ISSN 2454-9169

SURYA-THE ENERGY MANAGEMENT RESEARCH JOURNAL

VOLUME - 2 | Issue - 1 | January-March 2016

Suryadatta Education Foundation's

SURYADATTA GROUP OF EDUCATIONAL INSTITUTES (SGI - PUNE)

Editorial Board

New Subscription / Renewal

	1 Year (4 issues)
Individual / Institutions	Rs. 2000
Alumnus	Rs. 1600

Please send us your DD in favour of **Suryadatta Education Foundation,** Payable at Pune.

For inquiries, subscriptions and contributions, please write to:

The Editor

Suryadatta Group of Institutes

S.No. 342, Patil Nagar, Bavdhan, Pune-411021

Tel.: 020-67901300 Email: support@suryadatta.edu.in

Our Other Publications

- Surya-The Energy
- Light House
- Synergy
- Sunbeam
- Spark
- Aura
- Urja
- Suryadatta Times
- Foto-Wood

ISSN 2454-9169

SURYA-THE ENERGY
Management Research Journal

CONTENTS

ISSN 2454-9169

CONTENTS

Invite for paper submission for April – June 2016 issue

Theme: Development of Hospitality and Tourism in India

Over the decades, tourism has experienced continued growth to become one of the fastest growing economic sectors in the world. Tourism has become a thriving global industry with the power to shape developing countries. Similarly, in India tourism has become one of the major sectors of the economy, contributing to a large proportion of the National Income and generating huge employment opportunities. It has become the fastest growing service industry in the country with great potentials for its further expansion and diversification.

This issue of the Journal SURYA-THE ENERGY April-June 2016 invites papers that explore the key approaches, techniques and unique features and challenges of the hospitality and tourism industries in India

Papers are invited on the above theme by 20th of February 2016. The length of the article should be between 2000 and 2500 words. It is absolutely necessary to provide the required references in the body of the text, so that the readers are informed about the sources of the data, information, views or opinions. Further, the author is solely responsible for the accuracy of all the figures, quotations and references. Please follow APA style of referencing.

Submit your papers to:

Dr. Shabeen Ara
Director Communications
Shabeen.ara@suryadatta.edu.in

ISSN 2454-9169

From the Desk of Chairman, Editorial Board...

I am happy to bring you the The January-March, Volume 2, Issue 1 of Management Research Journal "Surya-the Energy" of Suryadatta Group of Institutes bearing ISSN 2454-9169

This volume is devoted to the theme Climate Change, Environment & Natural Resources Management.

This issue contains ten papers on the theme Climate Change, Environment, & Natural Resources Management. We have papers in this issue on various important aspects like Impacts of Climate Change and Natural Resource Management, Awareness about Environmental Laws in India, Sustainable Tourism Development, Indoor Air Pollution, Green India, Water Harvesting and more.

This Issue also contains few papers of contemporary issues not directly related to main theme

The Editorial Board takes the opportunity to thank one and all for whole heartedly extending their support in bringing out this quarterly issue January-March 2016 on time.

Happy Reading!

Prof. (Dr.) Sanjay B. Chordiya
Founder President & Dean Academics
Email : dean@suryadatta.edu.in

ISSN 2454-9169

THE PHILOSOPHY OF SURYADATTA

Quality Policy

Quality Policy

The Suryadatta Group of Institutes is committed to Excellence in imparting Quality Education in all the courses that it offers including Management, International Business, Information Technology, Bio-Informatics and Bio-Technolgy, Journalism, Media and Mass Communication, Hospitality and Tourism besides Interior Design and Fine Arts.

The Suryadatta Group of Institutes aims at total customer satisfaction through its continual enhancement of its Educational Systems, Industry Interaction, Processes, Teaching Methodologies, Faculty Skills, Learning Resources, Inspiring Creativity, Nurturing Innovation and Quality of Service for remaining the ultimate destination in Quality Education.

The Group's unequivocal belief in the measure of its Success lies in the empowering of its products, the Students, into dynamic Professionals and sensitive human beings, making invaluable contributions to Society as Catalysts for Change.

The Quality Policy shall be strictly adhered to and implemented in letter and spirit, with continual monitoring at the highest level of Management for consistency in approach and effectiveness in all its dimensions.

