Sustainability for the Handicrafts Sector

A research study mapping the current sustainability scenario, what led up to it, and future trends

Prepared by Alstonia - Sustainability & CSR

for All India Artisans and Craftworkers Welfare Association (AIACA)

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Introduction

The All India Artisans and Craftworkers Welfare Association (AIACA) has commissioned this study on 'Sustainable Production And Consumption In The Handicrafts Sector'.

The objective of this study is to enable the creation of a framework for the **preservation** and **enhancement** of sustainable techniques of handicrafts production and consumption. This is crucial since small artisans are abandoning their traditional techniques, which are most often eco -friendly, and adopting unsustainable methods which are (seemingly, and in the short term) the most cost effective - to scale up their operations.

This study maps the evolution of the concept of sustainability using a top-down approach - from the events that lead to the origin of sustainability in the mainstream to the scenario today. After this general overview, the study focuses in on sustainability in the handicraft and textile sector, and explores various certification standards, their adoption and market consumption, the roles of key stakeholders in sustainability, and sustainability reporting.

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During the course of our research study, we referred to primary & secondary research conducted across the world by other researchers to clarify and develop our thoughts and concepts. We are truly grateful to them for sharing their work and resources in the open domain. Our secondary desk research was enhanced by information provided by the Ecolabel Index (www.ecolabelindex.com), without which we would not have been able to provide a comprehensive account of the ecolabels and certifications available across the world.

We hope that this study is useful for both - practitioners and advocacy groups alike - to further the cause of an eco-friendly and sustainable handicrafts sector.

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Executive Summary

Background

Promoting global environmental, social and economic development has been a challenge for the United Nations and the policy makers of developed and developing countries since the 1960s. This study examines global attempts to integrate environment and development issues on conceptual and institutional levels, as well as efforts to translate these into international and domestic action. These issues are not only of historical interest, but they also give us a better understanding of the origin of the ongoing sustainability debate and highlight some of the central factors that continue to influence cooperation and policy making on sustainable development. The study narrows its focus on the existing ecolabels in the textile sector, success and failure stories and the market consumption.

The desk research study was conducted on behalf All India Artisans and Craftworkers Welfare Association (AIACA) and has documented information around the evolution of sustainable development, government policies for the textile, handloom and handicraft sectors, ecolabels relevant to the textile and handicrafts industry and the market consumption of these labels.

The study is broadly divided into seven chapters:

(i) Environmental history of the world and evolution of the sustainable development movement

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(iii) The global sustainable consumption and production economy

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Key Findings

Chapter I: Environmental History of the World and Evolution of the Sustainable Development Movement

This chapter gives an overview of the environmental history of the world and the evolution of the sustainable development movement. The chapter also discusses major political events, efforts and policy developments on environment and development that preceded the Stockholm Conference 1972 and the subsequent major events in the history of sustainable development. The data captures the environmental history of the 20th Century, when enormous environmental changes took place in the lithosphere and pedosphere, in the atmosphere, in the hydrosphere, in the biosphere, and in ideas and politics. The changing landscape, urban development, the economic boom in terms of rising chemical and metallurgical plans, increasing use of fertiliser for agriculture etc. led to change in soil chemistry and caused major changes in the lithosphere and pedosphere. Rapid population growth, urbanisation, industrialisation and complete disregard of environmental impact triggered an alarming rise in pollutants and pollution levels. It was proposed that sustainable development is the key to integrate human life, ecology and technology and reduce ecological stress.

Large-scale industrial pollution, the growing threat of fallout from nuclear radiation, documented mass destruction of entire ecosystems around the globe in the 1960s led to the beginning of widespread international alarm about a global environmental crisis. International pressure mounted on the United Nations (UN) to expand its activities related to the environment. In 1960s, Sweden laid the foundation for international cooperation on environmental matters. They proposed that the UN organise a global conference to "facilitate coordination and to focus the interest of

member countries on the extremely complex problems related to the human environment".

On 5th June 1972, the first United Nations Conference on the Human Environment (UNCHE) was organised in Stockholm. This conference put environmental issues on the international agenda and laid the groundwork for progress in the environment and development. The important outcome of this conference was Stockholm declaration and the creation of The United Nations Environment Programme (UNEP). The Stockholm Declaration contains 26 principles and an action Plan containing 109 recommendations and a resolution. In 1983, an independent organisation, Brundtland Commission, or formerly, the World Commission on Environment and Development (WCED) was created to focus on environmental and developmental problems and solutions. In 1987, the Brundtland Commission published, "Our Common Future," the organisation's main report. This publication strongly influenced the Earth Summit in Rio de Janeiro, Brazil in 1992 and the third UN Conference on Environment and Development in Johannesburg, South Africa in 2002. This report is also credited with defining the universally accepted and cherished definition of Sustainable Development:

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The enviable end outcome is a situation where the society's condition of living and the use of resources maintain the needs of humans without reduction in the reliability and solidity of the natural systems"

The three main pillars of sustainable development include economic growth, environmental protection, and social equality. The two-week Earth Summit, 1992 led to the adoption of Agenda 21, a wide-ranging blueprint for action to achieve sustainable development worldwide. In Rio, 108 governments represented by Heads of State or Government — adopted three major agreements aimed at changing the traditional approach to development:

1. Agenda 21 - A comprehensive programme of action for global action in all areas of sustainable development
2. Rio Declaration on Environment and Development - a series of principles defining the rights and responsibilities of States
3. Statement of Forest Principles - a set of principles to underlie the sustainable management of forests worldwide

In addition, three legally binding Conventions aimed at preventing global climate change and the eradication of the diversity of biological species were opened for signature at the Summit, giving high profile to these efforts:

1. The United Nations Framework Convention on Climate Change - highlighted the fact that anthropogenic activities, like the burning of fossil fuels, are releasing large quantities of gases into the Earth's atmosphere.
2. The Convention on Biological Diversity
3. United Nations Convention to Combat Desertification

The UNFCCC advised nations to stabilise emissions of greenhouse gases at 1990 levels by the year 2000. However, nations across the world were unable to achieve the goals. The Kyoto Protocol; which was agreed upon on December 11, 1997, at a meeting of the UNFCCC in Kyoto, Japan, was created as an effort to force action on the international community. The main feature on the Kyoto Protocol is that it established legally binding commitments to reduce emissions of greenhouse gases for Annex I Parties:

1. First **commitment period (2008 to 2012) -** participating countries committed to reduce their emissions by an average of 5% below 1990 levels
2. Second **commitment period (2013 to 2020) -** Parties committed to reduce GHG emissions by at least 18 percent below 1990 levels

Emissions trading focussed on carbon dioxide only. This form of permit trading is a common method used by Annex 1 countries to meet their obligations specified by the Kyoto Protocol; namely the reduction of carbon emissions in an attempt to mitigate future climate change. More than actual emissions, units can be traded and sold under the Kyoto Protocol's emissions trading scheme. The other units which may be transferred under the scheme, equal to one tonne of CO2, may be in the form of

- An emission reduction unit (ERU) generated by a Joint Implementation (JI) project
- A certified emission reduction (CER) generated from a Clean Development Mechanism Project (CDM) activity

The **CDM** provides for emissions reduction projects which generate Certified Emission Reduction units (CERs) which may be traded in emissions trading schemes.

Climate change mitigation measures consists of actions to decrease the rate of long-term climate change. Some of the commonly used mitigation measures are as:

1. Carbon Sequestration
2. Renewable Energy
3. Clean Transport

Several mechanisms came into existence following the Rio Summit and Agenda 21. Prominent among them were the United Nations Millennium Development Goals (MDGs). The goals were set during UN's Millennium Conference held in New York City, which aimed at stimulating efforts to meet the needs of the world's poorest people. The MDGs provide a comprehensive framework for measuring the progress of development. The goals consist of eight broad categories with several quantitative indicators to be achieved by 2015. The Sustainable Development Goals (SDGs) were formulated during United Nations Conference on

Sustainable Development in Rio de Janeiro in 2012. The objective was to further develop Millennium Development Goals to address contemporary and urgent environmental, political and economic challenges facing the world.The SDGs replace the Millennium Development Goals (MDGs).

Chapter II: India and environment protection

The institutional set-up for environmental planning and development, as it exists today, has taken nearly three decades to evolve. Indira Gandhi's speech at Stockholm highlighted the difficult choices between environment and development faced by developing countries. Nevertheless, her government took a number of environmental protection measures, including legislation of the **Water Act, 1974**, **Air Act, 1981** and amendments of the constitution in 1976 and administrative actions like the establishment of **National Committee on Environment Planning & Coordination (NCEPC)** and the **Department of Environment** (**DOE)**. On the eve of the Rio Conference in 1992, environment protection efforts were further consolidated in the form of two policy statements of the governments-'**National Conservation Strategy and Policy Statement on Environment and Development**' (June 1992) and '**Policy Statement for Abatement of Pollution**' (February 1992). In order to understand the various Indian legislations regarding protection of environment, one has to run through the numerous international agreements to which India is a party. India has shown its commitment towards air pollution control, reduction in emission of greenhouse gases and reduction in the use of ozone depleting substances and hazardous substances either by stopping their production or by phasing them out. After the then PM Indira Gandhi's Stockholm Conference, a series of such legislations came in force.

The Key Legislations are listed here:

1. The Forest Act 1927

2. The Forest (Conservation) Act, 1980
3. Wildlife (Protection) Act, 1972
4. The Water (Prevention and Control of Pollution) Act, 1974
5. The Water (Prevention and Control of Pollution) Cess Act, 1977
6. The Air (Prevention and Control of Pollution) Act, 1981
7. The Environment (Protection) Act, 1986

India signed the UNFCCC accord on 10 June 1992 and ratified it on 1 November 1993. Under the UNFCCC, developing countries like India do not have binding GHG mitigation commitments as their overall contribution to GHG emissions is relatively less and their financial and technical capacities are limited. The Ministry of Environment, Forests and Climate Change was established as the nodal agency for climate change issues in India.

Chapter III: The global sustainable consumption and production economy

This chapter provides a brief overview of interrelated concepts that have gained significant attention in recent years in the context of catalysing efforts to achieve sustainable development: **Sustainable Consumption and Production** (Sustainable Development Goal 12), **Green Economy**, **Sustainable Economy**, **Green Market** and **Green Production**.

This chapter also contains an overview of the National and International events related to these concepts. This list is not exhaustive as new events are organised every month in India and worldwide.

The concept of Sustainable Consumption and Production (SCP) was conceptualised at the World Summit on Sustainable Development held in Johannesburg in 2002. It was recognised that fundamental changes in the way societies produce and consume are indispensable for achieving global sustainable development. It called for all countries to promote sustainable

consumption and production. The importance of SCP for post-2015 sustainable development agenda was addressed at the 2012 United Nations Conference on Sustainable Development, also known as Rio+20 and focused on two themes: a "green economy" to develop sustainably and eradicate poverty; and an international institutional framework for sustainable development. The 10-Year Framework of Programmes on Sustainable Consumption and Production (10FYP) was one of the conference's major outcomes. Its goal is to decouple economic growth and environmental degradation, primarily by paving the way to an accelerated transition to an eco-efficient economy.

This chapter also highlights two case studies on smaller socio-economic initiatives implemented at a city /institution and the country level. These initiatives were motivated from the landmark sustainability events.

1. The case study on Sustainability at Nederlandse Spoorwegen (NS) highlights the successful implementation of sustainability practices followed by NS, the principal passenger railway operator in the Netherlands. The case study further elaborates on the use of clean energy and other sustainability initiatives of the NS, including sustainable purchasing, waste management, a commitment to green buildings and much more. Since January 2017, all NS trains have been running on 100% clean energy.
2. The second case study highlights the steps taken by the Indian government to tackle climate change post the Paris Agreement – such as increasing the excise duty on petrol and diesel, quadrupling the coal cess from Rs.50 per ton to Rs.200 per ton, and unveiling an ambitious plan to ramp up the production of solar energy from 20 GW currently to 100 GW by 2022. Additionally, solar power projects are being encouraged and accelerated in a big way and the country is moving on track to become one of the largest solar markets in the world, with the Indian Railways starting trials of solar powered trains, and even plans to come out with a solar policy for procuring 1000 MW solar power in the subsequent five years.

This chapter further provides data on the top polluting nations in the world and top polluting industrial sectors in India.

The World Health organisation (WHO) tracks air quality at 1,622 locations in 92 countries. Only urban areas are currently being tracked by WHO. Findings from the study reveal that Pakistan, Egypt and Mongolia are the top polluted countries, however this only refers to pollution in its cities. The data highlights that the energy sector contributes more than 75% of global GHG emissions.

In India, the Central Pollution Control Board (CPCB) formulates national programmes for prevention and control of pollution. The CPCB has selected the following 18 categories of major polluting industries in India for priority action: aluminium smelting, basic drugs & pharmaceuticals manufacturing, caustic soda, cement (200 TPD and above), copper smelting, dyes & dye intermediate, fermentation (distillery), fertiliser, integrated iron & steel, leather processing including tanneries, oil refineries, pesticide formulation & manufacturing, pulp & paper (30 TPD and above), petrochemicals, sugar, sulphuric acid, thermal power and zinc smelting.

Chapter IV: Government Policies and Institutions in India

The Indian Textile Sector includes all natural, artificial, and cellulosic fibres that go into the making of textiles, clothing and Handicrafts.

The Textile Sector in its entirety contributes significantly to the economy. It contributes 2% (factor cost) to the GDP, to 14% of industrial production, provides employment to 35 million people and contributes to 11% of total manufacturing exports earnings.

The Central and State Governments play a pivotal role in the smooth functioning and progress of the Textile Industry in India through a range of support schemes and programs.

Majority of the handloom and handicraft organisations in the Textile Sector are categorised under the Micro, Small and Medium Enterprises (MSME) category. Government and other institutional reports have suggested that the MSME sector contributes significantly to overall pollution levels and resource degradation in the country. The sustainability of the MSME sector is a cause for great concern for the Indian Government since MSMEs play a significant role in generating employment in both urban and rural areas.

This chapter covers the major environment protection and conservation laws in India, and explores the government guidelines and regulations pertaining to the MSME and Handloom and Handicrafts Sector in India. It also explores the government schemes that promote sustainability in the Handloom and Handicrafts Sector and outlines the schemes which have an embedded sustainable consumption and production component. Lastly, the current landscape and the future of the MSME and Handloom & Handicraft Sector are also covered.

India - Key Environment Protection and Conservation Acts

Soon after Indira Gandhi, the then Prime Minister of India attended the Stockholm Conference, a series of legislations such as The Forest (Conservation) Act, 1980, Wildlife (Protection) Act, 1972, The Water (Prevention and Control of Pollution) Act, 1974, The Water (Prevention and Control of Pollution) Cess Act, 1977, The Air (Prevention and Control of Pollution) Act, 1981, and The Environment (Protection) Act, 1986 were passed by the The Ministry of Environment, Forest and Climate Change. These Acts laid the groundwork for sustainable industrial development in India.

Elements considered during sustainability analysis of existing government schemes for the handloom and handicrafts sector

1. Energy efficiency
2. New and renewable energy
3. Waste minimisation
4. Effective control and management of waste

5. Beneficial uses of waste
6. Reduction of air, water, soil pollution
7. SCP-oriented financing or Green financing
8. Occupational Health and Safety (OHS)
9. Use of ICT in manufacturing for enhancing productivity
10. Skill up-gradation of workers especially from SCP angle
11. Creating awareness amongst managers of the benefits of SCP
12. Investment in R & D for developing green technologies
13. Marketing of Green Products

Analysis of Government Schemes with an embedded SCP Component

The Indian Government has 205 public schemes of assistance for the development of the MSME Sector across different branches of the government - only 37 schemes of which were found to have a sustainable consumption and production theme.

It has been observed that Handloom and Handicrafts sector is not adequately represented in environment and energy efficiency related schemes. Schemes pertaining to the Handloom and Handicraft Sector do not comprehensively cover all sustainability related aspects. However, these sectors are covered under the general schemes available to all MSMEs. Government of India Interventions for the Handlooms & Handicrafts Sector

The Government of India has put in place several schemes and commissions in a variety of themes for Handloom and Handicraft Sector, over the years. Some key interventions are:

1. Khadi and Village Industries Commission (KVIC)
2. Yarn Supply Scheme
3. Technology Upgradation Fund Scheme (TUFS)
4. Technology Mission on Cotton (TMC)
5. The Scheme for Integrated Textiles Park (SITP)

6. Integrated Handloom Development Scheme
7. Marketing and Export Promotion Scheme
8. Handloom Weavers Comprehensive Welfare Scheme
9. Common Compliance Code (CCC)
10. Handloom Marketing Assistance
11. Common Effluent Treatment Plant with Marine Outfall (CETPMO)
12. Green Climate Fund
13. India Handloom Brand

12th Five Year Plan - Handloom and Handicraft Sector

Sustainable growth through addressing environmental issues has been a highlight of the 12th Five Year Plan. Handicrafts in India are highly localised and are specific to the state, therefore their development and promotion has been entrusted to the State governments. However, the Office of the Development Commissioner (Handicrafts) also develops and implements various schemes for promotion of handicrafts at the centre. According to the latest 12th Five-year Plan various schemes are being implemented:

1. Ambedkar Hastshilp Vikas Yojana
2. Mega Cluster
3. Marketing Support and Services
4. Research & Development

The Plan envisions to provide skill development training to 35 lakh persons and thereby create additional jobs to the tune of 15.81 million by 2016-17.

Future of MSME, Handicraft and Handloom Industry

The Government of India in its current 12th Five Year Plan (2012-2017) has designed a comprehensive framework of guidelines and regulations related to the overall

development, promotion and sustainability of the MSME. However, as the 12th Five Year Plan will end in 2017, the time is ripe to discuss the future and sustainability of the MSME and especially the handloom and handicraft sector for the next plan to be developed by NITI Aayog.

The NITI Aayog or the National Institution for Transforming India, is a Government of India policy think-tank established to replace the Planning Commission which followed the top-down model.

Make in India & Impact on Handloom & Handicraft Sector

The "Make in India" initiative and campaign was launched by the Indian Government in September 2014 to improve the manufacturing capacity and encourage productive activities in the economy. Twenty-five sectors of production have been identified to lead this movement. These include a host of diverse sectors, ranging from Defence, Construction, Railways, Tourism, Food Processing and Textiles, with the permission of 100% Foreign Direct Investment in almost each of these twenty-five sectors.

The Make in India initiative can be a potential uplifter of the Handloom and Handicrafts Sector by creating more, indiscriminate opportunities in the economy. Although some spillover effects from the Make in India initiative have been observed throughout the economy, these changes hold a significant place for small cottage industries like the Handlooms and Handicrafts Sector. Policy changes that aim to improve business environments, labor laws, skill sets and productivity in the economy will always have an all-round positive affect.

Chapter V: Ecolabels used in the textile and handicrafts sectors and their success and failure stories

Eco-labels and **Green Stickers** are labelling systems for food and consumer products. Ecolabels are voluntary market based instruments used to complement environmental laws and regulations while green stickers are mandated by law.

Ecolabels are used to inform consumers that a labelled product is environmentally friendlier compared to other products in the same category. They increase consumer awareness of environmental issues and influence choice in favour of less polluting products while also encouraging the industry to produce and market environmentally friendly products. This chapter highlights the ecolabels relevant to the Textile, Cotton and Handicraft Industry by referring to the EcoLabel Index - the largest global directory of ecolabels. This chapter also focusses on case studies with the objective of presenting success as well as failure stories of ecolabelling in the context of relevant industry practices and economic scenario.

The EcoLabel Index currently tracks over 465 EcoLabels from across the world. For the purpose of this study, we have selected 31 relevant ecolabels and mapped their features in a comparative and comprehensive table. We have further shortlisted 15 Ecolabels from this list on the basis of significance/recognition, relevance and popularity - these are - The Better Cotton Initiative (BCI), BMP Certified Cotton, California Certified Organic Framers (CCOF), European Eco-Management and Audit Scheme (EMAS), FairTrade, Fair Trade Organisation Mark (FTO), Forest Stewardship Council (FSC), Global Organic Textile Standard (GOTS), Gold Standard, Carbon Trust Standard, Ecocert, Ecomark - India, EU Ecolabel, GoodWeave and Organic Content Standard.

Ecolabelling also has trade implications, which is a concern for developing countries. Criteria for ecolabels can be set to favour local producers through demands on specific technology or material. Developing country producers may find it difficult and expensive to adopt these technologies and processes and fear that this may lead to a decrease in export demand. The case studies presented here are selected on the basis industry & the socio-economic relevance. These case studies highlight the success and failure stories of EcoLabelling (Organic/ FairTrade/ Sustainability), and integrating sustainability into the supply chain.

SUCCESS & FAILURE STORIES

Case Study 1: Pro-poor Certification - Assessing the benefits of sustainability certification for small-scale farmers in India

- The Zameen Organic Cotton company buys organic and FairTrade cotton from small producers relying on rain-fed agricultural systems in Maharashtra and Andhra Pradesh, regions that comprise the so-called 'suicide belt' of India. All the farmers who are producers for Zameen are shareholders in the company, and have FairTrade certification.
- The Zameen strategy has been to try and build interest in cotton as the raw material from which textiles are derived, and in the stories of farmers producing cotton – overcoming the disconnect between cotton production, and branding and marketing of high-value textile fashions in developed country markets, in the process. This attempt to create and capture intangible value associated with a commodity echoes the debate around geographic labels and speciality coffees.
- Zameen is in its fifth year of operation. Many lessons on scaling up the Indian bio-cotton sector can be learned from examining Zameen's business model, challenges and success factors. Some lessons are also relevant for other commodities and certification programmes in different parts of Asia.
- Key Recommendations for successful replication of the Zameen model:
    - Financial plan for the start-up period
    - Seeking out institutional and government support
    - Pay attention to local context
    - Keep a cap on farmer group size for better management of group
    - Plan for drop-outs
    - Seek both FairTrade and Organic Certification
    - Maintain a robust internal control system for certification
    - Build strategic relationships with traders
    - Remain open to unconventional models for farmer businesses - in case of Zameen, farmers are shareholders

    - Prioritise multi-level learning and information sharing
- There are also various constraints to replicability of this model
- The Zameen model was in its fifth year at the time of study and seemed be performing well. Gross margins were 52% higher in 2003 and 63% higher in 2004. Unexpectedly, labour inputs were not significantly higher for organic farming in this study. This is a finding that would merit more investigation as labour inputs are usually higher for organic farming, a key factor in determining the overall profitability of organic farms.

Case Study 2: Sustainable and Ethical Manufacturing for a Profitable Business Model: A Case Study from the Handloom Industry in Sri Lanka

- This paper highlights craft practice as a potential avenue for achieving sustainability within the fashion industry. Through a case study drawn from the handloom industry, this paper explores a manufacturing approach that is committed to fair-trade principles and designed to prevent waste.
- The researchers argue that this study reveals a business model that could positively contribute towards generating employment opportunities and sustainable household income for the rural community.
- The paper concludes by highlighting that this type of a fair trade and environmentally conscious manufacturing process could address the three pillars of sustainability: social, economic and environment.
- This research is limited to a single case study and cannot be generalised to a wider population. However, this study invites other craft practitioners to revisit their manufacturing processes and investigate the possible application of sustainable and fair-trade principles into their businesses to harness the social and economic development.

Case Study 3: Fair Trade Statistics - A Success Story for Producers and Consumers

- The World Fair Trade Organisation Asia (WFTO) - (the former International Fair Trade Association (IFAT)) - provides impoverished food and crafts producers from all over Asia greater access to regional and interregional export markets in order to sell their gifts and living products.
- The data shows that Fair Trade shops in India are a big hit. For e.g. Asha Handicrafts, after facing stagnation in its exports to the West, now has three Fair Trade shops in Mumbai and ten shopin-shop stores in a big bookshop chain all over India.
- Labels such as FairTrade claim that a product was produced in a socially and environmentally sustainable way. However, putting such labels on products – and trying to adhere to the principles and practices underlying standards to pursue sustainability – can deliver unintended negative consequences. Unlike homogenous commodity cash and food crops like coffee, sugar and cacao, no finished craft or producing community are alike.
- There are several independent third party initiatives with varying degrees of credibility and complexity that give assurance on green, sustainable, organic, fair trade and other ethical product dimensions. Different aspects of sustainability in the supply chain are evaluated and diverse methodologies are used to map, evaluate and report these parameters - causing the certification picture to be fragmented and confused
- The study concludes that, the trade-off between enforcing compliance and achieving the goals envisaged by standard creators is inherent and cannot be resolved. It can, however, be mitigated. One option is to foster a systemic mindset, in which adopters duly consider the direct and indirect relations between causes and consequences. While sustainability and other standards may seek to create clarity, full transparency is not feasible without overshooting goals. But standards can be much more effective when they duly consider wider effects, adopter motives, and regional differences.

Case Study 4: The Failure of the EcoMark in India

- This case study highlights the development of Ecomark and reason for its failure
- The effective implementation of any measure such as the Indian Ecomark Scheme requires resources and political will. When it was launched in 1990s, both were present. A change in government led to a loss of interest in the scheme.
- Eventually, the Indian Ecomark Scheme turned into a lame duck situation due to the lack of interest of most of its stakeholders. To a large extent, this was due to the lack of continuity of the concerned governmental staff. A serious and complex issue such as ecolabelling must be handled by specialists who remain in the institution till the task is well accomplished.
- Another reason behind the derailment of the scheme was that some business lobbies worked hard to disrupt it - the detergent industry being a case in point. It must be realised that this is bound to happen initially, and that while voluntary adoption of the scheme is highly advisable, government and civil society groups must show sufficient resolve by not allowing pressure groups to allow the scheme to come to a stand still.
- Problems also existed in the administrative set up, as the implementation is in the hands of the Bureau of Indian Standards (BIS), which treats the Ecomark Scheme somewhat like a step child. Communication between different branches/Ministries of the Government has been very poor at times, responsibilities have got diffused and the entire management has been weak. There is, therefore, a crying need to intensively re-examine the mechanics and modalities of managing and implementing the scheme.
- The Ecomark Scheme failed to take off in a desired fashion due to multiple reasons. The multiplicity has made the situation so complex that it would be relatively easier to start from first principles, i.e. starting with a small basket of products/categories, which are the dirtiest ones so as to get maximum impact. The past repository of knowledge could serve as a reference point.

- This case study further suggests that the MoEF takes the initiative in reviving the scheme. Given the resource constraints, this initiative would be a partnership between the government, civil society organisations and industry. Within the government, participation from the Ministry of Commerce & Industry, the Department of Consumer Affairs (DoCA) and the BIS and possibly other relevant Ministries such as Finance would be necessary but clearly, the MoEF must take the lead role.

Case Study 5: The Shortcomings of the Fair Trade Label in the Coffee Industry

- Fair Trade-certified coffee is growing in consumer familiarity and sales, but strict certification requirements are resulting in uneven economic advantages for coffee growers and lower quality coffee for consumers. By failing to address these problems, industry confidence in Fair Trade coffee is slipping.
- A growing group of coffee growers, roasters, and importers believe that Fair Trade-certified coffee is not living up to its chief promise to reduce poverty. Retailers explain that neither FLO—the FairTrade Labelling Organisations International umbrella group—nor Fair Trade USA, the American standards and certification arm of FLO, has sufficient data showing positive economic impact on growers.
- This case study highlights the operation of FLO & Fair Trade USA, Revenue model of Fair Trade USA, Industry Perceptions of FLO and Fair Trade USA & the limitations of the Fair Trade Model - particularly, the flawed mechanism which creates a massive quality problem for Fair Trade Coffee
- Three distinct limitations to the Fair Trade model have been highlighted in this study:
  - Extraordinarily high price of Coffee
  - FLO's inability to alter the circumstances of the poorest of the poor in the coffee farming community like migrant labourer.

- The issue of transparency in business dealings: FLO regulations require a great amount of record keeping, to ensure that individual farmers have access to all information pertaining to the cooperative's sales and farming practices, enabling them to make more informed business and agricultural decisions. But this record keeping has proven to be a hurdle in some cases. In addition to being time-consuming, it has also raised language and literacy barriers.

Case Study 6: Highlighting Successes & Failures - Greening the Supply Chain: A Case Analysis of the Retail Giant 'Patagonia'

- Patagonia, an outdoor apparel retail giant and leader in the green apparel market, is committed to achieving the triple bottom line: being profitable as well as environmentally and socially responsible in its business practices.
- The intent of this case study is to assess if Patagonia's business practices reflect its mission to reduce harm to the environment or if it is classic case of green marketing. In this case study of Patagonia's organic cotton line, the implementation and enforcement of environmental and labor standards the company uses will be evaluated. This study will travel through Patagonia's global supply chain to explore the monitoring and transparency mechanisms Patagonia uses to add credibility to its products.
- Patagonia, as a pioneer in organic apparel has adopted many voluntary standards along its supply chain that offers a paper trail from fibre to fabric, however, because its monitoring and transparency mechanisms occur in a closed system this leave room for corruption and collusion.Although there are several noteworthy criticisms of Patagonia's monitoring methodologies in its organic cotton line, it is important to remember that Patagonia has helped to pioneer and trail blaze the path for monitoring and transparency in the apparel industry. To provide more transparency and credibility to its products, a system needs to be

created where industry pioneers who are producing organic products are not the same actors that are creating and monitoring these standards

The case studies highlight different factors responsible for the success and failure of the implementation of eco-labels which indicates the change in approach and efforts required for the success.

Chapter VI: Sustainability Reporting and the Highest Reporting Sectors

Along with ecolabelling & certifications, the reporting & assessment of these sustainability standards plays very critical role in driving sustainability. This chapter shares in-depth information on sustainability reporting and development of the Higgs Index, a sustainability assessment tool. This chapter shares data on the sectors that have highest Sustainability Reporting in India. Further, data is shared on the certification and reporting trends of organisations in the cotton / textile industry. This chapter also highlights the emerging models in the handicraft industry and their efforts to take sustainable products to a larger audience.

The **Sustainable Apparel Coalition** is the apparel, footwear and home textile industry's foremost alliance for sustainable production. The Coalition's main focus is on building the Higg Index, a standardised supply chain measurement tool for all industry participants to understand the environmental, social and labour impacts of making and selling their products and services.

Sustainability reporting enables organisations to consider their impacts on a wide range of sustainability issues, enabling them to be more transparent about the risks and opportunities they face. Sustainability reporting can be considered synonymous with other terms for non-financial reporting - triple bottom line reporting, corporate social responsibility (CSR) reporting, and more. It is also an intrinsic element of integrated reporting, a more recent development that combines the analysis of

financial and non-financial performance. Globally, across sectors, the GRI sustainability reporting standard is most widely used for sustainability reporting and disclosure. GRI is an international independent organisation that helps businesses, governments and other organisations understand and communicate the impact of business on critical sustainability issues such as climate change, human rights, corruption and many others.

GRI Sustainability Disclosure Database: It is an extensive repository of sustainability reports and is populated in collaboration with GRI Data Partners and includes reports that GRI is currently aware of. GRI has developed a UN SDG Target 12.6 live tracker. This tracker helps track sustainability reports across sectors for the countries with national sustainability reporting policies. The top reporting sectors from India are the automotive, financial services, chemicals, and metal products sectors.

As stated in GRI Annual report (2015 - 16), 9240 sustainability reports were added to the GRI Sustainability Disclosure Database, taking the total to 33,828 reports by 30 June 2016. This is an increase of 144% on the number of total reports added in the previous reporting period.

The comparison of reporting of the textile sector to the highest reporting sector for last three years shows that reporting of textile industry is relatively poor in comparison to the other sectors. Organisations have shown better reporting in 2015, as compared to previous and subsequent years. This could be due to the financial performance of the organisations. A time span of three years is very short to understand the factors influencing reporting behaviour. A study of sustainable reports of organisations in the textile & cotton industry provides insights into the certifications used and the parameters reported on. This study highlights that big brands are embedding sustainability principles into core business and are reporting on these parameters. While doing so, they are creating an ecosystem for other stakeholders like SMEs, suppliers, producers, and artisans to slowly embed sustainable practices in their business too. As the textile industry is showing its

alignment towards embedding sustainable practices and in its disclosures, the handicraft industry is showing its alignment towards sustainable practices through new models. The emerging trend of handicraft businesses can be broadly defined into three categories:

1. Sustainable luxury retail brands
2. The e-commerce industry
3. Sustainable Fashion

These models highlight the innovative measures taken by the handicraft industry to increase access and reach out to the larger market.

Chapter VII: Popular Sustainable Economic Labels & Market Consumption of these Labels

The increasing trend on reporting and ecolabel certification in the textile & handicraft industry indicates rising market demand for the same. This chapter shares information on the popular ecolabels in the industry and then highlights the factors impacting the market consumption of these sustainable economic labels. The Indian textile & handicraft industry is guided by the export market. The big brands are ensuring their alignment with global sustainability targets by cleaning up their processes & streamlining their supply chains. The Indian label market is influenced by the big brands and hence, the list of global & Indian popular labels is the same. The most popular labels highlighted in the table are Global Organic Textile Standard (GOTS), The Better Cotton Initiative (BCI), Organic Content Standard (OCS), Fair trade, Fair Trade Organisation Mark (FTO), Forest Stewardship Council (FSC) and The International Association for Research and Testing in the Field of Textile and Leather Ecology (OEKO-TEX). The ISO 14001, 50000 & SA 8000 are used across all the industries and hence, are not included in the above list.

Consumers are becoming more socially conscious about their buying patterns. 'The Sustainability Imperative' report released by The Nielsen Company (Oct 2015) states that 66% of global consumers will pay extra for products and services from companies committed to positive social and environmental impact. The trend is showing a rise from previous years' surveys - up from 55% in 2014 and 50% in 2013. With this changing scenario, though ecolabels are voluntary, market dynamics are influencing their adoption. Currently, major fashion brands are putting efforts in the direction of embedding sustainability in their processes as well as in the processes of their vendors and suppliers. Sustainability comes with its own price and thus, businesses are slowly integrating it in their operations, managing the fine line between profitability and sustainability. Besides REACH – European Community Regulation on Chemicals and their Safe Use, the other environmental standards complied with by Indian T&C firms include ISO 14001, GOTS, Oeko-Tex, and Social Accountability (SA- 8000). Market consumption trends of labels can be understood by studying direct indicators of label use, its impact on costs and profits, consumer willingness to pay for the label, and geographies that demand such products. The current market trend of label adoption is impacted by the clarity & ease of registering for labels, their impact on business profitability, consumers' buying behaviour, and the role policymakers play in incentivising these voluntary ecolabels. Future trends will be largely shaped by consumer preferences and trends and government policy.

Key Observations

- There is a lack of consumer awareness on Ecolabels and what different labels signify
- There is a huge demand for green products by millennials
- This is the ideal time to discuss the future and sustainability of the handloom and handicraft sector in India for the 13th Five-Year Plan
- There are significant policy changes due to India's commitments towards the Paris Agreement

- There is a need for more transparency in Sustainability Reporting by reporting organisations
- Ecolabels, certifying bodies, and textile & handicraft associations should collaborate to improve consumer awareness on ecolabels. This can help increase sustainable labels market consumption - handicraft associations need to play a key role in creating synergy between artisans and big sustainable fashion & retail brands.

About The Study

About The Study

Purpose

The purpose of this study is to collate and document sustainable development and its evolution over the years, and then zoom in on sustainability in the handicrafts sector - the current scenario and future trends. This data can be used to enable the creation of a standardised framework to help artisans across India upscale sustainably.

Scope

The scope of the study as originally defined by AIACA was as follows:

1. Mapping the origin of sustainable production and consumption thinking - including guidelines/ policies adopted by the governments since the Rio summit. Factors influencing the Rio summit and the organisations and standards that came into being since.
2. Listing landmark events organised globally over the past three years, and issues/ debates raised on green production, sustainable economy, green economy, green markets, responsible business, and other similar concepts.
3. Collating data on the various standards and criteria and different models of sustainable certification across sectors. Compiling examples of successful compliance and also where it failed.
4. Mapping sectors where compliance /conversion has been highest.
5. Collating data on market consumption over the past three years based on sustainable economic labels.
6. Documenting the position of the Indian government and the guidelines and regulations related to SMEs and textiles, particularly handlooms and handicrafts.

Methodology

The study is conducted purely through secondary desk research. The data has been collected primarily from two main sources:

1. **National & International Government Policies & Reports:** This source has helped develop understanding around the evolution of sustainable development and environmental policies & acts. This data has been collected from government and intergovernmental bodies.

2. **Online Data:** This source has helped develop understanding on sustainable labels & certifications, reporting standards related to the textile & handicraft industry and market trends and factors influencing these trends. The online data has been collected from white papers, survey reports, industry reports, case studies, company reports & websites, websites of certification organisations & sustainable reporting organisations, paid databases (The Ecolabel Index), trade & industry associations, newspaper articles and in a few instances, blogs.

Information analysis and collation has been done through a systematic review of papers, reports and case studies to derive a larger understanding around the current status of the ecolabels market, and the future of sustainability standards in the textile & handicraft sectors. This study also provides observations and discussion points for future studies.

The study has tried to collect maximum information through authentic sources to maintain the quality of the data. At the same time, it should be noted that data collected from open sources has its limitations and hence, it is not possible for the researcher to ensure authenticity.

Chapter I:

Environmental History of the World and Evolution of the Sustainable Development Movement

Chapter 1: Environmental History of the World and Evolution of the Sustainable Development Movement

Introduction

Environmental change on earth is as old as the planet itself, about four billion years old. Man has altered the environment throughout his existence. However, the maximum change has occurred in the twentieth century. For the first time human beings have impacted ecosystems with an intensity, scale, speed and dimension as never witnessed before[1][2]. The Industrial Revolution gave rise to most of the inventions that increased pollution levels exponentially[3].

Promoting global environmental, social and economic development has been a challenge for the United Nations and the policy makers of developed and developing countries since the 1960s. This study examines global attempts to integrate environment and development issues on conceptual and institutional levels, as well as efforts to translate these into international and domestic action. These issues are not only of historical interest, but they can also give us a better understanding of the origin of the ongoing sustainability debate and highlight some of the central factors that continue to influence cooperation and policy making on sustainable development.

This chapter provides an overview of the environmental history of the world and the evolution of the sustainable development movement. Major political events, efforts and policy developments on environment and development that preceded the Stockholm Conference 1972 and the subsequent major events in the history of sustainable development are also covered.

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[1] Caldwell, Lynton K. *International Environmental Policy: From the Twentieth to the Twenty-First Century.* 3rd ed. Revised and updated with the assistance of Paul Stanley Weiland. Durham: Duke University Press, 1996.

[2] http://www.pg.gda.pl/chem/CEEAM/Dokumenty/Simeonov/environ_hist_Simeonov.pdf

[3] Ivanova, Maria. "Designing the United Nations Environment Programme: A Story of Compromise and Confrontation." International Environmental Agreements 7 (2007): 337–61.

Environmental History of the Twentieth Century

The twentieth century is a distinctive period in environmental history, because there were enormous man-made environmental changes in the lithosphere, pedosphere, atmosphere, hydrosphere and the biosphere. *(Annex A)*

This rapid degradation in the natural environment started the sustainability discussion globally, and there have been several milestone events held across the years - including the Stockholm Conference in 1972, The Earth Summit in Rio de Janeiro in 1992 and The Kyoto Protocol in 1997. *(Annex B, Annex C, Annex D, Annex E, Annex F, Annex G, Annex H, Annex I)*

These events brought together various governments, intergovernmental organisations, non-governmental organisations and later, even the private sector to collaboratively define sustainable development, and develop a global sustainable development agenda.

Several key concepts such as International Emissions Trading (IET), Clean Development Mechanism (CDM), Carbon Credits, Carbon Sequestration the Millennium Development Goals, and subsequently the Sustainable Development Goals were conceptualised, defined and actioned at these events. *(Annex J, Annex K, Annex L)*

Key polluting countries and industries have been mapped, and clean energy has emerged as a major factor contributing to sustainability. The above mentioned measures came into use to control and mitigate climate change and move towards Sustainable Development. *(Annex A)*

A timeline of of milestone events between 1992 and 2012 is illustrated on the following two pages.

Major Organisations and Standards after Rio Summit 1992 [4][5][6][7]

1992 World Business Council for Sustainable Development

Formation of the WBCSD - a global, CEO-led organisation of over 200 leading businesses working together to accelerate the transition to a sustainable world

1994 China's Agenda 21

A white paper on the country's population, environment and development, is published. China sets an international example for national strategies for sustainable development

1994 World Trade Organisation

Established, with formal recognition of trade, environment and development linkages

1995 World Summit for Social Development

Held in Copenhagen. This is the first time the international community expressed a clear commitment to eradicating absolute poverty

1996 ISO 14001

ISO 14001 formally adopted as a voluntary international standard for corporate environmental management

1999 Dow Jones Sustainability Indexes

The first of its kind, the tool provides guidance to investors looking for profitable companies that follow sustainable development principles

2000 World Millennium Development Goals

The largest-ever gathering of world leaders agrees to a set of time-bound and measurable goals for combating poverty, hunger, disease, illiteracy, environmental degradation and discrimination against women, to be achieved by 2015

2002 World Summit on Sustainable Development

Held in Johannesburg, marking 10 years since UNCED. In a climate of frustration at the lack of government progress, the summit promotes "partnerships" as a non-negotiated approach to sustainability

2002 Global Reporting Initiative

Guidelines for reporting on the economic, environmental and social dimensions of business activities released

2005 The Kyoto Protocol

Comes into effect seven long years after negotiations started. The goal of getting countries accountable for a total of 55% of the global emissions that was attained with Russia's signature endorsing the document.
The protocol focused on

a. Targets of emission-reduction of greenhouse gases for each of the member countries
b. A program on the greenhouse gas emission
c. Holding future meetings to place penalties for violators of the targets that are being customary and the parameter rules of the program in emission-trading

2005 Millennium Ecosystem Assessment

1,300 experts from 95 countries provide scientific information concerning the consequences of ecosystem change for human well-being

2006 Stern Review

Makes the convincing economic case that the costs of inaction on climate change will be up to 20 times greater than measures required to address the issue today

[4] https://www.iisd.org/pdf/2012/sd_timeline_2012.pdf

[5] https://www.researchgate.net/profile/Olivier_Serrat/publication/266878643_World_Sustainable_Development_Timeline/links/543e3e430cf2d6934ebd20af/World-Sustainable-Development-Timeline.pdf?origin=publication_list

[6] www.oecd.org/dataoecd/58/34/44077822.pdf

[7] http://www.cfr.org/world/g20-leaders-final-statement-pittsburgh-summit-framework-strong-sustainable-balanced-growth/p20299

Figure 1.1 : A Timeline of Major Organisations and Standards post the Rio Summit

Chapter II:

Environment Protection in India

Chapter 2: Environment Protection and The Sustainable Production and Consumption Market in India

Introduction

India has been something of a pioneer in recognising that conservation is not to the detriment of economic growth but a pre-condition for sustainable development.

India has a rich tradition of respecting and caring for the environment, starting from the Rig Veda to the current legislative landscape of three hundred and fifty government acts, laws, and regulations etc. [8]

Environmental degradation in India has resulted from population, pollution, rapid industrialisation, and indiscriminate deforestation for infrastructure development, travel, power generation and irrigation. Major environmental problems are air pollution resulting from industrial development, water pollution from industrial and domestic effluents, soil erosion, deforestation, desertification, loss of wild life because of indiscriminate hunting, urban sprawls, ugly landscapes due to burgeoning population, etc.

