification
- Oxygen Delignification
- Ozone Delignification
- Anthraquinone Catalysis
- Black Liquor Spill Control and Prevention
- Enzyme Treatment of Pulp
- Improved Brownstock and Bleaching Stage Washing
- Improved Chemical Controls and Mixing

([http://www.igep.in/live/hrdpmp/hrdpmaster/igep/content/e48745/e49028/e51797/e52844/02\\_PulpPaperSector-RegulatoryOverview\\_BRNaidu\\_CPCB.pdf](http://www.igep.in/live/hrdpmp/hrdpmaster/igep/content/e48745/e49028/e51797/e52844/02_PulpPaperSector-RegulatoryOverview_BRNaidu_CPCB.pdf))

Thus Paper industry is inherently sustainable because of the following reasons:

- Paper industry worldwide plants 1.7 million trees every single day, more than 3 times what is harvested.
- As per US Department of Energy, carbon sequestered on forest lands is greater than the carbon released from harvesting wood over the same period.
- Its primary raw materials are renewable.
- Paper is truly sustainable, with waste fully recoverable, ready for recycling into new paper.
- Pulp and paper industry is one of the biggest users of low carbon energy in the world.
- Paper is biodegradable, recyclable and reusable.
- Paper manufacturing is a truly sustainable process.

Even as it manufactures papers, the industry gives back to nature more than it draws.

### **Conclusion**

To meet its ever-growing demand of wood on continuous and sustainable basis the industry has to enlarge its social and farm forestry plantation programme. Some of the Indian paper industries have introduced modern ECF technology (Elemental Chlorine Free) on wheat straw, which reduces adverse environmental impact. For economical and environmental reasons, then paper industry works hard to optimize its process. It manages the environmental challenges spanning the entire business platform right from farm forestry, procurement, use of raw materials through efficient production processes,

waste recycling and disposal. No other natural substance has been able to match the value chain that paper creates. Over the years, while paper production has increased steadily, the environmental impact has decreased. Paper has and will always be an integral part of our lives. Believe it or not, it's one of the few truly renewable resources on our planet.

The pulp and paper industry to respond positively to the challenges and opportunities of moving to a more fully sustainable paper cycle. Paper is sustainable. That's why it's here to stay. Who knows to what uses it will be put in the future?

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