Suryadatta Group of Institutes

ISO 9001 : 2008 Certified Institutes & Accredited by NSF - ISR & ANAB

Quality of Education has always been of world-class standards at all the Institutes belonging to 'SURYADATTA EDUCATION FOUNDATION'. This approach of ours has paid us rich dividends in the form of recognition from the student community and the Industry as well.

To enhance the quality of education, establishment and implementation of quality systmes such as ISO 9001 : 2008 Accredited by NSF - ISR & ANAB is a very important step adopted by our Institution towards achievement of our vision, mission and objectives.

Establishment of the systems ensures consistency in the performance of the processes and satisfaction of the customer, who are the students, parents, industry and society.

SURYADATTA Group of Institutes has got the ISO certification of a leading certifying body. This is the beginning of its journey towards achieving World Class Quality Systems. Eight of the Institutes operating under the banner of SURYADATTA Group have implemented ISO 9001 : 2008 Accredited by NSF - ISR & ANAB.

Our Certifying Body

NSF International Strategic Registratons

789 North Dixboro Road, Ann Arbor, Michigan 48105

(888) NSF-9000 | www.nsf-isr.org

ISSN 2454-9169

SURYADATTA

Impacts of Climate Change and Natural Resource Management

Dr. Sanjay B. Chordiya

With rapid climate change, due to global warming the Earth's species could be headed for extinction. Climate change is already beginning to transform life on Earth. Around the world, seasons are shifting, temperatures are climbing and sea levels are rising. But still our planet is supplying us with air, water, and food. If we don't act now, climate change will rapidly alter the lands and waters we all depend upon for survival, leaving our children and grandchildren with a very different world. Some of the most dangerous consequences of climate change are discussed here which will have the most impact on life and places (The Nature Conservancy, 2016 March).

Objectives

1. To understand the threats and impacts of climate change.
2. To understand the causes for ecological imbalance.
3. To study the management of natural resources in India.

Methodology

This is an exploratory study. The Data is collected from secondary sources particularly from United Nations Environment Programme websites, WHO Fact Sheets, mimeo of Indian Institute of Forest Management, Agriculture handbooks, and data and reports from different journals.

Threats and Impacts of Climate Change

Heat-trapping gases emitted by power plants, automobiles, deforestation and other sources are warming up the planet. In fact, the five hottest years on record have all occurred since 1997 and the 10 hottest since 1990, including the warmest years on record – 2005 and 2012. High temperatures are to blame for an increase in heat-related deaths and illness, rising seas, increased storm intensity, and many of the other dangerous consequences of climate change. Scientists project that if emissions of heat-trapping carbon emissions are not reduced, average surface temperatures could increase by 3 to 10 degrees Fahrenheit by the end of the century (UNEP, 2016 March).

Prof. (Dr.) Sanjay B. Chordiya
Founder President & Dean Academics
Suryadatta Group of Institutes, Pune
dean@suryadatta.edu.in

Changing temperatures are causing vegetation shifts and conservation challenges. Rising temperatures and changing patterns of rain and snow are forcing trees and plants around the world to move toward Polar Regions and up mountain

ISSN 2454-9169

slopes. These vegetation shifts will undermine much of the work the conservation community has accomplished to date, with the potential to permanently change the face of conservancy preserves, local land trusts, and even our national parks.

Rising temperatures are changing weather and vegetation patterns across the globe, forcing animal species to migrate to new, cooler areas in order to survive. The rapid nature of climate change is likely to exceed the ability of many species to migrate or adjust. Experts predict that one-fourth of Earth's species will be headed for extinction by 2050 if the warming trend continues at its current rate.

Sea level rise from climate change could displace tens of millions of people. As the Earth heats up, sea levels rise because warmer water takes up more room than colder water, a process known as thermal expansion. Melting glaciers compound the problem by dumping even more fresh water into the oceans. Rising seas threaten to inundate low-lying areas and islands, threaten dense coastal populations, erode shorelines, damage property and destroy ecosystems such as mangroves and wetlands that protect coasts against storms.