However, environment protection presents a major challenge to India's desire to industrialise faster, to be self-sufficient in food production and to be capable of fulfilling the basic needs of the growing population.

These concerns are reflected in the national planning process, constitutional provisions and the administrative machinery set up to accommodate developmental policies that focus on environment protection.

The institutional set-up for environmental planning and development, as it exists today, has taken nearly three decades to evolve. The year 1972 marked a watershed in the history of environmental management in India.

[8] http://shodhganga.inflibnet.ac.in/bitstream/10603/19071/8/08_chapter%202.pdf

During her historic speech at the Stockholm Conference, the then Prime Minister of India, Indira Gandhi stated,[9] "We do not wish to impoverish the environment any further and yet we cannot for a moment forget the grim poverty of large numbers of people. Are not poverty and need the greatest polluters? How can we speak to those who live in villages and in slums about keeping the oceans, the rivers and the air clean when their own lives are contaminated at the source? The environment cannot be improved in conditions of poverty". She was aware that 'the environmental problems of developing countries are not the side effects of excessive industrialisation but reflect the inadequacy of development'. The conclusion and prescription were thus obvious - for India poverty was the greatest polluter, and development was the panacea to solving both the problems of poverty and environmental degradation. Indira Gandhi cautioned the West to play a positive role in helping and alleviating the poverty of the developing world while asking developing countries to protect the environment. She asked, "Will the growing awareness of 'One Earth' and 'One Environment' guide us to the concept of 'one humanity'? Will there be a more equitable sharing of environmental costs and greater international interests in the accelerated progress of the less developed world?".

Mrs. Gandhi's views were praised and supported by the Indian environmental community. Her speech highlighted the difficult choices between environment and development that faced developing countries.

In the Indian legislative framework, the Factories Act, the Motor Vehicles Act etc. contain provisions for the protection of environment. Even the Indian Penal Code, Code of Criminal Procedure, Police Act, Code of Civil Procedure and the Special Relief Act have specific laws to ensure preservation of the environment. Soon after Indira Gandhi's attendance at the Stockholm Conference, a series of legislations such as The Forest Act 1927, The Forest (Conservation) Act 1980, Wildlife

[9] http://lasulawsenvironmental.blogspot.in/2012/07/indira-gandhis-speech-at-stockholm.html

(Protection) Act 1972, The Water (Prevention and Control of Pollution) Act 1974, The Water (Prevention and Control of Pollution) Cess Act 1977, The Air (Prevention and Control of Pollution) Act 1981, and The Environment (Protection) Act 1986 came in force.

A Timeline of India's Environmental History

1972 Committee of Human Environment

A Committee on Human Environment was set up under the chairmanship of Pitamber Pant, member of the Planning Commission to prepare a report on the state of the environment requested by 24th UN General Assembly prior to the conference on the Human Environment

1972 Wildlife (Protection) Act

The first environmental legislation passed in independent India

1974 Water (Prevention and Control of Pollution) Act

An environmental protection measure taken by the Government of India post the Stockholm Conference. The Act aims to prevent the pollution of water by industrial, agricultural and household wastewater that contaminate water sources

1976 42nd Amendment of Constitution

An amendment of the constitution post the Stockholm Conference.
To comply with the principles of the Stockholm Declarations adopted by the International Conference on Human Environment, the Government of India, by the Constitution 42nd Amendment Act, 1976 made the express provision for the protection and promotion of the environment, by the introduction of Article 48-A and 51-A(g) which form a part of the Directive Principles of State Policy and the Fundamental Duties respectively

1977 Water (Prevention & Control of Pollution) Cess Act

This Act provides for the levy and collection of a cess on water consumed by persons carrying on certain industries and by local authorities, with a view to augment the resources of the Central Board and the State Boards for the prevention and control of water pollution constituted under the Water (Prevention & Control of Pollution) Act, 1974

1980 Forest (Conservation) Act

The Forest Conservation Act was passed in 1980 to provide for the conservation of forests and tor matters connected therewith. It was one of the environmental protection measures taken by the Government of India post the Stockholm Conference

1980 National Environment Policy

The Government of India appointed a 'Committee for Recommending Legislative Measures and Administrative Machinery for Environmental Protection' under the chairmanship of N.D. Tiwari. The Tiwari Committee (1980) recommended the formulation of the National Environmental Policy

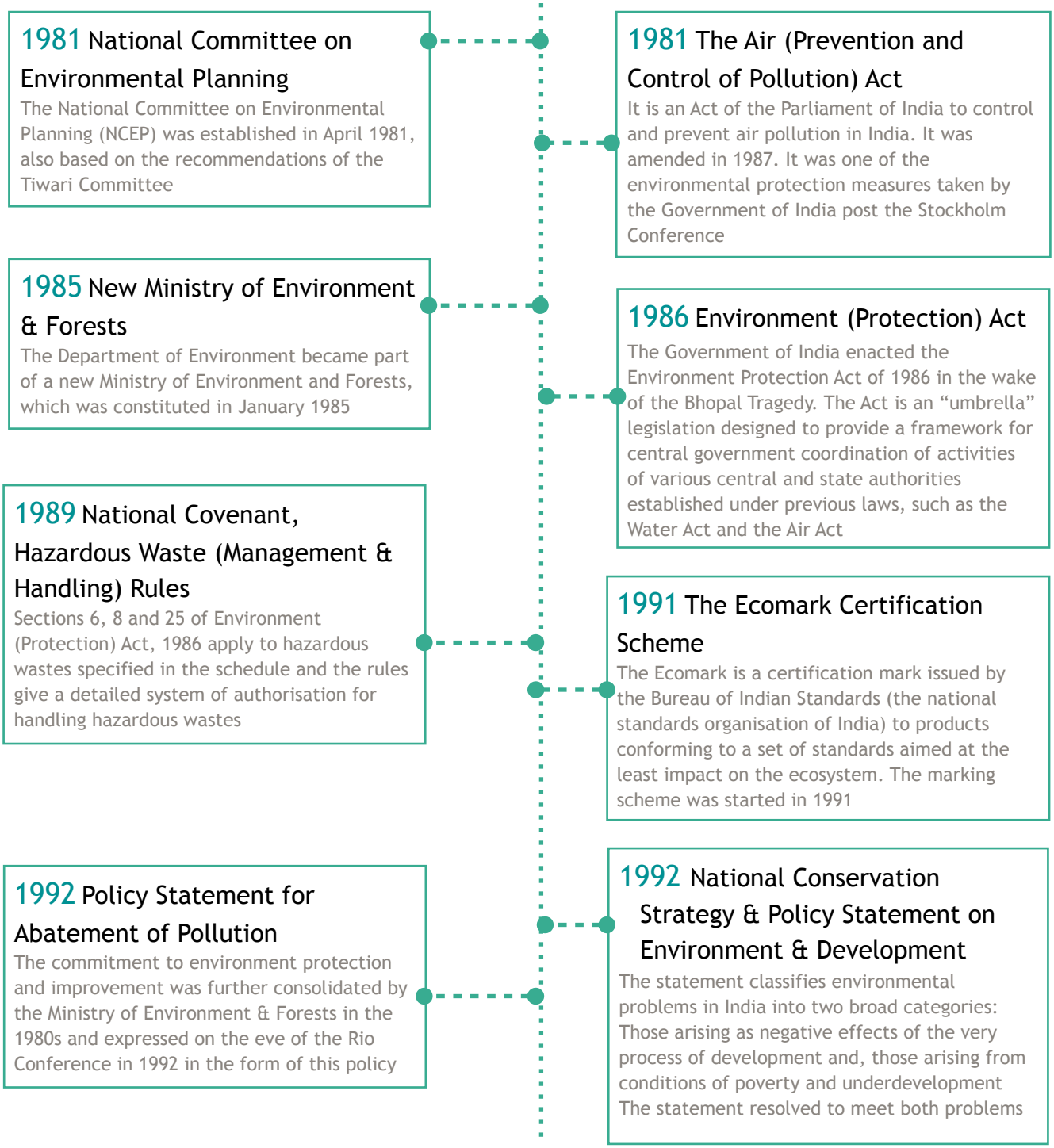

Figure 2.1: A Timeline of India's Environmental History

India and Climate Change

India signed the United Nations Framework Convention on Climate Change (UNFCCC) Accord on 10 June 1992, and ratified it on 1 November 1993. Under the UNFCCC, developing countries like India do not have binding Green House Gas (GHG) mitigation commitments as their overall contribution to GHG emissions is relatively less and their financial and technical capacities are limited.

The Ministry of Environment, Forests and Climate Change is the nodal agency for climate change issues in India. It has constituted working groups on the UNFCCC and Kyoto Protocol. Article 12 of the Kyoto Protocol provides for the 'Clean Development Mechanism' (CDM), and India consented to the Kyoto Protocol on 26 August 2002.

Post the historic Copenhagen meeting India initiated a range of programs to combat climate change in national capacity as described here:

1. The Expert Group on Low Carbon Strategy for Inclusive Growth set up by the Government of India has developed a roadmap for low carbon emissions. They have recommended prioritised actions in sectors such as Electricity, Transport, Industry, Oil and Gas, Buildings, and Forestry. Their recommendations have become a central part of India's 12th Five Year Plan (2012-2017).

2. India has announced a clean energy Cess of INR 50 per ton on coal, which applies to both domestically produced and imported coal. This money goes into a National Clean Energy Fund that is used for funding research, innovative projects in clean energy technologies, and environmental remedial programmes.

3. India's cabinet approved the National Mission on Enhanced Energy Efficiency (NMEEE) on 24th June, 2010. The Mission includes several new initiatives – the most important being the Perform, Achieve and Trade (PAT) Mechanism, which covers facilities that account for more than 50% of the fossil fuel used in India, and helps reduce CO2 emissions by 25 million tons per year by 2014-15. About 700 of the most energy intensive industrial units and power stations in

India have been mandated to reduce their energy consumption by a specified percentage. In order to enhance the cost effectiveness of this mechanism, facilities which achieve savings in excess of their mandated reduction are issued Energy Savings Certificate (ESCerts) which can be traded.

4. On 10th May 2010, India released its Greenhouse Gas (GHG) Emissions Inventory for 2007, with the aim of enabling informed decision-making and to ensure transparency. With this publication, India became the first "non-Annex I" country to publish such updated numbers. According to the results, India's emissions are less than a fourth of the USA and China. Results also show that the emissions intensity of India's GDP declined by more than 30% during the period 1994-2007 due to the efforts and policies that India has proactively put in place.

5. The National Mission on Sustainable Habitat (NMSH) is a comprehensive strategic plan promoting energy efficiency in residential and commercial sectors. The plan aims to bridge the knowledge gap on designing green infrastructure, ensuring better implementation of government schemes, and offers financial incentives. The plan also aims to develop a comprehensive approach to managing water, solid waste and wastewater that takes into account potential for recycling, reuse and energy creation.

6. The Jawaharlal Nehru National Solar Mission (JNNSM) is a mission to make India a global leader in solar energy. It aims at generating 20,000 mw of solar power by 2022. It also has other targets: including installation of 2000 mw of off-grid solar plants, and 20 million sq. meters of solar collectors, In addition to creating and distributing 20 million solar lighting systems in rural areas, thus saving about 1 billion litres of kerosene annually.

7. The Green India Mission focuses on enhancing eco-system services and carbon sinks through afforestation, in line with the national policy of expanding green cover in the country and improving the quality of forests. [10]

[10] http://envfor.nic.in/sites/default/files/India%20Taking%20on%20Climate%20Change.pdf

Environment Protection & India's Five Year Plans

Fourth Five Year Plan (1969-1974)	Environmental issues were first recognised during this year. The plan recognised 'the inter-dependence of living things and their relationship with land, air and water', and the need for harmonious development which is possible only on the basis of comprehensive appraisal of environmental issues, particularly economic and ecological. It was further observed that it is necessary to introduce the environmental aspect into planning and development.
Fifth Five Year Plan (1974-1979)	The plan did not contain any significant information on the Environment.
Sixth Five Year Plan (1980-1985)	The plan recognised the Ecology and Environment as the "imperative need to carefully harness renewable resources of soil, water, plant and animal life to sustain our economic development".
Seventh Five Year Plan (1985-1990)	The focus on Environmental planning became sharper in the Seventh Plan The plan envisaged the formulation of National Conservation Strategy, establishing a network of Environmental Information System besides implementation and research programmes in this field.
Eighth Five Year Plan (1992-1997)	The plan recognised protection, regeneration and restoration of eco-systems and monitoring the state of environment.

Ninth Five Year Plan (1997-2002)	The plan outlined "environmental sustainability of the development process through social mobilisation and participation of people at all levels" It stated rapidly growing population, urbanisation, changing agricultural, industrial and water resource management, increasing use of pesticides and fossil fuels resulted in perceptible deterioration in the quality and sustainability of the environment.
Tenth Five Year Plan (2002-2007)	The plan is focused on tackling the environmental degradation in a holistic manner in order to ensure both economic and environmental Sustainability. The main theme for Protection and conservation of Forests and Climate Change Mitigation
Eleventh Five Year Plan (2007-2012)	The plan envisaged a clear commitment to pursue a development agenda, which is environmentally sustainable, based on a strategy that not only preserves and maintains natural resources but also provides equitable access to those who are denied this currently. It recognised the need to have environment protection at the core/centre stage of all policy formulation.
Twelfth Five Year Plan (2012-2017)	The plan is focussed on Managing the Environment and Ecology - Land mining and Forest rights, Climate Change and Mitigation, Waste Management and Pollution Abatement, Degradation of Forests and loss of Biodiversity, Environmental Sustainability

Figure 2.2: Environment Protection - India's Five Year Plans

Chapter III:

The Global Sustainable Consumption & Production Economy

Chapter 3: The Global Sustainable Consumption & Production Economy

Introduction

Whilst the concept of sustainable and green economy has only recently gained significant international attention, several policies related to this theme have been formulated internationally and nationally over the past years. These have been discussed and analysed for many decades by economists and academics, particularly in the fields of environmental and ecological economics. Sustainable and green economy policy measures have also been discussed at length in international negotiations, including UNCED in Rio in 1992. For example, the Rio Declaration included principles promoting the internalisation of environmental costs and the use of economic instruments (Principle 16) as well as eliminating unsustainable consumption and production (Principle 8). Agenda 21 further elaborated on these principles and called for the development of national strategies for sustainable development incorporating measures for integrating environment and development, providing effective legal and regulatory frameworks, making effective use of economic instruments and market and other incentives, and establishing systems for integrated environmental and economic accounting.

This chapter provides a brief overview of interrelated concepts that have gained significant attention in recent years in the context of catalysing efforts to achieve sustainable development, such as - Sustainable Consumption & Production (SDG 12), green economy, sustainable economy, green market and green production. This section also contains an overview of the national and international events related to these concepts. This list is not exhaustive as new events are organised every month in India and worldwide.

Landmark Events based on Sustainable Consumption & Production (Govt. & Intergovt. 2013 -2016)

2013 Third Green Industry Conference (GIC 2013),China

Organised by: UNIDO
Outcome: UNIDO will engage with governments, business associations and enterprises to promote the particular interest of women in Green Industry and create a women-in-green-industry network in the framework of the Green Industry Platform.

2014 International Conference and Utility Exhibition (ICUE), Thailand

Organised by: IEEE Power and Energy Society and the Asian Institute of Technology (AIT)
Outcome: The conference emerged as a space for exchange of innovative ideas and several case contributions were offered for improving the newly launched knowledge base.

2014 Integrated Research on Disaster Risk Conference, China

Organised by: IRDR & CAST
Outcome: Conference brought together some 200 leading experts and some of the best of an emerging cohort of young researchers in the field of disaster risk reduction from all academic and professional backgrounds to help create a "global IRDR community," and bring continued worldwide attention to the IRDR programme.

2014 Third International Conference on Small Island Developing States, Apia Samoa

Organised by: UN HQ
Outcome: United Nations Member States formally adopted the outcome document of the Conference, the Small Island Developing States Accelerated Modalities of Action - or SAMOA Pathway - in which countries recognized the need to support and invest in these nations so they can achieve sustainable development.

2014 World Conference on Education for Sustainable Development (WCESD), Japan

Organised by: UNESCO in cooperation with the Government of Japan
Outcome: Consolidate the outcomes of the DESD, and to frame the way forward for Education for Sustainable Development (ESD) at global level. The conference resulted in main outcomes:

- Launch of the final report on the DESD 'Shaping the Future We Want'
- Adoption of the Aichi-Nagoya Declaration on ESD
- Launch of the Global Action Programme (GAP) on ESD, with 360 registered commitments

2015 High-level interactive dialogue of the sixty-ninth session of the General Assembly in New York

Organised by:United Nations General Assembly (UNGA), UN-Water
Outcome:Concluding highlights of the session included the importance of participatory governance, the need to address financing and pollution, and the importance of monitoring and data collection. Science and appropriate policies also play an important role, and lessons can be learned from methods to encourage water cooperation, which has been successfully happening for hundreds of years.

2016 High Level Political Forum 2016, New York

Organised by: UN
Thematic review on SDG implementation
Included voluntary reviews of 22 countries on SDGs and cross-cutting issues, supported by reviews by the ECOSOC functional commissions and other inter-governmental bodies and forums.

2016 Extended Southeast Asian Conference: GPP and Eco Labels as Promoter for Innovation, Qualification and Green Transformation, 2016, Chiang Rai, Thailand

Organised by: GIZ
Exchange of information and sharing of experiences in working groups created based on interest areas, including criteria development process of type I eco-labels, sustainable consumption and production towards sustainable development goals, development of Nationally Appropriate Mitigation Actions on SCP, successful approach for green public procurement (GPP) and eco-label policy support, quantifying benefit of GPP, green construction, and innovative strategies on promoting eco-friendly products in the market.

2016 UN Biodiversity Conference COP13, Cancun, Mexico

Organised by: United Nations
The Cancun Declaration on mainstreaming the conservation and sustainable use of biodiversity for well-being.

2016 5th Biennial High-level Meeting of the Development Cooperation Forum (DCF), New York

Organised by: United Nations Economic and Social Council (ECOSOC)
Advanced the global policy dialogue on how development cooperation can play more strategic roles in promoting rights-based, results oriented and whole-of-society approaches to support developing countries to strengthen country ownership and in assisting all stakeholders in achieving the 2030 Agenda. Knowledge sharing and mutual learning on development cooperation in the implementation of the 2030 Agenda and Addis Agenda.

2016 Habitat III - United Nations Conference on Housing and Sustainable Urban Development, Ecuador

Organised by: United Nation General Assembly
The United Nations adopted the New Urban Agenda (NUA), an inclusive, action-oriented, and concise document intended to guide the next twenty years of sustainable and transformative urban development worldwide.

2016 5th Responsible Business Forum (RBF) on Sustainable Development, Singapore

Organised by: UNDP
Launch of the Sustainable Finance Collective Asia, aiming to accelerate funding of sustainability projects, initiated by ING and backed by major financial institutions, Credit Suisse, Dutch development bank, and UN Social Impact Fund (UNSIF).
Introduced Gender Equality Seal Certification Programme for Private Sector

Figure 3.2: Landmark Events based on Sustainable Consumption & Production (Civil Society 2013-2016)

Landmark Events based on Sustainable Consumption & Production (Civil Society 2013 -2016) *(Annex M)*

2015 7th World Water Forum, Republic of Korea

Organised by: Republic of Korea and the World Water Council
Announced the Implementation Roadmaps (IRs) of 16 overarching themes
Representatives of national governments, local governments, public institutions, international organisations, and corporations signed 21 MOUs, and leaders held approximately 50 bilateral and multilateral meetings, creating a venue for cooperation on water issues

2015 World Green Economy Summit 2015, Dubai

Organised by:Dubai Green Economy Partnership & WETEX
Generated new partnerships, initiatives and projects to develop a green economy in Dubai, across the region and worldwide.
These inputs will serve as the backbone for future development of WGES in the upcoming years.

2015 18th European Forum on Eco-innovation, Spain

Organised by: European Commission's Directorate General for Environment, the Spanish Ministry of Agriculture, Food & Environment & the Generalitat de Catalunya with the support the Club EMAS Catalunya & the Environment Sector Group of the Enterprise Europe Network.
Inputs on policy making for the new circular economy package the European Commission is working on, & on-going reviews of the Eco-Management and Audit Scheme (EMAS), the EU Ecolabel scheme & Eco-innovation Action Plan.

2015 High Level International Conference - International Decade for Action "Water for Life", 2005-2015, Tajikistan

Organised by: The Government of Tajikistan, UN Water and other UN agencies
Comprehensive review of the implementation of the International Decade.
The President of the Republic of Tajikistan announced a new International Decade for Action under the motto 'Water for Sustainable Development', as a tool to promote programs for sustainable development goals related to water.".

2015 UN Sustainable Development Summit, New York

Organised by: UN HQ.
Adoption of the post-2015 development agenda.
Emphasis on the need to forge innovative partnerships between governments, businesses & civil society

2016 4th Green Industry Conference, Ulsan, Republic of Korea

Organised by: Ulsan Metropolitan City and UNIDO
UNIDO signed MoUs with
- The National Research Council of Science and Technology of the Republic of Korea to establish and expand scientific and technological research cooperation
- The China Energy Conservation and Environmental Protection Group to promote cleaner production and resource efficiency.

Figure 3.1: Landmark Events based on Sustainable Consumption & Production (Govt & Intergovernmental 2013-2016)

Evolution of Sustainable Production & Consumption Thinking

Over the past 15 years there has been considerable work done by the government, pioneers in business and the civil society on making consumption and production more sustainable in nature. The concept of sustainable consumption and production found an unexpected push through concepts like 'Eco-Efficiency', and 'Clean Production'. Sustainable Consumption and Production was further elucidated by governments, business and nonprofits at the 1992 Rio de Janeiro Summit. Sustainable consumption and production methods have since been augmented and integrated into many government policies and frameworks.

An understanding of sustainable consumption and production requires an understanding of the overall economy. It is only then that one would know what products 'cost' in the context of the social and environmental impact they create. This context would include factors such as the usage of land, waste disposal, and the cost that has been deferred to the future either through the sources of energy a product has tapped into, or for the unforeseen costs related to health.

Impact of the Rio Summit Sustainable Production & Consumption Thinking

The concept of Sustainable Consumption and Production was first defined at the World Summit on Sustainable Development held in Johannesburg in 2002. The World Summit recognised that Sustainable Consumption and Production forms one of the three overarching objectives of sustainable development and is an essential component of the same, together with poverty eradication and the efficient management of natural resources. It was recognised that fundamental changes in the way societies produce and consume are indispensable for achieving global sustainable development.

Sustainable Consumption and Production is about "the use of services and related products which respond to basic needs and bring a better quality of life while

minimising the use of natural resources, improving resource efficiency, increasing use of renewable energy resources, reducing release of toxic materials and emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardise the needs of the future generations." (Oslo Symposium on Sustainable Consumption, 1994).

Sustainable Development Goal 12: Ensure Sustainable Consumption & Production Patterns

Sustainable production and consumption aims towards 'doing more and better with less' - escalating gains of net welfare from economic activities by reducing the use of resources, reducing pollution and degradation of the overall lifecycle, along with increasing the life quality[11]. It also takes into account the various stakeholders, inclusive of business, policy makers, consumers, scientists, media and retailers among others. It entails a systematic approach to include the entire supply chain - from the producer to the final consumer[12]. It also includes customer engagement through awareness generation and sensitisation on sustainable consumption and lifestyle.

The essential challenge of sustainable consumption and production is how to de-link economic development from environmental degradation, in order to operate within the limits of the planet's ecosystems. Meeting this challenge will require technological innovation, rethinking current business models and political determination.

Unsustainable production and consumption practices are a growing problem particularly with respect to environmental protection. They lead to wastage of resources, contribute to the degradation of environmental and social ecosystems, and increase ecosystem vulnerability. Given the world's growing population, demands for economic development in developing countries, improved living

[11] Moscardo, G., 2013. Sustainability, economy and society. Wiley-Blackwell.

[12] Gibbs, D. and O'Neill, K., 2015. Building a green economy? Sustainability transitions in the UK building sector. *Geoforum*, *59*, pp.133-141.

standards, and the looming dangers of climate change - the ramifications of inefficient and shortsighted production and consumption practices are increasingly evident.

Currently, approximately one in nine people suffer from chronic hunger[13]. Yet, food waste is a major problem globally—approximately 1.3 billion tons, or one-third of all global food production, is wasted every year. Food waste[14] is often a result of both inefficient production and consumption. In India alone, approximately 30 percent of all produce spoils before it reaches markets, due to inefficiencies in the supply chain and a lack of storage and cooling facilities[15]. Farmers who grow this food lose out both in terms of potential revenue as well as the cost of investment for resources such as water, fertiliser, etc. that went into its production. In other countries that have better preservation and distribution systems in place, large volumes of food simply go to waste after being bought. In the United States, approximately 40 percent of food supply was discarded in 2009 throughout multiple levels of the supply chain, particularly by consumers. This food waste accumulates in landfills, where it decomposes and releases methane, a greenhouse gas with over twenty-five times the warming effect of carbon dioxide[16].

Many other sectors of development also suffer from unsustainable practices, ranging from the use of valuable resources for ill-suited products, such as the use of hardwood from virgin forests in paper mills, to the inefficient use of coal in power plants. Modern life is shaped by these practices, so a truly effective effort to improve resource management and decrease environmental degradation while simultaneously improving economic

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[13] "Hunger Statistics," *World Food Programme*, 2014, http://www.wfp.org/hunger/stats.

[14] "Minimizing Food Waste," *United Nations Environment Programme*, http://www.rona.unep.org/?q=node/30.

[15] "FDI in retail sector," IE Lobbying, 2012, http://ie-lobbying.net/euromediations/files/2012/12/india_fdi_in_retail_sector.pdf.

[16] Dana Gunders, "Wasted: How America Is Losing Up to 40 Percent of Its Food from Farm to Fork to Landfill," National Resources Defense Council Issue Paper, August 2012, http://www.nrdc.org/food/files/wasted-food-IP.pdf.

development will require an overhaul of the current norms.

Opportunity

Various sectors of the international community are mobilising to address post-2015 plans to combat environmental degradation while continuing economic development. For this to succeed, sustainable consumption and production needs to become the norm. The importance of sustainable consumption and production for post-2015 sustainable development agenda was addressed at the 2012 United Nations Conference on Sustainable Development, also known as Rio+20 and focused on two themes: a "green economy" to develop sustainably and eradicate poverty; and an international institutional framework for sustainable development. The 10-Year Framework of Programmes on Sustainable Consumption and Production (10FYP) was one of the conference's major outcomes[17]. Its goal is to decouple economic growth and environmental degradation, primarily by paving the way to an accelerated transition to an eco-efficient economy[18].

The adoption and rollout of the 10FYP and its various parts are the integral elements of the global movement to transition to a "green economy" by combining economic growth, environmental protection, and social inclusion. Increasing the sustainability of production and consumption has economic opportunities for new business practices, new routes of innovation, growth in sectors, and improved efficiencies. This has recently been taken one step further: The Global Commission on the Economy and Climate launched its flagship project, the New Climate Economy, in September 2013, and published its report in September 2014. The New Climate Economy's reports and recommendations on actions and policies that address climate issues while being compatible with strong economic performance are expected to

[17] "United Nations Conference on Sustainable Development, Rio+20," United Nations Department of Economic and Social Affairs: Sustainable Development Knowledge Platform, 2012, https://sustainabledevelopment.un.org/rio20.

[18] "ABC of SCP: Clarifying Concepts on Sustainable Consumption and Production Towards a 10-Year Framework of Programmes on Sustainable Consumption and Production," United Nations Environment Programme, 2010, http://www.unep.org/10YFP/Portals/50150/downloads/publications/ABC/ABC_ENGLISH.pdf.

further strengthen political and economic support for improving and mainstreaming sustainable consumption and production, especially considering the influential members that make up the Commission.

Further, several ambitious goals were agreed to at the 2014 United Nations Climate Summit, including pledges by large multinational companies to reduce net deforestation to zero in their supply chains of major agricultural commodities by 2020[19].The implication of these pledges should not be unassuming. Large multinational companies are the drivers of supply chains and production and consumption norms. Their commitment to tracking their supply chains gives a great deal of momentum to Sustainable consumption and production elements, such as eco-labelling and certification, sustainable procurement, waste management, sustainable resource management, and resource efficiency. The market power of these companies is huge. Long-term international support for sustainable consumption and production is critical for maintaining momentum in the long term.

[19] "FORESTS: New York Declaration on Forests – Action Statements and Action Plans (Provisional Copy)," United Nations Climate Summit 2014, 23 September 2014, http://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/09/FORESTS-New-York-Declaration-on-Forests.pdf.

Focus Areas - SDG 12- Sustainable Production & Consumption[2021]

Food

a. The food production stage - especially food processing - causes substantial impact on the environment. Food waste disposal is another major pollutant. Individuals can help manage this impact through responsible dietary choices, responsible resource use, and effective waste segregation and disposal.

b. Mismanaged food consumption and over consumption is a major problem - one billion people do not receive the required nourishment and another one billion go hungry.

c. Degradation of land and water sources due to monoculture, pesticide overuse, overfishing etc. reduce the capacity of natural resources to produce food.

d. Food production, consumption and disposal accounts for nearly 30% of the global consumption of energy and 22% of the overall emission of greenhouse gases.

Energy

a. Despite advancement in technology that have been promoting plans related to energy efficiency gains, the energy that is being used by the OCED countries would continue to grow by another 35 per cent within 2020. Energy related to residential and consumption is the second most speedily expanding area of usage of global energy.

b. Household have been consuming around 29 per cent of the global energy and accordingly contributing to the 21 per cent of carbon dioxide production.

c. One-fifth of the world's final energy utilisation in the year 2013 was mainly from the renewable.

Water

a. Man has been polluting water faster than it can be purified as a part of the natural sanitisation process.

b. More than one billion people do not still have access to fresh water.

c. Excessive water use leads to stress on the global water system.

It is in the interest of businesses to find new solutions that facilitate sustainable consumption and production. Businesses have the ability to use the power of innovation to design solutions that can enable sustainable resource use and lessen human impact on the environment

Box 3.1: Focus Areas - Sustainable Development Goal 12

[20] https://unchronicle.un.org/article/goal-12-ensuring-sustainable-consumption-and-production-patterns-essential-requirement

[21] Andrews, D., 2015. The circular economy, design thinking and education for sustainability. *Local Economy*, *30*(3), pp.305-315.

Issues , Debates and Major Takeaways

1. Green Economy

The United Nations Conference on Sustainable Development was visualised at a time of great apprehension for the world economy and environment. Within that atmosphere, 'green economy' was selected as one of two themes for the conference, built on the burgeoning literature body and growth. Based on the uncertainty of the recovery of the global economy, governments of the established and emerging economies along with various international organisations, inclusive of the UN contributed towards building a green economy or 'green growth'[22]. Scholars have always associated green economy and green growth to promising alterations in the eco-industry sector, shifting mainly from downstream technology of environmental protection to resource cutback technology based on competitive markets and innovation. The green economy theme in the context of sustainable development and eradication of poverty was included as one of the challenges emerging during the introductory committee meeting of UNCSD. Green economy is mainly defined as the economy aimed towards lessening environment related risks and ecological scarcities, aiming for sustainable improvement without debasing the environment.

Green economy can be defined through six major factors - green buildings, renewable energy, water management, sustainable transport, waste management, and land management. The International Chamber of Commerce defined green economy as the economy where economic expansion and environmental responsibility works together supporting the progression of social development.

Criticisms:

The stringent decoupling of environmental degradation and economic growth is not possible in a capitalist society[23]. It is possible only through technological and social

[22] Sachs, J.D., 2015. Achieving the sustainable development goals. *Journal of International Business Ethics*, *8*(2), p.53.

[23] http://rio20.net/wp-content/uploads/2012/06/Theses-on-Green-Econ.pdf

innovation. The formula that states 'efficiency = austerity = less environmental destruction' is not practical and cannot be worked out. It is evident that increased efficiency and productivity are driving economic growth. This roughly translates to increase in usage of energy, resource use and subsequently production. There is a need to understand social and individual wealth, which may not be equivalent to economic growth.

The Green Economy conceals exploitation and power relations. The social aspect focuses on sustainable growth, green jobs and poverty reduction. Green economy is based on technological development without understanding how this is being achieved and who is benefiting from the same. The Green Economy is also accused of depoliticising socio ecological transformation. It is also commoditising nature on the pretext of providing protection. It is also socially and spatially selective.

2. Green Market:

The green market concept can be defined as the allocation of refurbished, repaired, recycled or new products in the work environment. They are generally sold through resellers and brokers and sometimes even through creative manufacturers. These goods are considered appropriate for resale to customers as lower cost substitutes to new goods from standard distribution channels[24].

Green market goods are able to avoid laws existing in the black market as laws supplant different legal barriers, found nearby in certain states that are the precise areas of the local regulations[25]. The popularity of such approaches in marketing and their effectiveness is a hot debate. There has been a steady increase in the growth of green products, though the green marketing is said to be declining. Buying of green market products for repairing existing systems is a cost effective process that is more environmentally accountable than the

[24] Polonsky, M.J., 2014. Green marketing. *Wiley Encyclopedia of Management*.

[25] Castrechini, A., Pol, E. and Guàrdia-Olmos, J., 2014. Media representations of environmental issues: From scientific to political discourse. *Revue Européenne de Psychologie Appliquée/European Review of Applied Psychology*, *64*(5), pp.213-220.

continual replacing systems of newer equipments[26].

Challenge:

One of the challenges that the green marketers is most likely to face is green products and messages becoming a common confusion factor at the marketplace. A consumer finds it difficult to understand issues around sustainability and his hence confused about his ideal buying options. Marketers tend to take advantage of this confusion, purposefully making false/ embellished green claims.

3. Green Production:

Green production is a business strategy that focuses on the factor of profitability through environmentally friendly operating procedures. It is commonly believed that green production entails control in pollution or recycling programs at the time of manufacturing goods. In reality though, the main purpose of green production is to minimise impact on the environment at every possible stage. Green consumers are mostly apprehensive about the process of production rather than about the process of consumption and purchase. The main focus of the green production is on the three fundamental goals: minimising effluents and emissions; minimising the use of virgin materials and non-renewable energy, and minimising the life-cycle cost of services and products[27].

The growing concern over deforestation and certain other resources along with the degradation of the environment created by the production of fossil fuels suggests that associations need to rethink their strategies on raw material and procurement. Green organisations are companies that embrace the philosophy and processes of green production which often include redesigning important facets of the business - including creating competitive strategy, and improving core technology systems. Establishing a green production company is a

[26] Ahadian, S., Estili, M., Surya, V.J., Ramón-Azcón, J., Liang, X., Shiku, H., Ramalingam, M., Matsue, T., Sakka, Y., Bae, H. and Nakajima, K., 2015. Facile and green production of aqueous graphene dispersions for biomedical applications. *Nanoscale*, *7*(15), pp.6436-6443

[27] Kim, S.H., 2015. Time to come clean? Disclosure and inspection policies for green production. *Operations Research*, *63*(1), pp. 1-20.

daunting task - and opinions are divided on whether cost savings connected with the efforts of preventing pollution along with the benefits of a loyal customer base can make a positive shift not only for environment but also for the company.

4. Sustainable Economy:

The main goal of a sustainable economy is to create local economies that can be stated to be economically viable, mentally sound and to be socially responsible[28]. Attaining of this goal needs active participation from all the sections of the community in determining the needs of the community and identifying the appropriate solutions and implementing the same.

Agriculture and Food Systems:

Efforts of the community in preserving the agricultural land, encouraging sustainable practices in agriculture and supporting local food producers along with facilitating manufacturing and distribution of food through farmer's markets.

Fisheries:

Aquatic wildlife plays a vital role in sustaining the ecosystems of freshwater and healthy marine life. It is therefore significant that communities connected with the fisheries and aquatic ecosystems of should be responsible for the management of these resources.

Manufacturing and Industry:

Businesses that are economically healthy and industries with minimal negative environmental and social impact should be optimistic. Communities should be working towards attracting and supporting industries of this kind and eliminating negative impacts from accessible industries[29].

Technology:

Technological advancement in business, education and health offers fresh opportunities for communities. There is more availability of products which

[28] Thakur, S. and Aurora, R., 2015. Consumer Preferences change when it comes to green Marketing. *Marketing*, pp.245-255.

[29] Alkaya, E. and Demirer, G.N., 2014. Sustainable textile production: a case study from a woven fabric manufacturing mill in Turkey. *Journal of Cleaner Production*, *65*, pp.595-603.

have minimal environmental implications.

Initiatives as Direct Outcomes of Sustainability Events/ Conventions

Example 1: In India[30]

At the Climate Change Summit in Paris December 2015, India was acknowledged as one of the major leaders of the developing countries' block, and India is gradually emerging in a a leadership role when it comes to climate change negotiations.

One of the fundamental standpoints of India at the Paris climate talks was the principle of common but differentiated responsibility (CBDR) that stresses the need for equity and fairness (as highlighted by the developing countries). According to this principle, which is reflected in the agreement, there is clearly an obligation on all parties (countries) to take climate action in consideration of their respective domestic/national circumstances. According to the Indian Minister for Environment, Forests and Climate Change, Prakash Javadekar, India has emphasised on a 'Polluter Pays Policy' (PPP) at Paris, by which polluting countries bear the cost of the environmental damage they cause.

The Indian government has, by now, taken several positive steps to tackle climate change – such as increasing the excise duty on petrol and diesel, quadrupling the coal cess from Rs.50 per ton to Rs.200 per ton, and unveiling an ambitious plan to ramp up the production of solar energy from 20 GW currently to 100 GW by 2022. Additionally, solar power projects are being encouraged and accelerated in a big way and the country is moving on track to become one of the largest solar markets in the world, with the Indian Railways starting trials of solar powered trains, and even plans to come out with a solar policy for procuring 1000 MW solar power in the subsequent five years. India has pledged towards a commitment to derive 40% of its electricity from renewable sources of energy (solar and wind) and other low-carbon-emitting sources by 2030. Apart

[30] http://earp.in/en/india-in-the-cop21-on-climate-change-paris-november-december-2015/

from these, India has also been insistently looking to raise its nuclear power capacity – From operationalizing the Indo-U.S. nuclear agreement to striking nuclear cooperation pacts with countries like Russia, France, Canada and Australia, these seem to be gradual steps to achieve India's target of 14,600 MW nuclear capacity on line by 2020. Additionally, if India manages to accede to the Nuclear Suppliers Group, it would raise the bar for the country's nuclear power capacity even higher.

Adding to the above mentioned factors which are portrayed in India's INDC, it also contains provisions for commitment to reduce the country's emissions intensity per unit GDP by 33 to 35% below the 2005 level by 2030, and to create an additional carbon sink of 2.5 to 3 billion tonnes of carbon-dioxide through extra forest and tree cover by 2030. The plan further highlights India's ambition of installing 175 GW of renewable power capacity by 2022. It is to be kept in mind that all these actions are being proposed while simultaneously making an effort to meet the development challenges that the country faces.

Example 2: In The Netherlands[31]

Nederlandse Spoorwegen (English: Dutch Railways) or NS is the principal passenger railway operator in the Netherlands[32]. Since January 2017, the all NS trains run on 100% clean energy[33]. This example highlights use of clean energy and other sustainability initiatives of the NS, including sustainable purchasing, waste management, a commitment to green buildings and much more.

NS strives towards sustainable business operations whereby its activities contribute added economic, ecological and social value to both the company and society as a whole. Their ecological footprint is largely determined by their energy use (traction power electric trains) and the waste generated by

[31] http://www.ns.nl/en/about-ns/corporate-social-responsability/sustainability-at-ns.html

[32] https://en.wikipedia.org/wiki/Nederlandse_Spoorwegen

[33] https://www.forbes.com/sites/lauriewinkless/2017/01/12/dutch-trains-are-now-powered-by-wind/#64aef4982d29

stations, trains and their workshops. That is why they focus on:

- Improvement of energy efficiency and reduction of CO2- emissions. This is done by increasing occupancy levels, lowering energy use and using CO2 neutral renewable energy to power all their electric trains. By 2020, the energy used per passenger per kilometre has to have been reduced by 35% compared to 2005 levels.
- By 2020, they also aim to re-use 75% of their waste.

Increasing occupancy

The best way to make the most efficient use of energy is to transport more people during the times that there is more space available in the trains. NS encourages people to travel during the off-peak hours by offering discount season tickets.

Reducing energy consumption

NS recognises two different types of energy consumption. Facility consumption includes energy consumption in the offices, workplaces and stations. Energy consumption for transportation includes all energy used to operate, light and heat the trains and replacement buses. NS' CO2-emissions are largely due to operating the trains (90%) with only 10% of their energy consumption resulting from facility energy use.

Since 2011, the Dutch railway sector has operated in accordance with the Long-Term Agreements (MJA3), in which the government made agreements with several sectors to strive to realise energy reductions of 2% per year. These agreements were also confirmed in the SER Energy Agreement for Sustainable Growth, to which NS is also a signatory. NS has set for itself the more ambitious goal of becoming 35% more energy-efficient by 2020 compared to 2005 levels. This higher level is a conscious choice by NS.

Sustainable energy: generating green electricity

Starting in January 2017, all Dutch trains have been running on 100% green electricity, so travellers have the option of truly clean travel, with no CO2-emissions. This is because in 2014, NS signed a long-term contract with Eneco to supply electricity for all electric trains

in the Netherlands on behalf of the rail sector. In total, NS consumes around 1.2 TWh of electricity to run the trains. To supply this electricity, Eneco has expanded its wind turbine parks. Over the next few years, NS will also take steps to implement green electricity in its buildings, buses and road vehicles.

Re-using waste

NS wants to return its waste into the cycle of raw materials in cooperation with its suppliers. Their goal is to process all of the waste that they produce at the stations, in the trains, at their sites and in their offices back into sustainable raw materials. Their priority is to increase the opportunities for re-using and reducing their waste flows. NS has set the goal of re-using 75% of their waste by 2020. Together with the Ministry of Infrastructure and Environment and ProRail, NS signed the Green Waste Deal in early 2015. They will expand stations' and trains' facilities for separating waste and will examine how to reduce waste during the purchasing process with more re-use opportunities.

Sustainable purchasing

Every year, NS purchases more than € 1 billion worth of goods and services. As a purchasing party, NS exerts influence on suppliers to make their products and processes more sustainable. This helps to make a major contribution to their sustainability goals. Their CSR criteria are described in their purchasing governance document and anchored in the General Purchasing Conditions (www.nsprocurement.nl). NS also works closely with the market and challenge it to submit innovative and sustainable offers. For example, in tenders for new trains, they require that 95% of the materials must be reusable. By including the Total Cost of Ownership in the calculation, NS makes it interesting for tendering parties to keep the energy consumption as low as possible.

Supplier assessments and Code of Conduct

Since 2014, NS has conducted Corporate Social Responsibility (CSR) assessments for their major suppliers: they examine how they deal with aspects such as the environment, social responsibility,

ethics and supply chain sustainability. Scores make it possible to compare suppliers and to estimate risks. In 2015, the assessment was also used in the award of contracts. All of the award parties are required to conduct a CSR assessment. Together with DB, SNCF, Alstom, Bombardier and Knorr Bremse, NS is working on 'Railsponsible' with the goal of implementing the method as the standard within the rail industry.