Increased Risk of Drought, Fire, and Floods

Climate change is making floods, fires and droughts more frequent and severe. Climate change is intensifying the circulation of water on, above and below the surface of the Earth — causing drought and floods to be more frequent, severe and widespread. Higher temperatures increase the amount of moisture that evaporates from land and water, leading to drought in many areas. Lands affected by drought are more vulnerable to flooding once rain falls. As temperatures rise globally, droughts will become more frequent and more severe, with potentially devastating consequences for agriculture, water supply and human health. This phenomenon has already been observed in some parts of Asia and Africa, where droughts have become longer and more intense.

Stronger Storms and Hurricanes

Climate change will cause storms, hurricanes and tropical storms to become more intense. Scientific research indicates that climate change will cause hurricanes and tropical storms to become more intense — lasting longer, unleashing stronger winds, and causing more damage to coastal ecosystems and communities. Scientists point to higher ocean temperatures as the main culprit, since hurricanes and tropical storms get their energy from warm water. As sea surface temperatures rise, developing storms will contain more energy. At the same time, other factors such as rising sea levels, disappearing wetlands, and increased coastal development threaten to intensify the damage caused by hurricanes and tropical storms.

Heat-Related Illness and Disease

Climate change brings health risks to the world's most vulnerable communities. As temperatures rise, so do the risks of heat-related illness and even death for the most vulnerable human populations. In 2003, for example, extreme heat waves caused more than 20,000 deaths in Europe and more than 1,500 deaths in India. Scientists have linked the deadly heat waves to climate change and warn of more to come.

ISSN 2454-9169

In addition to heat-related illness, climate change may increase the spread of infectious diseases, mainly because warmer temperatures allow disease-carrying insects, animals and microbes to survive in areas where they were once thwarted by cold weather. Diseases and pests that were once limited to the tropics — such as mosquitoes that carry malaria — may find hospitable conditions in new areas that were once too cold to support them. The World Health Organization (WHO) estimates that climate change may have caused more than 150,000 deaths in the year 2000 alone, with an increase in deaths likely in the future (WHO, 2015).

Economic Loss and Damage

Climate change is already affecting economies around the world. Climate change is affecting businesses and economies at home and around the world. If action is not taken to curb global carbon emissions, climate change could cost between 5 and 20 percent of the annual global gross domestic product, according to a British government report. In comparison, it would take 1 percent of GDP to lessen the most damaging effects of climate change, the report says (Nicholas Stern, 2016 March). Declining crop yields due to prolonged drought and high temperatures, especially in Africa, could put hundreds of thousands of people at risk for starvation.

Ecological Imbalance

Over-exploitation of natural resources by growing population resulted in various severe problems. Destruction of vegetation has resulted in land degradation, denudation, soil erosion, landslides, floods, drought and unbalanced ecosystems. A balanced ecosystem is an urgent need.

Natural resources (land, water, biodiversity and genetic resources, biomass resources, forests, livestock and fisheries) – the very foundation of human survival, progress and prosperity, have been degrading fast, and the unprecedented pace of their erosion is one of the root causes of the agrarian crisis that the country is facing.

The demographic and socio-economic pressures notwith standing, the unmindful agricultural intensification, over use of marginal lands, imbalanced use of fertilizers, organic matter depletion and deteriorating soil health, extensive diversion of prime agricultural lands to non-agricultural uses, misuse and inefficient use of irrigation water, depleting aquifers, salination of fertile lands and water logging, deforestation, biodiversity loss and genetic erosion, and climate change are the main underlying causes. For example, during the ancient period Garhwal Himalaya was full of dense forest and lush green vegetation. The Himalaya is the perennial source of water for rivers, streams and reservoirs. Undoubtedly, nature takes care of its resources through natural process over a period of time and maintains them. But ever-increasing population, developmental activities and technological modernisation have over-exploited available resources without taking into consideration the damage and consequences for coming generations.

Vegetation plays an important role in protecting land and water. These resources are being depleted at an alarming rate because of human intervention. Degradation and destruction of forest cover in the Himalaya is directly responsible for the

ISSN 2454-9169

denudation of watersheds. In the absence of vegetative ground cover, during the monsoon rainwater comes down to the plains unchecked. Sudden swelling of streams, flash floods in the hills and severe floods in the plains and drought in upstream areas are the consequences. The downward rush of water has tremendous erosive force and moves millions of tonnes of fertile soil during the rainy season. It causes all types of erosion as well as devastating landslides in the Himalaya. Developmental activities, construction of roads, extraction of building material and mining, etc., are a constant threat.