NS suppliers are asked to abide by the NS Code of Conduct, which explicitly states the conditions under which NS wishes to do business with their suppliers. A general requirement is that suppliers must take their responsibility in the context of CSR and to abide by the spirit of the standards in this field, as described in documents such as the Universal Declaration of Human Rights and organisations such as the ILO, OECD and ICC. NS also has an independent party check whether the suppliers abide by the Code of Conduct. In the event that a supplier does not comply or violates the code, NS first assesses the risk involved. They then meet with the supplier to discuss a plan for improvement. In the event of serious violations, such as corruption, NS may decide to terminate the relationship. This is also included in contract templates. The exclusion criteria also apply to their suppliers' subcontractors.

Transparency and annual reports

NS also publishes reports about its sustainable business strategy in the Global Reporting Initiative format. The company also demonstrates its transparency according to internationally respected norms, among other things in the fields of supply chain responsibility, stakeholder engagement & social issues.

Chapter IV:

Government Policies and Institutions

Chapter 4: Government Policies and Institutions

Introduction

The Indian Textile Sector includes all natural, artificial, and cellulosic fibres that go into the making of textiles, clothing and Handicrafts.

The Textile Sector in its entirety contributes significantly to the economy. It contributes 2% (factor cost) to the GDP, to 14% of industrial production, provides employment to 35 million people and contributes to 11% of total manufacturing exports earnings[34].

The Central and State Governments play a pivotal role in the smooth functioning and progress of the Textile Industry in India. The government plans a range of activities such as fair pricing support for cotton and jute farmers, financial assistance for upgrading technology, setting up integrated textile parks of the highest standards, development of mega clusters for handloom and handicrafts sector, artisan welfare schemes, skill development programs etc. In addition to these activities the Government has also provided a robust institutional framework for the development of Textile Sector.

Majority of the handloom and handicraft organisations in the Textile Sector are categorised under the Micro, Small and Medium Enterprises (MSME) category. Government and other institutional reports have suggested that the MSME sector contributes significantly to overall pollution levels and resource degradation in the country. The sustainability of the MSME sector is a cause for great concern for the Indian Government since MSMEs play a significant role in generating employment in both urban and rural areas.

This chapter covers the major environment protection and conservation laws in India, and explores the government guidelines and regulations pertaining to the MSME and Handloom and Handicrafts Sector in India. It also explores the government schemes that promote sustainability in

[34] http://texmin.nic.in/sites/default/files/strategic_plan_2012_2017.pdf

the Handloom and Handicrafts Sector and outlines the schemes which have an embedded sustainable consumption and production component. Lastly, the current landscape and the future of the MSME and Handloom & Handicraft Sector are also covered.

India - Key Environment Protection and Conservation Acts

Soon after Indira Gandhi, the then Prime Minister of India attended the Stockholm Conference, a series of legislations such as The Forest (Conservation) Act, 1980, Wildlife (Protection) Act, 1972, The Water (Prevention and Control of Pollution) Act, 1974, The Water (Prevention and Control of Pollution) Cess Act, 1977, The Air (Prevention and Control of Pollution) Act, 1981, and The Environment (Protection) Act, 1986 were passed by the The Ministry of Environment, Forest and Climate Change. These Acts laid the groundwork for sustainable industrial development in India.

Sustainable Development of Medium, Small and Micro Scale Enterprises (MSME)[35]

In India, Micro, Small and Medium Enterprises contribute towards approximately 80% of employment, 45% of the manufactured output, 40% of exports and 8% of the country's GDP

Factors Promoting Sustainability in the Handicrafts and Handlooms Sectors

1. Energy efficiency
2. New and renewable energy
3. Waste minimisation
4. Effective control and management of waste
5. Beneficial uses of waste
6. Reduction of air, water, soil pollution
7. SCP-oriented financing or Green financing
8. Occupational Health and Safety (OHS)
9. Use of ICT in manufacturing for enhancing productivity
10. Skill up-gradation of workers especially from SCP angle
11. Creating awareness amongst managers of the benefits of SCP
12. Investment in R & D for developing green technologies
13. Marketing of Green Products

Box 4.1: Factors Promoting Sustainability in the Handicrafts and Handlooms Sectors

[35] http://fmc.org.in/wp-content/uploads/2012/10/Policy-Paper-SCP-Scheme.pdf

and therefore they have a special role to play in the country's economy. However, concurrently, they also contribute massively to industrial pollution. According to the Working Group Paper of the Planning Commission, 12th Five Year Plan, MSME's contribute to 70% of the total industrial pollution of India[36]. The pollution level per enterprise of production is higher in certain industrial MSME sectors than that of the corresponding large scale enterprises partly due to the use of obsolete technologies, crumbling infrastructure and poor management practices, and also because many of the enterprises escape regulatory realm[37]. According to a World Bank (2014)[38] report that surveyed 174 countries for the state of their environment, India ranked 155th overall and fared poorly in air pollution exposure. The report concluded that resource degradation can be directly and indirectly attributed to the wide scale poverty. Degraded lands do not produce a high agricultural yield, consequently the poverty stricken population is then compelled to overuse forest and other resources for their livelihood. This downward spiral can have long lasting consequences.

India will have to value its natural resources in an appropriate manner so as to take in to account sustainability issues. Since MSME's are major contributors to pollution and resource depletion there is an urgent need to develop policies to alleviate long term impacts.

Analysis of Government Schemes with an embedded SCP Component

The Indian Government has 205 public schemes of assistance[39] for the development of the MSME Sector across different branches of the government - only 37 schemes of which were found to have a sustainable consumption and production theme. *(Annex N)*

It has been observed that the Handloom

[36] http://documents.worldbank.org/curated/en/113961468041673427/pdf/382920IN.pdf

[37] Publication of FMC, "Mapping Energy, Environment and Social Issues among MSME Clusters in India", 2009

[38] World Bank Report "India: Green Growth-Overcoming Environment Challenges to Promote Development", 2014.

[39] http://fmc.org.in/wp-content/uploads/2012/10/Policy-Paper-SCP-Scheme.pdf

and Handicrafts sector is not adequately represented in environment and energy efficiency related schemes. It is mostly indirectly represented through only the Agriculture and Textiles Sectors. Schemes pertaining to the Handloom and Handicraft Sector do not comprehensively cover all sustainability related aspects. However, these sectors are covered under the general schemes available to all MSMEs. In the MSME sector however, sustainability is often viewed as a compliance necessity rather than as a proper revenue driven business case.

Figure 4.1 : Support Organisations for the Handicrafts & Handlooms Sector

Government of India Interventions for the Handlooms & Handicrafts Sector[4041]

The Government of India has put in place several schemes and commissions in a variety of themes for Handloom and Handicraft Sector, over the years. Some key interventions are listed here:

1.) Khadi and Village Industries Commission (KVIC)[4243]

The Khadi and Village Industries Commission (KVIC) was established in 1956. It's role and functions were amended in 1987, and again in 2006.

One of the primary sustainability related functions of the KVIC is to encourage and promote research in the technology used in Khadi and village

[40] http://handlooms.nic.in/Default.aspx?ReturnUrl=%2f

[41] https://en.wikipedia.org/wiki/Ministry_of_Textiles

[42] http://www.msme.nic.in/Chapter%205-Eng_200708.pdf

[43] http://www.kvic.org.in/kvicres/aboutkvic.html

industries, including the use of non conventional energy and electric power, with a view to increasing productivity, eliminating drudgery and otherwise enhancing their competitive capacity and to arrange for dissemination of salient results obtained from such research.

2.) Yarn Supply Scheme[44]

This scheme was launched in 1992 to make all types of yarn available throughout the country at the price at which it was available at the Mill Gate. This yarn was made available to eligible handloom weavers only. The scheme was put in place to ensure regular supply of quality and affordable raw material.

3.) Technology Upgradation Fund Scheme (TUFS)

With its focus on technological upgradation, the Ministry of Textiles launched its Technology Upgradation Fund Scheme (TUFS) in 1999. This scheme was put in place to provide access to capital at internationally competitive rates, and to assist in technological upgradation.

4.) Technology Mission on Cotton (TMC)

The Government of India launched the Technology Mission on Cotton in February 2000, to promote pest resistant varieties of cotton / hybrid seeds to increase yield per hectare and reduce the cost of cultivation, and aims to decrease contamination of cotton varieties.

5.) The Scheme for Integrated Textiles Park (SITP)[45]

This scheme was launched in 2005 to provide the industry with State of the Art world class infrastructure facilities to set up textile units. It was set up with an aim to consolidate the fragmented units of the textile and handicraft value chain under a single cluster. Thus the entire cluster could benefit from superior infrastructure and other associated benefits such as cheap transport, availability of raw material, electricity, water and other resources.

[44] http://handlooms.nic.in/writereaddata/1230.pdf

[45] http://164.100.47.193/lsscommittee/Labour/16_Labour_2.pdf

This could help ensure resource conservation and encourage sustainable development in the clusters.

6.) Integrated Handloom Development Scheme[46]

In 2007-08, the Government of India introduced the Centrally sponsored Integrated Handloom Development Scheme (IHDS) during the Eleventh Plan period (2007-12) by amalgamating the essential components of the four existing schemes viz., Deen Dayal Hathkargha Protsahan Yojana (DDHPY), Integrated Handloom Training Project (IHTP), Integrated Handloom Cluster Development Scheme (IHCDS) and Workshed-cum-Housing Scheme implemented during the Tenth Plan.

This scheme was designed to be a needs based mechanism where clusters of 300 – 500 handlooms were provided with financial assistance, loans, machinery, skills training, accessories and market development opportunities. The scheme was set up to help weavers become self-sustainable and opt for aid based on requirements rather than pay- outs. It acted as a safety net for weavers to fall back upon in emergency situations.

7.) Marketing and Export Promotion Scheme

This scheme was introduced in the 11th Five Year Plan (2007-08) with a view to develop and promote marketing channels in domestic as well as export markets and bring about linkages between the two in a holistic and integrated manner. The scheme created a platform for the weavers and artisans to trade directly with their customers at a national or international level, through events, trade fairs, exhibitions and buyer seller meets.

8.) Handloom Weavers Comprehensive Welfare Scheme[47]

This scheme was introduced in the 11th Five Year Plan (2007-08) and comprises of insurance with two options. Health Insurance Scheme (HIS) for Handloom weavers and Mahatma Gandhi Bunkar Bima Yojana (MGBBY) that provides life insurance cover in case of natural/

[46] http://www.cag.gov.in/sites/default/files/audit_report_files/Andhra_Pradesh_civil_2011_chapter_8.pdf

[47] http://handlooms.nic.in/writereaddata/2486.pdf

accidental death, total/ partial disability due to accident.

9.) Common Compliance Code (CCC)

Developed countries are sensitive towards the legal and social obligations of their business towards their end consumers. Major countries in Europe and North America have developed strict codes of conduct for factories and artisans. These countries are demanding that exporters follow a factory compliance code of conduct before even awarding contracts. Thus there is an immediate need to develop a National Level "Common Code Of Conduct" to promote exports.

The Apparel Export Promotion Council (AEPC)[48], an apex body of Indian apparel exporters, has designed a garment factory compliance program 'Disha' (Driving Industry towards Sustainable Human Capital Advancement) to make India a global benchmark for social compliance in apparel manufacturing and export[49]. This Common Compliance Code project was launched in 2011, with the objective to prepare the Indian apparel industry on a common platform towards a more social and environmentally compliant industrial environment.

10.) Handloom Marketing Assistance[50]

This is one of the components of the Comprehensive Handlooms Development Scheme being implemented during the 12th Five Year Plan period (2012-17). The objective of handloom marketing assistance is to develop and promote marketing channels in the domestic as well as export market and create linkages between the two in a holistic and integrated manner.

The handloom marketing assistance components have following sub-components:

- Domestic marketing promotion
- Marketing infrastructure development
- Market access initiative
- Handloom export promotion

[48] https://aepcdisha.wordpress.com/author/aepcdisha/

[49] https://www.dol.gov/ilab/submissions/pdf/20120410.pdf

[50] http://www.cottage.gujarat.gov.in/eng/?page_id=305

11.) Common Effluent Treatment Plant with Marine Outfall (CETPMO)

With its focus on environmental sustainability due to the major environmental issues facing the handloom and handicrafts sectors, the 12th Five Year Plan (2012-17) promoted CETPMO. Setting up CETPMO's in textile clusters has been highly recommended in the Plan since the main environmental issues being faced by the the handlooms and handicrafts sector are scarcity of water for processing, effluent treatment, disposal of treated water and solid effluents.

12.) Green Climate Fund[51]

The Green Climate Fund has been designated as an operating entity of the financial mechanism of the UNFCCC and aims to support developing countries to limit or reduce their greenhouse gas emissions and to adapt to the impacts of climate change. In 2015[52], The National Bank for Agriculture and Rural Development (NABARD) was appointed the implementing agency for the Green Climate Fund in India.

13.) India Handloom Brand[53]

Launched in 2015, the India Handloom Brand strives to promote the handloom industry on a sustainable basis. The brand endorses the quality of handloom products with respect to raw materials, processing, decorations, weaving, traditional and contemporary design and also social and environmental compliance. This initiative endeavours to achieve niche and authentic products free from defects, hand crafted and with zero impact on environment.

12th Five Year Plan - Handloom and Handicraft Sector[54]

Sustainable growth through addressing environmental issues has been a highlight of the 12th Five Year Plan. Handicrafts in India are highly localised and are specific to the state, therefore their development and promotion has been entrusted to the State

[51] http://pib.nic.in/newsite/mbErel.aspx?relid=124811

[52] https://www.nabard.org/auth/writereaddata/tender/1105170959Whats_New%20-%20updated.pdf

[53] www.indiahandloombrand.gov.in/pages/background

[54] http://planningcommission.gov.in/aboutus/committee/wrkgrp12/wg_jute1101.pdf

governments. However, the Office of the Development Commissioner (Handicrafts) also develops and implements various schemes for promotion of handicrafts at the centre. According to the latest 12th Five-year Plan various schemes are being implemented[55]:

1. Ambedkar Hastshilp Vikas Yojana
2. Mega Cluster
3. Marketing Support and Services
4. Research & Development

In addition to the Central Government schemes, the states have designed their own customised handicrafts policy. State governments are helping promote the distinct culture of their state through the handicrafts sector and working to progressively increase export potential and revenue generation throughout India and the world. The Central government contributes by providing funds, grants, loans and consultation to boost production, innovation, export and revenue generation.

The working group on Textiles and Jute for the 12th Five Year Plan[56] has projected annual average growth rate of 11.5% in volume terms in cloth production and 15% in value of exports. World class infrastructure is needed to attain and sustain a high global standing in manufacturing capabilities and exports of handloom and handicrafts. Increase in technological depth in manufacturing processes of textiles is also crucial. The Plan envisions to provide skill development training to 35 lakh persons and thereby create additional jobs to the tune of 15.81 million by 2016-17. Furthermore, special emphasis has been provided to Small and Medium Enterprises (SME's) to strengthen their knowledge, institutional network, collaborations and funding of innovative products.

Future of MSME, Handicraft and Handloom Industry

The Government of India in its current 12th Five Year Plan (2012-2017) has designed a comprehensive framework of guidelines and regulations related to

[55] http://handicrafts.nic.in/schemes.aspx

[56] http://planningcommission.gov.in/aboutus/committee/wrkgrp12/wg_jute1101.pdf

the overall development, promotion and sustainability of the MSME. However, as the 12th Five Year Plan will end in 2017, the time is ripe to discuss the future and sustainability of the MSME and especially the handloom and handicraft sector for the next plan to be developed by NITI Aayog.

The NITI Aayog or the National Institution for Transforming India, is a Government of India policy think-tank established to replace the Planning Commission which followed the top-down model. The stated aim for NITI Aayog's creation is to foster involvement and participation in the economic policy-making process by the State Governments of India. The emphasis is on a bottom-up approach to make the country move towards cooperative federalism. After analysing the entire sustainability scenario in the MSME sector the following observations need to be considered to assist decision makers in planning for a sustainable future[57].

1. Considerable focus is required between public and private investments in R&D to design and develop sustainable processes, products and services.

2. Development of appropriate "green technologies" for manufacturing processes is required.

3. It is essential for new technologies to be made available to MSMEs at an affordable prices.

4. Integrated government support and services are needed for MSME clusters to implement and or incorporate sustainability in their processes, products and services.

5. Spreading awareness about sustainable products and services to end consumers will help in generating interest and consequently demand.

6. Setting up platforms for Government- Industry consultations and collaboration for sustainable processes, products and services is crucial.

[57] http://fmc.org.in/wp-content/uploads/2012/10/Policy-Paper-SCP-Scheme.pdf

7. Formulating and implementing a National Recycling Policy.

8. Investing in R&D projects for developing green products and technologies.

9. Defining 'Green Products', 'Green manufacturing practices', 'Green infrastructure', 'Green buildings', 'Green technologies' and so on.

10. Developing Life Cycle Inventory (LCI) data for Handloom & Handicrafts.

11. Access to Sustainable Consumption & Production - oriented financing or green financing.

12. Promoting green public procurement and strengthening green supply chain mechanisms.

13. Building capacity of industry associations especially for sustainable processes, products and services.

14. Ensuring energy efficiency.

15. Increasing use of new and renewable energy.

16. Supporting MSMEs in controlling pollution.

17. Minimising waste at every stage of the production process.

18. Encouraging the use of Information Communication & Technology (ICT) in manufacturing to eliminate waste and minimise the use of natural resources.

19. Upgrading the skills of workers, supervisors and managers especially from the Sustainable Consumption & Production angle.

20. Ensuring that issues relating to Occupational Health and Safety (OHS) are addressed[58]

[58] http://fmc.org.in/wp-content/uploads/2012/10/Policy-Paper-SCP-Scheme.pdf ; http://www.textilevaluechain.com/index.php/article/industry-general/item/179-current-status-of-handloom-industry-in-india - Handloom industry status

Make in India & Impact on Handloom & Handicraft Sector

The "Make in India" initiative and campaign was launched by the Indian Government in September 2014 to improve the manufacturing capacity and encourage productive activities in the economy. Twenty-five sectors of production have been identified to lead this movement. These include a host of diverse sectors, ranging from Defence, Construction, Railways, Tourism, Food Processing and Textiles, with the permission of 100% Foreign Direct Investment in almost each of these twenty-five sectors.

The Make in India initiative can be a potential uplifter of the Handloom and Handicrafts Sector by creating more, indiscriminate opportunities in the economy. Spillover effects from supporting activities of the Government, namely 'Skill India', 'Digital India' and 'Brand India' are already showing positive results which could prove to be beneficial for the economy. Although some spillover effects from the Make in India initiative have been observed throughout the economy, these changes hold a significant place for small cottage industries like the Handlooms and Handicrafts Sector. Policy changes that aim to improve business environments, labor laws, skill sets and productivity in the economy will always have an all-round positive affect.

Chapter V:

Ecolabels used in the Textile and Handicrafts sectors and their Success and Failure Stories

Chapter 5: Ecolabels used in the Textile and Handicrafts sectors and their Success and Failure Stories

Introduction

Eco-labels[59] and **Green Stickers** are labelling systems for food and consumer products. Ecolabels are voluntary market based instruments used to complement environmental laws and regulations, but green stickers are mandated by law - for example, in North America major appliances and automobiles use Energy Star. Some labels quantify pollution or energy consumption by way of index scores or units of measurement, while others assert compliance with a set of practices or minimum requirements for sustainability or reduction of harm to the environment. Many ecolabels are focused on minimising the negative ecological impacts of primary production or resource extraction in a given sector or commodity through a set of good practices that are captured in a sustainability standard. They are usually attained through a verification process, usually referred to as "certification".

Ecolabels[60] are used to inform consumers that a labelled product is environmentally friendlier compared to other products in the same category. They increase consumer awareness of environmental issues and influence their choice in favour of less polluting products. They also encourage industry to produce and market environmentally friendly products. Ecolabelling can be based on two types of criteria: product related, and production-related.

- **Product-related criteria** relate to the environmental impact of the product only.
- **Production-related criteria** relate to the process and production methods (PPMs) and cover environmental impact of the entire production process.

[59] https://en.wikipedia.org/wiki/Ecolabel

[60] http://cuts-international.org/Forthcoming_events/Executive_Summary_2nov.htm

The most comprehensive Ecolabelling schemes are based on Life-Cycle Assessment (LCA) that assesses the environmental damage caused by a products during its entire life cycle. There are serious difficulties in the implementation of the programmes under LCA. Ecolabels, mostly cover only a limited number of important environmental aspects i.e. covering only parts of the product's life cycle

Recent years have witnessed an increased use of Ecolabels as a market instrument to influence consumer choice in favour of environmentally friendly goods. Since the first Ecolabel Blue Angel of Germany in 1978, number of countries, both developed and developing have introduced these labels to influence consumer and industry to behave in an environmentally responsible manner.

The last few years have seen two key trends in the ecolabels space. There is an explosion in the numbers of different ecolabelling programs across the world and across business sectors and secondly the proliferation of umbrella labelling programs.

This section highlights the ecolabels relevant to the Textile, Cotton and Handicraft Industry by referring to the EcoLabel Index[61]- the largest global directory of ecolabels. This section also focusses on case studies with the objective of presenting the success as well as failure stories of ecolabelling in the context of relevant industry practices or the economic situations.

Ecolabels relevant to the Textile and Handicrafts Sector

The EcoLabel Index currently tracks over **four hundred and sixty five** EcoLabels from across the world. **Fifteen** ecolabels most relevant to the textile and handicrafts industry have been introduced below. Further **thirty-one ecolabels** that are comprehensive, use best practices, and are recognised globally, (including the above mentioned fifteen) have been compared in comprehensive tables in *Annex O & Annex P*

[61] http://www.ecolabelindex.com/

1. Better Cotton Initiative[62]

The Better Cotton Initiative (BCI) promotes a comprehensive set of production principles and criteria for growing cotton in a more sustainable manner: socially, environmentally and economically. A member-based organisation made up of players from the entire cotton supply chain, BCI had its first harvest of "Better Cotton" in 2010. BCI currently has a system in place to trace Better Cotton from the farm to the gin. The organisation's goal is to catalyse the mass market production of cotton produced more sustainably, by creating demand on a global scale for a new mainstream commodity, Better Cotton. BCI is complementary to other initiatives like Certified Organic, Fairtrade cotton and Cotton made in Africa (CmiA).

2. BMP Certified Cotton[63]

BMP is the Australian cotton industry's guide for growing cotton in harmony with our natural environment.

The Australian BMP Cotton trademark is a consumer guarantee that the branded textile product they are buying is made of Australian cotton grown under Best Management Practices by growers who care for our environment.

3. California Certified Organic Farmers - CCOF[64]

CCOF is a nonprofit organisation that advances organic agriculture for a healthy world through organic certification, education, advocacy, and promotion. They promote and support organic food and agriculture through a premier organic certification program, trade support, producer and consumer education and political advocacy. CCOF offers an expedited organic certification program for farmers and growers that need certification in less than 12 weeks.

4. EMAS - European Eco-Management and AuditScheme[65]

The EU Eco-Management and Audit Scheme (EMAS) is a premium management instrument developed by the European Commission for

[62] http://bettercotton.org/

[63] https://www.bmpcotton.com.au/product/

[64] https://www.ccof.org/

[65] http://ec.europa.eu/environment/emas/index_en.htm

companies and other organisations to evaluate, report, and improve their environmental performance. EMAS is open to every type of organisation eager to improve its environmental performance. It spans all economic and service sectors and is applicable worldwide. It recognises and rewards those organisations that go beyond minimum legal compliance and continuously improve their environmental performance.

5. Fairtrade[66]

Fairtrade is an ethical trade system that puts people first. Fairtrade offers farmers and workers in developing countries a better deal, and the opportunity to improve their lives and invest in their future. Fairtrade gives consumers the opportunity to help reduce poverty and instigate change through everyday shopping. When a product carries the FAIRTRADE Certification Mark, it means the producers and traders have met Fairtrade Standards. Fairtrade Standards include social, environmental and economic criteria, as well progress requirements and terms of trade. The Standards are designed to support the sustainable development of small-scale producers and agricultural workers in the poorest countries in the world. Fairtrade International is an association of 25 organisations around the world, including national initiatives that promote and license the FAIRTRADE Mark and producer networks that represent producers at the highest level of decision-making in the international Fairtrade system.

6. Fair Trade Organization Mark[67]

The World Fair Trade Organisation (WFTO) is a global network of organisations representing the Fair Trade supply chain. Membership in WFTO provides Fair Trade organisations with credibility and identity by way of an international guarantee system, a place of learning where members connect with like-minded people from around the world, tools and training to increase market access, and a common voice that speaks out for Fair Trade and trade justice - and is heard.

[66] https://www.fairtrade.net/

[67] http://www.wfto.com/

This mark is available to member organisations that meet the requirements of the World Fair Trade Organisation (WFTO) monitoring system and identifies them as registered Fair Trade Organisations. WFTO is working with Fairtrade Labelling Organisations International (FLO) on a Quality Management System for Fair Trade.

7. Forest Stewardship Council (FSC)[68]

The Forest Stewardship Council® (FSC) promotes environmentally appropriate, socially beneficial, and economically viable management of the world's forests.

FSC® chain of custody (CoC) tracks FSC certified material through the production process - from the forest to the consumer, including all successive stages of processing, transformation, manufacturing and distribution. Only FSC CoC certified operations are allowed to label products with the FSC trademarks.

The FSC label thus provides the link between responsible production and consumption and thereby enables the consumer to make socially and environmentally responsible purchasing decisions.

FSC on-product labels:

- 100% Products only contain material from FSC certified forest that meet the environmental and social standards of FSC.
- Mix Products with material from FSC certified forests, recycled material or other controlled sources.
- Recycled Products contain post-consumer material and may include some pre-consumer material content.

8. Global Organic Textile Standard[69]

Comprehensive Rules for Ecological and Socially Responsible Textile Production - The Global Organic Textile Standard (GOTS) was developed with the aim to unify the various existing standards and draft standards in the field of eco textile processing and to define world-wide recognised requirements that ensure organic status of textiles, from harvesting of the raw materials, through environmentally and socially responsible manufacturing up to labelling in order to provide a

[68] http://www.fsc.org/

[69] http://www.global-standard.org/

credible assurance to the end consumer. Processors and manufacturers shall be enabled to supply their organic fabrics and garments with one certification accepted in all mayor selling markets.

Basic Features:

- GOTS requires the use of certified organic fibres.
- GOTS provides both demanding environmental and social criteria
- GOTS criteria are applicable to all processing stages
- GOTS certification must base on independent on-site inspections

9. Gold Standard[70]

The Gold Standard distinguishes the highest quality carbon offset projects in the voluntary and compliance environmental markets and is a key policy tool for the NGO community to influence the development of the rapidly growing global carbon markets. Gold Standard projects employ renewable energy and end-use energy efficiency technologies, they are rigorously screened for true environmental benefits, and they encourage local sustainable development.

To maintain the project's registration and to earn Gold Standard-certified credits, project proponents monitor emission reductions and sustainable development impacts.

Gold Standard requires validation and verification by UNFCCC-accredited Designated Operational Entities (DOEs). The Gold Standard is endorsed by over 49 non-governmental organisations worldwide.

10. Carbon Trust Standard[71]

The Carbon Trust Standard is a certification mark of excellence, designed to recognise organisations for real carbon reduction.

To qualify, organisations must measure, manage and genuinely reduce their carbon footprint and commit to reducing it year on year.

Benefits of achieving the Standard include:

- Independent validation of your environmental credentials

[70] http://www.goldstandard.org/

[71] https://www.carbontrust.com/client-services/certification/certification/

- Meet increasing consumer demand for environmental credentials and accountability
- Increase ability to meet environmental procurement requirements
- Improve investors' view of your organisation's future
- Retain and attract an increasingly environmentally-aware workforce
- Meet legislative requirements

Certification is valid for two years, after which, organisations must undergo recertification.

11. Ecocert[72]

Ecocert is a certification body for sustainable development. It is an inspection and certification body established in France by agronomists aware of the need to develop environmentally friendly agriculture and of the importance of offering some form of recognition to those committed to this method of production. From its creation, Ecocert is specialised in the certification of organic agricultural products. Ecocert has contributed to the expansion of organic farming.

12. Ecomark - India[73]

A government operated seal of approval program for environmentally preferable consumer products. To increase consumer awareness, the Government of India launched the eco-labelling scheme known as `Ecomark' in 1991 for easy identification of environment-friendly products. The criteria follows a cradle-to-grave approach, i.e. from raw material extraction, to manufacturing, and to disposal. The Ecomark label is awarded to consumer goods that meet the specified environmental criteria and the quality requirements of Indian Standards.

13. EU Ecolabel[74]

A voluntary scheme designed to encourage businesses to market products and services that are kinder to the environment and for European consumers - including public and private purchasers - to easily identify them. The EU Ecolabel covers a wide

[72] http://www.ecocert.com/en/certification

[73] http://envfor.nic.in/cpcb/ecomark/

[74] http://ec.europa.eu/environment/ecolabel/index_en.htm#

range of product groups, from major areas of manufacturing to tourist accommodation services.

14. GoodWeave[75]

GoodWeave is working to end child labor in the carpet industry and to offer educational opportunities to children in South Asia. Through its monitoring and inspections program, GoodWeave is helping to combat the problem of exploitative child labor and to transform the handmade rug industry by certifying child-labor-free rugs and providing education and opportunities to rescue at-risk children.

15. Organic Content Standard (OCS)[76]

A voluntary chain of custody standard that provides companies with a tool for third-party verification that a final product contains the accurate amount of a given organically grown material. Each organisation along the supply chain must take sufficient steps to ensure the integrity and identity of the input organic material. It does not address the use of chemicals or any social or environmental aspects of production beyond the integrity of the organic material.

[75] http://www.goodweave.net/

[76] http://www.textileexchange.org/OCS

Success & Failure Stories

Eco-labelling[77] was identified in Agenda 21 as a way of encouraging consumers to alter their consumption patterns and to make wiser use of resources and energy in the drive for sustainable development into the next century.

Ecolabelling also has trade implications, which is a concern for developing countries. Criteria for ecolabels can be set to favour the local producers through demands on specific technology or material. Developing country producers may find it difficult and costly to adopt these technologies and processes and fear that this may discriminate against imports from developing countries[78]. Ecolabelling has also run into criticism from those who claim that it may, in some cases, operate as an unjustified non-tariff barrier to trade[79].

The case studies presented here are selected on the basis of their relevance to the industry & the economic situation of the beneficiaries. These case studies highlight the success and failure stories of EcoLabelling (Organic/ FairTrade/ Sustainability), and Integrating Sustainability into the Supply Chain.

Case Study 1: Pro-poor Certification - Assessing the benefits of sustainability certification for small-scale farmers in India[80]

Year of Case Study: 2012

Background

Organic cotton is best grown through a farm system – it is not well suited to monoculture. The farm system includes crops grown in rotation, livestock, and other products both farmed and wild (Van Elzakker, 1999 in Ferrigno and Lizarraga, 2008). Eyhorn et al. (2007) studied more than 30 organic and 60 conventional cotton farms belonging to one Maikaal BioRe project in Madhya Pradesh for the 2003 and 2004 seasons. They argue that yields for conventional and organic farms were similar.

[77] https://link.springer.com/article/10.1023/A:1018552000651

[78] http://cuts-international.org/Forthcoming_events/Executive_Summary_2nov.htm

[79] http://unep.ch/etb/publications/ecolabelpap141005f.pdf

[80] http://pubs.iied.org/pdfs/14604IIED.pdf

This finding was unexpected given lower nutrient inputs on organic farms. It appeared that benefits from intercropping and rotations and nitrogen fixation, lower nutrient leaching, and improved nutrient use efficiency explained the strong performance of the organic farms (Eyhorn et al., 2007). Similar yields, and lower input costs (due to not using fertilisers and pesticides) and a 20 per cent price premium meant that organic farms were more profitable than conventional farms. The findings of Eyhorn and colleagues are echoed in short fieldwork for this study carried out with farmers from Andhra Pradesh and Maharashtra producing for (and part-owning) the Zameen cotton company.

The Zameen Organic Cotton Company

The Zameen company is 50 per cent owned by farmers producing cotton. The Zameen company also builds links across the value chain, particularly through the Alok Textile company, and it sells organic cotton to H&M and others. The Zameen strategy has been to try and build interest in cotton as the raw material and in the process overcoming the disconnect between cotton production and branding and marketing of high-value textile fashions in developed country markets.

Zameen farmers are Fairtrade and organic certified. The Fairtrade minimum support price means that in a bad market Zameen pays its producers more than competitors. In a good market, the payment is the same – thus Fairtrade acts as a safety net. The organic premium amounts to approximately 20 per cent over the conventional price. Zameen farmers do not use chemical fertilisers, so they save from 1500 to 3000 Indian Rupees per acre (US$33 to US$66) with the shift to organic. However, the initial drop in yields in early years after transition can be over 50 per cent.

Model

The company buys organic and Fairtrade cotton from small producers relying on rain-fed agricultural systems in Maharashtra and Andhra Pradesh, regions that comprise the so-called ‘suicide belt’ of India. All the farmers who produce for Zameen are shareholders in the company, and have Fairtrade certfication.

Producers are organised in a multilevel organisational structure; on village level they are organised in groups of 20. About 10 groups form a local cluster and seven clusters are organised into a regional association. The producer organisations are assisted by AOFG (Agriculture and Organic Farmers Group), an NGO and partner of the project, which works on capacity building for producer organisations and provides technical and certification support to farmers. External donor funds are channelled through AOFG. The national project office (NPO) is the project administration office of AOFG and is responsible for reporting to Rabobank and Cordaid, the donors. A Mutual Benefit Trust manages shares in the company, and all owners have to agree on new investors.

The non-producer owners of Zameen started the business with a triple bottom line, of people, the planet and profits: to improve the life options and situations of poor producers in the region; to improve the soil and water quality through organic practices such as building up organic matter using natural, non-chemical fertilisers, composts and natural pest control mechanisms; and to manage a profitable company that increases the income of producers through both organic/ Fairtrade production and through shareholding in the company itself.

Key Recommendations for successful replication of the Zameen model

16. Financial plan for the start-up period
17. Seeking out Institutional support, govt support
18. Pay attention to local context
19. Keep cap on farmer group size for better management of group
20. Plan for drop-outs
21. Seek both FairTrade and Organic Certification
22. Maintain a robust internal control system for certification
23. Build strategic relationships with traders
24. Remain open to unconventional models for farmer businesses - in case of Zameen, farmers are shareholders
25. Prioritise multi-level learning and information sharing

Constraints to replicability:

There are some constraint to the replicability of this model like; not getting good price for organic cotton, conventional producers getting subsidies for pesticides & fertilisers which impacts the pricing, retention & hiring of qualified staff, issues arising from illiteracy in small producers or marginalised groups, existing certification system, their image and inherent complexities of roles, etc.,

Discussion Points:

Zameen model was in its fifth year at the time of study and seemed be performing well. Gross margins were 52 per cent higher in 2003 and 63 per cent higher in 2004.

In this study, unexpectedly, the labour inputs were not significantly higher for organic farming. This is a finding that would merit more investigation as labour inputs are usually higher for organic farming.

Many lessons on scaling up the Indian bio-cotton sector can be learned from examining Zameen's business model, challenges and success factors. Some lessons are also relevant for other commodities and certification programmes in different parts of Asia.

Case Study 2: Sustainable and Ethical Manufacturing for a Profitable Business Model: A Case Study from the Handloom Industry in Sri Lanka[81]

Year of Case Study: 2017

Overview

This case study highlights craft practice as one of the potential avenues for achieving sustainability within the fashion industry. Through a case drawn from handloom industry, this study explores a manufacturing approach that is committed to fair-trade principles and designed to prevent waste. The researcher argues that this study reveals a business model that could positively contribute towards generating

[81] Sustainable and Ethical Manufacturing for a Profitable Business Model: A Case Study from the Handloom Industry in Sri Lanka

employment opportunities and sustainable household income for the rural community. The researcher concludes the paper by highlighting that this type of a fair trade and environmentally conscious manufacturing process could address the three pillars of sustainability: social, economic and environment. Findings of the study invite manufacturers to revisit and redesign current fashion production systems, especially when waste and labour issues are hindering the sustainability.

Background

Globalisation and technological advancements have made a dramatic change in production and consumption patterns of the world's fashion. Vast availability of cheap, low-quality clothing allows overconsumption and premature disposal of fashion products (Niinimäki, 2011). Textile and fashion industry is well known for exploitation of resources and unsustainable manufacturing practices, where environmental and social losses are often ignored (Beard 2008; Walker, 2007). However, the growing awareness among consumers regarding the social and environmental impacts of fashion consumption has made a significant influence on the purchasing decisions towards ethical and sustainable fashion. With regard to sustainable, it is commendable that a practical approach has been taken by the Ethical Fashion Initiative, in which there is an attempt being made to connect marginalised craftspeople from developing world to the international fashion industry (International Trade Centre, 2016). It is therefore evident that the craft practices in fashion could address environment as well as other broader dimensions of sustainability, as it tends to promote the well-being of the local producers and craft communities towards a sustainable lifestyle. However, only a limited research has been carried out to highlight the importance of fashion craft industry in the context sustainable and ethical fashion movements.

The Sri Lankan Handloom Industry

The Sri Lankan handloom industry is a highly labour- incentive and a decentralised sector of which the most of the manufacturing units are located in rural areas

(Export Development Board 2013). It is also an environmentally friendly, low energy-driven sector where fair-trade manufacturing practices are appreciated and encouraged (Dhingra and Dhingra, 2012). With the raising developmental needs of the country in the post-war era, handloom industry was repositioned as one of the most important industries to launch business opportunities for the development of local economy. As handloom textiles and handcrafted products have rapidly become major lifestyle statements for both national and international consumers, this industry now carries a significant potential for expansion, employment generation with lucrative export earning opportunities. Further, Sri Lankan handloom textiles are highly recognised both locally and internationally not only for its innovative and modern design trends entwined with traditional craftsmanship but also for its premium quality.

In Sri Lanka, it is estimated that around 6,500 handlooms are in operation, providing around 10,000 direct employment opportunities (Ministry of Industry and Commerce, 2012). Seven hundred seventy-one production centres are owned by provisional councils whereas 962 units scattered around the country are privately owned (Export Development Board, 2013). Export markets for handloom products include Italy, Germany, Australia, France, Spain, Japan, Korea, Sweden, USA, Vietnam, Lebanon, Thailand, UK, Norway, Netherlands, etc. (Ministry of Industry and Commerce, 2012). In the year 2012, the total value of exports brought by the handloom sector was estimated as USD 870,000.

Fair trade

Fair trade represents an ethical approach to product manufacturing. This is also an important approach to alleviate poverty in the global south while contributing to build a socially and environmentally sustainable international trade (Taylor et al., 2005; Raynolds et al., 2004; Shreck, 2002). Fair trade aims to support farmers and craftsmen who are socially and economically marginalised. Community improvement, women empowerment and mitigation of environmental impact of the

production process are some of the key aspects of fair trade (Andorfer and Liebe, 2015; Bassett, 2010). Access to fair-trade business models not only guarantee higher income levels but also promote collaboration and positive cultural bond among associates. The World Fair Trade Organisation (WFTO) represents a global network of fair traders who are committed to the WFTO fair-trade standards. This network may include manufacturers and retailers who are driven by fair-trade values. They signed up to follow a set of compliance criteria based on ten fair-trade principles that focus on fair prices, good working conditions and minimising environmental impacts (World Fair Trade Organisation, 2014).

Application of sustainable production methods and reduction of waste generation are among key priorities for Fair-trade practice. Waste is a growing problem associated with environmental and social impacts, which remain unresolved to date (Sinha et al. 2016). Waste can also be an indicator of an inefficient process (Pongrácz, 2009). In response to the waste issue, a zero-waste approach has been committed by many industries. According to Zero Waste International Alliance (2015), zero-waste strategy aims at designing products and processes to avoid waste, i.e. eliminations of all discharges to land, and conservation of resources. Zero-waste system reuses discarded materials to make new products. This process reduces the exploitation of natural resources, avoids pollution, and saves the environment. Textile and apparel industry uses tremendous amount of materials and energy resources and produces a massive quantity of waste, leaving a huge negative environmental impact. Therefore, achieving zero material waste is one of the greatest challenges of the apparel manufacturing industry. Rissanen and McQuillan (2016) highlighted that the concept of zero waste in fashion design addresses the inefficiency in fabric use and provides opportunities to explore new forms of creation.

Handloom industry could be a powerful sector for developing local economy, promoting ethical trade and sustainable communities in Sri Lanka. However, there is a little empirical research done to date regarding the actual benefits, especially when

the industry is engaged in an environmentally conscious production and ethical trade. This paper draws a case study from Sri Lankan handloom textile industry to illustrate an environmentally and ethically responsible manufacturing approach.

Methods

An in-depth examination of a single case has been used in this research, because the main purpose of this study was to gain a deep understanding of a specific theme of application and share the best practices. X Ltd has been selected as the case because it is the only fair-trade guaranteed textile handloom company in Sri Lanka, which allows generation of new insights that other textile handloom companies in the country have not yet been able to generate. For this study, data were collected using semi-structured interviews and field observations. Interviews were conducted with the Factory Manager, Human Resource Manager and the Business Manager of the company. Sustainable manufacturing process and the adherence to fair-trade principles were investigated in detail and verified by using two consecutive field visits.

Results

X Ltd started in 1991 with 15 women employees, gradually developed into a social enterprise that empowers women entrepreneurs, which then led to a buildup of sustainable communities. It is a design-led handloom textile manufacturing company that has gained a solid reputation and market share for supplying 100% cotton, handmade products of superior quality and innovative designs. The company also captures a place in the global market as a supplier of sustainable, handcrafted products. Approximately 85% of the company exports are sent to European countries such as Germany, UK, Netherlands, France and Italy. Further, X Ltd also caters to other export markets such as Australia, USA, Japan, India, Korea, Thailand, Norway, Sweden, China and Maldives.

X Ltd owns four major production facilities located in the rural areas of the country. Main production facility comprises of a dye house, a weaving centre, a cutting room, an apparel manufacturing section and also toys and accessories manufacturing section. Main production facility supports not only decentralised weaving centres but also home-based craftsmanship where discarded handloom textiles are converted into useful by-products.

Case study reveals that the manufacturing practice of X Ltd represents some of the key elements of sustainable fashion. Their products are manufactured with an environmental and social responsibility in mind. Significant time is spent to develop unique designs, leaving space for creativity, with premium quality and longevity. X Ltd is committed to fair-trade principles with a special focus on community-centred sustainability through empowering poor, particularly women and differently able people. X Ltd is a member of WFTO since 2012 and committed to follow ten fair-trade principles, as described in the "Fair-trade practice" section. Moreover, manufacturing process has been developed to achieve 'zero material waste', which is further explained in the "Zero-waste manufacturing" section.