Denuded hills and other wastelands pose serious problems which adversely affect agriculture and human life in the region. Landslides and landslips block hill roads and charge streams with heavy sediment loads. The soil erosion taking place crosses the permissible limit of 4.5 to 11.5 tonnes/ha many times, causing siltation in the downstream and final consequence is severe hydro metrological disorders like flood and drought in the states dependent on those Himalayan Rivers.

Destruction of mangrove forests had led severe damages of Sundarban islands during cyclone 'Aila' in 2009 and huge losses and damages in Myanmar during cyclone 'Nargis' during 2008. During Orissa Super cyclone in the year 2000, sea water entered into 150 K.m. inland as the mangrove forests were destroyed for shrimp cultivation. Mangrove forests act as natural barrier to hold a natural hazard from becoming a disaster. Moreover, due to impacts of climate change like global warming, many adverse changes are taking place in the nature as well as in the natural resources.

Natural Resources Management in India

Soil, water and vegetation are three basic natural resources. The survival of creation depends upon them and nature has provided them as assets to human beings. In a wider view, land, water, biodiversity and genetic resources, biomass resources, forests, livestock, fisheries, wild flora and fauna are considered as natural resources.

Natural Resources Management (NRM) refers to the sustainable utilization of major natural resources, such as land, water, air, minerals, forests, fisheries, and wild flora and fauna. Together, these resources provide the ecosystem services that underpin human life.

Traditional Knowledge and Natural Resources Management in India

Traditional knowledge is vital for sustainability of natural resources including forests, water, and agro ecosystems across landscape continuum spanning from households through farms, village, commons and wilderness. The management of natural resources to meet people's requirements has been practised since the pre-Vedic era.

Farmers were ranked high in the social system and village management was in their hands. In order to manage land, water and vegetation, technical knowledge suitable to the specific conditions of a region was required. They gained this knowledge and developed skill through experience and learning by doing. Farmers' traditional knowledge of agriculture includes tested technologies in the field.

In a study in the hills of Garhwal Himalayas, by Ms. Gargi Ghosh Gargi

ISSN 2454-9169

Ghosh, 2016), the traditional ways of managing natural resources have been noticed.

Irrigation

Farmers used to carry water to their fields through small irrigation channels known as gulas. These go from the source of water along the slopes to the fields. In order to avoid seepage losses farmers use pipes. By means of gravitational force they transport irrigation water from its source. In hills it is difficult to construct gulas for all the terraces, and pipes are convenient in transporting water to every field. In order to make judicious use of water, they use a sprinkler system through gravitational force and economical utilisation of water.

In the Garhwal Himalaya farmers use tree trunks as rainwater irrigation channels by taking care of undulating topography and checking seepage losses (Sharma and Sinha, 1993).

Water Harvesting

The region of Garhwal comes in the high rainfall area and in the lack of proper management system most of the rainwater goes waste as runoff. Farmers of the hill region have their traditional technology for making small dug-out ponds to harvest rainwater. They construct such ponds at several places and use the water for survival or for supplemental irrigation. Improvements over the traditional practices are that at the bottom LDPE sheets are placed to check seepage losses. Lined tanks are cost-intensive and beyond the reach of the farmers.

Management of Drinking Water

Streams are the source of water in the Himalaya. Farmers pay regard to these water resources. They use the water for drinking and make efforts to keep streams clean and unpolluted. They maintain vegetation on the banks to have a clean flow without sediment for human consumption. They do not permit their cattle at the places from which they collect drinking water. They have their own traditional system for the management of drinking water. They do not allow anyone to throw garbage in its current to avoid pollution and infection.

Agriculture

- They use a special type of traditional plough. Other types of 'improved' ploughs do not work in the hills as the soil is gravelly and not deep.
- Under rainfed conditions farmers in hill regions plough their land several times before the onset of rain to conserve water and increase water retention capacity.
- Farmers plough their land straight instead of in circles and open parallel furrows for rainwater harvesting and retaining moisture. However, there is a recommendation to plough the land across the slope to check erosion.
- Farmers of hill regions prefer mixed cropping for minimising risks under rainfed conditions and creating ground cover for checking runoff and soil loss. They grow legumes with maize and ginger or turmeric with maize.
- After sowing ginger, colocasia and turmeric, farmers use paddy straw, wheat straw or leaf litters as mulch to ensure proper germination.
- Farmers do not practise weeding and

ISSN 2454-9169

interculturing in the maize crop because of soil conditions and the requirement of fodder in the rainy season.

- Farmers of the Garhwal hills store seeds by selection for different plots with special identification and use them in those particular plots.

- In the outer Himalaya farmers were reluctant to grow maize because of wild animals such as bears, wild boars and monkeys. In khaddar (lowland) areas they grow paddy and irrigated wheat and in uplands they take rainfed rabi crops.

- In the hills farmers grow mainly mandua, jhingora and guar. Because of recent developments they have been attracted towards offseason vegetables, e.g., peas, tomatoes, etc.

Scientific Approaches for Natural Resource Management by Government of India

Natural resource management (NRM) based on scientific principles plays a crucial role for an inclusive and sustainable growth in India Lenka, Sangeeta & Biswas, (2015). Few findings and arguments of the authors on Science-based efforts made by the Government of India through various scientific establishments and science-led development schemes for NRM over time are discussed.

Demography of Natural Resources

With only 2.4% of the world's land area, India is home to 16% of the world human population and contributes immensely to global biodiversity with about 8% of total number of species (Lenka, Sangeeta Lenka and Biswas, 2015). India is recognized as a mega biodiverse country and has four identified bio-hotspots, viz. the Himalaya hotspot, the North East of India, the rainforests of the Western Ghats and the Andaman & Nicobar Island chain. According to the livestock census of 2003, the country has about 485 million livestock population and 489 million poultry population, being the first in cattle and buffalo population, second in respect of goat and third in respect of sheep population in the world. India has 57% of the world's buffalo and 16% of the world's cattle population. This means there is not only human population but also livestock population pressure on the shrinking natural resources. Though India is bestowed with 4% of the world's freshwater resources, the distribution is highly skewed across regions. The Ganga–Brahmaputra–Meghna basin with 33% of the land mass has 60% of total water flows, while the western coastline with 3% of the area has another 11%. This leaves just 29% of water resources in the remaining 64% of the area (peninsular India), thus keeping most of peninsular India water-starved compared to other parts of the country.

Research Infrastructure for Natural Resource Management (NRM)

The research network for natural resource management (NRM) is being run primarily by three separate agencies of Government of India, viz. MoA, Ministry of Environment and Forests and Department of Space (DoS).

Research Establishments for Erosion Control and Rainfed Area Management

Soil erosion is primarily caused by water and wind. Soil erosion by water (water erosion) is a three-step natural process involving three basic steps of detachment, transport and deposition.

ISSN 2454-9169

The rainfall and run-off erosivity are the two factors deciding the level of soil erosion by water. Rainfall erosivity is the intrinsic capacity of rain to cause erosion. The major factors deciding the rainfall erosivity are amount, intensity and drop size of rain. The soil loss due to water erosion is measured experimentally through standard size run-off plots and sampling the runoff through different devices such as multi-slot divisors. In watershed scale, run-off is measured through stage level recorders and measuring the silt content through silt samplers such as Coshocton wheel silt sampler. The Universal Soil Loss Equation (USLE) developed by Wischmeier and Smith (Wischmeier and Smith, 1965, Wischmeier, and Smith, 1978) is the most popular, easy to use and mostly used for estimation of soil loss by taking into account the rainfall erosivity, soil erodibility, topography and soil cover and management practices. It estimates the long-term average annual rate of erosion on a field slope and includes the erosion taking place due to sheet and rill erosion.

The soil erosion control measures recommended are based on three basic scientific principles: (1) Reducing the hitting action of the raindrop where it falls, through increasing the soil cover. (2) Reducing the run-off velocity through barriers such as contour bunds, graded bunds, stone bunds, vegetative barriers of grasses, establishing hedge row barriers of shrubs such as of Gliricidia spp., Indigofera spp. (3) Taking up measures such as increase in soil organic matter content, soil structure improvement, cover and green manure crops, etc., which allow more water to infiltrate down the soil profile rather than generating high run-off volume.