Fair-trade practice

X Ltd subscribes and maintains ten fair-trade standards prescribed by WFTO, as follows:

(1) Creating opportunities for economically disadvantaged producers - X Ltd assists people who demonstrate weaving and craft skills yet struggle to find initial capital to purchase raw materials or unable to access a suitable market to sell their products at a reasonable price.

(2) Transparency and accountability - X Ltd keeps records of all of its transactions and maintains evidence whenever possible.

(3) Fair trading practices - X Ltd works cooperatively with its employees and maintains long-term relationships, especially with the employees who work

remotely. There is a guaranteed purchase of products manufactured in home-based or community centres.

(4) Payment of a fair price - X Ltd has an open policy to disclose the cost breakdown of any product manufactured, which facilitates workers to ensure that they are getting a fair price.

(5) Ensuring no child labour or forced labour - People below 18 years of age are not recruited, and child labour is strictly prohibited, even in a home-based working environment.

(6) Commitment to non-discrimination, gender equity, women's economic empowerment and freedom of association - X Ltd does not discriminate its employees based on their gender, disability, religion or race. Both male and female workers are employed; however, female employees represent the majority of the workforce (95% are female workers).

(7) Ensuring good working conditions - X Ltd is committed to provide safe and healthy working environment for all of its employees as per the guidelines provided in the national labour law.

(8) Providing capacity building - X Ltd supports to develop skills and capabilities of the employees, from home-based weaver to the top management.

(9) Promoting fair trade - X Ltd promotes the concept of fair trade both locally and internationally through awareness programmes, displaying fair-trade logo or a label and taking part in various fair-trade fares.

(10) Respect for the environment - While handloom industry is recognized as an environmentally sustainable industry due to its low energy and resources used, X Ltd has taken further sustainable initiatives to improve its environmental performance.

Zero-waste manufacturing

X Ltd takes a responsible approach to avoid landfill or incineration of textile waste and to promote reuse of waste 100% to create various by-products. 'Zero material waste' is the goal of this approach where waste fabrics from one manufacturing

process are used as input materials to create another product. Handloom apparel products are limited in designs and quantities. As the fabrics are colourful and attractive, designs are meant to be simple, yet those garments are suitable for many occasions due to their premium quality and rich appearance.

Waste fabrics generated from the apparel manufacturing process are used to create diverse range of by-products. X Ltd connects with a number of local craft workers and provides them with waste materials to manufacture by-products. Tiny pieces of fabric off-cuts are utilized to produce thin layers of sheets which are exported to Sweden to be used for packaging purposes or craft work at nursery schools. Waste threads are reused to make very creative lamp shades in various shapes and attractive colours. Premium quality is integrated into all products that target high-end consumer markets, both locally and internationally.

Discussion

This case study provides a good example of the application of fair-trade principles in the textile handloom industry. Here, it is evident that there is a definite potential of this practice to establish a new direction in environmentally and socially responsible textile and fashion products. Fair-trade approach could open up opportunities for local producers in the war-affected areas to earn sustainable income and improve future prospects for their communities. Therefore, it is vital to invest on restoring this industry in war-affected regions and assist them to align the business with fair-trade principles. This type of an initiative would help to achieve a rapid improvement on the well-being of the local populations and enhance the pacification of relationship with former rivals.

Many rural women in Sri Lanka tend to go abroad as domestic workers to raise their living standard, which leads to several social issues including the safety and protection of the children and the unrest among family members. A home-based or a village-based employment opportunity could resolve many of those issues and

would provide a flexible working environment for women to balance their work life and family life.

This study proves that zero-waste approach carries obvious potential for positive economic growth. Indeed, product diversification of X Ltd is achieved through the zero material waste approach, in which waste materials are used as resources to design various by-products that cater to different market segments.

Achieving business success whilst respecting the three pillars of sustainability (economic, social and environmental) is still a struggle to many businesses. In this context, this study demonstrates a potentially viable business model that interlinks the environment, human well-being and economic benefits for the success of a business.

Conclusions

This research demonstrates the successful application of fair-trade principles in developing sustainable trades and communities. It also suggests a sustainable business approach that could possibly be adopted by other textile handloom manufacturers and craft businesses. If this model was to be expanded significantly with the inclusion of communities affected by war, it would positively influence local economy and also the society by alleviating poverty, rebuilding collaborative relationships among different ethnic groups and safeguarding the cultural identity of Sri Lanka. It is recommended to explore other community-based craft practices in Sri Lanka and investigate the possibility of turning those to profitable businesses by aligning them with sustainable development and fair-trade principles.

This research is limited to a single case study and cannot be generalised to a wider population. However, this study invites other craft practitioners to revisit their manufacturing processes and investigate the possible application of sustainable and fair-trade principles into their businesses to harness the social and economic development.

Case Study 3: Fair Trade Statistics - A Success Story for Producers and Consumers[82]

Year of Case Study: 2010

The World Fair Trade Organisation Asia(WFTO) - the former International Fair Trade Association (IFAT) - provides impoverished food and crafts producers from all over Asia greater access to regional and interregional export markets in order to sell their Gifts and Living products. WFTO Asia comprises more than 130 Fair Trade Organisations, involved in both development and business, mostly from the poorest part of the continent–South and Southeast Asia across 16 developing countries. Members now include producers and producer organisations, cooperatives, intermediary marketing organisations, retailers, business development service providers, advocacy groups, NGOs, faith-based organisations and Fair Trade country-networks. The majority of WFTO Asia members are engaged in the production, marketing and trading of food and crafts products made by marginalised sectors, particularly women and cultural minorities.

From Asia, 51 producing organisations responded to the request to fill in the questionnaire. In total the producers provide jobs for more than 215.000 people (estimate). Assuming that an Asian family has 3 children on average, this means that the lives of more than 1,000,000 people are changed for the better by Fair Trade. Based on the returned surveys, 97,158 jobs were provided, of which 724 job holders are part of the management team. Of the total of these jobs 39,470 are provided to women, which is 40%, including the women in management teams. If the women in the management team are excluded, 41% of the employees is female. It is interesting to note that the percentage of women that are represented in the management team is substantially higher, with a total of 59%. Whether specific target groups have been selected for employment cannot be said. The Asian respondents did not have this question in their survey. Of all the responding producers, only two mentioned that men and women do not get equal pay. One of them decided not to answer this question. Unfortunately almost 50% of the producers did not fill in their method of

[82] https://european-fair-trade-association.org/efta/Doc/FT-E-2010.pdf

pay correctly. From the remaining companies it is interesting to see that 89% of the people get paid per piece, while not even 10% gets a salary.

Success Story - "Fair Trade shops in India are a big hit"

Worldwide over four thousand Worldshops (Fair Trade Shops that are specialised retail outlets offering and promoting Fair Trade products) exist. Only a small number of these shops are located in the producing countries, even though some of these countries are developing quickly. An example of this is India where the upper- and middle class continues to grow rapidly. The Indian Asha Handicrafts has taken serious steps to start its own shops after facing stagnation in its exports to the West in 2004 and after seeing growth in local markets.

Development of the shop formula

Asha now has three Fair Trade shops in Mumbai and ten shopin-shop stores in a big bookshop chain all over India. In 2004, they opened a shop for products made by Asha producers without a supporting retail concept. This did not work out unfortunately and the shop was closed after a year. Towards the end of 2006 they developed a new approach: the current shops have been put in the market as a brand under the name Karigar, which means 'artist'. The shops are located in big shopping malls. When you enter such a mall, it is an incredible experience: the malls have shops like Esprit, Mexx, opticians, a cinema, a supermarket, a Pizzahut and a diversity of other restaurants. The mall attracts a large number of visitors every day, and the opening hours are from 10.00am to 9.00pm. Shop staff can be recognised by their company outfit, work six days a week and get paid properly.

Working in a climate neutral way

The Karigar shops work with environmentally friendly materials. The walls are decorated with the insides of mattresses, the ceilings have been made of recycled materials, all lamps are energy saving lights and the customer bags are made of recycled newspapers. Furthermore, it is not only Karigar itself that wants to promote

sustainability, the mall owners do as well: in order to be allowed to open a shop in the mall, you have to work in a climate neutral way. Waste from the shop is also collected and recycled, which creates employment opportunities.

Expectations for the future

Commercial retailers have been approached to set up and expand the chain. Asha is expecting to make profits with the shops from 2011 onwards. These profits can be invested in social projects, such as education programs for street children, empowerment projects for women, working with micro credit and so on.

Case Study 4: The Failure of the EcoMark in India[83]

Year of Case Study: 2007

Introduction

Despite the international community's explicit acceptance of product ecolabelling, the approach adopted in several countries was not a success, including India's Ecomark scheme. The Ministry of Environment & Forests (MoEF), Government of India instituted this Scheme on labelling of Environment Friendly Products on February 21, 1991. The voluntary label is awarded to consumer goods, which meet the specified environmental criteria and the quality requirements of Indian Standards. However, even after 15 years in existence, the Indian Ecomark Scheme has not caught the fancy of the consumer or the industry. Only 12 manufacturers of various products like paper, pulp, leather and wood particleboard have till now applied and got the Ecomark licence. Furthermore, the licencees hardly use the Ecomark symbol 'matka' on their package as none of them found any benefit by the same. Thus the scheme that was formulated to recognise environment friendly products is yet to gather momentum. In India, Ecomark is awarded on the basis of environmental considerations and the quality of products.

[83] http://www.cuts-citee.org/pdf/RREPORT07-01.pdf

Reasons behind Starting the Ecomark Scheme

As a whole, government officials, industry associations, experts, parliamentarians and non-government organisations (NGOs) stated that the following factors had contributed to the launch of the Scheme:

- Concern for reducing the adverse environmental impact of increasing consumer products, especially disposal of garbage.
- Encouraging sustainable management of resources and ultimately improving the quality of the environment.
- Successful advocacy by consumer bodies
- Political will of the Government.
- Need for clear and credible guidance regarding products that are environment friendly.

It is pertinent to note that no trade related concerns were considered as a factor behind the launch of the Scheme. At the time there was hardly any debate on the international dimensions of trade and environment.

In addition to these factors, government officials and members of the Steering Committee (the makers of the Scheme) viewed that the Ecomark started as a pollution prevention tool. At the same time, there were differing opinions among industry leaders, some of whom felt that it was a leadership tool while others considered it was a marketing tool. In light of these differing positions, it could be said that the Scheme was not positioned appropriately during the launch, and neither was it marketed properly thereafter.

The Political Will behind the Ecomark

The activism of the Minister of Environment and Forests, Maneka Gandhi in 1990-91 was, certainly, one of the major factors behind the constitution of the Scheme. Besides being a politician, she was also an environmental activist. Her immediate successor, Kamal Nath, was also very supportive towards the Scheme. However, his successors were not as active and did not show the similar zeal and enthusiasm in implementing the Scheme. After that only a few instances of interventions from

politicians were traced; as a former Member of Parliament felt, "no political party has had a clear cut agenda for pushing the Indian Ecomark Scheme". This view is supported by the CPCB, consumer and environmental groups. This indifferent attitude, shown by a majority of political leaders, was conceivably one of the major reasons for the failure of the Ecomark Scheme.

Main Objectives of the Ecomark Scheme

The MoEF took into account the above factors and set out the following major objectives while devising the Ecomark Scheme:

- To provide an incentive for manufacturers to reduce adverse environmental impact of products
- To reward genuine initiatives by companies to reduce adverse environmental impact of their products and processes
- To assist consumers to become environmentally responsible by providing sufficient information to take account of environmental factors in their purchasing decisions
- To encourage citizens to purchase products, which have less harmful environmental impacts
- To improve the quality of the environment and to encourage the sustainable management of resources.

Management of the Ecomark Scheme

A three-tiered system was set up for the implementation of the Ecomark programme. These three tiers were established as follows: An Inter-Ministerial Steering Committee14, which was constituted in the MoEF, a Technical Committee15, which was constituted in the CPCB16 and the BIS, which was designated for the assessment and the certification of the products for the Ecomark against a licence fee. Moreover, the BIS was notified as the implementing authority of the Ecomark Scheme in 1991. The consumer and environmental groups have been ignored.

The Complex Process of the Ecomark Scheme

The whole process of developing criteria to the grant of an Ecomark licence is complex and time consuming. As a consequence, it was found that, due to the complex process, during the initial years after the launch of the Scheme, proper attention could not be given by the three bodies to popularise the Scheme in an effective manner.

Critical observation on the Steering Committee and the Technical Committee

The study has highlighted critical Observations on the Steering Committee and the Technical Committee. The structure & member constitution of the committee, assignation of responsibility to officials, complexity of the process, and the minimal interaction between these two committee as well as BIS has been observed by the author.

Critical observation on the BIS

The BIS was chosen as implementing agency because it was by statute the National Standards Body. In addition, it had a chain of laboratories located in different parts of the country to test conformity of certified products and samples. However, designating the BIS as the implementing agency was found to be problematic to a certain extent.

1. In the Technical Committee meetings the BIS insisted that as the implementing agency for the Ecomark, the licencees must also have the BIS's own logo i.e. the ISI mark, which would be displayed besides the Ecomark logo i.e. the 'Earthen pot.' Arguments to the contrary that nowhere in the world such a condition is applied for a joint labelling, the same did not succeed.
2. During this study, the BIS was asked to provide data on the total number of applications made since 1991 to calculate the rate of success vis-à-vis applications. However, the central office responded rather lackadaisically, "Such data is not readily available with the Bureau". It seems that the functioning of the

BIS also lacks transparency, since there are no ways to identify and resolve the bottlenecks faced in the implementation the Scheme.

3. The standards set by BIS lacking in feasibility. Currently, the BIS have more than 17,000 standards, but according to a top official of the BIS only around 1,300 have gained acceptance among industry.

A study is needed to understand the image of the BIS among industry and consumers. Depending on the findings the BIS may devise steps to improve the same.

Issues in Applying for an Ecomark Licence

The application process is complex and comprises of many obligations. For ex;

1. On receipt of the complete application form, the BIS arranges for a preliminary inspection (PI) of the factory of the applicant on a mutually convenient date. In view of the fact that none of the successful overseas ecolabelling schemes require plant visits, this aspect of the Ecomark certification also needs a review.
2. When all documents are found to be complete and satisfactory, the BIS grants the Ecomark licence for one year, which is renewable for a period of two years. The extension is determined on the basis of performance of the unit in the preceding year(s). However, through informal sources it was found that such certification could take six months to a year and hence needs to be reduced. It may be beneficial to increase the period of validity of the licence when first issued along with licence fee waivers to attract industry participation.
3. During the period of validity of the licence, the Bureau arranges periodic unannounced visits to the manufacturing premises of the licencee to assess the operation of the Ecomark Scheme for the product. During the visit, samples are drawn for testing both within the factory as well as for independent testing to verify conformity of the product. While the purpose of this is to check for compliance, it might be better if the results were compared with samples drawn at random from the market.

In the interest of the Scheme the procedure for awarding licence for the eco-friendly products needs to be simplified. The requirement of the ISI mark should not be

mandatory for the award of the Ecomark. This would facilitate a smooth launch of the Scheme.

Cost of Certification

Three types of costs are associated in the process of obtaining and using the Ecomark licence:

1) Application fee along with cost of visit by BIS official/s - Application fee is Rs. 1,000 and Rs. 3,000 as cost towards the inspection to be made by BIS officials. In case BIS officials on first inspection do not find the claims to be valid, then Rs.3,000 is to be paid for every subsequent plant visit.

2) Cost towards product testing - It varies from product to product;

3) Marking fee - as applicable to the product

Product Categories Included in the Scheme

The16 product categories initially were identified and finalised for criteria setting. No member of either the Steering or the Technical Committee disputed the rationale behind the selection of these product categories.

Present Selection of Product Categories

At present, there is no mechanism for capturing products that offer environmental advantages, which so far do not fit into the existing categories. Furthermore, the current Ecomark Scheme does not provide any scope for gradation of a product category. This means either one qualifies or does not, i.e. remains excluded from the Scheme. Starting from inception to date, no criterion has even been proposed for services under the Scheme.

Moreover, the Scheme has failed to keep pace with some of the recent legislative changes in India, e.g. the mandatory Energy Conservation Bill introduced in 2001. The Energy Conservation Building Code (ECBC) guidelines is not harmonised with the Ecomark Scheme. Even, the Government of India's energy labelling scheme with

a rating method to enable consumers to know the level of consumption of energy of each gadget is not integrated with the Ecomark Scheme.

It would be preferable if scope could be created to differentiate products within a product category. It is risky to compare the environment friendliness of two product categories. For strategic reason, it may be worthwhile to consider granting Ecomark for selected attributes (such as, water and energy conservation, recycling and biodegradability etc., which are the most pressing problems with the goods or the process) rather than sticking to the 'cradle to grave'' compliance of all the criteria.

Too Many Product Categories Taken Up

The criteria development for 16 product categories and around 132 sub-products was perhaps too large to begin with. A high-level committee set up by the MoEF decided to concentrate on 10 product categories instead of 16. However, there was again a lack of justification why 10 product groups were to be considered instead of 16.

A better approach would have been to start with an even lesser number of product categories. The categories initially chosen should, by common consensus, be those that on the basis of a LCA (Life Cycle Analysis) carry the maximum adverse environmental impact. Secondly, the total consumption of such identified products/ categories in the country should be significant.

Thirdly, an equal emphasis should be placed on the inclusion of consumer goods so that individuals could be persuaded along the path of expressing their environmental concern by informed action.

Developing Criteria for Product Categories

Once the product categories are selected under the scheme, the next task for any Type I ecolabelling programme, such as the Indian Ecomark, is to determine criteria and set stringency levels so that there is an incremental environmental improvement for the selected product. However, stringency of criteria is a double-edged sword

and unless handled properly could lead to difficulty in the implementation of the Scheme.

Given this dilemma, there was often a consensus among members of the Technical Committee to refer to similar foreign schemes in the absence of existing criteria with domestic agencies. In the case of the criteria set out in the Indian Ecomark Scheme, the approach was developed based on the underlying principle of 'best available technology'. However, members of the Steering and/or Technical Committee have overlooked the need for domestic adaptation of such imported criteria and so the criteria developed were not based on the realities of existing industrial infrastructure.

Relevant sector firms/associations were adequately consulted while developing the criteria related to their particular sector. Industrial associations were permanent members of the Technical Committees and the Steering Committee and individual companies participated actively in these committees. This industrial participation assisted in the assurance that criteria developed were more relevant. Some of the criteria were & still are not achievable, even by leading industries without substantial investment there was dissent and disagreement, but majority opinion prevailed.

Textiles

Textiles have a special significance under the Scheme for two reasons. Firstly, the manufacturing process of various textiles results in wastes that are environmentally hazardous and secondly, Indian organisations have acquired foreign ecolabels in this product category. Century Textiles and Industries, a part of the B K Birla Group, under pressure from the German buyer Otto Aversano, applied and got the "Eco-tex" label in January 1995.

This example shows how stringency in standards need not always deter companies because market often offers acceptance, price premia and greater profitability.

Century Textiles and the Eco-tex

Meeting Eco-Tex requirements was difficult, even though the cost borne by Century Textiles for "Eco-tex" certification was less than Rs 93,110. It involved the company finding alternative dyes, reformulating recipes, checking quality, testing amines and retraining mill workers. The substitution exercise led to optimisation of the dyeing recipe so that a 10 to 15 percent cost increase in most of the shades was offset by a 20 to 30 percent cost saving in two of the most popular colours.

More importantly, however, was the fact that certification brought several market advantages. The marketing department could get an 8-10 percent higher price due to 'Eco-Tex' and overall quality improvements. Additionally, the market widened by 10 percent in the first year alone. Many new buyers from the US and the UK (who re-exported to Germany) turned to Century due to the Eco-Tex certificate.

Box 5.1: Century Textiles and the Eco-tex

The criteria developed on textiles under the Indian Ecomark Scheme can be divided into three sub-product categories including:

a) criteria for cotton, wool, man-made fibre and blends;

b) criteria for jute and jute products; and

c) criteria for silk and silk products.

One industry representative noted: "There can be no generalisation for technologies. As far as the vegetable dye production is concerned there has been a change brought about by blending traditional knowledge along with cost-effective, modern environment-friendly technology. But when that is applied on garments the technology differs, depending on the garment producing units and their considerations about the environment… But whatever technology is used, it should be cost effective to maintain the competitive edge".

Another industry representative said, "We have not as yet received any serious demand from foreign clients for mandatory ecolabelling, therefore there is no compulsion for the company to get serious immediately. Also there has been no effort on part of the government to promote consciousness amongst the producing

units particularly the exporters on the Indian Ecomark". He added that they had expressed interest in applying for Indian Ecomark, but their interest diminished due to lack of response from the BIS to their application. The above responses point out the reasons why the textile industry has stayed away from the Ecomark. Not only that but no study has been done to show that meeting and obtaining the Ecomark criteria could lead to cost reduction: there has been no proactive promotion of the Scheme in the industry. Likewise, neither the MoEF nor the BIS formally approached the Ministry of Textiles to co-ordinate the Scheme.

Conclusion

The effective implementation of any measure such as the Indian Ecomark Scheme requires resources and political will. In case of the Ecomark, there were both resources and political will when the Scheme was launched in the 1990s. However, with no political backup, the MoEF has been unable to maintain the momentum and subsequently the Scheme has failed to acquire adequate support of the Ministry of Finance. After a large amount of work and effort (e.g. on criteria development), the Government changed and the will to implement the Scheme was lost. Currently, the Indian Ecomark Scheme has turned into a lame duck situation with lack of interest of most of the stakeholders. To a large extent, this is due to the lack of continuity of the concerned Governmental staff. A serious and complex issue such as ecolabelling must be handled by specialists who remain in the institution till the task is well accomplished.

Another reason behind the derailment of the Scheme was that some business lobbies worked hard to disrupt it: the detergent industry being a case in point. It must be realised that this is bound to happen initially, and that while voluntary adoption of the Scheme is highly advisable, the Government and civil society groups must show sufficient resolve by not allowing pressure groups to allow the Scheme to stand still.

Problems also exist in the administrative set up, as the implementation is in the hands of the BIS, which treats the Ecomark Scheme somewhat like a step child. Communication between different branches/Ministries of the Government has been very poor at times, responsibilities have got diffused and the entire management has been weak. There is, therefore, a crying need to intensively re-examine the mechanics and modalities of managing and implementing the Scheme.

The Ecomark Scheme has failed to take off in a desired fashion due to multiple reasons. Today, the multiplicity has made the situation so complex that it would be relatively easier to start from first principles, i.e. starting with a small basket of products/categories, which are the dirtiest ones so as to get a maximum impact. The past repository of knowledge could serve as a reference point. It is further suggested that the MoEF takes the initiative in reviving the Scheme. Given the resource constraints, this initiative would be a partnership between the Government, civil society organisations and industry. Within the Government, participation from the Ministry of Commerce & Industry, the Department of Consumer Affairs (DoCA) and the BIS and possibly other relevant Ministries such as Finance would be necessary but clearly, the MoEF must take the lead role.

Case Study 5: The Shortcomings of the Fair Trade Label in the Coffee Industry[84]

Year of Case Study: 2011

Fair Trade-certified coffee is growing in consumer familiarity and sales, but strict certification requirements are resulting in uneven economic advantages for coffee growers and lower quality coffee for consumers. By failing to address these problems, industry confidence in Fair Trade coffee is slipping.

Introduction

Peter Giuliano is in many ways the model of a Fair Trade coffee advocate. He began his career as a humble barista, worked his way up the ladder, and in 1995 co-

[84] https://ssir.org/articles/entry/the_problem_with_fair_trade_coffee

founded Counter Culture Coffee, a wholesale roasting and coffee education enterprise in Durham, N.C. In his role as the green coffee buyer, Giuliano has developed close working relationships with farmers throughout the coffee-growing world, traveling extensively to Latin America, Indonesia, and Africa. He has been active for more than a decade in the Specialty Coffee Association of America, the world's largest coffee trade association, and currently serves as its president.

Giuliano originally embraced the Fair Trade-certification model—which pays producers an above-market "fair trade" price provided they meet specific labor, environmental, and production standards—because he believed it was the best way to empower growers and drive the sustainable development of one of the world's largest commodities. Today, Giuliano no longer purchases Fair Trade-certified coffee for his business. Giuliano is among a growing group of coffee growers, roasters, and importers who believe that Fair Trade-certified coffee is not living up to its chief promise to reduce poverty. Retailers explain that neither FLO—the Fairtrade Labelling Organisations International umbrella group—nor Fair Trade USA, the American standards and certification arm of FLO, has sufficient data showing positive economic impact on growers. Yet both nonprofits state that their mission is to "use a market-based approach that empowers farmers to get a fair price for their harvest, helps workers create safe working conditions, provides a decent living wage, and guarantees the right to organise." (in this case study, the term Fair Trade coffee refers to coffee that has been certified as "Fair Trade" by FLO or Fair Trade USA; the term Fair Trade refers to the certification model of FLO and Fair Trade USA; and the term fair trade refers to the movement to improve the lives of growers and other producers through trade.)

FLO and Fair Trade USA

FLO rules cover artisans and farmers who produce not just coffee but also a variety of goods, including tea, cocoa, bananas, sugar, honey, rice, flowers, cotton, and even sports balls. To its credit, Fair Trade USA has played a significant role in getting

American consumers to pay more attention to the economic plight of poor coffee growers. Although Fair Trade coffee still accounts for only a small fraction of overall coffee sales, the market for Fair Trade coffee has grown markedly over the last decade, and purchases of Fair Trade coffee have helped improve the lives of many small growers.

Despite these achievements, the system by which Fair Trade USA hopes to achieve its ends is seriously flawed, limiting both its market potential and the benefits it provides growers and workers. Among the concerns are that the premiums paid by consumers are not going directly to farmers, the quality of Fair Trade coffee is uneven, and the model is technologically outdated. This case study examines why, over the past 20 years, Fair Trade coffee has evolved from an economic and social justice movement to largely a marketing model for ethical consumerism—and why the model persists regardless of its limitations.

Operation Mechanism of FLO and Fair Trade USA and its Flaws

The primary way in by which FLO and Fair Trade USA attempt to alleviate poverty and jump-start economic development among coffee growers is a mechanism called a price floor, a limit on how low a price can be charged for a product. As of March 2011, FLO fixed a price floor of $1.40 per pound of green coffee beans. FLO also indexes that floor to the New York Coffee Exchange price, so that when prices rise above $1.40 per pound for commodity, or non-specialty, coffee, the Fair Trade price paid is always at least 20 cents per pound higher than the price for commodity coffee.

Commodity coffee is broken into grades, but within each grade the coffee is standardised. This means that beans from one batch are assumed to be identical to those in any other batch. It is a standardised product. Specialty coffee, on the other hand, is sold because of its distinctive flavor characteristics. Because specialty coffees are of a higher grade, they command higher prices. Fair Trade coffee can come in any

quality grade, but the coffee is considered part of the specialty coffee market because of its special production requirements and pricing structure. It is these requirements and pricing structure that create a quality problem for Fair Trade coffee.

One of the unique characteristics of the FLO and Fair Trade USA model is that only certain types of growers can qualify for certification—specifically, small growers who do not rely on permanent hired labor and belong to democratically run cooperatives. This means that private estate farmers and multinational companies like Kraft or Nestlé that grow their own coffee cannot be certified as Fair Trade coffee, even if they pay producers well, help create environmentally sustainable and organic products, and build schools and medical clinics for grower communities. Membership in a cooperative is a requirement of Fair Trade regulations.

Another core element is the premium—the subsidy (now 20 cents per pound) paid by purchasers to ensure economic and environmental sustainability. Premiums are retained by the cooperative and do not pass directly to farmers. Instead, the farmers vote on how the premium is to be spent for their collective use. They may decide to use it to upgrade the milling equipment of a cooperative, improve irrigation, or provide some community benefit, such as medical or educational facilities.

Revenue Model of Fair Trade USA

Fair Trade USA is a nonprofit, but an unusually sustainable one. It gets most of its revenues from service fees from retailers. For every pound of Fair Trade coffee sold in the United States, retailers must pay 10 cents to Fair Trade USA. That 10 cents helps the organisation promote its brand, which has led some in the coffee business to say that Fair Trade USA is primarily a marketing organisation. In 2009, the nonprofit had a budget of $10 million, 70 percent of which was funded by fees. The remaining 30 percent came from philanthropic contributions, mostly from foundation grants and private donors.

Industry Perceptions of FLO and Fair Trade USA

People in the coffee industry find it hard to criticise FLO and Fair Trade USA, because of its mission "to empower family farmers and workers around the world, while enriching the lives of those struggling in poverty" and to create wider conditions for sustainable development, equity, and environmental responsibility.

Whole Foods Market initially rejected the Fair Trade model. The supermarket chain only recently began buying Fair Trade coffee, through its private label coffee, Allegro, in response to the demand from their consumers. Jeff Teter, president of Allegro Coffee, a specialty coffee business begun in 1985 and sold to Whole Foods in 1997, said that his main concern has been the quality of Fair Trade coffee. "To get great quality coffee, you pay the market price. Now, in our instance, it's a lot more than what the Fair Trade floor prices are," he says. As for social justice for coffee growers, Teter responds: "We were living the model at least 10 years before Paul Rice (President, Fair Trade USA) and TransFair people got started here in America. … Paul Rice and his group have done an amazing job convincing a small group of vocal and active consumers in America to be suspicious of anybody who isn't FT." Rice disagrees, arguing, "Fair Trade is the only certification program today that ensures and proves that farmers are getting more money."

The Limitations of the Fair Trade Model

Three distinct limitations to the Fair Trade model have been highlighted here.

1. The most serious challenge is the extraordinarily high price of coffee. This price shift dampens farmers' desire to sell their high-quality coffee at the Fair Trade price. Many co-ops, according to Macray, former director of global sustainability at Starbucks Coffee Co., are choosing to default on the Fair Trade contracts, so that they can do better for their members by selling on the open market.
2. FLO's inability to alter the circumstances of the poorest of the poor in the coffee farming community. The poorest segment of the farming community, however, is the migrant labourer who does not have the resources to own land and thus

cannot be part of a cooperative. The benefits of Fair Trade do not reach migrant labourers.

3. The challenge for FLO is the issue of transparency in business dealings. FLO regulations require a great amount of record keeping, to ensure that individual farmers have access to all information pertaining to the cooperative's sales and farming practices, enabling them to make more informed business and agricultural decisions. But this record keeping has proven to be a hurdle in some cases. In addition to being time-consuming, it has also raised language and literacy barriers.

Case Study 6: Highlighting Successes & Failures - Greening the Supply Chain: A Case Analysis of the Retail Giant 'Patagonia'[85]

Year of Case Study: 2007

Introduction

Patagonia, an outdoor apparel retail giant and leader in the green apparel market, is committed to achieving the triple bottom line: being profitable as well as environmentally and socially responsible in its business practices. The intent of this case study is to assess if Patagonia's business practices reflect its mission to reduce harm to the environment or if it is classic case of green marketing. In this case study, the implementation and enforcement of environmental and labor standards the company uses will be evaluated. This study will travel through Patagonia's global supply chain to explore the monitoring and transparency mechanisms Patagonia uses to add credibility to its products.

A Background of Patagonia's Philosophy

Patagonia prides itself on its deep commitment to environmental and socially sustainable industrial practices, and continually launches new products that are dedicated to its mission statement: "Build the best product, cause no unnecessary harm, use business to inspire and implement solutions to the environmental crisis."

[85] https://gps.ucsd.edu/_files/faculty/gourevitch/gourevitch_cs_pongtratic.pdf

The birth of Patagonia's organic cotton line originated in 1994, when organic agricultural activist, Will Allen, took a group of representatives on tour of cotton farms in the San Juan Valley in California. Conventional cotton methodology footage and findings were presented to the company and the Board of Directors. As a result, Patagonia has sent over 350 people to conventional cotton farms, to see first-hand the social, economic, and environment costs the cotton industry is causing to the environment and people. In 1996, with the Board's approval, Patagonia committed to manufacturing only 100% organic cotton clothing. It led an emotionally charged three- day supplier conference to convince existing suppliers to make the switch with them. It then went on to create marketing and communication materials to its suppliers, consumer, and competitors to generate a demand for the organic market. This ignited Nike, Adidas and Levi to take the organic cotton plunge as well.

In implementing the Board's decision to go 100% organic cotton in 1996, Patagonia approached existing suppliers to join in their organic movement. Patagonia urged suppliers to help in the development and implementation of greening the supply chain. However, many suppliers discouraged by the high costs and market risk declined Patagonia's offer. As of 2007, Patagonia was supported by only 90 suppliers compared to Gap's 2,000. This manageable number allowed Patagonia greater control and oversight of the manufacturing/production processes to ensure that the quality and integrity of its products meet compliance and that standards are being met. However, with corporations increasing operations overseas, typically to developing countries, where production costs are lower and less stringent environmental and social laws are enforced, there is an incentive to both cheat and collude. Patagonia was no exception to this as will be evident in the case of Thai Alliance Textile.

Patagonia's Internal Monitoring Mechanisms

Like most retailers, Patagonia outsources cotton fibre and production predominantly to developing countries. Patagonia encourages farmers to take an active roll in the certification process and allows its farmers to choose their own certifiers. Although

Patagonia claims all certifiers are USDA accredited, Patagonia is enabling their suppliers the option to use sub-par standards for certification. Given the costs of certification and perceived values, farmers may have an incentive to use third-party certifiers who are cheaper, require fewer and less thorough inspections, and are less stringent on organic and environmental standards. This combination for location sourcing and third party certifier selection proves to be advantageous for both Patagonia and farmers.

If farmers can keep production levels up and minimize price with cheaper monitoring fees and regulations, Patagonia reduces the risk of economic uncertainty in the supply chain. From the organic farmers' perspective, where organic farming methods are more costly and time and labor intensive than conventional farming, they cannot economically afford to lose a contract because of de-certifications.

To ensure that environment and labor standards are being met to Patagonia's expectation, the company requires its suppliers to abide by its Code of Conduct and CSR manuals. Being a privately held company, these standards and procedures are not available to the public, this offers little transparency or credibility in its standard development and implementation. By not disclosing its CSR standards, Patagonia limits the information left to public scrutiny that could tarnish is brand reputation.

Additionally, to monitor that environmental and labor conditions are being met to international organic manufacturing standards Patagonia uses third party certifiers to monitors that factory compliance is being met. Although, Patagonia's monitoring selection is dependent on where factories are located, Patagonia mainly refers to the Fair Labor Association's (FLA) accredited monitors for selection. The FLA is a non-profit organisation whose mission is to "combine the efforts of industry, civil society organisations, and colleges and universities to protect workers' rights and improve the working conditions worldwide by promoting adherence to international standards." FLA has been under public scrutiny since convened by President Clinton, where critics complain that the FLA is simply a tool of corporate public

relations by the apparel industry (Patagonia being a corporate affiliate) and has yet to improve industry labor conditions. The FLA bases it's monitoring on voluntary codes of conduct, which vary from code to code and company to company. FLA also has a Code of Conduct of its own, but is very vague and fails to address specific issues relating to different industries and different countries. This in effect, makes FLA monitors a type of internal monitoring mechanism for Patagonia where Patagonia is accountable for monitoring its own Code of Conduct for compliance. Because monitoring of compliance is conducted in a closed system, this minimises public disclosure of unflattering facts.

To increase public access and deter from pubic criticism, FLA makes public its annual reports and its website includes FLA tracking sheets from years 2002 to 2006. These tracking sheets lack any teeth in that they are not considered audits but merely recommendations for improvement on environment and work conditions.

Case Study - Thai Alliance Textile

One of the first programs Patagonia implemented was its partnership with Thai Alliance Textile. In 1995, Thai Alliance started its organic cotton program with Patagonia. Thai Alliance claims to use only certified organic cotton. To verify its organic processes, Thai Alliance looks to third party certifier Control Union to certify that its spinning processes meet voluntary international standards.

The Certificate for Products from Organic Production and the Transaction Certification is illustrative documentation for each organic cotton bale. These certifications and fibre content are traced using an industry on-line tracking system. The cotton fibre in a garment can be tracked down to the company, certification accreditations, bale number, cone number as it moves along the supply chain. Although, Thai Alliance offers Patagonia a thorough paper trail from fibre to fabric, the monitoring process raises several issues of concern. First, in reviewing the GOTS Certification and OE Exchange, both of which expire November 7, 2008, indicates

inspection occurs only once a year. This gives rise to suspicion on the frequency of the voluntary standards being met.

The garment industry typically runs on four seasons, where new production and design is constantly changing. With new lots of cotton continuously needing examination, does certification once a year provide adequate verification that global standards are continuously being implemented and enforced? Furthermore, details are not provided as to if there is any unannounced inspections, how inspections are taken place and in what environmental context, who is interviewed, and if complaints from employees or managers are ever collected.

Additionally, Control Union is a privately held company, and chooses to not make public its monitoring process, selection/training processes for monitors, company audit reports, or if there have be any de-certifications and how many. Since monitoring processes of Control Union are not publicly available, it is difficult to evaluate how thorough its monitoring process is.

Certification can be expensive, especially if Thai Alliance has to certify each cotton lot and annually renew certification accreditations. The economic costs from the risk of losing large contracts from de-certification gives Thai Alliance an incentive to cheat.

Lastly, there exists a risk of collusion in both the Thai Alliance-Control Union and Thai Alliance-Patagonia relationships. In the former case, because Control Union generates revenue from monitoring fees and Thai Alliance's reputation relies on certification, both monitor and monitoree have an incentive to collude. In the latter case, Patagonia and Thai Alliance have an incentive for colluding against the consumer in the interest of profit.

Transparency

Patagonia has implemented many different programs to increase the level of transparency in it products. Firstly, in order to track goods along the supply chain Patagonia partakes in OE's Online Tracking system. The system, for industry use

only, helps to easily track the purchase and use of documents of certified organic cotton of products along the supply chain efficiently and easily. This service is free to members, but non-member can purchase an account for $600/year. The intent is to provide retailers improved confidence that the garment has followed their organic standards. However, this program, also poses several unanswered questions. If the Online Tracking System is available to only OE members or by yearly fee account, this may discourage different groups along the supply chain to use this service. Lack of participation in this virtual data chain translates into lack of information the tracking service is able to provide. Each organisation is responsible for inputting their own data into the system. This opportunity leaves room for error and allows for organisations to cheat.

To provide traceability for its products, Patagonia's website offers "The Footprint Chronicles" that allow consumers to trace five representative Patagonia products and their environmental impacts from design through delivery. Patagonia supplies information that consumers can use to contact or further research and evaluate individual manufacturers and working and environmental conditions along Patagonia's supply chain.

A question of contemplation is: In the green apparel industry where standards validate production, why does Patagonia fail to discuss the certification standards it practices, its monitoring mechanisms, or information regarding third party-certifiers for organic production? Lack of this information in meeting specifications for organic regulations, gives little validity that organic processes are actually occurring.

Patagonia plans to launch a new program to increase transparency known as "Track and Trace" that allow consumers to trace the origin of a garment along the different stages of production. The system will supply information from fibre to fabric including: cotton farms that supplied fibre, cotton bale number, ginner processor, and knitting/weaving conversion processes at the factory level. Similar to Patagonia's other transparency programs, this tracking system in theory provides

great traceability and credibility for organic production but in practice does this tracking system give consumer a false sense of security that their organic products they buy are actually organic? There is in incentive from all levels of the supply chain to screen or provide inaccurate information that may be detrimental to their product.

Conclusion

Patagonia, as a pioneer in organic apparel has adopted many voluntary standards along its supply chain that offers a paper trail from fibre to fabric, however, because its monitoring and transparency mechanisms occur in a closed system this leave room for corruption and collusion.

Although there are several noteworthy criticisms of Patagonia's monitoring methodologies in its organic cotton line, it is important to remember that Patagonia has helped to pioneer and trail blaze the path for monitoring and transparency in the apparel industry. To provide more transparency and credibility to its products, a system needs to be created where industry pioneers who are producing organic products are not the same actors that are creating and monitoring these standards.

Learnings from the Success and Failure Stories

The success stories illustrate how sustainability and ecolabelling can be successfully integrated into the textile, handicrafts and handlooms sectors in India and other developing countries. Models that have worked in the past can easily be adapted and replicated across the world. The studies also show that a sustainable model is fairly easy to scale up once a working formula for that particular scenario is found.

Integrating sustainability and ecolabelling is beneficial for the entire supply chain - from producers, manufactures to the end consumer. It is a win- win, if properly implemented.

On the other hand, there is also a chance of the failure of sustainability or ecolabelling models. This can happen for a variety of reasons.

Sustainability can mean quite different things to different people in different industry sectors and geographies, and even to people working in the same field but on opposite sides of the fence. Labels such as Fairtrade claim that a product was produced in a socially and environmentally sustainable way. However, putting such labels on products – and trying to adhere to the principles and practices underlying standards to pursue sustainability – can deliver unintended negative consequences.

Certification of handicrafts under a single inflexible commodity standard is impossible due to the large number of product types (50,000+) and their dizzying array of source materials. With a list of requirements on their website, setters of standards try to clarify that producers can only have a certain label if they stick to the rules that come with it. There are several independent third party initiatives with varying degrees of credibility and complexity that give assurance on green, sustainable, organic, fair trade and other ethical product dimensions. Different aspects of sustainability in the supply chain are evaluated and diverse methodologies are used to map, evaluate and report these parameters - causing the certification picture to be fragmented and confused.

While rigidly compliance-oriented standards may be well-intended, they are often unrealistic and can actually be counterproductive and lead to overshooting the intended goals. This can happen because it is difficult to monitor and regulate all the social and environmental effects during production processes in foreign countries. Also, a direct interrelation of causes and wider consequences is not easy to tell. For example - a European certificate issuer might target the elimination of child abuse in order to protect a vulnerable group and mandate a ban on child labour. However, farmers in countries like Cameroon will react with bemusement: they often view the deployment of their children in a family enterprise as akin to routine domestic chores, and therefore not donot consider it child labour or abuse.

Ultimately, the setters of standards want these labels to mean more to companies than just a label with symbolic value that will attract certain customers, so that standard adopters are able to charge a premium price or obtain privileged access to niche markets. It cannot be assumed that producers who want to achieve certification will rightfully fulfil their set of responsibilities. Certification and establishing a new label in the market comes at a cost, and smaller commodity producers as well as craft producers often cannot afford it. Many of the larger fair trade retail chains on the other hand, essentially do their own fair trade due diligence - this lacks the credibility of an independent third party certification. Thus, producers might deliberately not live up to these internally or externally imposed standards, or simply not understand how to comply. Whatever the reason, this failure undermines the credibility and effectiveness of the labels themselves.

To successfully set and enforce a standard:

1. Standard setters should develop and enforce rules in a comprehensive way, considering in advance all direct and indirect consequences.
2. Each country or region may need its own niche set of rules, incentives and practices on top of a universal basis for all adopters.
3. The setters of standards should encourage intrinsic motivation—for instance, through regular training sessions—so that producers carrying a label have their motivations aligned with those of standard setters.
4. The third party certification and label seals are important in the Fair Trade movement in order to assure transparency.

It is also necessary to certify the Fair Trade Organisation itself that trades in fair trade crafts, that they have systems in place that verify that the crafts they buy and sell are indeed fair trade.