The ICAR under the MoA, New Delhi through its Division of Natural Resource Management has been taking up basic, applied and action-oriented (field-based) research programmes to develop technologies for conservation of natural resources for various ecosystems of the country. For conducting research on conservation of soil and water and particularly to control water erosion, a full-fledged ICAR institute, namely the Central Soil and Water Conservation Research and Training Institute (CSWCRTI) was established on 1 April 1974.The Institute works on evolving strategies for controlling land degradation following watershed approach, tackling special problems such as ravines, landslides, mine spoils and torrents, demonstration of technologies for popularization and imparting training besides developing technologies for water harvesting and recycling.

Realizing the importance of rainfed regions, the Central Research Institute for Dryland Agriculture (CRIDA) under ICAR was established in Hyderabad during 1985, to work on development and popularization of suitable location-specific rainfed technologies for productivity enhancement in rainfed areas. CRIDA works along with 25 coordinated project centres located in different parts of the country.

Research Establishments for Water Management

The Central Water Commission (CWC) and the Central Ground Water Board (CGWB) are the two key agencies of the Ministry of Water Resources, Government of India. The CWC coordinates schemes for control, conservation and utilization of water resources throughout the country for flood control, irrigation, hydropower

ISSN 2454-9169

generation, etc. The CGWB provides scientific inputs for management, exploration, monitoring, assessment, augmentation and regulation of groundwater resources of the country. Major activities being taken up by CGWB include macro/micro-level groundwater management studies, exploratory drilling programmes, monitoring of groundwater levels and water quality through a network of groundwater observation wells comprising both large diameter open wells and purpose-built bore/tube wells (piezometers), implementation of demonstration schemes for artificial recharge and rainwater harvesting for recharge augmentation. Periodic assessment of replenishable groundwater resources of the country is also carried out by the Board jointly with the concerned State Government agencies. It also organizes various capacity building activities for its own personnel and those of Central/State Government organizations engaged in various activities in groundwater sector as well as mass awareness campaigns on the importance of water conservation and judicious groundwater management. The data generated from various studies taken up by the CGWB provide a scientific base for water resource planning by stakeholders.

Research Establishment for Forest and Vegetation

Forests are considered a national wealth and have a pervasive impact on micro-climate regulation and maintaining soil, water and environmental quality. In India, the Forest Research Institute (FRI), Dehradun is the premier institution with thrust areas on biodiversity conservation, social forestry and agro forestry, stock improvement of different tree species, restoration of ecologically fragile and risk-prone areas and developing technologies for mine-spoil areas and wastelands.

Conclusion

Natural Resources Management is key to poverty alleviation. Poverty and Environmental Degradation has a Cause-and-Effect Relationship. The thin layer of soil that covers most of the earth's land surface is the key to human well-being and survival. Without it, there would be no plants, no crops, no animals, no forests and no people.

In ecologically fragile, marginal environments the poor are often locked into patterns of natural resource degradation by their lack of access to productive resources, institutional services, credit and technology. Without these resources, they are compelled to overstrain already eroding lands in order to survive. The increased pressure on the land – through deforestation, overgrazing and over cultivation – causes a decline in soil fertility and production, and thus aggravates poverty. This circular, cause-and-effect relationship between rural poverty and environmental degradation is clear. Unless degradation is to be addressed directly, the sustainability of rural development projects will be undermined and attempts to alleviate rural poverty will be jeopardized.

Viewing nature as green infrastructure allows for breakthroughs not only in conservation protecting water supplies, enhancing the health of fisheries, making cities more sustainable, livable, and safe, and dealing with unavoidable climate change but in economic progress, as well. Organizations obviously depend on the environment for key resources - water, trees, and land. But they can also reap

substantial commercial benefits in the form of risk mitigation, cost reduction, new investment opportunities, and the protection of assets. Once leaders learn how to account for nature in financial terms, they can incorporate that value into the organization's decisions and activities, just as habitually as they consider cost, revenue, and ROI.

It is agreed that sustainability was ingrained in the thought processes of early Indians but Natural Resource Management (NRM) based on scientific principles also plays a crucial role for an inclusive and sustainable growth in India. Economic growth can be inclusive only if the natural resources are sustainably managed. Recognizing the national imperatives for sustainable use of natural resources across varied ecosystems, the Approach Paper to the 12th Five-Year Plan has included a separate chapter on 'Sustainable management of natural resources'. The Approach Paper aptly notes that 'Economic development will be sustainable only if it is pursued in a manner which protects the environment. With acceleration of economic growth, these pressures are expected to intensify, and we therefore, need to pay greater attention to the management of natural resources, viz. water, forests and land.'

References

The Nature Conservancy. (2016 March). Retrieved from website http://www.nature.org/

United Nations Environment Programme. (2016 March). Retrieved from Website http://www.unep.org/

WHO, Fact Sheet 2015 on Climate and Health.

Nicholas Stern. (2016 March). The Economics of Climate Change, Executive Summary. STERN REVIEW.

Gargi Ghosh. (2016 February). Natural Disaster Management. ATI, Kolkata. Retrieved on 22 February.

Sharma, A., and A. Sinha. 1993. A Study of the Common Property Resources in the Project Area of the Central Himalaya Rural Action Group. Mimeo of Indian Institute of Forest Management, Bhopal, Madhya Pradesh.

Lenka N. K., Sangeeta Lenka and A. K. Biswas. (2015). Scientific Endeavours for Natural Resource Management in India. CURRENT SCIENCE, VOL. 108, NO. 1, 10 JANUARY.

Wischmeier, W. H. and Smith, D. D. 1965. Predicting rainfall erosion losses from cropland east of the Rocky Mountains. Guide for selection of practices for soil and water conservation, USDA, Agriculture Handbook No. 282, Washington D.C.

Wischmeier, W. H. and Smith, D. D. 1978. Predicting rainfall erosion losses – a guide to conservation planning. USDA, Agriculture Handbook No. 537, Washington D.C.

ISSN 2454-9169

SURYADATTA

Disaster Management in India: An Overview

Dr. D. Pulla Rao

Introduction

The word 'disaster' reflects many different mental images and is used in different ways. The term is often used loosely to refer to any sudden, unexpected, or extraordinary misfortune, regardless of whether it occurs to an individual, a family, a community, a region, a nation, or the entire world. In formal Sociological terms, a disaster may be defined as "an event, concentrated in time and space, in which a society, or a relatively self-sufficient subdivision of a society, undergoes severe danger and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfilment of all or some of the essential functions of the society is prevented".

Earthquake, landslides, volcanic eruptions, forest fires, flood and cyclones are natural hazards that kill thousands of people and destroy habitats and property worth several billions of rupees. The time scale of disasters differs from very short duration of a few seconds for earthquakes to, a few minutes for volcanic eruption, a few hours of cyclone, a few days for flood and months or even years for drought. While natural disasters occur on all continents, the susceptibility to these disasters differs from one area to another. With the tropical climate and unstable landforms, coupled with deforestation, proliferation of unplanned growth, poor constructions which make the disaster-prone areas more vulnerable, tardy communication, poor or no budgetary allocation for disaster prevention, developing countries suffer more or less chronically by natural disasters. Thought it may not be feasible to control the development of natural phenomenon, efforts, however, could be made to avoid disasters and alleviate their effects on human lives, infrastructure and property.

Types of Disasters

Disasters can be classified into two major groups:

Natural Disasters

1. Wind related – Storm, Cyclone, Tornado, Hurricane, Storm surge, and Tidal waves
2. Water related – Flood, Drought
3. Earth related – Earthquake, Tsunamis, Avalanches,

Dr. D. Pulla Rao
Prof. of Economics,
Andhra University
pullaraod_2003@yahoo.co.in

ISSN 2454-9169

Landslides, and Volcanic eruptions.