Conclusion

The trade-off between enforcing compliance and achieving the goals envisaged by standard creators is inherent and cannot be resolved. It can, however, be mitigated. One option is to foster a systemic mindset, in which adopters duly consider the direct and indirect relations between causes and consequences. While sustainability and other standards may seek to create clarity, full transparency is not feasible without overshooting goals. But standards can be much more effective when they duly consider wider effects, adopter motives, and regional differences.

Chapter VI:

Sustainability Reporting and the Highest Reporting Sectors

Chapter 6: Sustainability Reporting and the Highest Reporting Sectors

Introduction

Along with ecolabelling & certifications, the reporting & assessment of these standards plays very critical role in driving sustainability. This section shares in-depth information on sustainability reporting and development of the Higg Index, an assessment tool. This section also shares data on the sectors that have highest sustainable reporting in India, and data on the certification and reporting trends of organisations in the cotton / textile industry. Emerging models in the Handicraft industry and their efforts to take sustainable products to the larger audience are also highlighted.

Reporting Standards

1. Sustainable Apparel Coalition (SAC)

The Sustainable Apparel Coalition is the apparel, footwear and home textile industry's foremost alliance for sustainable production. Founded in 2011, it is a nonprofit organisation whose members include brands producing apparel or footwear, retailers, industry affiliates and trade associations, the U.S. Environmental Protection Agency, academic institutions and environmental nonprofits[86].

The Coalition's main focus is on building the Higg Index, a standardised supply chain measurement tool for all industry participants to understand the environmental, social, and labour impacts of making and selling their products and services. By measuring sustainability performance, the industry can address inefficiencies, resolve damaging practices, and achieve the environmental and social transparency that consumers are starting to demand[87]. The first version of the Higg Index was adapted from two previously existing sustainability measurement standards: the Nike Apparel

[86] https://en.wikipedia.org/wiki/Higg_Index

[87] http://apparelcoalition.org/the-coalition/

Environmental Design Tool and the Eco Index created by the Outdoor Industry Association, the European Outdoor Group and the Zero Waste Alliance[88].

The Higg Index 2.0, released in December 2013 as an update to Higg Index 1.0, is a set of indicator-based assessment tools that ask practice-based, qualitative questions to gauge environmental sustainability performance and drive behaviour for improvement across three modules: Facility, Brand, and Product[89]. Many textile organisations are members of SAC and use the Higg Index as assessment tool.

2. Sustainability Reporting

As defined by The Global Reporting Initiative (GRI), a sustainability report is a report published by a company or organisation about the economic, environmental and social impacts caused by its everyday activities. A sustainability report also presents the organisation's values and governance model, and demonstrates the link between its strategy and its commitment to a sustainable global economy. Sustainability reporting enables organisations to consider their impacts on wide range of sustainability issues, enabling them to be more transparent about the risks and opportunities they face. Sustainability reporting can be considered synonymous with other terms for non-financial reporting; triple bottom line reporting, corporate social responsibility (CSR) reporting, and more. It is also an intrinsic element of integrated reporting; a more recent development that combines the analysis of financial and non-financial performance[90].

Sustainability reporting is emerging as a common practice for businesses. Businesses are using these reports to reach out to the larger audience from investors, shareholders, suppliers, consumers and existing workforce and potential workforce.

[88] https://en.wikipedia.org/wiki/Higg_Index

[89] http://www.cognitoindia.com/sustainability/pdfs/Arvind-SR-2013-14.pdf

[90] https://www.globalreporting.org/information/sustainability-reporting/Pages/default.aspx

These data points could help companies build more innovative strategies for business. Such reports could also act as a differentiator and help mitigate environmental, social & economic risks.

Major providers of sustainability reporting frameworks are listed in the table below[91]

Major Sustainability Reporting Frameworks

1. GRI (GRI's Sustainability Reporting Standards)
2. The Organisation for Economic Co-operation and Development (OECD Guidelines for Multinational Enterprises)
3. The United Nations Global Compact (the Communication on Progress)
4. The International Organisation for Standardisation (ISO 26000, International Standard for social responsibility)

Box 6.1: Major Sustainability Reporting Frameworks

The Global Reporting Initiative

GRI's Sustainability Reporting Standards

Globally, across sectors, GRI's sustainability reporting standards are the most widely used standards for sustainability reporting and disclosures. GRI is an international independent organisation that helps businesses, governments and other organisations understand and communicate the impact of business on critical sustainability issues such as climate change, human rights, corruption and many others[92].

GRI was founded in Boston in 1997. Its roots lie in the US non-profit organisations the Coalition for Environmentally Responsible Economies (CERES) and the Tellus Institute. GRI launched the first version

[91] https://www.globalreporting.org/information/sustainability-reporting/Pages/default.aspx

[92] https://www.globalreporting.org/Information/about-gri/Pages/default.aspx

of the Guidelines, representing the first global framework for comprehensive sustainability reporting in 2000. Since then it has consistently evolved and in 2013, GRI released the fourth generation of its guidelines G4 - offering Reporting Principles, Standard Disclosures and an Implementation Manual for the preparation of sustainability reports by organisations of any size or sector. In October 2016, GRI launched the first global standards for sustainability reporting. Developed by the Global Sustainability Standards Board (GSSB), the GRI Standards enable all organisations to report publicly on their economic, environmental and social impacts – and show how they contribute towards sustainable development[93].

The GRI Sustainability Disclosure Database[94]

This is an extensive repository of sustainability reports and is populated in collaboration with GRI Data Partners - and includes reports that GRI is currently aware of. Some reports may be omitted, in particular those that are not published online. This database includes thousands of reports published from 1999 until present and is very easy to use. It is to be noted that approximately 35% of reports are not based on the GRI Guidelines or GRI Standards, but include sustainability disclosures, & hence, included in the database[95].

Highest Reporting Sectors

GRI has developed a UN SDG Target 12.6 live tracker[96]. This tracker helps track sustainability reports across sectors for the countries with national sustainability reporting policies. Data for each country can be obtained with a single click on the map. The data below is sourced from the tracker for India.

GRI in India[97]

Corporate governance standards in India are maturing. India's business and investment communities are beginning to recognise the benefits of

[93] https://www.globalreporting.org/information/about-gri/gri-history/Pages/GRI's%20history.aspx

[94] http://database.globalreporting.org/

[95] https://www.globalreporting.org/services/Communication/Sustainability_Disclosure_Database/Pages/default.aspx

[96] http://database.globalreporting.org/SDG-12-6/Global-Tracker

[97] http://database.globalreporting.org/SDG-12-6/Country-Tracker/IN

sustainability reporting and organisational transparency, focusing on issues such as pollution, energy, climate change, safety, and labour practices.

Ten years ago a small number of Indian businesses began reporting on their sustainability impacts and that number has increased steadily since then.

A Trend of the Number of Sustainability Reports Published in India over the years

2017: 2
2016: 139
2015: 98
1999 - 2017: 610

Top Reporting Sectors: Automotive, Financial Services, Conglomerates, Chemicals, Metal Products

Box 6.2: Sustainability Reporting Trends - India

Along the way there have been a number of notable developments: the Sustainable Development and Corporate Social Responsibility Guidelines for Central Public Sector Undertakings (CPSEs), National Voluntary Guidelines on Social, Environmental & Economic Responsibilities of Business, and the recent Securities and Exchange Board of India (SEBI) mandate that requires the 100 top listed companies to submit a Business Responsibility Report, which includes non-financial information.

GRI Globally

As stated in GRI Annual report (2015 - 16)[98], 9240 sustainability reports were added to the GRI Sustainability Disclosure Database, taking the total to 33828 reports by 30 June 2016. This is an increase of 144% on the number of total reports added in the previous reporting period.

Countries with the highest number of reports captured in the GRI Database in 2015 : Taiwan, USA & Brazil.

[98] https://www.globalreporting.org/resourcelibrary/GRI-AnnualReport2015-2016.pdf

Sectors with the highest number of reports captured in the GRI Database in 2015: Financial Services, Energy, Food & Produce.

The graph below explains the reporting of textile sector in comparison to the highest reporting sector for last three years. Organisations have shown better reporting in 2015, as compared to previous and next year. This could be due to the financial performance of the organisations. The time span of three years is very short to understand the factors influencing the reporting behaviour.

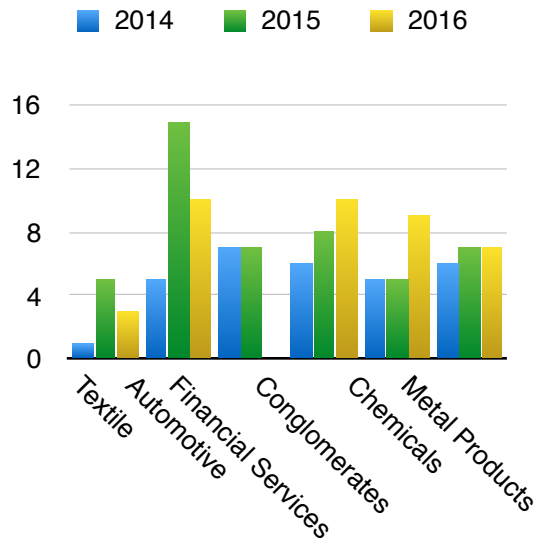

Figure 6.1: Textile Reporting Vs Highest reporting Sectors - three years (Source: GRI database)

Apart from these GRI reports, the PWC report[99] on 'Making your reporting more accessible and effective' (2014)
presents sectors dominating the BPTA for sustainability reporting - Real estate & Construction, Travel & Leisure,
Mining & Oil and gas, Retail & Consumer, Industrial Products, Business Services, Banking & Insurance, Infocomms and Utilities.

[99] https://www.pwc.co.uk/assets/pdf/sustainability-reporting-tips-for-private-sector-organisations.pdf

Certification and Reporting Trends in the Cotton & Textile Industry

The data from the Textile reporting graph shows the sustainability reporting trend in the Textile industry. The study of sustainability reports of organisations gives better insight into the standards and the reporting parameters used in the textile industry. To gain this understanding, ten organisations were selected for a deeper study *(Annex Q)* using the following three criteria:

- Organisations that have published GRI reports
- Organisations that are market trend setters
- Organisations that have published GRI reports and are members of the Sustainable Apparel coalition

The Movement Towards Sustainability

Big brands are embedding sustainability principles and are reporting on them. While doing so, they are creating an ecosystem for other stakeholders like SMEs, suppliers, producers, artisans to gradually embed sustainable practices in their processes too. As the textile industry is showing its alignment towards embedding sustainable practices and its disclosures, the handicraft industry too is showing its alignment towards sustainable practices through the adoption of new innovative models.

Emerging Models

Being an unorganised sector, the Indian Handicrafts sector has its own set of difficulties. It provides employment to millions of artisans who are working hard to save traditional art forms. As presented in a Handicraft Global (2017) article[100], some of the issues faced by the handicrafts sector are:

- Low productivity
- Lack appeal to younger generations
- High maintenance
- Time consuming processes
- Inadequate inputs
- Outdated methods
- Lack of consumer awareness

The government and the private sector have taken steps to support artisans but a lot is yet to be done. The changing market scenario is pushing the handicraft industry to develop new business models which can benefit companies and artisans while at the same time providing better service to the consumer. While these businesses are slowly building their brands, they ensure that they are embedding sustainable practices in their operations. These businesses can broadly be categorised into three distinct models:

1. Accessible brands built around the concept of sustainable and inclusive growth

Artisan handicraft is still the second largest source of employment in India with an estimated 200 million workers at the core of the handicraft industry

[100] http://www.handicraftglobal.com/indian-handicraft-rural-artisans-problems-challenges-faced-handicrafts-ecommerce-market-india/

(Crafts Council of India, 2011)[101]. Sustainable luxury retail brands believe that traditional handicrafts can be revived by giving them a contemporary feel, while retaining cultural heritage. In last two decades, various brands have collaborated with artisans to revive craft by providing timely information about market and consumers expectations. The biggest, most successful example is Fabindia.

A. Fabindia[102]

Overview

Established in 1960 by John Bissell, Fabindia is India's largest private platform for products that are made from traditional techniques, skills and hand-based processes. It started out exporting home furnishings, before stepping into domestic retail in 1976, when it opened its first retail store in Greater Kailash, New Delhi. It has over 250 stores across India and abroad[103]. Fabindia Overseas has crossed Rs 1,000-crore sales mark to become the largest retail apparel brand in the country, significantly ahead of nearest rivals Zara and Levi's India[104].

Model

Fabindia links over 55,000 craft based rural producers to modern urban markets, thereby creating a base for skilled, sustainable rural employment, and preserving India's traditional handicrafts in the process[105].

Product Range

Garments, accessories, home furnishings, personal products, organic food.

Certifications

Organic certification[106] for food products

2. Online Fashion

The Indian e-commerce platform holds huge potential for artisans to showcase their products to a wider audience in the domestic as well as international market. The entry of various e-

[101] http://source.ethicalfashionforum.com/digital/a-taste-for-sustainable-fashion-in-indi

[102] http://www.fabindia.com/

[103] https://en.wikipedia.org/wiki/Fabindia

[104] http://economictimes.indiatimes.com/industry/services/retail/fabindia-crosses-rs-1000-crore-in-sales-becomes-largest-retail-apparel-brand-in-the-country/articleshow/50632859.cms

[105] https://interiorsinfo.com/fabindia/About

[106] http://www.fabindia.com/pages/Organic-Certification/pgid-1124122.aspx

commerce players and synergy created with artisans is very interesting. The key players with successful models in this sector are Jaypore, CraftedIndia, Indian Roots, Craftsvilla, Engrave and many others[107]. Even e-commerce giants like Amazon and Flipkart now sell apparel and handicrafts. The Jaypore and Craftsvilla models have been explored further here:

A. Jaypore[108]

Overview

Founded in Feb' 2012, Jaypore E-Commerce Pvt Ltd, runs Jaypore.com, an e-commerce marketplace that sells Indian apparel, jewellery and home décor. In 2016, Jaypore raised Rs 30 crore in funding from social venture capital firm Aavishkaar. As per co-founder Chawla, for the financial year ending March 2017, the company is projecting GMV of Rs 100 crore, and is targeting to break even by fiscal 2018[109].

Model

Jaypore sources products directly from artisans across the country, as well as from co-operatives, self-help groups, established manufactures and exporters. It does not own the products, but gets them on consignment from artisans, and which are then stored in its central warehouse in Delhi.

Product Range

All lifestyle products except furniture, but including clothing, apparel, accessories, jewellery, personal care items, art and food.

B. Craftsvilla[110]

Overview

Founded in 2011, CraftsVilla is a privately-held online retailer of Indian handmade products. They are certified partner with the Textiles Ministry for e-marketing of handloom products. In Nov'15, Craftsvilla had raised $34

[107] http://www.thebetterindia.com/44806/artisans-india-products-handicrafts-revival/

[108] https://www.jaypore.com/about-us.php

[109] http://economictimes.indiatimes.com/industry/services/retail/online-retail-store-jaypore-raises-rs-30-crore-in-funding-from-aavishkaar/articleshow/51048195.cms

[110] http://www.craftsvilla.com/about-us-craftsvilla

million in Series C funding led by Sequoia India and Lightspeed Venture Partners, with participation from Nexus Venture Partners, Global Founders Capital and Apoletto[111].

Model

Craftsvilla.com uses an online marketplace model by aggregating artisans, designers and retailers from all over India onto a single platform and connects local artisans and designers directly to global customers. The model focuses on removing middlemen, increasing the livelihood of local artisans and designers, helping them create/promote their brand, and preserve the Indian culture, traditions and values[112].

Product Range

Handmade, Vintage, Ethnic, Organic and Natural products from India.

3. High End Sustainable Fashion & Lifestyle

The fashion industry relies on globalised mass production where design concept is transformed to shop ready garments in a matter of weeks, and made available to the consumer at very low costs. This leads to overconsumption, which comes with a hidden price tag on the environment and workers in the supply chain. Slow Fashion is a movement, that represents all things "eco", "ethical" and "green" in one unified movement. It was first coined by Kate Fletcher, from the Centre for Sustainable Fashion[113]. Many Indian designers are choosing to join the slow fashion movement and make fair practices, social responsibility, and environmental sustainability the core of their brand. Two such brands are highlighted here.

A. Grassroot by Anita Dongre[114]

Overview

Founded in 1995, House of Anita Dongre Limited (HOAD) *(formerly known as And Designs India Limited)* is one of India's leading fashion houses. In 2015 Grassroot brand launched by Anita Dongre is a sustainable luxury brand

[111] https://yourstory.com/2015/11/craftsvilla-funding/

[112] https://en.wikipedia.org/wiki/Craftsvilla

[113] https://slowfactory.com/blogs/news/9032951-the-slow-fashion-movement

[114] http://www.anitadongregrassroot.com/

born to revive, sustain and empower India's crafts and artisans.

Model

They believe in slow fashion, use environment-friendly techniques, work with NGO's such as SEWA Trade Facilitation Centre, Self Employed Women's Association in Lucknow and Trishul Foundation. None of their products consist of fur, leather, skin or products of animal origin[115].

Product Range

Dresses, Tunics, Gowns, Bags, Jewellery

B. Good Earth[116]

Overview

Founded in 1996 by Anita Lal, Good Earth is in the business of selling luxury lifestyle retail products and has various retail stores located all across India. It is registered as private limited company and had annual turnover of INR 150 Crore in last fiscal year. They are also working towards sustainability with less carbon footprint, reflecting current concerns[117].

Model

Good Earth work with craftspeople and designers. They use natural dyes, minimise the use of styrofoam and plastics in packaging, only use natural materials in their products — even the backing of a cushion will be silk — and they don't use polyester in anything at Good Earth[118].

Product Range

Home décor, furniture, apparel and other related goods.

C. Shift[119]

Overview

An alumnus of London College of Fashion, Designer Nimish Shah launched Shift in 2011. Shah graduated with a first class honours in Product Design and Development for Fashion Industries in 2007; bagging a scholarship from PAN UK for exploring use of organic cotton and "Fashioning the Future" award for materials innovation at The Centre for Sustainable Fashion summit in London.

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[115] http://www.jossbox.com/articles/4-indian-sustainable-fashion-labels-you-need-to-know

[116] https://www.goodearth.in/

[117] http://www.livemint.com/Leisure/VVbKzzMdEzNzpF3vlx6WGP/The-Good-Earth-journey.html

[118] http://www.huffingtonpost.com/marissa-bronfman/female-entrepreneur-india_b_1604400.html

[119] http://shift-india.com/

Shah's passion for garment care is evident in his laundry blog, which addresses impacts of suitability during consumption stage[120].

Model

Sustainable materials such as organic, fair trade, natural fibres are sourced for their creations. Fabric waste from their previous collections are hand quilted into quilts by an NGO that works on empowering rural Indian women. Khadi is sourced from government certified vendors. All printing is done by hand on old-fashioned wax beds that have inhouse effluent treatment plants and adhere to strict environmental and labour standards. Personal relationships are built with master craftsmen who operate their own small units, which weave, process and print our fabrics.

Product Range

Dresses, Outerwear, Bottoms, Tops

Conclusion

The Handicraft and textile market is impacted with the rising trend of eco-conscious consumer. Apart from the above mentioned designers, there are many others[121] who are joining this movement. Many designers are introducing innovative approaches to sustainable production and consumption. Mayank Saini, a budding artist creates beautiful wood work from wood retrieved from packaging used for shipping containers, in the spirit of reuse. Craft revivalist and textile conservationist, designer Madhu Jain has been instrumental in introducing bamboo fibre, an alternative textile, in 2004[122].

[120] http://shift-india.com/profile/

[121] https://www.trustedclothes.com/blog/2016/06/21/sustainable-fashion-designers-in-india/

[122] http://www.vervemagazine.in/fashion-and-beauty/sustainable-indian-fashion-slow-fashion

Chapter VII:

Popular Sustainable Labels and Market Consumption of these Labels

Chapter 7: Popular Sustainable Labels and Market Consumption of these Labels

Introduction

The increasing trend on ecolabel certifications and reporting in the Textile & Handicraft industry indicates a rising market demand. This section shares information on the popular ecolabels in the industry and then highlights the factors impacting the market consumption of these sustainable economic labels.

Popular EcoLabels in the Textile & Handicraft Industry

Indian textile & handicraft industry is guided by the export market. The big brands are ensuring their alignment with global sustainability targets by cleaning up their processes & streamlining their supply chains. The Indian label market is influenced by the big brands and hence, the list of global & Indian popular labels is the same. Seven popular labels have been selected for a more in -depth study *(Annex R)* using the following two criteria:

- Data studied from limited sample of reports available in the public forum
- List available on the web

ISO 14001, 50000 & SA 8000 are used across all the industries and hence, are not included the table.

The Sustainable Economic Labels Market

Over the last decade, consumption of goods and services has increased tremendously across the world, leading to rapid depletion of natural resources and severe damage to the environment (Chen & Chai, 2010). Some of the serious repercussions of environmental damage are global warming, increased environmental pollution, and decline in flora and fauna (Chen & Chai, 2010)[123]. There are various standards, certifications and ecolabels which help businesses make profits while taking into account labour, social and environmental conditions.

[123] http://www.sciencedirect.com/science/article/pii/S2306774815000034

Consumer behaviour has also seen a lot of changes in the last decade. Consumers are becoming more socially conscious about their buying patterns. 'The Sustainability Imperative' report released by The Nielsen Company (Oct 2015)[124] states that 66% of global consumers will pay extra for products and services from companies committed to positive social and environmental impact. This trend is on the rise, and is up from 55% in 2014 and 50% in 2013.

With this changing scenario, though ecolabels are voluntary, market dynamics are influencing their consumption. Currently, major fashion brands are putting efforts in the direction of embedding sustainability in their own processes as well as demanding sustainable practices from their vendors and suppliers. Sustainability comes with its own price and thus, businesses are slowly integrating it in their processes and operations, while managing the fine line between profitability and sustainability.

In the last few years, business have tried to be transparent about their sustainability goals and progress as well.

Since the EU is one of the major destinations for Indian textile and clothing products, a number of surveyed firms have complied with REACH – European community regulation on chemicals and their safe use. Besides REACH, the other environmental standards complied with by Indian T&C firms are ISO 14001, GOTS, Oeko-Tex, and Social Accountability (SA- 8000), among others[125].

The market consumption trend of labels can be understood by studying direct indicators of the use of labels, their impacts on costs and profits, consumer willingness to pay for a label, and geographies that demand such products. These are explained descriptively below.

[124] http://www.nielsen.com/content/dam/nielsenglobal/dk/docs/global-sustainability-report-oct-2015.pdf

[125] CUTS International: Environmental Standards & Trade A Study of Indian Textiles & Clothing Sector, 2013, pp xiv

Factors influencing Consumption / Promotion of Labels

The stakeholders playing important role in influencing the consumption of labels are business leaders, consumers, civil organisations and policy makers. The factors influencing the decision of sustainable consumption / promotion of these labels vary across regions and businesses:

- Desire to integrate best practices within the organisation supply chain to build processes that lead to sustainable business
- Desire to comply with standards to build positive brand and minimise supply risks
- Desire to meet rising consumer demand, where sustainability / ethical consumerism act as a competitive differentiating factor
- Knowledge & awareness of consumers about the label
- Ease of registration and integration of label standards in the business
- Pressure from civil organisations to improve practices that are threatening natural resources and fair labour practices
- Government policies incentivising the integration of ecolabels

Label Consumption Trends

The indicators of consumption can be understood by studying the following parameters;

- Area under coverage
- Production volume
- No. of certifying companies

The "State of Sustainable Markets: Statistics and Emerging Trends – 2015" (the first joint report between the International Trade Centre (ITC), the Research Institute of Organic Agriculture (FiBL), and the International Institute for Sustainable Development (IISD)) report shows growth in sustainability standard - compliant areas.

The report highlights that cotton produce certified by the Better Cotton Initiative quadrupled between 2011 and 2014. Furthermore, coffee certified by the 4C Association increased sixfold between 2008 and 2013. Forest areas certified by The Forest Stewardship

Council grew by 82% to 187 million hectares in 2014 and the Programme for the Endorsement of Forest Certification expanded by 21% to 263 million hectares in the same year. The report shares that BCI has the largest VSS-certified cotton area and experienced the largest growth (2008–2013)[126].

Ecolabel regulatory bodies are proclaiming the increase of eoclabel registration on their websites and in their annual reports. An in-depth research is needed for further clarity on numbers.

Profitability

The Nielsen Survey highlights the fact that CONSUMER Brands that demonstrate commitment to sustainability outperform those that don't[127]. The sales of consumer goods in 2014 from brands with a demonstrated commitment to sustainability have grown more than 4% globally* (*Across 1300+ brands in 13 categories in an average of 13 countries), while those without grew by less than 1%. This commitment is made visible through marketing initiatives - a product package very visibly indicates a connection to sustainability and displays the product certification/label. These marks or claims are Ecolabels / Sustainable Standards.

Sustainable consumer brands are brands that use wide range of business practices to demonstrate their commitment to sustainability - from supporting local communities to sustainable sourcing to recycling.

In March 2013 the Harvard Business Review published an article titled, 'Making Sustainability Profitable[128]' by Knut Haanaes, David Michael, Jeremy Jurgens, & Subramanian Rangan. This article stated that the Boston Consulting Group joined forces with the World Economic Forum in 2015 to identify companies with the most effective sustainability practices in the developing world. The study involved reviews of more than 1,000 companies

[126] International Trade Centre (ITC):The State of Sustainable Markets: Statistics and Emerging Trends 2015, pp 18, 35 - 38

[127] http://www.nielsen.com/in/en/press-room/2015/consumer-goods-brands-that-demonstrate-commitment-to-sustainability-outperform.html

[128] https://hbr.org/2013/03/making-sustainability-profitable

ranging in size from $25 million to $5 billion, from a wide array of markets and industry sectors, and included interviews with almost 200 executives. From the pool of companies studied, more than a dozen "champions" were identified - companies whose sustainability practices were highly effective, innovative, and scalable. These companies were located in countries across Latin America, Africa, the Middle East, Asia, and the South Pacific. Regardless of their geography, economy or motivation, these have consistently generated above-average growth rates and profit margins.

To ensure that their efforts pay off financially, these businesses broadly speaking, followed one or more of the following three approaches:

Collectively, these companies vividly demonstrate that trade-offs between economic development and environmentalism aren't necessary.

Rather, the pursuit of sustainability can be a powerful path to reinvention for all businesses facing limits on their resources and their customers' buying power.

Integrating Sustainability into Business

- High initial investment into more-expensive methods of sustainable operation that eventually lead to dramatically lower costs & higher yields
- Bootstrap approach to conservation - start with small changes to processes that generate substantial cost savings, which then fund advanced technologies that make production even more efficient
- Spread sustainability efforts to vendors and customers thereby creating competitive edge over others

Box 7.1: Integrating Sustainability into Business

Second to oil, fashion and textiles is the most polluting industry in the world[129]. Supply chains of some sections of fashion companies present greater risks to the environment than others. Raw materials like cotton and cashmere require huge amounts of electricity and water to produce, and are sourced in parts of the developing world that are particularly vulnerable to the early effects of climate change, such as increased flooding and droughts[130].

[129] https://www.businessoffashion.com/community/voices/discussions/can-fashion-industry-become-sustainable

[130] https://www.businessoffashion.com/articles/intelligence/what-the-cop21-climate-agreement-means-for-fashion

Traceability in supply chains can also give companies a clearer view of the knock-on effects of their operations — for example, the production of rayon and viscose has been linked to deforestation.

In the report on 'Environment Standards & Trade - A study Indian Textile & Clothing Sector' by CUTS International, the efforts were taken to determine the degree to which environmental and social labels function or can potentially function as a communicative tool in the European consumer market, as well as identify the costs and benefits associated with the use of such labels along the value chain of textile production and consumption in India and Europe.

Some of the major findings of this study were: Textile & clothing manufacturers are aware of environmental standards, but they lag behind in acquiring certification of environmental standards. The sector needs to acquire certification for greater penetration in the international market. Moreover, the results show that compliance with environmental standards positively impact the trade of Textile & clothing sector. This finding can be one of the principal guidelines to advance the optimal use of eco-labels, thereby enhancing environmental sustainability, consumer welfare in the global North, and producer profitability in the global South[131].

Theoretical analysis of the economics of ecolabeling is limited. Case studies indicate that though embedding sustainability comes with a price tag, in the long term businesses have found it to be cost effective[132].

Though it is observed that embedding sustainability in processes increases initial investment costs, profitability increases in the long run. In 2012, Levi Strauss & Co. committed to cut its greenhouse gas emissions by 25 %by 2020[133]. By 2014, the company had already done so by 20 percent. Sustainability can lead to profitability and this can be seen in case of Levi's.

[131] CUTS International: Environmental Standards & Trade A Study of Indian Textiles & Clothing Sector, 2013, pp xii

[132] https://hbr.org/2013/03/making-sustainability-profitable

[133] https://www.businessoffashion.com/articles/intelligence/what-the-cop21-climate-agreement-means-for-fashion

Box Case: Organic Cotton

Organic products were a luxury with little market to speak of when Ibrahim Abouleish founded Sekem, Egypt's first organic farm, in Cairo in 1977. The years Sekem spent honing sustainable cultivation practices paid off, though, in 1990, when it moved into growing organic cotton. Organic produce was entering mainstream Western stores then, and worldwide demand for all things organic began to surge.

There were other advantages to the organic approach as well: Sekem's farming techniques helped reclaim arable land from the Sahara, which had been spreading into the Nile delta. With them, the soil absorbed more carbon dioxide from the atmosphere, decreasing greenhouse gases, and cotton crops needed 20% to 40% less water.

In the bargain, organic techniques lowered the farm's costs, improved average yields by almost 30%, and produced a raw cotton that was more elastic than its conventionally grown counterpart. So, far from being an expensive indulgence, organic cotton offered Sekem a business model that was more sustainable—not just environmentally but financially. In recent years that model has generated healthy revenue growth: From 2006 until the disruptions of the Arab Spring in 2011, the business posted 14% annual increases, and Sekem is now one of Egypt's largest organic food producers.

Box 7.2: Box Case - Organic Cotton

Speaking at the recent GT Nexus Bridges supply chain conference in New York, Michael Kobori, Levi's pointed out that one of the biggest environmental impacts of producing jeans is water use. So Levi's recently came up with what they call WaterLess jeans. These jeans use up to 96% less water but surprisingly **cost five cents less to produce**. Levi's works closely with the IFC, the World Bank's lending arm that serves private companies in emerging regions. Suppliers are paid early – in just days – to prevent cash flow issues. So - instead of paying high and unregulated interest rates to local money lenders, suppliers are able to obtain capital from the International Finance Coroporation (IFC) at rates based on the financial strength of Levi's. A healthy supplier with access to cash to fill orders is likely to be more reliable,

responsible and cost effective as capital-related costs and risk are removed. Suppliers are scored on specific metrics related to working conditions, environmental responsibility and overall responsible production. Suppliers who score higher on their sustainability scorecards are rewarded with even better rates[134].

As per the survey conducted by The Nielsen Company, when it comes to sales intent, commitment to the environment has the power to sway product purchase for 45% of consumers surveyed. Commitment to either social value or the consumer's community are also important (each influencing 43% and 41% of respondents, respectively). Retail data backs up the importance of these influencers. In 2014, 65% of total sales measured globally were generated by brands whose marketing conveyed commitment to social and/or environmental value[135].

The use of organic cotton, natural dyes and manpower efforts increase the cost of sustainable products. While companies are working to embed sustainable practices, there is still concern about the costing of the product and markets willingness to pay that price.

Key Trends

- Over 20% consumers from the U.K. bought second-hand clothes for ethical reasons in 2015. The 'Buying for Re-use - Clothing' market neared £600 million
- Ethical Clothing retailers suffered a double-digit decline. Poor Fairtrade clothes sales dampened an otherwise strong performance in the Ethical Personal Products category
- Strong sales of organic clothes however offered a different story, with organic clothing sales recording a 16% growth in 2015. For the past two years' organic clothes have been out-selling Fairtrade and, in 2015, organic clothing outsold Fairtrade by 3:1.
- Ethical Cosmetics showed an eighth consecutive year of growth in 2015

Box 7.3: Key Consumer Trends

Consumer Profiles & the Willingness to Pay More

Consumer decision making concerning eco-labeled products involves considerations about the label as well as the product itself. The understanding of

[134] http://www.gtnexus.com/resources/blog-posts/levis-sustainable-supply-chain-improves-performance-and-profitability

[135] http://www.nielsen.com/in/en/press-room/2015/consumer-goods-brands-that-demonstrate-commitment-to-sustainability-outperform.html

the consumer with regard to eco-label is that it documents and communicates certain characteristics which make is of superior quality. This shift in consumer behaviour is observed with the rise in consumption of sustainable products. Surveys conducted by The Nielsen Company over the last 4 years (2012 to 2015) have shown the rising trend in willingness to pay for certified products. The response varies across age groups where millennials account for half of the respondents showing willingness to pay more for sustainable products, which is more than double the number of respondents in Generation X (age 35 - 49) and more than quadruple than the Baby Boomers (age 50-64)[136]. That being said, Baby Boomers have shown an increase of 7% (i.e. 51% total respondents) willingness to pay extra, compared to 2014. Among the 66% of respondents willing to pay more from 2014 report, over 50% of them are influenced by key sustainability factors such as:

- Product made from fresh, natural and/or organic ingredients (69%)
- Company is environmentally friendly (58%)
- Company known for its commitment to social value (56%)

The Nielsen survey breaks the common perception that only wealthy suburbanites in major markets are consumers of sustainable products. Consumers across regions, income levels, and categories are willing to pay more if doing so ensures they remain loyal to their values. The sustainability sentiment is particularly consistent across income levels. It was observed that individuals with an income of $20,000 or less are 5% more willing than those with incomes greater than $50,000 to pay more for products and services that come from companies who are committed to positive social and environmental impact (68% vs. 63%)[137].

According to the 'The Ethical Consumer Market Report,2016[138]', the survey conducted by Ethical Consumer

[136] http://www.nielsen.com/content/dam/nielsenglobal/jp/docs/report/2014/Nielsen%20Global%20Corporate%20Social%20Responsibility%20Report%20-%20June%202014.pdf

[137] http://www.nielsen.com/in/en/press-room/2015/consumer-goods-brands-that-demonstrate-commitment-to-sustainability-outperform.html

[138] http://www.ethicalconsumer.org/portals/0/downloads/ethical%20consumer%20markets%20report%202016.pdf pp18

Research Association, shows a growth of 10.2% in the ethical personal products market in 2015 in the U.K.

Though definitive data of consumer awareness on individual labels and eco-initiatives is not available, the above survey indicates a shift in attitude and willingness to be part of the sustainable movement. Lack of consumer awareness on the available labels are a constraint.

Geographies - Market Readiness

The 2012 Edelman Good Purpose report surveyed 8,000 consumers in 16 countries and found that 80% of Chinese respondents and 71% of Indian respondents are willing to pay a premium for brands with a social or environmental commitment, compared to just 28% in the U.K. and 40% globally saying they'd be happy to pay more[139]. Similarly, a survey conducted by Nielsen (2015) on consumer perception across 60 countries and varying age groups highlights that while sustainability factors influencing purchase decisions were consistent across regions, the overall rates of commitment were lower in North America and Europe than in the Middle East, Africa, Asia, and Latin America. Consumers in developing markets are often closer to and more aware of the needs in their surrounding communities as they are reminded daily of the challenges around them, which leads to a desire to give back and help others. This suggests a greater likelihood to seek out and pay more for sustainable products[140].

The Future of Ecolabels Based On Trends

The current adoption of and ecolabels is based on clarity & ease of registration for the label, impact on business profitability, consumer behaviour, and the role policymakers play in incentivising voluntary labels. A study conducted by GlobeScan[141] sheds light on five brand aspirations that outline the future of brands and define the identity, priorities and behaviours of the new generation of shoppers, workers, citizens and humans.

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139 http://source.ethicalfashionforum.com/article/shifting-mindsets-consumer-attitudes-towards-sustainability

140 http://richesses-immaterielles.com/wp-content/uploads/2015/10/9053_Global_Sustainability_Report_Site-Web-RRI.pdf

141 http://www.globescan.com/component/edocman/?view=document&id=211&Itemid=591

Impact of Paris Agreement on Sustainability & Ecolabels

World leaders are understand the threat posed by climate change and the need to come together to address the issue. India, the world's fourth-largest carbon emitter accounting for 4.1% of the total global emission, was the 62nd nation to ratify the Paris agreement on 2nd October 2016[142]. India agreed on the long-term goal of keeping the increase in global average temperature to well below 2°C above pre-industrial levels, by bringing down greenhouse gas emissions. The agreement also aims to limit the temperature increase to 1.5°C, since that would significantly reduce the risks and impacts of climate change. As a result, India plans to reduce its carbon emission intensity, i.e. the emission per unit of GDP, by 33-35% from what it was in 2005, by 2030. The aim is to produce 40% of the total electricity from sources other than fossil fuels. A carbon sink is a system that is capable of absorbing carbon dioxide (CO2) from the atmosphere. Currently, approximately 24% of India's geographical area is under forest and tree cover - this needs to be increased to 33 %.

It is interesting to note that the government sees the private sector playing a vital role to help deliver these targets[143] along with innovative approaches to energy finance. With the Paris Agreement on the horizon, businesses in all sectors have begun to realise the urgency and magnitude with which they must integrate corporate sustainability targets with long-term financial goals. In fact, the private sector's presence during negotiations and its significant commitments to combat climate change were key contributors to the success of COP 21. The current global and political scenario with the U.S.A.[144] pulling out of the Paris Agreement, and the U.K.[145] desperate to strike international trade deals at almost any cost in light of their trade position being massively weakened due to Brexit, it is vital that

[142] http://www.thebetterindia.com/70499/paris-agreement-india-united-nations-convention/

[143] https://yourstory.com/2016/05/businesses-india-climate-action-sustainable-development-goals/

[144] https://www.vox.com/energy-and-environment/2017/6/1/15725510/trump-pulls-us-out-of-paris-climate-deal

[145] http://www.politics.co.uk/comment-analysis/2016/10/28/brexit-and-corruption-can-a-uk-desperate-for-trade-stay-clea

the private sector starts taking sustainability even more seriously, and works to integrate corporate sustainability practices with core business strategy.

This is a strong indicator that companies that want to remain relevant in the future are either already practicing sustainability in some forms, or will start their sustainability journey by getting certified, aligning with industry sustainability standards and reporting progress to investors, shareholders and customers.

Brand Aspirations - The Future Of Brands

1 Abundance Without Waste (More Experiences, Fewer Resources)

Case study: Eileen Fisher

Fashion pioneer Eileen Fisher founded her eponymous brand 30 years ago based on the design principles of simplicity, quality, versatility and durability. With exquisite fabrics, timeless cuts and endless combinations, the brand is challenging the very notion of fast fashion. The company's take-back program, *Green Eileen*, reduces waste and expands access to Eileen Fisher's signature

2 Truly As You Are (Welcoming Imperfection As Honest & Beautiful)

Case Study: Earthbound Farm

Earthbound Farm knows that food tastes better when consumers know what's in it, how it's cultivated and who grows it. The brand's commitment to transparency is embedded in every product with tracking technology that traces the entire life-cycle from seed to plate. By honouring its customers with authentic, honest food, the brand is inspiring trust that their purchases positively impact consumers, communities, employees, farmers and the planet.

3 Get Closer (Connecting With The People Behind The Brand Promise)

Case Study: Etsy

Guided by a vision of bringing humanity to commerce, Etsy is a global marketplace of makers and buyers where entrepreneurs can find meaningful work and thoughtful consumers can discover and build relationships with the people behind the products they buy. The platform has brought together 1.5 million sellers, 21.7 million active buyers and more than 32 million items for sale grossing $1.93 billion in 2014 alone.

4 All Of It (Experiencing Freedom Beyond Binaries & Finish Lines)

Case Study: Ekocycle

Ekocycle is a joint effort between will.i.am, an iconic pop star and The Coca-Cola Company to inspire new things made in part by recycled materials. By doing so, the brand frees style-savvy shoppers from trade-offs between style and sustainability. Ekocycle empowers consumers to truly have all of it, be all of it and do all of it with zero waste and unlimited style

5 Do some good (Agency & Impact In The Everyday)

Case study: Target

Made to Matter, Handpicked by Target is a curated collection of better-for-you products and includes brands like Annie's, Plum Organics, Method, Stonyfield and Seventh Generation. To be selected for the collection, brands have to support all three pillars of the Made to Matter program—foster unique collaborative partnerships, develop exclusive innovations and be committed to social responsibility. The collection is projected to see sales hit $1 billion in 2015.

Figure 7.1: Brand Aspirations - The Future Of Brands

Key Study Observations & Discussion Points

Observations:

1. Sustainable Development is the key to integrate human life, ecology and technology and reduce ecological stress. A significant step in that direction came from the Paris Agreement in 2015. As of June 2017, 195 UNFCCC members have signed the agreement, 148 of which have ratified it. (The U.S.A. has pulled out in 2017, under the Trump administration). The Paris Agreement's central aim is to strengthen global response to the threat of climate change by keeping the global temperature rise in this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.
2. India has ratified Paris Agreement and has agreed to the goal of keeping the global temperature rise below 2 degree Celsius. The government understands that this commitment cannot be achieved without the support of the private sector. This could translate into policy updates at the regulatory level to run businesses more responsibly & sustainably.
3. The 12th Five-Year plan of the Indian government ends in 2017, therefore, the time is ripe to discuss the future and sustainability of the MSME and especially the handloom and handicraft sector for the 13th Five-Year plan.
4. Innovative business models supported by Ecolabels like Fairtrade, Organic, etc. have benefitted marginalised communities as well as businesses and learnings from past experiences can help build more success stories for larger impact.
5. For Ecolabels, certifications, and standards to reach their objective, it is important that they evolve to meet regional needs of all the stakeholders, and have a transparent certification process.
6. India's Ecolabel - Ecomark - has failed to market itself to the industry, consumers, and beneficiaries. From the myriad of reasons for its failure, the most critical one was the political will to drive the initiative.

7. GRI is a widely used reporting standard. There has been a 29% increase in sustainable reporting in 2016 from 2015. Indian companies are realising the benefits & competitive edge reporting offers.
8. Organic cotton consumption has seen a significant increase. Global retail giants are increasing the percentage of responsible sourcing and plan to reach 100% responsible sourcing in the near future.
9. As the big brands are trying to clean their supply chains, they are driving systemic change in their ecosystems. Literature review highlights that many suppliers from India are getting certifications like BCI, Organic Cotton, FairTrade, etc., as this leads to more business in the export market.
10. The market is ready for handicraft products like never before. The digital platform has opened up new avenues for growth in domestic as well as international markets.
11. In the handicraft industry, various businesses with innovative sustainable practices are emerging with newer models creating synergy between artisans & businesses. The information on these models is available in the open forum. At the same time, the information on standards followed by these businesses is not clear.
12. It is observed that big brands like Nike, Levi's etc. are focussing on green product & process development. They are also sharing their learnings with others in the industry as they understand the importance of collaboration to create large scale positive ecological impact.
13. The data from consumer surveys highlights that awareness on eco certifications and standards is considerably low at the consumer level. For sustainable products to reach their full market potential, there is a clear need to differentiate between certified products and green-washed products.
14. The fashion industry is going through dynamic change and is beginning to understand that sustainability not only offers a competitive edge in the market but also the ability to conduct business responsibly, without harming the environment & people.

15. Millennials' willingness to pay higher prices for sustainable products & brands with 'Do Good' mottos predicts the future trend of the market.

Discussion Points

This study explores the factors that could enable the creation of a framework for the preservation and enhancement of sustainable techniques of handicrafts production and consumption. Desk review of data reveals the availability of voluntary standards, ecolabels and certifications in the Textile & Handicraft sector and the ones which are used prominently by the industry in the domestic and international market.

Literature review has explored the presence of innovative collaborations in the market, leading to successful business models contributing to sustainable fashion. These collaborations seem to be benefitting artisans, the environment and businesses. These models warrant in-depth study to understand the finer aspects of each model, especially if scalability is being considered.

Data review of survey reports indicates the lack of consumer awareness on ecolabels. This study observes that ecolabel certifying bodies / standard setters could collaborate with trade associations to create awareness at the consumer level. This will help certifying bodies, standards setters and trade associations achieve their objective of empowering their beneficiaries.

The research is limited to desk review and can definitely be enriched by primary research data.

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List of Abbreviations

Abbreviation	Description
10FYP	10 Year Framework of Programmes
AAUs	Assigned amount units
AIACA	All India Artisans and Craft Workers Welfare Association (AIACA)
AIHHB	All India Handlooms and Handicrafts Board
AOFG	Agriculture and Organic Farmer's Group
APEDA	Agriculture and Processed Food Products Export Development Authority
BCI	Better Cotton Initiative
BIS	Bureau of Indian Standards
BMP	Best Management Practices
BPTA	The Building Public Trust Awards
CAST	China Association for Science and Technology
CBA10	IIED
CBDR	Principle of Common But Differentiated Responsibilities
CCC	Common Compliance Code
CCOF	California Certified Organic Farmers
CDM	Clean Development Mechanism
CDM EB	Clean Development Mechanism Executive Board
CER	Certified Emission Reduction
CERES	Coalition for Environmentally Responsible Economies
CETPMO	Common Effluent Treatment Plant with Marine Outfall
CFCs	Chlorofluorocarbons
CHCDS	Comprehensive handloom cluster development scheme
CmiA	Cotton Made In Africa
COP21	Conference of Parties 21

CPCB	Central Pollution Control Board
CPSE	Central Public Sector Undertakings
CSR	Corporate Social Responsibility
DCF	Development Cooperation Forum
DSDS	Delhi Sustainable Development Summit
DoCA	Department of Consumer Affairs
DOE	Department of Environment
ECBC	Energy Conservation Building Code
ECOSOC	United Nations Economic and Social Council
EEAT	Environmental Education Awareness and Training
EMAS	European Eco Management And Audit Scheme
EMS	Ecomark Scheme
ERU	Emission Reduction Unit
ESCerts	Energy Saving Certificates
EU	European Union
FiBL	Forschungsinstitut für biologischen Landbau - Research Institute of Organic Agriculture
FLO	Fairtrade Labelling Organization
FSC	Forest Stewardship Council
GDP	Gross Domestic Product
GHG	Green House Gas
GOTS	Global Organic Textile Standard
GRI	Global Reporting Initiative
GIC	Green Industry Conference
GRIHA	Green Rating for Integrated Habitat Assessment
GSSB	Global Sustainability Standards Board
GW	Giga Watt
HFCs	Hydrofluorocarbons
HOAD	House of Anita Dongre Limited

ICCCAD	International Centre for Climate Change & Development
ICS	Internal control system
ICT	Information and Communication Technology
ICUE	International Conference and Utility Exhibition
IEEE	Institute of Electrical and Electronics Engineers
IFAT	International Fair Trade Association
IIED	International Institute for Environment & Development
IISD	International Institute for Sustainable Development
INDCs	Internationally Determined Contributions
IPCC	Intergovernmental Panel for Climate Change
IRDR	Integrated Research on Disaster Risk
ISAM	Integrated Scheme for Agricultural Marketing
ISEAL	International Social and Environmental Accreditation and Labelling Alliance
ISO	International Standards Organization
ITC	International Trade Centre
JI	Joint Implementation
JNNSM	Jawaharlal Nehru National Solar Mission
KVIC	Khadi and Village Industries Commission
LCA	Life Cycle Assessment
LCES	Low Carbon Earth Summit
LCI	Life Cycle Inventory
LEED	Leadership in Energy and Environmental Design
MDG	Millennium Development Goal
MINAS	Minimal National Standards
MNC	Multi National Corporation
MOEF	Ministry of Environment and Forests
MOEF&CC	Ministry of Environment, Forests and Climate Change

MSI	Materials Sustainability Index
MSME	Micro, Small and Medium Enterprises
MW	Mega Watt
NABARD	National Bank for Agriculture and Rural Development
NCEPC	National Committee on Environmental Planning and Coordination
NDC	Nationally Determined Contributions
NEAC	National Environmental Awareness Campaign
NGO	Non-Governmental Organizations
NIDA	NABARD Infrastructure Development Assistance
NMEEE	National Mission on Enhanced Energy Efficiency
NMSH	National Mission on Sustainable Habitat
NPO	National Project Office
NS	Nederlandse Spoorwegen
OAP	Other Awareness Programme
OCS	Organic Cotton Standard
OCS	Organic Content Standard
OE	The Organic Exchange
OECD	Organisation for Economic Co-operation and Development
OHS	Occupational Health and Safety
PAT	Perform Achieve and Trade
PFCs	Perfluorocarbons
PHT	Post-Harvest Technology
PM	Prime Minister
PM	Particulate Matter
PPM	Process and Production Methods
RBF	Responsible Business Forum
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals

SA	Social Accountability Standards
SAC	Sustainable Apparel Coalition
SCP	Sustainable Consumption and Production
SDG	Sustainable Development Goal
SEBI	Securities and Exchange Board of India
SEWA	Self Employed Women's Association
SITP	The Scheme for Integrated Textiles Park
SME	Small and Medium Enterprise
SPCB	State Pollution Control Boards
STI	Scheme of testing and Inspection
SWES	Small Wind Energy and Hybrid Systems
tCO2e	Tonnes of Carbon dioxide equivalent
TERI	The Energy Research Institute
TPD	Tonnes Per Day
TUFS	Technology Upgradation Fund Scheme
UN	United Nations
UNCED	United nations Conference on Environment and Development
UNCHE	United Nations Conference on Human Environment
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
UNIDO	United Nations Industrial Development Organization
USDA	United States Department of Agriculture
VSS	Voluntary Sustainability Standard
WBCSD	World Business Council for Sustainable Development
WCED	World Commission on Environment and Development

WCESD	World Conference on Education for Sustainable Development
WFTO	World Fair Trade Organization
WHO	World Health Organization
WGES	World Green Economy Summit
WRI	World Resources Institute

Annexures

Annexure A - Human Impact on Environment

The Lithosphere

The lithosphere and pedosphere have undergone major changes in terms of concentration of pollutants. With the booming of urban ecosystems, the soil chemistry has been altered. With increasing use of chemical fertilisers, which have become land and water pollutants with overuse. The chemical industries of the twentieth century played a crucial role in the manufacture of soil nutrients but they also contributed to soil contamination. As a rule, soil pollution developed wherever chemical and metallurgical plants developed. One major source of soil pollution was the mining, smelting, refining, and use of metals such as lead, cadmium, mercury, and zinc.

After 1970, forests and agricultural lands around the world showed accumulation of heavy metal concentrations, although health damages existed only in a few industrial districts. Industrialisation generated all manner of toxic wastes besides metals. Roughly 10 million chemical compounds have been synthesised since 1900[146]. A large proportion of toxic wastes ended up in landfills (50 – 70 %). Smaller amounts, generally in urban areas and in enclaves of industrial plants went directly into soils, dumped legally or otherwise along roadsides, in parks, and on private land.

The Atmosphere

The atmosphere is a thin gaseous envelope surrounding the earth and is composed of oxygen, nitrogen and trace gases like carbon dioxide, ozone and sulphur dioxide. Additionally, even methane, and chlorofluorocarbons (CFCs) are present. Fossil fuel burning, metal smelting, and waste incineration released thousands of tons of

[146] http://www.pg.gda.pl/chem/CEEAM/Dokumenty/Simeonov/environ_hist_Simeonov.pdf

potentially toxic gases into the air. Human health also suffered from lead emissions from vehicle exhausts.

Use of wood and coal as domestic fuel gave rise to particulate matter in the air and its associated health problems. The spread of coal-fired industry in developed and developing nations led to saturation of smoke, soot, and sulphur dioxide in the atmosphere. The second major force in air pollution in the last century was the increasing use of automobiles. Tailpipes emitted various pollutants, including some that reacted with sunlight to create smog, other which added to acid rain, and after 1921, lead. The main pollutants responsible for regional-level air pollution – sulphur dioxide, particulates, and nitrogen oxides – remain in suspended state longer enough to spread with the wind. Regional air pollution became critical where heavy industry enjoyed greater political support, coal was the cheapest fuel, and where large-scale smelting took place. Sometimes regional pollution extended across international borders. The major concern in transboundary air pollution was acid rain, derived from sulphur and nitrogen oxides, which last long enough in the atmosphere to travel thousands of kilometres across the world depending on the wind patterns. Acid rain destroyed local vegetation and corroded statues and other monuments. Acid rain also severely affected aquatic life in the water bodies. Sulphur emissions damaged trees, acid rain and ozone – whole forests. Acid rain unambiguously affected aquatic life.

The climate is governed by many factors, among the most important ones is the atmospheric composition. Greenhouse gases (carbon dioxide, methane, and ozone) in the right proportion are essential as they help keep the earth warm and enable to sustain life[147]. Since the Industrial revolution the concentration of greenhouse gases has increased exponentially primarily due to anthropogenic activities like combustion of fossil fuels, deforestation, animal husbandry (Dairy, Poultry, Agriculture), decomposition of wastes, mining, etc. A significant increase in these gases means the atmosphere traps more heat and allows a lesser quantity of heat to

[147] http://ftp.zew.de/pub/zew-docs/dp/dp0361.pdf

escape to space. This leads to increase in the average annual temperature of Earth's surface also known as global warming. Currently Earth is witnessing an unstable climate, increase in droughts, floods, extreme weather events, spread of tropical diseases, extinction of species, crop failure due to extreme climate etc[148].

Stratospheric ozone depletion is another environmental problem manly due to the Chloro-fluoro carbons used in refrigerants, spray propellants and solvents. In the stratosphere oxygen and sunlight react to form ozone which firm a protective layer that absorbs harmful UV radiation from the sun. Excessive emission of CFC's depletes this ozone layer in the stratosphere and can cause a variety of skin cancers.

It is evident that air pollution is primarily caused by Industrialisation and advancements in transport , however air pollution can be controlled if pollutants are controlled at the source.

The Hydrosphere

Earth is a water planet, although water resources are abundant, the pollution of this resource is a matter of great concern. International politics have always focused on controlling water resources and that brings into perspective the importance of this resource. Untreated wastewater, from Industries, residential places, agricultural run-off are some of the major sources of pollution. Similarly Earth is witnessing large scale marine pollution due to shipping, industrial waste water dumping and other anthropogenic activities[149].

The main pollutants are much the same as elsewhere around the aquatic world – microbes, synthetic organic compounds (DDT or PCBs), oil, litter, and excess nutrients topped the list, with heavy metals and radionuclides less important. The main sources are cities, big rivers, and a few coastal industrial enclaves. Heavy metal

[148] https://climate.nasa.gov/evidence/

[149] http://www.pg.gda.pl/chem/CEEAM/Dokumenty/Simeonov/environ_hist_Simeonov.pdf

contamination from industries have rendered waterbodies unable to sustain aquatic life[150].

The Minamata episode caused due to contamination of water by mercury is perhaps the most disastrous event in history of water pollution. Similarly, various waterborne diseases have wiped out aquatic life and affected human health adversely.

The Biosphere

After the World Wars, agriculture underwent a major transformation with introduction of mechanisation and the Green Revolution. It became more energy and resource intensive. Simpler systems were replaced with more complex systems like usage of pesticides, chemical fertilisers, genetically improved varieties, seed banks and irrigation etc. Modern agriculture helped shape the new regime in human-microbial relations. Not all of these complex systems proved positive from the environmental point of view.

The rapid developmental pace of twentieth century economic activity like long-distance import and exports especially, linked ecological systems more systematically than ever before, and with far reaching biological consequences. Deforestation, intensive cropping, timber trade, led to decline in soil quality. Expansion of croplands, transport routes (rail and road), led to deforestation in majority of the developed countries. Infrastructure like dams, bridges and tunnels further led to extensive loss of forest areas.

The Anthropogenic Factor

Anthropogenic activity is an important factor and has been politicised over the years. Rapid population growth especially in Asia, Africa and Latin America after 1950 has been a cause for great concern. Researchers have clearly established a relation between population growth and increase in air pollutants.[151]

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[150] http://www.pg.gda.pl/chem/CEEAM/Dokumenty/Simeonov/environ_hist_Simeonov.pdf

[151] http://www.pg.gda.pl/chem/CEEAM/Dokumenty/Simeonov/environ_hist_Simeonov.pdf

From 1890 to 1990, global population increased by a factor of 3.5, while carbon dioxide emissions, climbed more than 17- times[152]. In a similar time span emissions of sulphur dioxide, a major component of acid rain, increased about 13-times. It is evident that population growth was a significant driving force. Further, population growth triggered additional levels of air and water pollution even when Industrialisation was rampant and the society did not pay attention to environmental issues.

Furthermore, rapid urbanisation generated severe pollution stress like the never ending problem of Waste management. With a growing burden of ecological footprints, the environmental stress levels attributed to the cities has reached a pandemic level. Growing cities with a booming population require food, clothing, shelter to keep its residents satisfied. Thus timber, cement, brick, food, and fuel are additional factors that impact the environment adversely. Population growth and rapid urbanisation has changed the very nature of the economy, energy usage and technology. All these factors are interlinked and if analysed scientifically can help us understand how the environmental history has played out since the end of the World Wars.

As has been observed, since beginning of agriculture and industrialisation, human history has seen many unsustainable societies, several of which have vanished even though some continue to survive albeit in an unsustainable manner.

The enormity of ecological stress in the 20th century strongly suggest that humans, ecology, and technology, have an interdependent relationship and need to integrate and coexist with one another. If and when they do, then we will have a better idea of the present and also our possible future. Sustainable development is the key to integrating all these three factors.

[152] http://www.pg.gda.pl/chem/CEEAM/Dokumenty/Simeonov/environ_hist_Simeonov.pdf

Industrial Pollution

While some smaller initiatives are driven, the data on industrial pollution shows the need to enhance the efforts to save planet. This section highlights the top polluting nations in the world and top polluting industrial sectors in India.

Most Polluted Nations Globally

The World Health organisation (WHO) tracks air quality at 1,622 locations in 92 countries. Only urban areas are currently being tracked by WHO. Findings from the study reveal that Pakistan, Egypt and Mongolia are the top polluted countries, however this only refers to pollution in its cities. Air quality in the Karakoram mountain range or the Gobi Desert will, of course, be pristine. Similarly, Russia appears to be among the worst performing countries - but its ranking is based only on air quality in Moscow[153].

Results rank countries according to the average concentration of PM 2.5 particles in its cities, with figures weighted according to the population of each city. So, if a country's largest city has good air quality, but a handful of small cities have bad air quality, it will perform better overall.

Pakistan's urban areas are, on average, the world's most polluted, followed by Qatar and Afghanistan. Europe's most polluted cities are found in Turkey, Bulgaria and Serbia.

Of the 92 countries to feature, Australia has the least polluted urban areas, followed by Brunei and New Zealand. Estonia is Europe's top performing nation, followed by Finland and Iceland. The UK just misses out on the top 20, coming 21st.

[153] http://www.telegraph.co.uk/travel/maps-and-graphics/most-polluted-countries/

The most polluted Countries are as follows –

Ranking	Name of the Country	PM 2.5 concentrations
1	Pakistan	115.7
2	Qatar	92.4
3	Afghanistan	86
4	Bangladesh	83.3
5	Egypt	73
6	UAE	64
7	Mongolia	61.8
8	India	60.6
9	Bahrain	56.1
10	Nepal	50

Table A.1. Most Polluted Countries

GHG Emissions Data[154]

Absolute Emissions[155]

The chart defines the top 10 emitters based on their total annual emissions, also known as "absolute emissions." The absolute amount of GHGs emitted is what ultimately affects atmospheric concentrations of GHGs and the global carbon budget.

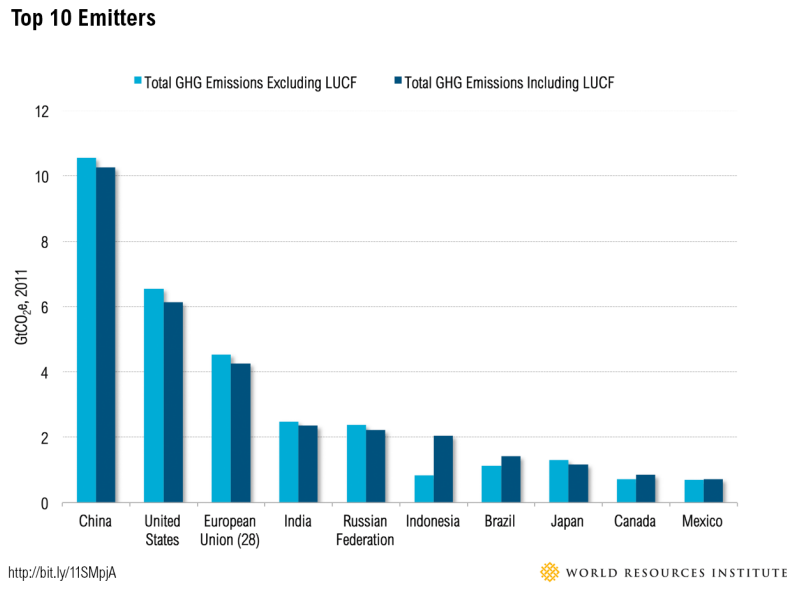

Figure A.1: Top 10 Emitters

[154] http://www.wri.org/blog/2014/11/6-graphs-explain-world%E2%80%99s-top-10-emitters

[155] http://www.wri.org/blog/2014/11/6-graphs-explain-world%E2%80%99s-top-10-emitters

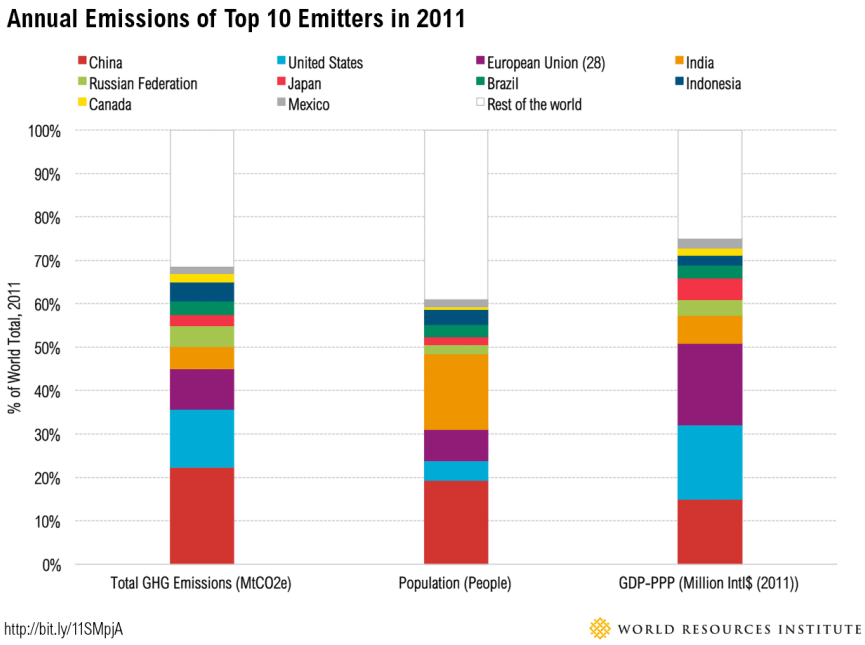

Figure A.2: Annual Emissions of Top 10 Emitters (2011)

Per Capita Emissions

Emissions on a per capita basis bring contributions to climate change down to an individual level. Looking at this metric, the order of our top 10 emitters changes considerably.

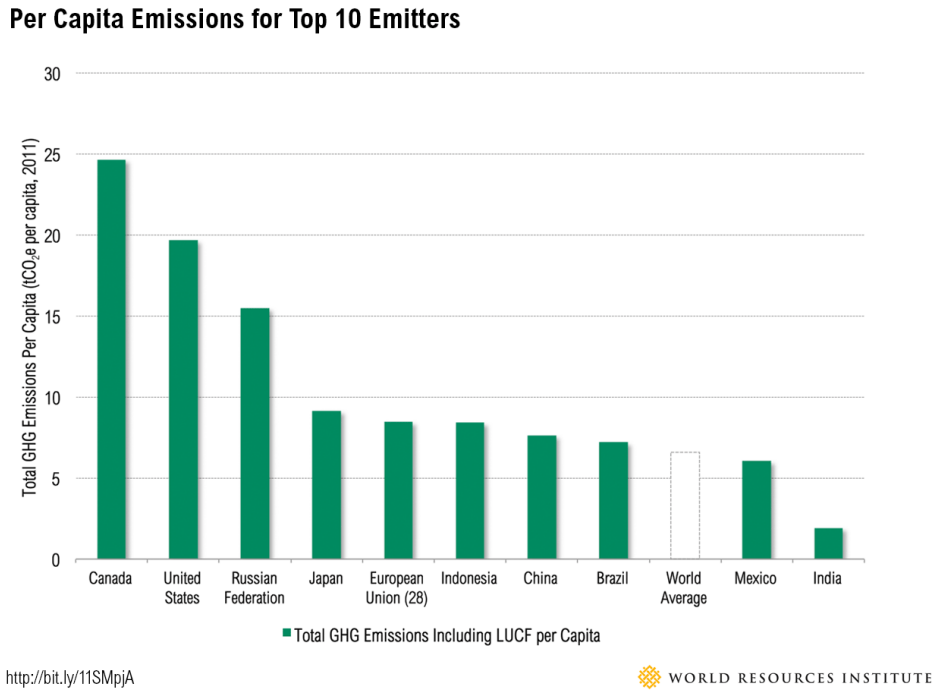

Figure A.3: Per Capita Emissions for Top 10 Emitters

Emissions Intensity

The level of GHG emissions per GDP is a commonly used metric of emissions intensity. It is useful when looking at the de-carbonisation of the national economy or energy system.

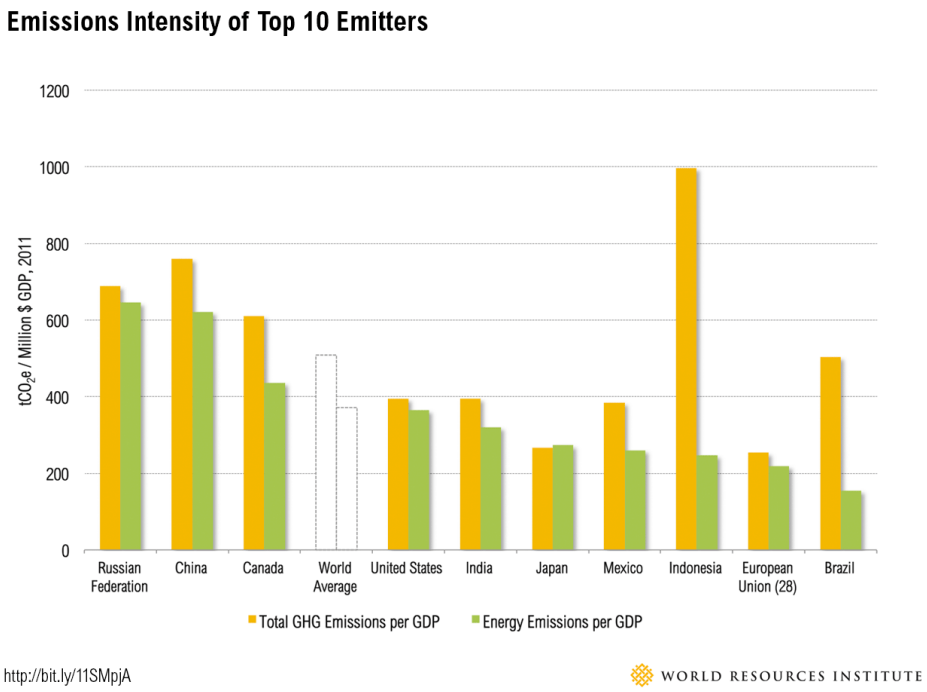

Figure A.4: Emissions Intensity of Top 10 Emitters

Cumulative Emissions

Cumulative emissions describe a country's total historic emissions. They are a commonly used concept for understanding responsibility for climate change, since they are a proxy for the amount of current warming caused by specific countries. This measurement can vary significantly depending on the chosen start date and the inclusion of gases and sectors.

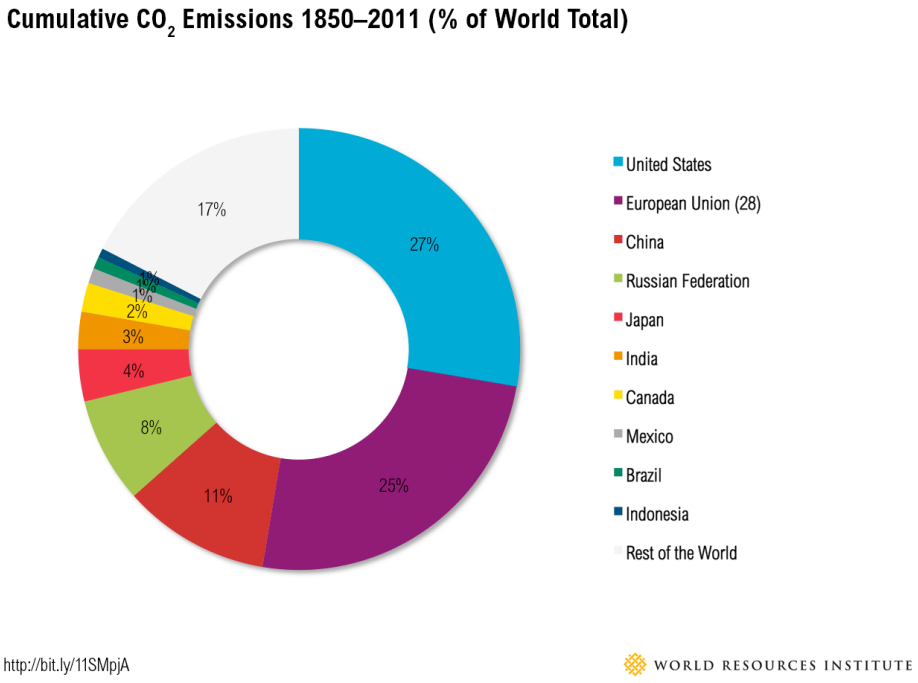

Figure A.5: Cumulative CO2 Emissions (1850 - 2011)

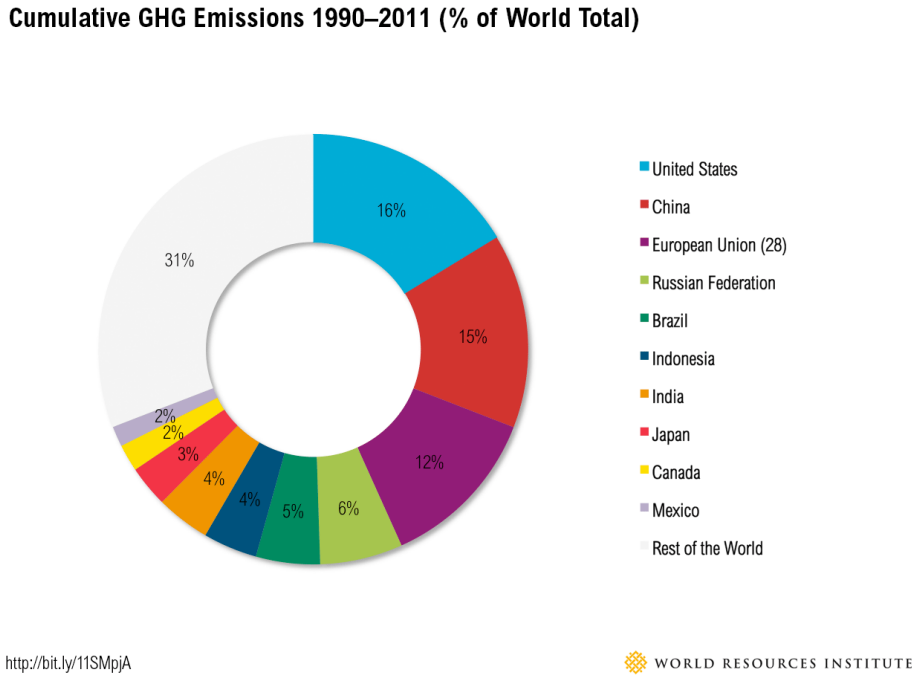

Figure A.6: Cumulative GHG Emissions (1990 - 2011)

The largest emitters contribute a majority of global emissions. The top 10 emitters contribute 72 %of global greenhouse gas emissions (excluding land use change and forestry). On the other hand, the lowest 100 emitters contribute less than 3 percent.

The energy sector is the dominant source of greenhouse gas emissions. The energy sector contributes more than 75% of global GHG emissions.

Emissions sources vary by country. While the energy sector dominates, industrial emissions in China contribute more than 3 %of global emissions and new data from the UN Food and Agriculture Organisation (FAO) indicate that agriculture contributes a notable share of Brazil's and Australia's emissions.

Six of the top 10 emitters are developing countries. According to the data, China contributes approximately 25 %of global emissions, making it the top emitter. India, Indonesia, Brazil, Mexico and Iran are also contributing relatively large shares of global emissions as their economies grow. Although developed countries used to dominate the list of top 10 emitters, the visual represents the changing emissions (and geopolitical) landscape. It is important, however, to consider a range of indicators that help differentiate the responsibility and capability of countries to act.

Top Polluting Industrial Sectors in India

The Central Pollution Control Board (CPCB) in India formulates national programmes for prevention and control of pollution. These include nationwide monitoring network, laying down national standards for ambient water and air quality, source-specific Minimal National Standards (MINAS) for effluents and emissions, and action plans for critically polluted areas and highly polluting categories of industries. For a nation-wide drive to control industrial pollution, the Central Pollution Control Board enlisted 18 categories[156] of highly polluting industries and grossly polluting industries discharging their effluents into the rivers and lakes.

[156] http://cpcbenvis.nic.in/cpcb_newsletter/Polluting%20Industries.pdf

The Government of India has been increasingly concerned about the control of environmental pollution specially due to industrial activities. This is evident from the pollution control legislation enacted by the Parliament and follow-up programmes for their implementation. These programmes involve three different approaches, namely, (i) tackling of the pollutants; (ii) tackling of the polluted areas; and (iii) tackling of the polluting sources. Direct control of the pollutants includes the reduction of lead content in motor spirit, controlling mercury pollution from caustic soda industries, improved house-keeping for controlling discharge of heavy metals, like chromium and nickel, in electroplating industries etc. Controlling polluted areas necessitates an integrated approach towards environmental management through control at source, which in turn involves concerted efforts in evolving time-targeted action plans, and their implementation through various agencies concerned. The third approach involves securing compliance with the effluent/emission standards prescribed in respect of the polluting industries. The Central Board has been actively involved in developing the sector-wise standards at national level, for effluents and emissions from different polluting industrial sectors, and formulating nation-wide programmes for their effective implementation. The State Pollution Control Boards (SPCBs) have been persuading the industries since the enactment of the Water & Air Acts and rules thereof to make them comply with the standards. In addition to this, National level programmes for control of discharges/emissions from polluting industries have also been taken up.

Central Pollution Control Board (CPCB) has selected the following 18 categories of major polluting industries in India for priority action:

1. Aluminum smelting
2. Basic Drugs & Pharmaceuticals Manufacturing
3. Caustic Soda
4. Cement (200 TPD and above)
5. Copper Smelting
6. Dyes & Dye Intermediate
7. Fermentation (Distillery)
8. Fertiliser
9. Integrated Iron & Steel
10. Leather Processing including Tanneries
11. Oil Refinery
12. Pesticide Formulation & manufacturing
13. Pulp & Paper (30 TPD and above)
14. Petrochemical
15. Sugar
16. Sulphuric Acid
17. Thermal Power
18. Zinc Smelting

Box A: Top Polluting Industrial Sectors

Annexure B - Stockholm Conference

Precursor to Stockholm Conference

The pursuit for achieving sustainable development at a global level is supported by various governments, intergovernmental organisations, non-governmental organisations and, most recently, private companies. The United Nations Sustainable Development Summit (UNSDS), held in New York in 2015, was the latest global forum to develop an ambitious new Sustainable development agenda. Four decades of widespread international cooperation and policy making on environment and development, however, have proven to be a long and difficult road towards a global environmentally sound development, mixing a few policy successes with a frequent lack of effective implementation and behavioural changes.

The United Nations Charter from 1945 assigns responsibility to governments across the world related to peace, freedom, human rights and social and economic progress for all people. However, the Charter did not mention the role of environmental issues in achieving these goals. In the 1960's, widespread environmental degradation became evident and was acknowledged the world over. International pressure mounted on the United Nations (UN) to expand its activities related to the environment.

In the 1960s, environmentalism had taken two main forms: the preservation of wilderness areas and the sustainable conservation of resources. Political activism was largely aimed at making rules and laws pertaining to consumption of natural resources. Several major shifts occurred in the 1960s, all of which were related to an awareness of the inter-relationships between environmental and social problems. With the rapid development and expansion of the use of chemicals following World War II and then the publication of Rachel Carson's Silent Spring (1962), there was a new emphasis on environmental degradation (especially pollution) as well as its relationship to human health. This lead to an intensifying call for government to

regulate industry more closely. It also involved an increased awareness of the direct relationship between environmental problems and human society[157].

Large-scale[158] industrial pollution, the growing threat of fallout from nuclear radiation, documented mass destruction of entire ecosystems around the globe: the 1960s witnessed the beginning of widespread international alarm about a global environmental crisis. As this intensified, global awareness triggered a modern environmental movement, it was the initiative of Sweden that laid the foundation for international cooperation on environmental matters. By mid 1960s, Sweden had become a respected middle power, and often challenged the Superpowers (USA, European countries and Russia) and their cold war situation. Swedish Diplomats were keen to keep Sweden out of power games and therefore began convincing the UN to shift away from a nuclear paradigm towards an international development and environmental protection paradigm. Thus, Swedish government proposed the United Nations to organise a global conference to "facilitate co-ordination and to focus the interest of member countries on the extremely complex problems related to the human environment." This led to the first United Nations Conference on the Human Environment (UNCHE) on 5th June 1972 in Stockholm.

During the Conference the Industrialised nations came under heavy criticism for the ecological exploitation that were leading to grave environmental problems at the expense of developing countries. The environmental degradation was also causing economic exploitation of developing countries. Despite considerable tension between the developed (industrialised) countries and the developing countries, negotiators were able to reach a historic agreement – Declaration of Principles and also a institutional arrangements for international cooperation in environmental protection which led to the creation of The United Nations Environment Programme

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[157]Carson, R., 2002. *Silent spring*. Houghton Mifflin Harcourt.

12 Grieger, Andreas. "Only One Earth: Stockholm and the Beginning of Modern Environmental Diplomacy." Environment & Society Portal, Arcadia 2012, no. 10. Rachel Carson Center for Environment and Society. http://www.environmentandsociety.org/node/3867.

(UNEP). One important issue that emerged from the conference was the alleviation of poverty to enable environment protection.

The Stockholm Declaration Contains 26[159] principles and an action plan containing 109 recommendations and a resolution.

The Stockholm conference was a major success due to the wide scale participation of Governmental and Non-governmental organisations and open dialogues between them helped influence the delegates. The ultimate achievement of the Conference was the emergence of the modern environmental movement which was born out of its iconic motto, "Only One Earth". This conference set the standard for the biggest UN conferences and especially the 1992 Earth Summit in Rio de Janeiro.

The Principles of the Stockholm Declaration

1. Human rights must be asserted, apartheid and colonialism condemned
2. Natural resources must be safeguarded
3. The Earth's capacity to produce renewable resources must be maintained
4. Wildlife must be safeguarded
5. Non-renewable resources must be shared and not exhausted
6. Pollution must not exceed the environment's capacity to clean itself
7. Damaging oceanic pollution must be prevented
8. Development is needed to improve the environment
9. Developing countries therefore need assistance
10. Developing countries need reasonable prices for exports to carry out environmental management
11. Environment policy must not hamper development
12. Developing countries need money to develop environmental safeguards
13. Integrated development planning is needed
14. Rational planning should resolve conflicts between environment and development
15. Human settlements must be planned to eliminate environmental problems
16. Governments should plan their own appropriate population policies
17. National institutions must plan development of states' natural resources
18. Science and technology must be used to improve the environment
19. Environmental education is essential
20. Environmental research must be promoted, particularly in developing countries
21. States may exploit their resources as they wish but must not endanger others
22. Compensation is due to states thus endangered
23. Each nation must establish its own standards
24. There must be cooperation on international issues
25. International organisations should help to improve the environment
26. Weapons of mass destruction must be eliminated

Box B: The Principles of the Stockholm Declaration

[159] http://www.un-documents.net/unchedec.htm

Annexure C - Bruntland Commission

Brundtland Commission and Report[160]

A decade after the Stockholm Conference, many environmental challenges had not been adequately addressed. These challenges had grown over time -particularly the problem of how to reduce poverty in developing countries through development and industrialisation without increasing the environmental burden. There was a palpable need for development that would allow integration of economic development with environmental protection. The very nature of these complicated problems inspired the UN to create an independent organisation to explore the existing problems and discover plausible answers.

Key Global Issues - Brundtland Report

- *Did local development lead to local environmental problems or was it a consequence of the global economic system that forced developing countries to destroy their environment for growth?*
- *Were the environmental problems a result of growth based development or due to lack of economic development?*
- *Were resource efficient technologies the only solution or should there be integration of social and structural changes and government policies to bring about a change?*

Box C: Key Global Issues - Brundtland Report

[160] Brundtland, G.H. and Khalid, M., 1987. Our common future. *New York*.

This new organisation was the Brundtland Commission, or formerly, the World Commission on Environment and Development (WCED). The Brundtland Commission was headed by Gro Harlem Brundtland as Chairman.

The organisation intended to create a united international community with shared sustainability goals by identifying sustainability problems worldwide, raising awareness, and discovering the solutions. In 1987, the Brundtland Commission published, "Our Common Future," the organisation's main report. This publication strongly influenced the Earth Summit in Rio de Janeiro, Brazil in 1992 and the third UN Conference on Environment and Development in Johannesburg, South Africa in 2002. This report is also credited with defining the universally accepted and cherished definition of Sustainable Development.

Annexure D - Sustainable Development

Sustainable Development can be defined as, "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The enviable end outcome is a situation where the society's condition of living and the use of resources maintain the needs of humans without reduction in the reliability and solidity of the natural systems[161]. The conception of sustainable development has been under strict criticism. It takes into account the two concepts; The concept of 'needs', which refers to the essential needs of the world's poor which needs to be prioritised. Secondly, there is an emphasis on the concept of the idea of limitations imposed by technology and social organisation on the environment's ability to meet the needs of present and future generations[162].

Sustainable development ties together concern for the carrying capacity of natural systems with the social, political, and economic challenges faced by humanity. For all the countries of the world whether they are developed, developing, market oriented or centrally planned, the social and economic development goals must be defined in terms of sustainability. The interpretations of these goals may vary to suit the unique needs of a country, but they must share a certain general characteristics of sustainable development embedded in a broad strategic framework. For countries to progress towards a sustainable future a progressive transformation of society and economy will be needed. It is evident that sustainability cannot be secured policies that pay attention to changes in access to resources and equitable distribution of costs and benefits are formulated in every country.

The three main pillars of sustainable development include economic growth, environmental protection, and social equality. The concept denotes equal emphasis on three pillars however, this has not been the case globally. Majority of the countries have been focusing on economic growth while the other 2 pillars are neglected

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[161] Hellsten, I., Porter, A.J. and Nerlich, B., 2014. Imagining the future at the global and national scale: a comparative study of British and Dutch Press coverage of Rio 1992 and Rio 2012. *Environmental Communication*, *8*(4), pp.468-488

[162] Kohler, T., Balsiger, J., Rudaz, G., Debarbieux, B., Pratt, J. and Maselli, D., 2015. Green economy and institutions for sustainable mountain development: From Rio 1992 to Rio 2012 and beyond.

considerably. The Brundtland report recommends initiatives and goals which was the basis for Agenda 21, conceptualised at Rio Summit.

The Three Pillars of Sustainable Development

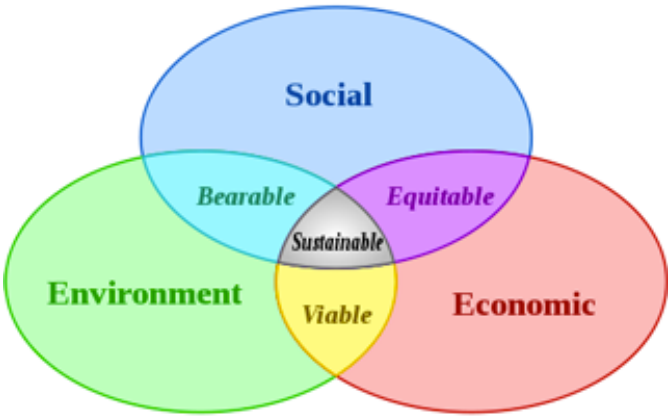

Fig D: Three Pillars of Sustainable Development

Environmental Protection: Ecological integrity is maintained, all of earth's environmental systems are kept in balance while natural resources within them are consumed by humans at a rate where they are able to replenish themselves.

Economic Growth: Human communities across the globe are able to maintain their independence and have access to the resources that they require, financial and other, to meet their needs. Economic systems are intact and activities are available to everyone, such as secure sources of livelihood.

Social Equality: Universal human rights and basic necessities are attainable by all people, who have access to enough resources in order to keep their families and communities healthy and secure. Healthy communities have just leaders who ensure personal, labour and cultural rights are respected and all people are protected from discrimination.

Annexure E - The Earth Summit[163], 1992

The Earth Summit in Rio de Janeiro was unprecedented for a UN conference, in terms of size and scope of the issues discussed. Twenty years after the first global environment conference, the UN sought to help Governments and other Institutions to rethink economic development and find ways to halt the destruction of irreplaceable natural resources and pollution of the planet. Hundreds of thousands of people from all walks of life were drawn into the Rio process. They persuaded their leaders to go to Rio and join other nations in making the difficult decisions needed to ensure a sustainable planet for the future generations.

The Summit's message, "that nothing less than a transformation of our attitudes and behaviour would bring about the necessary changes" — was communicated by almost 10,000 on-site journalists and heard by millions around the world. The message reflected the complexity of the problems facing us: that poverty and excessive consumption by affluent populations place damaging stress on the environment. Governments recognised the need to redirect international and national plans and policies to ensure that all economic decisions fully took into account any environmental impact. And the message has produced results, making eco-efficiency a guiding principle for business and governments alike. Some of the important issues discussed during the Rio summit were

- Patterns of production — particularly the production of toxic components, such as lead in gasoline, or poisonous waste — are being scrutinised in a systematic manner by the UN and Governments alike

- Alternative sources of energy are being sought to replace the use of fossil fuels which are linked to global climate change

[163] http://www.un.org/geninfo/bp/enviro.html

- New reliance on public transportation systems is being emphasised in order to reduce vehicle emissions, congestion in cities and the health problems caused by polluted air and smog

There is much greater awareness of and concern over the growing scarcity of water.

The two-week Earth Summit led to the adoption of Agenda 21, a wide-ranging blueprint for action to achieve sustainable development worldwide. At its close, Maurice Strong, the Conference Secretary-General, called the Summit a "historic moment for humanity". Although Agenda 21 had been weakened by compromise and negotiation, he said, it was still the most comprehensive and, if implemented, effective programme of action ever sanctioned by the international community. Today, efforts to ensure its proper implementation continue.

The Earth Summit influenced all successive UN conferences, which have scrutinised the relationship between human rights, population, social development, women and human settlements — and the need for environmentally sustainable development. The World Conference on Human Rights, held in Vienna in 1993, for example, highlighted the right of people to a healthy environment and the right to development, controversial demands that had met with resistance from some Member States until Rio.

The Earth Summit Agreements[164]

In Rio, 108 Governments represented by heads of State or Government — adopted three major agreements aimed at changing the traditional approach to development

Earth Summit Agreements

Agenda 21 *— a comprehensive programme of action for global action in all areas of sustainable development*

The Rio Declaration on Environment and Development *— a series of principles defining the rights and responsibilities of States*

The Statement of Forest Principles *— a set of principles to underlie the sustainable management of forests worldwide*

Box E: Earth Summit Agreements

In addition, three legally binding Conventions aimed at preventing global climate change and the eradication of the diversity of biological species were opened for signature at the Summit, giving high profile to these efforts:

- The United Nations Framework Convention on Climate Change
- The Convention on Biological Diversity
- United Nations Convention to Combat Desertification

[164] http://www.un.org/geninfo/bp/enviro.html

Annexure F - Agenda 21[165]

Agenda 21, was adopted on the last day of the Rio Summit (14 June 1992). It is a comprehensive set of actions to be implemented by governments, civil society, development agencies, UN organisations, and independent sector groups where human and economic activity affects the environment. According to Agenda 21 wide ranging social and economic problems need to be addressed to alleviate environmental degradation. The document contains many guiding principles for ecosystem protection, reducing poverty, hunger, sickness, and illiteracy. Further, it promotes a collaborative approach for environmental management and global partnership for sustainable development. The UN Commission on Sustainable Development (UNCSD) encourages all countries to identify relevant strategies to implement goals which can be embedded in their National frameworks. These customised and individual goals known as the National Sustainable Development Strategies (NSDSs), explain priorities and sustainable development action at a national level. Furthermore, within each country, there is a mechanism to implement Agenda 21 at a hyper local level and is known as the Local Agenda 21 (LA21).

Agenda 21 & Rio Principles

1. Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature
2. States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.
3. The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

[165] https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf

4. In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.
5. All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.
6. The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority. International actions in the field of environment and development should also address the interests and needs of all countries.
7. States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit to sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.
8. To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.
9. States should cooperate to strengthen endogenous capacity building for sustainable development by improving scientific understanding through exchanges of scientific and technical knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies including new and innovative technology.
10. Environmental issues are best handled with participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in

their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

11. States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and development context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.
12. States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries to better address the problem of environmental degradation. Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should as far as possible be based on international consensus.
13. States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.
14. States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.
15. In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of

serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

16. National authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.
17. Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.
18. States shall immediately notify other States of any natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those States. Every effort shall be made by the international community to help States so afflicted.

19. States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse transboundary environmental effect and shall consult with those States at an early stage and in good faith.
20. Women play a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.
21. The creativity, ideals and courage of the youth of the world should be mobilised to forge a global partnership in order to achieve sustainable development and ensure a better future for all.
22. Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognise and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

23. The environment and natural resources of people under oppression, domination and occupation shall be protected.
24. Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.
25. Peace, development and environmental protection are interdependent and indivisible.
26. States shall resolve all their environmental disputes peacefully and by appropriate means in accordance with the Charter of the UN.
27. States and people shall cooperate in good faith and in a spirit of partnership in the fulfilment of the principles embodied in this Declaration and in the further development of international law in the field of sustainable development.

Annexure G - The Statement of The Forest Principles

The non-legally requisite declaration of ideology for the sustainability administration of the forests, considered the first global consensus reaching the forests. The provisions include:

1. That all the countries, especially the developed countries, make an effort in greening the world through the deforestation and conservation of forests.
2. That states have the authority in developing the forests as per the needs of the socio-economic, keeping check with the national policies in sustainable development.
3. That explicit financial resources should be offered in developing programs that hearten economic and policies in social substitution.

Annexure H - United Nations Framework Convention on Climate Change

In response to scientific predictions of man-made global warming, the United Nations Framework Convention on Climate Change (FCCC) was adopted at the Rio Earth Summit. The UNFCCC became a blueprint for precautionary action against the threat of global climate change. The Convention highlighted the fact that anthropogenic activities, like the burning of fossil fuels, are releasing large quantities of gases into the Earth's atmosphere. These gases, including carbon dioxide are increasing the natural greenhouse effect. There are many apprehensions that the increase of such greenhouse gases in the atmosphere is causing "global warming", which is threatening natural ecosystems and anthropogenic activities[166].

The Convention aimed to provide a global framework within which future actions could be taken to reduce the threat of global warming. The Convention stipulates that countries have the right to exploit their own resources, but they have a responsibility to ensure that their activities do not cause any environmental harm to other countries[167].

The definitive goal of the Convention is to stabilise greenhouse gases at a level that will not harm the global climate system. It is evident that majority of greenhouse gas emissions come from developed nations, the Convention challenges the developed nations to take corrective actions to reduce GHG emissions and its negative effects. The economies of Developing nations are overly dependent on fossil fuels and economic growth could be compromised without fossil fuels. Therefore, developed countries are expected to offer technical and financial assistance to developing nations to help in their development in a sustainable manner.

Developing nations whose economies are based on fossil fuels may have difficulties in reducing their greenhouse gas emissions. It is therefore recognised that developed nations will need to offer technological and financial assistance to the developing

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[166] Ramakrishna, K., 2000. The unfccc—history and evolution of the climate change negotiations. *Climate Change and Development. Yale School of Forestry and Environmental Studies, New Haven, CT, and UNDP, New York, NY*, pp.47-62.

[167] Ramakrishna, K., 2000. The unfccc—history and evolution of the climate change negotiations. *Climate Change and Development. Yale School of Forestry and Environmental Studies, New Haven, CT, and UNDP, New York, NY*, pp.47-62.

nations to encourage their transition towards a more sustainable form of economic development.

- Quantitative information on GHGs

- Implement programmes to control greenhouse gas emissions and adapt to climate change and regularly publish updates.

- Promote preservation of GHG sinks such as plants and forests.

- Plan for the effects of climate change on coastal zones, water resources and agriculture.

- Protect areas prone to flooding or drought.

Annexure I - The Kyoto Protocol, 1997

The UNFCCC advised nations to stabilise emissions of greenhouse gases at 1990 levels by the year 2000. However, nations across the world were unable to achieve the goals. The Kyoto Protocol which was agreed upon on December 11, 1997, at a meeting of the UNFCCC in Kyoto, Japan, was created as an effort to force action on the international community.[168]

The Kyoto Protocol implemented the objective of the UNFCCC to fight global warming by reducing greenhouse gas concentrations in the atmosphere to "a level that would prevent dangerous anthropogenic interference with the climate system" (Art. 2)[169]. The Protocol is based on the principle of common but differentiated responsibilities: it puts the responsibility to decrease current emissions on developed countries on the basis that they are responsible for the current levels of greenhouse gases in the atmosphere. The main goal of the Kyoto Protocol is to control emissions from anthropogenic activities. Some of the principal concepts of the Kyoto Protocol are:

- **Binding commitments** for the Annex I Parties -The main feature of the Protocol is that it established legally binding commitments to reduce emissions of greenhouse gases for Annex I Parties. The commitments were based on the Berlin Mandate, which was a part of UNFCCC negotiations leading up to the Protocol. [27]

- **Implementation** - In order to meet the objectives of the Protocol, Annex I Parties are required to prepare policies and measures for the reduction of greenhouse gases in their respective countries. In addition, they are required to increase the absorption of these gases and utilise all mechanisms available, such as joint implementation, the clean development mechanism and emissions trading, in order to be rewarded with credits that would allow more greenhouse gas emissions at home.

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[168] http://unfccc.int/kyoto_protocol/background/items/2879.php

[169] http://unfccc.int/kyoto_protocol/background/items/2879.php

- Minimising impacts on Developing Countries by establishing an adaptation fund for climate change.
- Accounting, Reporting and Review in order to ensure the integrity of the Protocol.
- Compliance - Establishing a Compliance Committee to enforce compliance with the commitments under the Protocol.

First commitment period (2008 to 2012)

The European Union (EU) and 38 other industrialised countries committed to binding GHG emissions targets for major GHG's - Carbon dioxide, Methane, Nitrous oxide, Sulphur Hexafluoride, Hydrofluorocarbons (HFCs) and Perfluorocarbons (PFCs). The binding reduction targets are in addition to the industrial gases, chlorofluorocarbons (CFCs) which have already been dealt with under the Montreal Protocol on Substances that Deplete the Ozone Layer 1987.

Under the Kyoto Protocol, only the Annex I Parties[170] have committed to national or joint reduction targets. Parties to the Kyoto Protocol not listed in Annex I of the Convention[171] (the non-Annex I Parties) are mostly developing countries, and may participate in the Kyoto Protocol through the Clean Development Mechanism (CDM).

The emissions limitations of Annex I Parties varies between different Parties. Some Parties have emissions targets to reduce below the base year level, some have emission reduction targets at the base year level while others have targets above the base year level.

Furthermore, because many major emitters are not part of Kyoto, it only covers about 18% of global emissions. In the first period of the Protocol (2008-12),

[170] http://unfccc.int/parties_and_observers/parties/annex_i/items/2774.php

[171] http://unfccc.int/parties_and_observers/parties/non_annex_i/items/2833.php

participating countries committed to reduce their emissions by an average of 5% below 1990 levels[172].

Second Commitment period

During the second commitment period, parties committed to reduce GHG emissions by at least 18% below 1990 levels in the eight-year period from 2013 to 2020; however, the composition of parties in the second commitment period is different from the first. New commitments have been introduced for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 1 January 2013 to 31 December 2020. Furthermore, there is now a revised list of greenhouse gases (GHG) which includes the 7th GHG – Nitrous trifluoride.

Flexibility Mechanisms of Kyoto Protocol

Annex I Parties can use a range of sophisticated "flexibility" mechanisms to meet their GHG Emissions targets.

International Emissions trading (IET) or Emissions trading (ET)

Emissions trading currently focusses on Carbon dioxide only. This form of permit trading is a common method used by Annex 1 countries to meet their obligations specified by the Kyoto Protocol; namely the reduction of carbon emissions in an attempt to mitigate future climate change.

Parties with commitments under the Kyoto Protocol (Annex B Parties) have accepted targets for limiting or reducing emissions. These targets are expressed as levels of allowed emissions, or "assigned amounts," over the 2008-2012 commitment period. The allowed emissions are divided into "assigned amount units" **(AAUs).**

Emissions trading, as set out in Article 17[173] of the Kyoto Protocol, allows countries that have emission units to spare - emissions permitted to them but not "used" - to sell this excess capacity to countries that are over their targets. Thus, a new commodity was created in the form of emission reductions or removals. Since carbon

[172] https://ec.europa.eu/clima/policies/strategies/progress/kyoto_1_en

[173] http://unfccc.int/kyoto_protocol/mechanisms/emissions_trading/items/2731.php

dioxide is the principal greenhouse gas, people speak simply of trading in carbon. Carbon is now tracked and traded like any other commodity. This is known as the "carbon market."

Other Trading Units in the Carbon market

More than actual emissions, units can be traded and sold under the Kyoto Protocol's emissions trading scheme. The other units which may be transferred under the scheme, equal to one tonne of CO2, may be in the form of

- A certified emission reduction (CER) generated from a Clean Development Mechanism Project (CDM) activity
- An emission reduction unit (ERU) generated by a Joint Implementation (JI) project. Transfers and acquisitions of these units are tracked and recorded through the registry systems under the Kyoto Protocol. An International transaction log ensures secure transfer of emission reduction units between countries.

Clean Development Mechanism (CDM)

The **CDM** provides for emissions reduction projects which generate Certified Emission Reduction units (CERs) which may be traded in emissions trading schemes.[174]

The CDM was formulated to meet two objectives:

1. To assist **non Annex I** countries in achieving sustainable development and in contributing to the ultimate objective of the UNFCCC which is to mitigate future climate change[175].
2. To assist **Annex I** countries in achieving compliance with their quantified emission limitation and reduction commitments[176].

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[174] http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php

[175] http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php

[176] http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php

The CDM addresses the second objective by allowing the Annex I countries to meet part of their emission reduction commitments under the Kyoto Protocol by buying CER units from CDM emission reduction projects in developing countries (Non Annex 1). The CDM projects and the issue of CERs units have to be approved by the CDM Executive Board (EB) to ensure that these emission reductions are real and "additional." The CDM is supervised by the CDM Executive Board (CDM EB) under the guidance of the Conference of the Parties (COP/MOP) of the United Nations Framework Convention on Climate Change (UNFCCC). The CDM allows Annex 1 countries to buy CERs and to invest in emission reductions projects where it is cheapest globally[177].

The objective of CDM is to promote clean development in non-Annex 1 countries. CDM is designed to promote projects that reduce emissions. The CDM is based on the idea of generating Certified emission reduction units. These reductions are "generated" and then subtracted against a hypothetical "baseline" of emissions. The baseline emissions are the emissions that are predicted to occur in the absence of a particular CDM project. CDM projects are "credited" against this baseline, in the sense that developing countries gain credit for producing these emission cuts.

Joint implementation (JI)

It is a mechanism that helps Annex 1 countries to meet the emissions reduction targets. Any Annex I country can invest in an emission reduction project (referred to as a "JI Project") in any other Annex I country as an alternative to reducing emissions domestically[178]. Annex 1 countries generally use this mechanism to reduce the cost of complying with their mandatory Kyoto targets. Normally such countries are chosen where cost of implementing will be cheaper than buying Emission reduction units.

A typical example of a JI project is replacing a fossil fuel (typically coal) fired power plant with a more efficient combined heat and power plant. Generally, JI projects

[177] http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php

[178] http://unfccc.int/kyoto_protocol/mechanisms/joint_implementation/items/1674.php

take place between countries with a transition economy. Russia and Ukraine have the highest number of JI projects.

Carbon credits

A carbon credit[179] is a generic term for a tradable certificate which represents the right to emit one tonne of carbon dioxide or the mass of another greenhouse gas with a carbon dioxide equivalent (CO_2) equivalent to one tonne of carbon dioxide.

Carbon credits are a major element of national and international attempts to mitigate the growth in concentrations of greenhouse gases (GHGs). One carbon credit is equal to one tonne of carbon dioxide, or in some markets, carbon dioxide equivalent gases. Carbon trading is an application of an emissions trading approach. GHG emissions are capped at a specific limit and then markets are used to allocate the emissions among the group of regulated sources.

The aim is to allow market mechanisms to drive industrial and commercial processes in the direction of less carbon intensive processes than those used when there is no cost to emitting carbon dioxide and other GHGs into the atmosphere. GHG mitigation projects generate credits, this approach can be used to finance carbon reduction schemes between trading partners and around the world.

There are various private and government controlled companies that sell carbon credits to commercial and individual customers who are interested in lowering their overall carbon footprint on a voluntary basis. These carbon offsetters purchase the credits from a carbon development company that has aggregated the credits from individual projects. Buyers and sellers can also use an exchange platform to trade, which is like a carbon credits stock exchange. The quality of the credits is based on various criteria, validation and verification process and sophistication of the fund or development company that acted as the sponsor to the carbon project.

[179] http://www.conserve-energy-future.com/carbon-credits.php

This is reflected in their price; voluntary carbon credits typically have less value than the carbon credits sold through the CDM.

Annexure J: Climate Change Mitigation Measures

Climate change mitigation measures consist of actions to decrease the rate of long-term climate change, and generally involve reductions in human (anthropogenic) emissions of greenhouse gases (GHGs). Mitigation may also be achieved by increasing the capacity of carbon sinks, e.g., through reforestation. Mitigation policies can substantially reduce the risks associated with human-induced global warming.

According to the IPCC's 2014 assessment report, "Mitigation is a public good; climate change is a case of the 'tragedy of the commons'. Effective climate change mitigation will not be achieved if each agent (individual, institution or country) acts independently in its own selfish interest), suggesting the need for collective action. Some adaptation actions, on the other hand, have characteristics of a private good as benefits of actions may accrue more directly to the individuals, regions, or countries that undertake them, at least in the short term. Nevertheless, financing such adaptive activities remains an issue, particularly for poor individuals and countries."

Some of the commonly used mitigation measures have been briefly explained as follows:

1. Carbon sequestration[180]

The term carbon sequestration describes both natural and deliberate processes by which carbon dioxide is either removed from the atmosphere or diverted from emission sources and stored in the oceans, terrestrial environments (vegetation, soils, and sediments), and geologic formations. Before the beginning of anthropogenic carbon dioxide emissions, the natural processes that make up the global "carbon cycle" maintained an equilibrium between the uptake of carbon dioxide and its

[180] https://pubs.usgs.gov/fs/2008/3097/pdf/CarbonFS.pdf

release back to the atmosphere. However, existing carbon dioxide uptake mechanisms (carbon "sinks") are inadequate to offset the accelerating pace of emissions related to anthropogenic activities.

Carbon dioxide is naturally captured from the atmosphere through biological, chemical, and physical processes. Artificial processes have been developed to produce similar effects, including large-scale, artificial capture and sequestration of industrially produced carbo dioxide using subsurface saline aquifers, reservoirs, ocean water, ageing oil fields, or other carbon sinks.

2. Renewable Energy

It is the energy that is generated from renewable sources that are also natural resources. This includes sunlight, geothermal heat, wind, tides, water, and various forms of biomass. This energy cannot be exhausted and is constantly renewed.

Renewable energy resources exist over wide geographical areas, in contrast to other energy sources, which are concentrated in a limited number of countries. Rapid deployment of renewable energy and energy efficiency is resulting in significant energy security, climate change mitigation, and economic benefits.

According to REN21[181] renewables contributed 19.2% to global energy consumption and 23.7% to generation of electricity in 2014 and 2015, respectively. This energy consumption is divided as 8.9% coming from traditional biomass, 4.2% as heat energy (biomass, geothermal and solar heat), 3.9% hydro-electricity and 2.2% is electricity from wind, solar, geothermal, and biomass. Worldwide investments in renewable technologies amounted to more than US$286 billion in 2015, with countries like China and the United States heavily investing in wind, hydro, solar and biofuels. Globally, there are an estimated 7.7 million jobs associated with the renewable energy industries, with solar photovoltaics being the largest renewable

[181] http://www.ren21.net/Portals/0/documents/Resources/REN21_AnnualReport_2014_web.pdf

employer. As of 2015 worldwide, more than half of all new electricity capacity installed was renewable.

3. Clean transport

GHG emissions from transport account for roughly 25% of emissions worldwide[182], many citizens of developed and developing countries use personal transport like cars and motorbikes and contribute to a high concentration of GHGs. Modes of mass transportation such as bus, light rail (metro, subway, etc.), and long-distance rail are far and away the most energy-efficient means of motorised transportation for passengers. They contribute to significantly less amount of GHG emissions than personal vehicles[183].

Modern energy-efficient technologies, such as plug-in hybrid electric vehicles and carbon-neutral synthetic gasoline & Jet fuel may also help to reduce the consumption of petroleum, land use changes and emissions of carbon dioxide. Utilising rail transport, especially electric rail, over the far less efficient air transport and truck transport significantly reduces emissions. With the use of electric trains and cars in transportation there is the opportunity to run them with low-carbon power, producing far fewer emissions.

Many countries in the European Union are moving towards Clean transport and have formulated a comprehensive strategy:

- **Increasing the efficiency of the transport system** by making the most of digital technologies, smart pricing and further encouraging the shift to lower emission transport modes
- **Speeding up the deployment of low-emission alternative energy for transport,** such as advanced biofuels, electricity, hydrogen and renewable synthetic fuels and removing obstacles to the electrification of transport

[182] https://www.iea.org/publications/freepublications/publication/transport2009.pdf

[183] https://ec.europa.eu/clima/policies/transport_en

- **Moving towards zero-emission vehicles.** While further improvements to the internal combustion engine will be needed, Europe needs to accelerate the transition towards low- and zero-emission vehicles
- **Cities and local authorities will play a crucial role in** delivering this strategy. They are already implementing incentives for low-emission alternative energies and vehicles, encouraging active travel (cycling and walking), public transport and bicycle and car-sharing /pooling schemes to reduce congestion and pollution.

Annexure K: Millennium Development Goals[184]

Several mechanisms came into existence following the Rio Summit and Agenda 21. Prominent among them were the United Nations Millennium Development Goals (MDGs). The goals were set during UN's Millennium Conference held in New York City, which aimed at stimulating efforts to meet the needs of the world's poorest people. The MDGs provide a comprehensive framework for measuring the progress of development. The goals consist of eight broad categories with several quantitative indicators to be achieved by the 2015.

Fig. K: Millennium Development Goals

The goals include -
1. Eradication of extreme poverty and hunger.
2. Achievement of universal and compulsory primary education
3. Promotion of gender equality and women empowerment
4. Reduce child mortality
5. Improve Maternal Health
6. combat HIV/AIDS, malaria, and other diseases;
7. Environmental sustainability
8. Global partnership for development.

[184] http://www.un.org/millenniumgoals/

Annexure L: Sustainable Development Goals

The Sustainable Development Goals (SDGs) were formulated during United Nations Conference on Sustainable Development in Rio de Janeiro in 2012. The objective was to further develop Millennium Development goals to address contemporary and urgent environmental, political and economic challenges facing the world.The SDGs replace the Millennium Development Goals (MDGs).

Fig. L.: Sustainable Development Goals

The partial achievements of the MDGs have provided valuable lessons still the job remains unfinished. The world needs to go the last mile and achieve improvements further to what the MDG's were able to achieve. The SDGs signify an urgency to guide the world to a more sustainable path.

The SDGs comprise of 17 Goals which interconnect, such that success in one goal affects success for others

1. No Poverty
2. Zero Hunger
3. Good Health & Well-Being
4. Quality Education
5. Gender Equality
6. Clean Water & Sanitation
7. Affordable & Clean Energy
8. Decent Work & Economic Growth
9. Industry, Innovation & Infrastructure
10. Reduced Inequalities
11. Sustainable Cities & Communities
12. Responsible Consumption & Production
13. Climate Action
14. Life Below Water
15. Life On Land
16. Peace, Justice & Strong Institutions
17. Partnerships For The Goals

Box L: Sustainable Development Goals

The threat of climate change is real and dealing with it properly can impact our fragile ecosystems and resources. Achieving gender equality can, universal good health, and fostering peace will reduce inequalities and help in prosperous economies worldwide. The SDGs coincided with another historic agreement reached in 2015 at the COP21 Paris Climate Conference. Together with the Sendai Framework for Disaster Risk Reduction, signed in Japan in March 2015, these agreements provide a set of common standards and achievable targets to reduce carbon emissions, manage the risks of climate change and natural disasters, and to build back better after a crisis.

Annexure M

Landmark Events (2013 - 2016)

Event	Date	Organised by	About	Discussion	Outcome	Links
Third Green Industry Conference (GIC 2013) - Guangzhou, China	12 November 2013	Ministry of Industry and Information Technology of the People's Republic of China and the United Nations Industrial Development Organization (UNIDO).	The Green Industry Conference 2013 highlighted both success stories and outstanding policy challenges. Participants included high-level government officials, representatives of the private sector, and academic and civil society experts in the field of Green Industry.	The conference highlighted successes and policy challenges in promoting green industry concepts, and reaffirmed the importance of the Green Industry Platform. Conference participants considered green industry concepts in manufacturing, including more efficient use of energy and raw materials , eco-design and the sound management of chemicals and hazardous substances in processes, and the sound management of wastes.	As a concrete outcome of the Conference UNIDO will engage with governments, business associations and enterprises to promote the particular interest of women in Green Industry and create a women-in-green-industry network in the framework of the Green Industry Platform.	https://goo.gl/dP69mS https://goo.gl/LZhoXA
14th Delhi Sustainable Development Summit (DSDS), Delhi	6 February 2014	The Energy and Resources Institute (TERI)	DSDS has emerged as one of the foremost fora on issues of global sustainability. This flagship event of TERI brings together various heads of state and government, thought leaders, policy makers and the crème de la crème of industry and academia to deliberate on myriad issues.	DSDS 2014 discussions and deliberations focused on the importance of energy, water, and food security and the nexus between them. Discussions at the Summit addressed security of energy, water, and food as inter-related as well as independent entities. At DSDS 2014, over 40 countries were represented by their political heads, lead thinkers, and delegates, with a total of over 1,000 delegates attending the plenary sessions and thematic tracks, over the four days of the Summit.	The Summit engaged the captains of industry in lively discussions that will encourage action on part of the business community towards developing sustainable business practices. The messages emerging from the DSDS provide the backdrop for the World Sustainable Development Forum's Regional Sustainable Development Summits worldwide.	https://goo.gl/FUXSHL https://goo.gl/RHPESY https://goo.gl/d3thPM
International Conference and Utility Exhibition (ICUE), 2014 - Pattaya City, Thailand	19 March 2014	IEEE Power and Energy Society (PES) and the Asian Institute of Technology (AIT)	Exhibition on Green Energy for Sustainable development. Participants include energy professionals, policy makers, researchers, members of the academe, engineers, members of the energy supply sector	The platform to exchange research ideas, experiences, technical, social, financial, economic and policy issues covering energy utilization, particularly on using renewable forms of energy resources (green energy) for power and heat generation.	The conference emerged as a space for exchange of innovative ideas and several case contributions were offered for improving the newly launched knowledge base.	https://goo.gl/nHgrQw https://goo.gl/GcA5Kz
Global Sustainability Standards Conference 2014, London	20 May 2014	ISEAL Alliance	The Global Sustainability Standards Conference (formerly the ISEAL Annual Conference) brought together 300 leaders from business, government, civil society and sustainability standards to discuss the many dimensions of trust in the sustainability standards movement.	Through keynote addresses, panel discussions and breakout sessions, the conference explored the many dimensions of trust that are essential to scaling up the certification movement: trust that standards systems are evaluating their impacts and responding to results; trust that claims and labels are accurate; trust from producers that certification is valuable; trust from busineses and the finance sector that standards are the right tool to achieve their objectives; trust that standards can address challenging global issues like living wage; and trust that standards are evolving to meet expectations and achieve their sustainability missions.	The conference explored the many dimensions of trust that are essential to scaling up the certification movement. Outcome report not available.	https://goo.gl/N3ShhZ https://goo.gl/GEPYv5
Integrated Research on Disaster Risk (IRDR) Conference 2014, Beijing, China	7 June 2014	IRDR in partnership with the China Association for Science and Technology (CAST)	The 2nd IRDR Conference, theme was "Integrated Disaster Risk Science: A Tool for Sustainability.	The Conference placed emphasis on the importance of science as a tool to address hazard risks and issues of sustainable development. The Conference brought together some 200 leading experts and some of the best of an emerging cohort of young researchers in the field of disaster risk reduction from all academic and professional backgrounds	The IRDR Conference 2014 brought together leading experts and some of the best of an emerging cohort of young researchers in the field of disaster risk reduction from all academic and professional backgrounds to help create a "global IRDR community," and bring continued worldwide attention to the IRDR programme.	https://goo.gl/VFZJKP https://goo.gl/JJJza9
Third International Conference on Small Island Developing States, 2014, Apia Samoa	1 Sept 2014	United Nation HQ	The theme was "The sustainable development of small island developing States through genuine and durable partnerships". The Conference included six multi-stakeholder partnership dialogues, held in parallel with the plenary meetings. Nearly 300 partnerships were registered towards the Conference, addressing a the various priority areas.	The conference focused the world's attention on a group of countries that remain a special case for sustainable development in view of their unique and particular vulnerabilities. The SIDS Action Platform was developed to support the follow up to the Third International Conference on Small Island Developing States (SIDS Conference), including through a partnerships platform, a partnerships framework, and a UN Implementation Matrix.	United Nations Member States formally adopted the outcome document of the Conference, the Small Island Developing States Accelerated Modalities of Action - or SAMOA Pathway - in which countries recognized the need to support and invest in these nations so they can achieve sustainable development.	https://goo.gl/yBur5h
World Conference on Education for Sustainable Development (WCESD), Japan	10 Nov 2014	UNESCO in cooperation with the Government of Japan	The Conference theme was 'Learning Today for a Sustainable Future' as advised by an International Steering Group of ESD experts from around the world and a representative of the UN Inter-Agency Committee for the UN Decade of ESD. The three-day conference contained a high-level segment, plenary sessions, and a number of workshops.	The conference celebrated the end of the United Nations (UN) Decade of Education for Sustainable Development (DESD, 2005–2014). The DESD was established out of an agreement amongst Member States to strengthen the role of education in achieving sustainable development at the World Summit on Sustainable Development in 2002. At side events stakeholders were able to present their ESD projects and programmes. Exhibitions showcased successful ESD projects from stakeholders and partners around the world.	The confrerence provided an important opportunity to consolidate the outcomes of the DESD, and to frame the way forward for Education for Sustainable Development (ESD) at global level. The conference resulted in three main outcomes: Launch of the final report on the DESD 'Shaping the Future We Want' Adoption of the Aichi-Nagoya Declaration on ESD Launch of the Global Action Programme (GAP) on ESD, with 360 registered commitments	https://goo.gl/f2Pf5b

Event	Date	Organised by	About	Discussion	Outcome	Links
High-level interactive dialogue of the sixty-ninth session of the General Assembly in New York	30 March 2015	President of the United Nations General Assembly (UNGA), UN-Water	The High-level Interactive Dialogue was on "The International Decade for Action 'Water for Life': Progress achieved and lessons learned for sustainable development"	The dialogue reviewed progress achieved and gaps in the implementation of the Decade and reflected on lessons learned that can contribute to a comprehensive approach to sustainable management of water and sanitation in the post-2015 development agenda.	The concluding highlights of the session included the importance of participatory governance, the need to address financing and pollution, and the importance of monitoring and data collection. Science and appropriate policies also play an important role, and lessons can be learned from methods to encourage water cooperation, which has been successfully happening for hundreds of years.	https://goo.gl/8pBxCE
7th World Water Forum, Republic of Korea	12 April 2015	The Republic of Korea and the World Water Council, Daegu Metropolitan City and Gyeongbuk Province.	The World Water Forum is a large-scale international conference that is held every three years since 1997 in cooperation with the public, private sectors, academia, and industries. It was first launched in an effort to facilitate international discussions on global water challenges.	The 6thForum produced over 1,000 solutions which called for implementation; now was the time for action. Thus, the 7thForum adopted implementation as its core value. To produce tangible results based on this core value, the 7thWorld Water Forum introduced new components such as the Science and Technology Process and constructed mechanisms like the Action Monitoring System for future follow up. The Forum produced diverse meaningful outcomes by holding over 400 sessions and events attended by the largest number of participants in the history of World Water Forum.	The Thematic Process, the backbone of the 7th World Water Forum, announced the Implementation Roadmaps (IRs) concerning its 16 overarching themes as the main outcome of the Process. Furthermore, representatives of national governments, local governments, public institutions, international organizations, and corporations signed 21 MOUs, and leaders held approximately 50 bilateral and multilateral meetings, creating a venue for cooperation on water issues	https://goo.gl/6JeedU https://goo.gl/5efQJm https://goo.gl/NBkrTo
World Green Economy Summit (WGES) 2015, Dubai	22 April 2015	Dubai Green Economy Partnership, WETEX and the international green stakeholder platform, World Climate Ltd	The Summit aims to be the premier international platform for strategic partnerships and innovative solutions seeking to accelerate the transition in to the green economy.	The Summit brought together local and international experts and stakeholders to discuss key topics on the green economy agenda, and concluded with the Second Dubai Declaration on the development of the green economy in Dubai and globally in alignment with the objectives of the Dubai Integrated Energy Strategy 2030.	The Summit had generated "new partnerships, initiatives and projects to develop a green economy here in Dubai, across the region and worldwide." These inputs will serve as the backbone for future development of WGES in the upcoming years.	https://goo.gl/gsi3Sy
18th European Forum on Eco-innovation 2015, Spain	20 May 2015	European Commission's Directorate General for Environment, the Spanish Ministry of Agriculture, Food and Environment and the Generalitat de Catalunya with the support the Club EMAS Catalunya and the Environment Sector Group of the Enterprise Europe Network.	The 18th European Forum on Eco-innovation coincided with the European Commission's work on a new circular economy package. This is due by the end of 2015. It will set goals for recycling, and promote a smarter use of raw materials, intelligent product design, and re-use and repair.	The Forum explored the landscape of existing environmental schemes, the reasons for their proliferation, persistent dilemmas and best practice. Delegates from the public and private sectors debated the pros and cons of voluntary vs. mandatory schemes, and drew up key messages to guide schemes' future development. In parallel, the Forum delivered the first three statements of verification under the EU Environmental Technology Verification (ETV) pilot scheme. It also hosted the 2015 Eco-Management and Audit Scheme (EMAS) Awards, which recognise EMAS-registered companies that stand out amongst their peers for their commitment to eco-innovation.	Provided input for policy making, in particular for the new circular economy package that the European Commission is currently working on, as well as for the on-going reviews of the Eco-Management and Audit Scheme (EMAS), the EU Ecolabel scheme and the Eco-innovation Action Plan. 1. Participants at the conference agreed that labels must be credible (verified by a third party), transparent (enable comparison between different products or services), and clear (easy to understand). 2. To enforce credible labels, tougher rules to tackle misleading green advertising are needed. 3. Consumers are increasingly paying more attention to labels	https://goo.gl/tH7VAw https://goo.gl/mJver9
High Level International Conference on the implementation of the International Decade for Action "Water for Life", 2005-2015, Dushanbe, Tajikistan	9 June 2015	The Government of Tajikistan, UN Water and other UN agencies.	The main goal of the Conference is a comprehensive discussion of the issues of implementation of the International Decade for Action "Water for Life", 2005-2015, which will later play a fundamental role in conducting comprehensive review of the implementation of the International Decade with bringing its results to the notice of wider international community.	The conference will discuss the implementation of the International Decade for Action 'Water for Life' (2005-2015), including progress achieved and lessons learned for further action after 2015, including for the development and implementation of Sustainable Development Goals (SDGs) related to water. The participants will also discuss: mainstreaming water and sanitation in national developments strategies; integrating water, climate change, energy and food; water scarcity; sustainable consumption and use of water resources; and water cooperation at international, regional, national and local levels to achieve water and sanitation goals.	The conference played a crucial role in conducting a comprehensive review of the implementation of the International Decade. Looking to the future, His Excellency Emomali Rahmon, President of the Republic of Tajikistan, announced a new International Decade for Action under the motto 'Water for Sustainable Development', as an important tool for promoting the implementation of sustainable development goals related to water.".	https://goo.gl/9KmAUb
UN Sustainable Development Summit 2015, New York	25 September 2015	United Nation HQ	The United Nations summit for the adoption of the post-2015 development agenda and convened as a high-level plenary meeting of the General Assembly. Over 200 speakers addressed the high-level plenary session of the Summit, including the Co-Chairs of the Summit, Heads of State and Government, other high-level representatives of Member States, the United Nations Secretary General, and representatives from international organizations, business sector and civil society.	The participation of large number of Heads of State or Government as well as high-level leaders from business and civil society is evidence of the enthusiasm generated by this new Agenda. Speakers at the Summit welcomed the adoption of the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs). They reflected on the Millennium Development Goals (MDGs) and outlined the impressive international and national achievements in implementing them, yet noted that progress has been uneven and there remains unfinished business. The SDGs were recognised as more comprehensive and complex and a springboard for continued progress.	The Summit saw the adoption of the post-2015 development agenda. Participants underscored that the national ownership of the 2030 Agenda is key for implementation, together with citizen engagement and breaking down silos. Much emphasis was also placed on the need to forge innovative partnerships between governments, businesses and civil society.	https://goo.gl/1Mx6mX https://goo.gl/UTSsqX

Event	Date	Organised by	About	Discussion	Outcome	Links
5th Biennial High-level Meeting of the Development Cooperation Forum (DCF), New York	21 July 2016	United Nations Economic and Social Council (ECOSOC)	The Development Cooperation Forum reviews the latest trends and progress in international development cooperation, and encourages coordination across diverse actors and activities. It is open to all member States of the United Nations and is a core function of the Economic and Social Council.	The meeting brought together over 250 representatives of governments and the range of stakeholders – civil society organizations, local governments, parliamentarians, philanthropic organizations, international organizations and development banks and the private sector – to review trends and progress in international development cooperation, with the overarching theme of "Development cooperation: lever for effective implementation of the 2030 Agenda".	With open and honest exchanges, the 2016 DCF advanced the global policy dialogue on how development cooperation can play more strategic roles in promoting rights-based, resultsoriented and whole-of-society approaches to support developing countries to strengthen country ownership and in assisting all stakeholders in achieving the 2030 Agenda. Participants called on the Forum to further strengthen its capacity to promote knowledge sharing and mutual learning and provide guidance on development cooperation in the implementation of the 2030 Agenda and Addis Agenda.	https://goo.gl/NYXu5h https://goo.gl/T7SPjz
Extended Southeast Asian Conference: GPP and Eco Labels as Promoter for Innovation, Qualification and Green Transformation, 2016, Chiang Rai, Thailand	28 September 2016	The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of The Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)	More than 80 participants from government agencies, intergovernmental agencies, national eco-labelling program implementers, research institute, private companies, manufacturers and interested organizations from 15 countries of developed, developing and less developed countries were participating in the event.	Two signing ceremonies were held on 30th September 2016, in order to promote the cooperation between Type I Eco-labels. Firstly was the signing ceremony on the Mutual Recognition Agreement between Thailand Green Label and SIRIM Eco-label. The second was the signing ceremony of the Memorandum of Understanding on Imaging Equipment (Printers, Copiers) Common Criteria between Japan Eco Mark and Thailand Green Label.	During the event, there were exchanging of information and sharing experiences in working groups which were provided for specific interest in different topics including criteria development process of type I eco-labels, sustainable consumption and production towards sustainable development goals, development of Nationally Appropriate Mitigation Actions on SCP, successful approach for green public procurement (GPP) and eco-label policy support, quantifying benefit of GPP, green construction, and innovative strategies on promoting eco-friendly products in the market.	https://goo.gl/5iZ1Xu
Habitat III - United Nations Conference on Housing and Sustainable Urban Development, Ecuador	17 October 2016	United Nation General Assembly (UNGA)	In resolution 66/207 and in line with the bi-decennial cycle (1976, 1996 and 2016), the United Nations General Assembly decided to convene, the Habitat III Conference to reinvigorate the global commitment to sustainable urbanization, to focus on the implementation of a "New Urban Agenda", building on the Habitat Agenda of Istanbul in 1996. Habitat III was one of the first United Nations global summits after the adoption of the Post-2015 Development Agenda.	The conference gave the opportunity to open discussions on important urban challenges and questions, such as how to plan and manage cities, towns and villages for sustainable development. The discussion of these questions shape the implementation of new global development and climate change goals.	The United Nations adopted the New Urban Agenda (NUA) at the closing plenary of the Habitat III Conference. The NUA is an inclusive, action-oriented, and concise document intended to guide the next twenty years of sustainable and transformative urban development worldwide. It has a strong focus on the inclusion and participation of stakeholder groups, civil society, and grassroots organizations. Sub-national and local governments are supported as strategic and operational partners for implementation, along with national governments.	https://goo.gl/pgBNsn https://goo.gl/5aBjLD
Low Carbon Earth Summit(LCES), Qingdao, China	10 November 2016	BIT Congress Inc.	The 6th Summit aims to strengthen the technical and business ties in the field of low carbon, and bring experts and industry leaders around the world to exchange state-of-the-art research, development, identify research needs and opportunities in this field.	LCES 2016 will comprise 4 professional parallel forums including Climate Change, Emission Trade, Low Carbon & Smart City, Low Carbon & Clean Technologies.	Outcome report not available Discussion on the future directions in the area of Climate Change, Emission Trade, Low Carbon Technologies, Low Carbon Transport, Low carbon Building and Low Carbon City	https://goo.gl/MzfyA8 https://goo.gl/zsnWyQ https://goo.gl/m66n5r
5th Responsible Business Forum (RBF) on Sustainable Development, Singapore	22 November 2016	United Nations Development Programme (UNDP) and Global Initiatives	The Responsible Business Forum (RBF) global event series help drive sustainable industry solutions through public-private partnerships that enhance responsible business growth.	The Forum on Sustainable Development will examine each of the 17 SDGs in depth with case studies and perspectives from businesses, governments, UN agencies, investors and international experts and will help companies better understand the SDGs and the opportunities in supporting governments to achieve them. Gender equality and women's empowerment were a key theme throughout the Forum.	Direct outcomes of the Forum included the launch of the Sustainable Finance Collective Asia, aiming to accelerate funding of sustainability projects, initiated by ING and backed by major financial institutions, Credit Suisse, Dutch development bank, and UN Social Impact Fund (UNSIF). UNDP introduced their Gender Equality Seal Certification Programme for the Private Sector, with an inspiring call to action from UNDP Goodwill Ambassador, Michelle Yeoh.	https://goo.gl/WgvoHB https://goo.gl/v6RfVi
UN Biodiversity Conference COP13, Cancun, Mexico	2 December 2016	United Nation	The UN Biodiversity Conference attended by over 6,000 participants including some 4,300 delegates from 170 countries and over 400 organizations. Over 300 side-events have taken place on the margins of the UN Biodiversity Conference.	The Conference resulted in significant commitments for action on biodiversity. Agreements were reached on actions to integrate biodiversity in forestry, fisheries, agriculture, and tourism sectors and to achieve the 2030 Agenda on Sustainable Development, as well as actions on specific themes including protected areas, ecosystem restoration, marine biodiversity, biodiversity and health, synthetic biology, and traditional knowledge, among others, and on strengthening capacity-development and the mobilization of financial resources.	Outcome: - The Cancun Declaration on mainstreaming the conservation and sustainable use of biodiversity for well-being - Decisions of the 13th meeting of the Conference of the Parties to the Convention on Biological Diversity - Decisions of the 8th meeting of the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety - Decisions of the 2nd meeting of the Conference of the Parties serving as the meeting of the Parties to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from their utilization	https://goo.gl/PG7MV6

Table R: Landmark Events (2013 - 2016)

Annexure N - Government Schemes with SCP components for MSME

Sr.No.	Name	Sector	Institution
1	Development and promotion of clean technology & waste minimization strategies	Applicable to SME's in general	Ministry of Environment, Forest and Climate Change
2	National Environmental Awareness Campaign (NEAC) under Environmental Education Awareness and Training (EEAT)	Applicable to SME's in general	Ministry of Environment, Forest and Climate Change
3	Seminars/ symposia/ workshop/ conferences under Environmental Education Awareness and Training (EEAT)	Applicable to SME's in general	Ministry of Environment, Forest and Climate Change
4	Other Awareness Programme (OAP) under Environmental Education Awareness and Training (EEAT)	Applicable to SME's in general	Ministry of Environment, Forest and Climate Change
5	Demonstration of technologies (under Post harvest technology and management)	Agriculture	Ministry of Agriculture & Farmers Welfare
6	Training of farmers, entrepreneurs and scientists (under Post harvest technology and management)	Agriculture	Ministry of Agriculture & Farmers Welfare
7	Establishment of units for primary processing technology, value addition, low cost scientific storage, packaging units & technologies for bi-product management in the production catchments under tripartite agreement	Agriculture	Ministry of Agriculture & Farmers Welfare
8	Establishment of low cost Post Harvest Technology (PHT) units/supply of PHT equipments with Government assistance (under Post harvest	Agriculture	Ministry of Agriculture & Farmers Welfare
9	Agriculture marketing infrastructure (under Integrated Scheme for Agricultural Marketing-ISAM)	Agriculture	Ministry of Agriculture & Farmers Welfare
10	Agribusiness development through venture capital assistance & project development facility (under Integrated Scheme for Agricultural Marketing-	Agriculture	Ministry of Agriculture & Farmers Welfare
11	Marketing research and information network (under Integrated Scheme for Agricultural Marketing-ISAM)	Agriculture	Ministry of Agriculture & Farmers Welfare
12	Strengthening of AGMARK grading facilities (under Integrated Scheme for Agricultural Marketing-ISAM)	Agriculture	Ministry of Agriculture & Farmers Welfare
13	Information and public awareness programmeApplicable to MSMEs in	Applicable to SME's in general	Ministry of New and Renewable Energy
14	Programme on Small Wind Energy and Hybrid Systems (SWES)	Applicable to SME's in general	Ministry of New and Renewable Energy
15	Programme on energy from urban, industrial & agricultural wastes/residues	Applicable to SME's in general	Ministry of New and Renewable Energy
16	Seminar & symposia scheme of info & public awareness programme	Applicable to SME's in general	Ministry of New and Renewable Energy
17	Programme on biomass gasifier for industries	Applicable to SME's in general	Ministry of New and Renewable Energy
18	Comprehensive handloom cluster development scheme (CHCDS) under mega cluster scheme	Textiles	Ministry of textiles

Table N: Government Schemes with SCP components for MSME

Sr.No.	Name	Sector	Institution
19	Comprehensive Handicrafts Cluster Development Scheme (CHCDS) under Mega Cluster Scheme	Textiles	Ministry of textiles
20	NABARD Infrastructure Development Assistance (NIDA)	Rural Development	National Bank for Agriculture and Rural Development (NABARD)
21	Rural Innovation Fund	Rural Development	National Bank for Agriculture and Rural Development (NABARD)
22	Promotion of Self help Groups	Women	National Bank for Agriculture and Rural Development (NABARD)
23	Handicrafts training program (under Human resource development scheme)	Handicraft	DC-Handicraft
24	Raw Material Depot (under Marketing and Sourcing hubs in urban areas)	Handicraft	DC-Handicraft
25	Social & Other Welfare Measures	Handicraft	DC-Handicraft
26	Yarn Supply Scheme	Handloom	DC- Handloom
27	Scheme for promotion of ICT in MSME sector under NMCP (setting up eRC & software deployment)	Applicable to MSMEs in General	DC - MSME
28	Scheme for promotion of ICT in MSME sector under NMCP (appointment of TPs for conducting awareness programmes)	Applicable to MSMEs in General	DC - MSME
29	Scheme for promotion of ICT in MSME sector under NMCP (DPRs)	Applicable to MSMEs in General	DC - MSME
30	Scheme for promotion of ICT in MSME sector under NMCP (Establishing nat portal for MSMEs	Applicable to MSMEs in General	DC - MSME
31	Implementation of Energy Efficient Technologies	Applicable to MSMEs in General	DC - MSME
32	Scheme for enhancing productivity & competitiveness of khadi industries & artisans	Khadi and Village Industries	KVIC
33	KfW- Energy efficiency scheme	Applicable to MSMEs in General	SIDBI
34	KfW Cleaner production scheme	Applicable to MSMEs in General	SIDBI
35	ISO 9000/ 14001 cert reimburesement scheme	Applicable to MSMEs in General	DC MSME
36	Setting up Carbon Credit Aggregation centres for introducing Clean Development Mechanism in MSME Clusters (Tech and quality upgradation support to MSMEs under NMCP)	Applicable to MSMEs in General	DC MSME
37	Tech and quality upgradation support to MSMEs under NMCP (capacity building of MSME clusters for EE/ CDM)	Applicable to MSMEs in General	DC MSME

Annexure O

EcoLabels: A Comparative Overview - Part 1

Eco Label Name and Parameters	Better Cotton Initiative	BMP Certified Cotton	California Certified Organic Farmers - CCOF	EMAS: European Eco-Management and AuditScheme	Fairtrade	Fair Trade Organization Mark	Forest Stewardship Council (FSC) Chain of Custody Certification	Global Organic Textile Standard	Gold Standard	Carbon Trust Standard	Ecocert	Ecomark: India	EU Ecolabel	GoodWeave	Organic Content Standard (OCS)
Key data															
Year established	2005	Unknown	1973	1995	1997	2004	1994	2006	2003	2008	1991	1991	1992	1994	2013
Compliance type	Unknown	Pass / Fail	Pass / Fail	Unknown	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail
Classification | Who, what, where															
Target audience (s)	Retailers	Corporate purchasers (excluding retail)	Corporate purchasers (excluding retail) Individual consumers Retailers	Unknown	Corporate purchasers (excluding retail) Government purchasers Individual consumers Retailers	Individual consumers	Corporate purchasers (excluding retail) Government purchasers Individual consumers Retailers Specifiers and designers	Individual consumers Retailers Specifiers and designers	Unknown	Corporate purchasers (excluding retail) Government purchasers Other	Corporate purchasers (excluding retail)	Individual consumers Retailers	Corporate purchasers (excluding retail) Government purchasers Individual consumers Retailers	Corporate purchasers (excluding retail) Individual consumers Retailers Specifiers and designers	Unknown
This ecolabel certifies	Unknown	Products Supply Chains	Farms Individuals Other	Companies / OrganizationsFacilities Processes	Companies / Organizations FarmsProducts Supply Chains	Companies / Organizations	Forests / Land holdings Products	Companies / Organizations Facilities Processes Products Supply Chains	Companies / Organizations	Companies / Organizations	Processes Products Supply Chains	Unknown	Products Services	Products	Products Supply Chains
Product categories	Textiles	Textiles	Food Other	Unknown	Cosmetics / Personal care Food Textiles Other	Food	Building products Forest products / Paper Packaging	Textiles	Carbon Carbon offsetsEnergy	Carbon offsets Energy	Cosmetics / Personal care Food Textiles	Appliances Building products Cleaning products Cosmetics / Personal careFood Forest products / Paper Packaging Textiles Other	Appliances Building products Cleaning products Electronics Forest products / Paper Textiles Tourism Other	Textiles	Cosmetics / Personal careTextiles
Ecolabel details | What are the characteristics of the standard(s) related to this ecolabel?															
Number of standards	1	1	3	1	4	1	1	1	1	1	8	16	26	1	1
Adapted for regional / national / local conditions	Yes	Unknown	Yes	No	Yes	Unknown	Yes	Yes	Yes	No	Unknown	No	No	Yes	No
Supply-chain phases	Mining / Extraction → Commodity Production →Processing / Manufacturing →Transportation / Logistics →Trade / Retail→ End / Consumer UseProductRecovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics → Trade / Retail → End / Consumer UseProductRecovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics → Trade / Retail → End / Consumer UseProductRecovery / Recycling →	N/A	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics → Trade / Retail → End / Consumer UseProductRecovery / Recycling →	Mining / Extraction → Commodity Production →Processing / Manufacturing →Transportation / Logistics →Trade / Retail → End / Consumer UseProductRecovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing→ Transportation / Logistics → Trade / Retail → End / Consumer UseProductRecovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics → Trade / Retail → End / Consumer UseProductRecovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics →Trade / Retail → End / Consumer UseProductRecovery / Recycling →	N/A	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics → Trade / Retail → End / Consumer UseProductRecovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics → Trade / Retail → End / Consumer UseProduct Recovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics → Trade / Retail → End / Consumer UseProduct Recovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics → Trade / Retail → End / Consumer UseProductRecovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics→ Trade / Retail → End / Consumer UseProductRecovery / Recycling →

EcoLabels: A Comparative Overview - Part 1

Eco Label Name and Parameters	Better Cotton Initiative	BMP Certified Cotton	California Certified Organic Farmers - CCOF	EMAS: European Eco-Management and AuditScheme	Fairtrade	Fair Trade Organization Mark	Forest Stewardship Council (FSC) Chain of Custody Certification	Global Organic Textile Standard	Gold Standard	Carbon Trust Standard	Ecocert	Ecomark: India	EU Ecolabel	GoodWeave	Organic Content Standard (OCS)
Social attributes	Gender, Labor Relations / Human Resource Policies, Training and Education, Worker Health Conditions, Work Safety	Unknown	Unknown	Unknown	Community Services (health care, schools etc.), Cultural / Indigenous / Minority Rights, Diversity, Fair Trade, Gender, Housing / Living Conditions, Human Rights, Labor Relations / Human Resource Policies, Training and Education, Worker Health Conditions, Work Safety, Other	Fair Trade	Community Services (health care, schools etc.), Cultural / Indigenous / Minority Rights, Housing / Living Conditions, Human Rights, Labor Relations / Human Resource Policies, Worker Health Conditions	Cultural / Indigenous / Minority Rights, Gender, Human Rights, Labor Relations / Human Resource Policies, Training and Education, Worker Health Conditions, Work Safety	None	Unknown	Unknown	Unknown	None	Community Services (health care, schools etc.), Human Rights, Worker Health Conditions, Work Safety	None
Environmental attributes	Biodiversity, Chemicals, Natural resources, Pesticides / Herbicides / Fungicides, Soil, Wastewater / Sewage, Water Quality, Water Use, Other	Chemicals, Natural resources, Pesticides / Herbicides / Fungicides, Soil	Chemicals, GMOs, Natural resources, Pesticides / Herbicides / Fungicides, Soil, Water Quality	Unknown	Biodiversity, Energy - Use / Efficiency, Forests, GMOs, Natural resources, Pesticides / Herbicides / Fungicides, Soil, Toxics, Waste, Water Use	None	Biodiversity, Forests, Natural resources	Chemicals, GMOs, Material use, Natural resources, Pesticides / Herbicides / Fungicides, Soil, Toxics, Wastewater / Sewage, Water Quality	Carbon / GHG Emissions, Carbon / GHG Offsets	Carbon / GHG Emissions	Chemicals, Pesticides / Herbicides / Fungicides, Soil, Toxics	Carbon / GHG Emissions, Energy - Production / Sources, Energy - Use / Efficiency, Forests, Material use, Natural resources, Recycling, Waste, Wastewater / Sewage	Chemicals, Energy - Use / Efficiency, Forests, Material use, Natural resources, Recycling, Toxics, Waste, Wastewater / Sewage, Water Quality, Water Use	Other	Biodiversity, Chemicals, GMOs, Natural resources, Pesticides / Herbicides / Fungicides, Soil, Toxics, Other
Ecolabel development | How were the standards for this ecolabel developed?															
Standard-setting norms followed	ISEAL Code of Good Practice for Setting Social and Environmental Standards	Unknown	ISO / IEC Guide 65	Unknown	ISEAL Code of Good Practice for Setting Social and Environmental Standards, ISO / IEC Guide 65	ISEAL Code of Good Practice for Setting Social and Environmental Standards	ISEAL Code of Good Practice for Setting Social and Environmental Standards	None	None	Other	Other	Unknown	ISO 14020, ISO / IEC Guide 65	ISEAL Code of Good Practice for Setting Social and Environmental Standards	ISO / IEC Guide 65
Conformity assessment | How is compliance with this ecolabel's standard ensured?															
Verification by	An independent organization (third party)	Our own organization (second party)	An independent organization (third party)	Unknown	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	Our own organization (second party)	An independent organization (third party)
Standardrequires chain-of-custody proof	No	No	Yes	No	Yes	No	Yes	Yes	No	No	No	Yes	No	Yes	Yes
Field site visit(s)	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes
Duration of certification	under 1 year	Unlimited	Unknown	Unknown	2 to 4 years	Unknown	5 years	1 up to (but less than) 2 years	Unknown	Other	Unknown	1 up to (but less than) 2 years	2 to 4 years	Other	1 up to (but less than) 2 years
Requires specific metrics and data	No	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	No	Yes	Yes	No
Time to achieve certification / registration	Unknown	Unknown	Unknown	Unknown	6-12 months	Unknown	2-3 months	3-6 months	Unknown	2 weeks to 2 months	12-24 months	Unknown	12-24 months	2 weeks to 2 months	2-3 months

Table O - EcoLabels: A Comparative Overview - Part 1

Annexure P

EcoLabels: A Comparative Overview - Part 2

Eco Label Name and Parameters	AB (Agriculture Biologique)	ABIO	ABNT Ecolabel	Acorn Scheme	BASF Eco-Efficiency	BioForum Biogarantie and Ecogarantie	Biokreis	China Environmental Labelling	CRI Green Label	Fair for Life	Compostability Mark of European Bioplastics	Global GreenTag Certified	Hong Kong Green Label (HKGLS)	Processed Chlorine Free	Totally Chlorine Free
Key data															
Year established	1985	1985	1993	Unknown	2002	2002	1979	1993	1992	2006	2000	2010	2000	1996	2001
Compliance type	Pass / Fail	Pass / Fail	Pass / Fail	Unknown	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail	Tiered (Plus)	Pass / Fail (Points awarded for exceptional performance)	Pass / Fail	Tiered (Bronze, Silver, Gold, Platinum & EcoPOINTS)	Pass / Fail	Pass / Fail	Pass / Fail
Classification | Who, what, where															
Target audience(s)	Government purchasersIndividual consumers Retailers	Individual consumers	Individual consumers	Corporate purchasers (excluding retail) Government purchasers Individual consumers	Individual consumers Retailers	Individual consumers Retailers	Individual consumersOther	Government purchasers Individual consumers	Retailers	Other	Corporate purchasers (excluding retail) Individual consumers Retailers	Corporate purchasers (excluding retail)Government purchasers Individual consumers Retailers Specifiers and designers	Corporate purchasers (excluding retail) Government purchasers Individual consumers Retailers Specifiers and designers	Corporate purchasers (excluding retail) Government purchasers Retailers Specifiers and designers Other	Corporate purchasers (excluding retail) Government purchasers Other Retailers Specifiers and designers
This ecolabel certifies	Farms Products	Farms Products	Buildings Products Services	Companies / Organizations	Facilities Processes Products Services	Farms Products	Farms Products	Companies / OrganizationsProducts	Products	Companies / OrganizationsFacilities Farms Fisheries Forests / Land holdings Products Supply Chains	Products	Products Supply Chains	Products	Processes Products	Facilities Farms Forests / Land holdings ProcessesProducts Supply Chains
Product categories	Food	Food	Building products Cosmetics / Personal careMachinery & Equipment Textiles Other	Unknown	Appliances Building products Cleaning products Cosmetics / Personal care Electronics Energy Forest products / Paper Health care services & equipment Machinery & Equipment Professional, scientific and technical services	Cosmetics / Personal careFood	Fish / Fisheries Food	Appliances Building products Cleaning products Cosmetics / Personal care Electronics Forest products / Paper Packaging Textiles Transportation Other	Building productsTextiles	Cosmetics / Personal care Fish / Fisheries Food Forest products / Paper Textiles Tourism	Packaging Textiles Waste management & Recycling Other	Building products Carbon Carbon offsets Cleaning products Cosmetics / Personal care Forest products / Paper Furniture Machinery & Equipment Packaging Textiles Waste management & Recycling	Building products Cleaning products Electronics Health care services & equipment Appliances Machinery & Equipment Other Textiles	Carbon Food Forest products / Paper PackagingTextiles Waste management & Recycling	Textiles Food Forest products / Paper Health care services & equipment Waste management & Recycling
Ecolabel details | What are the characteristics of the standard(s) related to this ecolabel?															
Number of standards	1	1	9	1	1	2	1	56	1	1	1	3	54	8	8
Adapted for regional / national / local conditions	No	No	No	No	Yes	Yes	Yes	No	No	Other	No	Yes	Yes	No	No
Supply-chain phases	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics→ Trade / Retail → End / Consumer UseProductRecovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing →Transportation / Logistics→ Trade / Retail → End / Consumer UseProductRecovery / Recycling →	Mining / Extraction →Commodity Production → Processing / Manufacturing → Transportation / Logistics→ Trade / Retail → End / Consumer UseProduct Recovery / Recycling →	N/A	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics → Trade / Retail → End / Consumer UseProduct Recovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics→ Trade / Retail → End / Consumer UseProductRecovery / Recycling →	Mining / Extraction →Commodity Production→ Processing / Manufacturing →Transportation / Logistics→ Trade / Retail → End / Consumer UseProductRecovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics →Trade / Retail → End / Consumer UseProduct Recovery / Recycling →	Mining / Extraction→ Commodity Production → Processing / Manufacturing →Transportation / Logistics → Trade / Retail → End / Consumer UseProductRecovery / Recycling→	Mining / Extraction → Commodity Production → Processing / Manufacturing →Transportation / Logistics →Trade / Retail → End / Consumer UseProductRecovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics → Trade / Retail → End / Consumer UseProduct Recovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics → Trade / Retail → End / Consumer UseProduct Recovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics → Trade / Retail → End / Consumer UseProduct Recovery / Recycling →	Mining / Extraction → Commodity Production → Processing / Manufacturing → Transportation / Logistics → Trade / Retail → End / Consumer UseProductRecovery / Recycling →
Social attributes	Unknown	Unknown	Unknown	Unknown	Cultural / Indigenous / Minority Rights, Diversity, Gender, Human Rights, Labor Relations / Human Resource Policies, Training and Education, Worker Health Conditions, Work Safety	Unknown	Fair Trade	Unknown	None	Community Services (health care, schools etc.), Cultural / Indigenous / Minority Rights, Diversity, Fair Trade, Gender, Labor Relations / Human Resource Policies, Worker Health Conditions, Work Safety	Diversity, Housing / Living Conditions, Human Rights	Fair Trade, Human Rights, Labor Relations / Human Resource Policies, Philanthropy, Worker Health Conditions, Work Safety	Unknown	Fair Trade, Gender, Human Rights, Labor Relations / Human Resource Policies, Training and Education, Worker Health Conditions, Work Safety	Community Services (health care, schools etc.), Fair Trade, Gender, Housing / Living Conditions, Human Rights, Labor Relations / Human Resource Policies, Training and Education, Work Safety

EcoLabels: A Comparative Overview - Part 2

Eco Label Name and Parameters	AB (Agriculture Biologique)	ABIO	ABNT Ecolabel	Acorn Scheme	BASF Eco-Efficiency	BioForum Biogarantie and Ecogarantie	Biokreis	China Environmental Labelling	CRI Green Label	Fair for Life	Compostability Mark of European Bioplastics	Global GreenTag Certified	Hong Kong Green Label (HKGLS)	Processed Chlorine Free	Totally Chlorine Free
Environmental attributes	Animal welfare, Biodiversity, Chemicals, Forests, GMOs, Natural resources, Pesticides / Herbicides / Fungicides	Biodiversity, Chemicals, GMOs, Natural resources, Pesticides / Herbicides / Fungicides, Soil, Toxics	Chemicals, Energy - Production / Sources, Energy - Use / Efficiency, Material use, Toxics, Waste, Wastewater / Sewage, Water Quality, Water Use	Unknown	Carbon / GHG Emissions, Chemicals, Energy - Production / Sources, Energy - Use / Efficiency, Forests, Material use, Natural resources, Pesticides / Herbicides / Fungicides, Recycling, Soil, Toxics, Waste, Wastewater / Sewage, Water Quality, Water Use	Animal welfare, Biodiversity, Chemicals, GMOs, Pesticides / Herbicides / Fungicides, Soil, Toxics, Water Quality	Animal welfare, Biodiversity, Soil	Chemicals, Energy - Production / Sources, Energy - Use / Efficiency, Forests, Material use, Natural resources, Pesticides / Herbicides / Fungicides, Recycling, Waste, Wastewater / Sewage, Water Use	Chemicals, Toxics	Animal welfare, Biodiversity, Carbon / GHG Emissions, Energy - Use / Efficiency, GMOs, Natural resources, Pesticides / Herbicides / Fungicides, Soil, Water Use	Chemicals, Material use, Natural resources, Pesticides / Herbicides / Fungicides, Recycling, Toxics, Waste, Water Quality	Animal welfare, Biodiversity, Carbon / GHGEmissions, Carbon / GHG Offsets, Chemicals, Energy - Production / Sources, Energy - Use / Efficiency, Forests, GMOs, Material use, Natural resources, Pesticides / Herbicides / Fungicides, Recycling, Soil, Toxics, Waste, Wastewater / Sewage, Water Quality, Water Use, Other	Carbon / GHG Emissions, Energy - Production / Sources, Energy - Use / Efficiency, Forests, Material use, Natural resources, Pesticides / Herbicides / Fungicides, Recycling, Toxics, Waste, Wastewater / Sewage, Water Use	Biodiversity, Carbon / GHG Emissions, Carbon / GHG Offsets, Chemicals, Energy - Production / Sources, Energy - Use / Efficiency, Forests, GMOs, Material use, Natural resources, Pesticides / Herbicides / Fungicides, Recycling, Soil, Toxics, Waste, Wastewater / Sewage, Water Quality, Water Use	Biodiversity, Carbon / GHG Emissions, Carbon / GHG Offsets, Chemicals, Energy - Production / Sources, Energy - Use / Efficiency, Forests, GMOs, Material use, Natural resources, Pesticides / Herbicides / Fungicides, Recycling, Soil, Toxics, Waste, Wastewater / Sewage, Water Quality, Water Use
Ecolabel development | How were the standards for this ecolabel developed?															
Standard-setting norms followed	Unknown	Unknown	ISO 14020	Unknown	ISO 14020	ISO 14020	Other	ISO 14020	Unknown	ISEAL Code of Good Practice for Setting Social and Environmental Standards, ISO/ IEC Guide 65	ISO / IEC Guide 65	ISEAL Code of Good Practice for Setting Social and Environmental Standards, ISO14020, ISO / IEC Guide 65, Other	Other, ISO 14020	ISEAL Code of Good Practice for Setting Social and Environmental Standards, ISO14020	ISEAL Code of Good Practice for Setting Social and Environmental Standards, ISO14020
Conformity assessment | How is compliance with this ecolabel's standard ensured?															
Verification by	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	Our own organization (second party)	Our own organization (second party)	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)	An independent organization (third party)
Standardrequires chain-of-custody proof	No	No	No	No	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes
Field site visit(s)	No	Yes	No	No	No	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes
Duration of certification	Unknown	Unknown	1 up to (but less than) 2 years	Unknown	2 to 4 years	2 to 4 years	1 up to (but less than) 2 years	Unknown	Unknown	Other	Unknown	2 to 4 years	Other	Other	5 years
Requires specific metrics and data	No	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	Yes
Time to achieve certification / registration	Unknown	Unknown	2 weeks to 2 months	Unknown	3-6 months	2-3 months	6-12 months	Unknown	Unknown	2 weeks to 2 months	Unknown	3-6 months	2 weeks to 2 months	2-3 months	2-3 months

Table P - EcoLabels: A Comparative Overview - Part 2

Annexure Q

Overview - Organisations Reporting On Sustainability

Organisation Name	Turnover	Founded In	Raw Material	Product	Report Year	Standards Used	Materiality Issues	Assessment Tool	Reporting Framework	Link to Reports
Arvind Limited	INR 5407.26 Crores	1931	Cotton	Denim, Woven Fabrics, Knit Fabrics, Gramet Exports	FY 13 - 14	1. Global Organic Textile Standard - Yarn Dyeing, Dyeing, Exporting, Finishing, Knitting, Printing, Sizing, Spinning, Storing, Trading, Weaving, and Wet Processing. 2. Better Cotton Initiative - Production & Sourcing of Cotton 3. Organic Cotton Farming -Production & Sourcing of Cotton from marginal farmers 4. Social Accountability International SA8000:2008 Standard - manufacture and dispatch of woven fabrics, knit fabrics and industrial fabrics 5. International Organization for Standardization – ISO 9001, ISO 14001 - operations are ISO 9001: 2008 (Quality Management Systems) and ISO 14001: 2004 (Environmental Management Systems) certified	Sustainable sourcing of Cotton, Water use & Management, Chemicals Management, Waste generation & Management, Energy Management, Greenhouse Gas (GHG) Emissions & Air Pollution, Fair Labour Practices, Communication and Engagement, Regulatory Challenges, Policies, Standards and Code of Conduct and customer satisfaction	Higg Index 2.0: Facility Module for the assessments of facilities for their environmental parameters	Global Reporting Initiative (GRI) G3.1 Guidelines	Web url: https://goo.gl/SWb12X
Grasim Bhiwani Textiles Limited (Aditya Birla Group)	INR 406.45 Crores	1938	- Polyester - Viscose - Spandex - Lycra	- Polyester viscose blended yarn (65:35) - Blend other fibres such as Rayon, Modal, Linen, Wool, Elastane, Cotton and Silk. - Manufacturing of polyester viscose fabric for domestic and export markets - Product range of readymade garments (RMG) with exclusive design and qualities	FY 14 - 15 & FY 15 - 16	1. ABG Sustainability Framework - aligned to the international standards┌ as defined by the IFC, OECD, UNGC, ISO and OHSAS 2. Oeko-Tex Standard 100 - for all products 3. WASH Pledge - Safety & Health Framework 4. International Organization for Standardization – ISO-9001,14001 & 50001, OHSAS-18001 - to address ┌energy, safety, societal and labour issues 5. Social Accountability International SA8000:2008 Standard 6. Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) - Chemical management 7. Assurance Standard AA1000AS (2008) Type 2 Assurance for assurance process by Bureau Veritas, third party assurance provider	Materials, energy, water, waste and effluent, emission, transport, labelling, supplier environmental assessment, marketing & communication, environmental grievance mechanism, customer health & safety, improving our performance on employee health and safety, labour management relation, training & education, Human rights, market presence, etc	Higg Index 2.0: Facility Module for assessment of manufacturing facility for their enviromental and social / labour parameters	Global Reporting Initiative (GRI) G4 Guidelines	Web URL - FY 2015: https://goo.gl/UxPhJU - FY 15 - 16: https://goo.gl/2E6de0
Jaya Shree Textiles (Aditya Birla Group)	INR 1,461.82 crore	1949	- Flax Fibre - Greasy wool	- Linen Yarn and Linen Fabric - Wool Tops and Worsted Yarn	FY 14 - 15 & FY 15 - 16	1. ABG Sustainability Framework - aligned to the international standards┌ as defined by the IFC, OECD, UNGC, ISO and OHSAS 2. International Organization for Standardization – ISO-9001: 2008,14001:2004, ISO 50001:2011, OHSAS-18001:2007 - to address ┌ energy, safety, societal and labour issues 3. Social Accountability International SA8000:2008 Standard 4. Oeko-Tex Standard 100 - for all products 5. WASH Pledge - Safety & Health Framework 6. Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) - Chemical management 7. Assurance Standard AA1000AS (2008) Type 2 Assurance for assurance process by Bureau Veritas, third party assurance provider	Materials, energy, water, waste and effluent, emission, transport, labelling, supplier environmental assessment, marketing & communication, environmental grievance mechanism, customer health & safety, improving our performance on employee health and safety, labour management relation, training & education, Human rights, market presence, etc	Higg Index 2.0: Facility Module for assessment of manufacturing facility for their enviromental and social / labour parameters	Global Reporting Initiative (GRI) G4 Guidelines	Web URL - FY 14 - 15: https://goo.gl/RIiYVJ - FY 15 - 16: https://goo.gl/FBlJhH
Vikram Woollens - unit of Grasim Industries	INR 94.21 Crores	1995	- Flax Fibre - Greasy wool	- Wool Tops - Worsted Yarns - Linen wool - Linen poly-wool - Poly wool silk - Wool silk modal - Poly linen - Organic Wool	FY 14 - 15 & FY 15 - 16	1. ABG Sustainability Framework - aligned to the international standards┌ as defined by the IFC, OECD, UNGC, ISO and OHSAS 2. International Organization for Standardization – ISO-9001: 2008,14001:2004, ISO 50001:2011, OHSAS-18001:2007 - to address quality,environmental, ┌energy, safety, societal and labour issues 3. Social Accountability International SA8000:2008 Standard 4. Oeko-Tex Standard 100 - for all products 5. WASH Pledge - Safety & Health Framework 6. Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) - Chemical management 7. Assurance Standard AA1000AS (2008) Type 2 Assurance for assurance process by Bureau Veritas, third party assurance provider	Materials, energy, water, waste and effluent, emission, transport, labelling, supplier environmental assessment, marketing & communication, environmental grievance mechanism, customer health & safety, improving our performance on employee health and safety, labour management relation, training & education, employee engagement, occupational health & safety, Human rights, market presence, procurement, supply chain, economic progress, etc.,	Higg Index 2.0: Facility Module for assessment of manufacturing facility for their enviromental and social / labour parameters	Global Reporting Initiative (GRI) G4 Guidelines	Web URL - FY 14 - 15: https://goo.gl/Lfy3R6 - FY 15 - 16: https://goo.gl/EwPeSF
C&A	Not disclosed	1841	Cotton Viscose Polyster	Organic cotton clothing labelled in Europe as Bio Cotton	FY 15	1. Global Organic Textile Standard 2. Better Cotton Initiative (BCI) 3. Responsible Environment Enhanced Livelihoods (REEL) 4. Forest Stewardship Council (FSC)-certified fibres 5. Climate & Carbon footprint data: BCSD/WRI Greenhouse Gas Protocol Corporate Accounting and Reporting Standard and the Corporate Value Chain (Scope 3) Accounting and Reporting Standard 6. Responsible Down Standard (RDS) certified down purchased for C & A Europe	Sustainable products - Sustainable material, circular economy Sustainable supply - Clean environment, safe & fair labour Sustainable lives - Engaging employees, enabling HER (Customer)	Higg Index 2.0	global sustainability report developed in keeping with the Global Reporting Initiative (GRI) G4 Core guidelines and the 10 principles of the UN Global Compact	Web URL: - Summary: https://goo.gl/vBKlmU - Detailed: http://materialimpacts.c-and-a.com/ GRI Index: https://goo.gl/BWNVud

Organisation Name	Turnover	Founded In	Raw Material	Product	Report Year	Standards Used	Materiality Issues	Assessment Tool	Reporting Framework	Link to Reports
Marks & Spencer	£10.4bn	1884	Cotton, fibres	Food, Clothing, footwear	FY 16	1. Global Organic Textile Standard 2. Better Cotton Initiative (BCI) 3. FAIRTRADE Mark 4. Cruelty Free International, founded by the BUAV (British Union for the Abolition of Vivisection) - cosmetic & household products 5. Forest Stewardship Council (FSC)-certified fibres 6. Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) - Chemical management 7. WWF Low Carbon Manufacturing Programme 8. OEKO-TEX® Sustainable Textile Production (STeP) 9. ISO 50001 Energy Management standard for our stores in the UK and Republic of Ireland. 10. Assurance - DNV GL has been commissioned to provide independent assurance on these commitments using its proprietary VeriSustain methodology which is aligned with the principles and concepts of GRI guidelines, AA1000 AS and ISAE 3000.	Economic parameters - reporting, defining sustainable products & labeling, marketing Environmental - energy consumption & sourcing, climate change & GHG emission, waste management, transport, packaging, water and sustainable buildings Social - Employees health, wellbeing, training, community Supply chain - Sourcing policy, suppliers assessment	Higg Index 2.0	principles of the International Integrated Reporting Council's Integrated Reporting Framework, GRI G4 guidelines	Web URL: - Integrated Report: https://goo.gl/mklCWz - Performance summary Plan A (Parameters) - https://goo.gl/JsEn4c
IKEA	EUR 34.2 billion	1943	Cotton, palm oil, leather, wood	Home furnishing, food	FY 16	1. Better Cotton Initiative 2. Forest Stewardship Council (FSC) Chain of Custody 3. IWAY Forestry standard for sourcing 4. Towards Better Cotton is a standard developed by IKEA 5. e3 Cotton Program in USA 6. Roundtable for Sustainable Palm Oil (RSPO) standards certified 7. Aquaculture Stewardship Council (ASC) or Marine Stewardship Council (MSC) certi ed sh and seafood 8. Round Table on Responsible Soy (RTRS) or Pro Terra standards 9. UTZ certified	Responsible sourcing, carbon emissions, renewable energy, efficient buildings, transport, travel, water, waste, community, employee engagement, learning & development, health & safety, human rights, Migrant workers, governance, advocacy, entrepreneurship	No	GRI G4 guidelines	Web URL: - Report: https://goo.gl/fGBBvS - Sustainability strategy: https://goo.gl/q8zdSX - IWAY forestry standard: https://goo.gl/Ky2g8u
Nike	US$30.601 billion	1969	Cotton, Leather Polyester Rubber	athletic footwear, apparel, equipment and accessories	FY 14 - 15	1. Better Cotton Initiative 2. Sustainable Apparel Coalition, 3. BICEP (Business for Innovative Climate & Energy Policy) 4. Organic Cotton - certified organic, licensed to the Better Cotton Standard System for recycled cotton 5. leather suppliers are certified by the Leather Working Group (LWG) 6. Leadership in Energy and Environmental Design (LEED)-certified NIKE stores 7. bluesign® bluefinder database	Environmental issues- energy use, GHG emissions, water use, chemistry and non-renewable resource depletion Socioeconomic issues to be employment, labor compliance, excessive overtime, community impact, occupational health and safety, total compensation and workforce development	Higg Index 2.0	GRI G4 guidelines	Web URL: - Full report link - https://goo.gl/YoZn9j
Pratibha Syntex	INR 600 Crores	1997	Cotton	cotton farming, spinning (cotton and blended yarns), knitting, dyeing & finishing and knitted apparel manufacturing (innerwear, active, lifestyle and fashion).	FY 15 - 16	1. Global Organic Textile Standard 2. Better Cotton Initiative (BCI) 3. FAIRTRADE 4. Organic Content Standard (OCS) - OCS 100 & OCS Blended 5. Worldwide Responsible Accredited Production - safe, lawful, humane and ethical manufacturing 6. Social Accountability International SA8000:2008 Standard 7. International Organization for Standardization – ISO 9001, ISO 14001 - operations are ISO 9001: 2008 (Quality Management Systems) and ISO 14001: 2004 (Environmental Management Systems) certified	Sourcing, Water management, waste management, recycling, well being & safety of employees, community development	Higg Index 2.0	No report	Web URL: https://goo.gl/H8Rfzl (not sustainability report)
Welspun India Limited	INR 4907 Crores	1985	Cotton	bedding and bath textiles like bed sheets, pillow cases, comforters, quilts, and mattress pads, pillows, to bath rugs, towels and bath robes Ecosmart Rugs	FY 12 - 13	Social Accountability International SA8000:2008 Standard to ensure a fair and humane environment	Resource conservation; Health and safety; Talent attraction and retention; Product stewardship and innovation; Customer satisfaction and Empowering the community	No	GRI G3.1 Guidelines and is self-declared application level 'A'	Web URL: - FY 12 - 13: https://goo.gl/oYUBlG - FY 13 - 14: https://goo.gl/iCjNUY - FY 14 - 15: https://goo.gl/3uO8FB - FY 15 - 16: https://goo.gl/bceJDI
					FY 13 - 14				GRI G3.1 Guidelines and with an application level of A+	
					FY 14 - 15	1. Global Organic Textile Standard 2. Oeko-Tex Standard 100 3. Better Cotton Initiative (BCI) 4. Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) - Chemical management 5. Social Accountability International SA8000:2008 Standard to ensure a fair and humane environment 6. Assurance Standard AA1000AS (2008) Type 2 Assurance for assurance process by Bureau Veritas, third party assurance provider	Waste managment, water & effluent management, energy conservation & management, Customer centricity, material management, sustainable sourcing, employee engagment, health & safety,		GRI G3.1 Guidelines and with an application level of A+	
					FY 15 - 16	1. Global Organic Textile Standard 2. Oeko-Tex Standard 100 3. Better Cotton Initiative (BCI) 4. Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) - Chemical management 5. Social Accountability International SA8000:2008 Standard to ensure a fair and humane environment 6. OHSAS 18001 - facilities certified	Waste managment, water & effluent management, energy conservation & management, Customer centricity, material management, sustainable sourcing, employee engagment, health & safety,		GRI G4 guidelines on sustainability reporting and confirming to the requirements of 'in-accordance core'	

Table Q: Overview - Organisations Reporting On Sustainability

Annexure R

Popular EcoLabels - An Overview							
Labels	**Global Organic Textile Standard (GOTS)**	**Better Cotton Initiative (BCI)**	**Organic Content Standard (OCS)**	**FAIRTRADE**	**World Fair Trade Organization (WFTO)**	**Forest Stewardship Council (FSC)**	**OEKO-TEX®**
Overview	The Global Organic Textile Standard (GOTS) International Working Group comprises four reputed member organisations – OTA (USA), IVN (Germany), Soil Association (UK) and JOCA (Japan), which work with international stakeholder organisations and experts in the areas of organic farming as well as environmentally and socially responsible textile farming.	The Better Cotton Initiative (BCI) is a non-profit organisation that has developed the global standards for Better Cotton, and brings together the complex cotton supply chain, from farmers to retailers.	The Organic Content Standard (OCS) is a standard for tracking and verifying the content of organically grown materials in a final product. The OCS 100 logo is used for only for product that contains 95% or more organic material. The OCS blended logo is used for products that contain 5% minimum of organic material blended with conventional or synthetic raw materials.	Fair trade is an alternative approach to conventional trade based on a partnership between producers and traders, businesses and consumers. The international Fairtrade system - made up of Fairtrade International and its member organizations - represents the world's largest and most recognized fair trade system.	The World Fair Trade Organization (WFTO) is a global network of organisations representing the Fair Trade supply chain. WFTO's route to equity in trade is through the integrated supply chain. Practices used across the supply chain are checked against the WFTO Fair Trade Standard, a set of compliance criteria based on the 10 Fair Trade Principles and on International Labour Organisation (ILO) convention	Forest Stewardship Council sets the standards for what is a responsibly managed forest, both environmentally and socially. FSC certification helps forests remain thriving environments for generations to come, by helping consumer make ethical and responsible choices at their local supermarket, bookstore, furniture retailer, and beyond. FSC forest management certificationis awarded for responsible management of a forest or plantation area. Wood, and other tree-based products, sourced from forests can undergo many processes before they become a product, so FSC chain of custody certification tracks FSC-certified material from forest to store.	The International Association for Research and Testing in the Field of Textile and Leather Ecology (OEKO-TEX®) is a union of 18 independent textile research and test institutes in Europe and Japan and their worldwide representative offices. The Oeko-Tex Standard 100 is a globally uniform testing and certification system for textile raw materials, intermediate and end products at all stages of production. To complement the product-related Oeko-Tex Standard 100, the Oeko-Tex Standard 1000 is a testing, auditing and certification system for environmentally-friendly production sites throughout the textile processing chain. Oeko-Tex Standard 100plus is a product label providing textile and clothing manufacturers with the opportunity to highlight the human-ecological optimisation of their products as well as their efforts in production ecology to consumers.
Aim	To define requirements that are recognised worldwide ensuring the organic status of textiles from harvesting of raw materials through environmentally and socially responsible manufacturing all the way to labelling — in order to provide credible assurance to the consumer.	To catalyse the mass market production of cotton produced more sustainably, by creating demand on a global scale for a new mainstream commodity, Better Cotton.	To track certified organic material from the farm to the final product	To improve the trading position of farmers with a guaranteed minimum price as main attribute	To enable producers to improve their livelihoods and communities through Fair Trade.	It is a way to ensure that careful and long-term forest management is achieved	To enable consumers and companies to protect our planet by making responsible decisions.
Mark	Using 70 – 94 % organic fibres: GLOBAL ORGANIC TEXTILE STANDARD · GOTS · Made with [x] % organic materials certified by [certifier's ref.] Licence no [4321]	No mark	CERTIFIED TO OE 100 STANDARD; CERTIFIED TO OE BLENDED STANDARD	FAIRTRADE	WORLD FAIR TRADE ORGANIZATION GUARANTEED FAIR TRADE	FSC	CONFIDENCE IN TEXTILES Tested for harmful substances according to Oeko-Tex Standard 100 Test No. 00000000 Institute
Label Claims	Organic' or Made with X% organic materials	No label on product	Made with X% organically grown cotton	FAIRTRADE mark	Guaranteed Fair Trade	Three labels: FSC 100% FSC Recycled FSC Mix	Confidence in Textiles
Website	Global Organic Textile Standard website	Better Cotton Initiative website	OE-100 & OE-Blended website	Fairtrade website	Fair Trade Organization Mark website	Forest Stewardship Council® (FSC) Forest Management Certification website	Oeko-Tex Standard 100 website
Founded In	2006	2005	2004	1988	1987	1994	1992
Registered as	Non Profit	Non Profit		Non Profit	Non Profit	Non Profit	
Countries with certified operations	63 countries	48 Countries		74 Countries	70 Countries	80 Countries	> 70 Countries
Members	4642 Facilities (Check database here)	1060 (download full list here)		1210 Certified Producer organisations	364 Members (Check database here)	947 members (Check list here)	> 160.000 issued certificates
Products Certified	Cotton	Cotton	Cotton	Cosmetics/Personal Care, Food, Textiles, Other	agricultural and handcrafted goods, including baskets, clothing, cotton, home and kitchen decor, jewelry, rice, soap, tea, toys, and wine.	Forest Products/ Paper	Textiles
Certified Producer organisations	Textile processing, manufacturing and trading entities	10 Associate members, 73 Retailers & Brands, Civil Society, 912 Suppliers & Manufacturers & 32 Producer Organisations		Companies/ Organisations, Farms, Products, Supply Chains	Companies/ Organisations, producers, marketers, exporters, importers, wholesalers and retailers	For forest owner or managers - Forest Management Certification For businesses manufacturing or trading forest products - Chain of custody certification	Retailers, Manufacturers, Companies/ Organisations
Target Group	Retailers, Individual Consumers, Specifiers & designers	Retailers	Individual Consumers, Specifiers & designers	Corporate purchasers (excluding retail), Government Purchasers, Individual Consumers & Retailers	Individual Consumers	Corporate purchasers (excluding retail), Government Purchasers, Individual Consumers, Retailers & Specifiers & designers	Individual Consumers
Issues Addressed	Environmental, Social	Environmental, Social & Economic	Environmental	Environmental, Social	Social, Economic	Environmental, Social	Environmental

Table R: Popular EcoLabels - An Overview