Man-Made Disasters

1. War/battle/hostile enemy actions
2. Arson/sabotage/internal disturbance/riots
3. Accidents of vehicles
4. Industrial accidents
5. Fire and forest fires
6. Nuclear explosion
7. Ecological disasters like deforestation, soil erosion, air and water pollution

Natural Disasters in India

India is a multi-hazard prone country and every year one or more parts are affected by devastating natural disasters. Floods, landslides and droughts are very frequent and common causing thousands of deaths and colossal loss of houses and other private and public property. Cyclones and earthquakes are also repeated at three-four year interval. In the past five years, India has faced four major natural disasters – Super cyclone disaster of Orissa in 1999, Gujarat earthquake of 2001, Nation – wide drought of 2002 and the recent Tsunami devastation of 2004. Of the major natural disasters, - flood, cyclone, drought, earthquake and tsunami, caused greater loss of lives, besides rendering millions houseless.

Floods

A flood is a high water stage in which water overflows its natural or artificial banks onto normal dry land. Floods can be measured for height, peak discharge, area inundated and volume of flow. India is the worst flood-affected country in the world after Bangladesh and accounts for one-fifth of the global death count due to floods. Rainfall in India is largely dependent on the monsoons and cyclonic depressions. Nearly 75 per cent of the total rainfall is concentrated over a short monsoon season of four months (June-September). As a result, the rivers witness a heavy discharge during these months, leading to widespread floods.

Floods are a regular feature of Eastern India where the Himalayan rivers inundate large parts of its catchment areas, uprooting houses, disrupting livelihoods and damaging infrastructure. The fragility of the settlements in the Himalayan mountain ranges are a continuing source of concern for their high vulnerability to earthquakes, landslides, floods and avalanches. The flood hazard is compounded by the problems of sediment deposition, drainage congestion and synchronisation of river floods with storm surges in the coastal plains. The rivers originating in the Himalayas carry a lot of sediment and cause erosion of the banks in the upper reaches and over-topping in the lower segments. The most flood-prone areas are the Brahmaputra and Gangetic basins in the Indo- Gangetic plains. The other flood-prone areas are the north-west region with the rivers Narmada and Tapti, the Central India and Deccan region with rivers like Mahanadi, Krishna and Kauveri. While the area liable to floods is 40 million hectares, the average area affected by floods annually is about 8 million hectares. The annual average cropped area affected is approximately 3.7 million hectares.

Notwithstanding flood policy and flood control schemes, flood damage is increasing, with larger populations subjected to distress in increasing flood-prone areas. The locus has shifted away from the Gangetic belt. The distribution of damage is widespread, with the worst-hit being Andhra Pradesh, Karnataka,

ISSN 2454-9169

Kerala, and Tamil Nadu in the south, Maharashtra, Gujarat, and Rajasthan in the west, Uttar Pradesh in the north, and Bihar and West Bengal in the east.

Cyclones

India has a vast coastline, which is frequently affected by tropical cyclones causing heavy loss of human lives and property. Cyclones occur usually between April and May (called pre-monsoon cyclonic storms) and between October and December (called post-monsoon cyclonic storms). While cyclonic storms can't be prevented, the loss of lives and damage to the properties can be mitigated if prompt action is taken after receiving warnings. The states most exposed to cyclone-related hazards, including strong winds, floods and storm surges, are West Bengal, Orissa, Andhra Pradesh and Tamil Nadu along the Bay of Bengal. Along the Arabian Sea on the wet coast, the Gujarat and Maharashtra coasts are most vulnerable.

On an average, about five to six tropical cyclones form in the Bay of Bengal and Arabian Sea every year, of which two to three may be severe. More cyclones form in the Bay of Bengal than in the Arabian Sea: the ratio is 4:1. Cyclones are most deadly when crossing the coastal areas of Andhra Pradesh, Orissa, West Bengal and Bangladesh, mainly because of the serious storm surge problem in this area. The impact of these cyclones is confined to the coastal districts, the maximum destruction being within 100 km from the centre of the cyclones and on either side of the storm track. The worst devastation takes place when and where the peak surge occurs at the time of the high tide. Stretches along the Bay of Bengal coastline have the world's shallowest waters but the relatively dense population and poor economic condition complicate the situation. The population density in some of the coastal districts is as high as 670 persons per square km.

The Orissa supercyclone in October 1999 left the state virtually paralysed with its communication and infrastructure totally wrecked. The cyclone severely affected around 13 million people in 97 blocks and 28 urban areas in 12 districts, including the capital, Bhubaneshwar, and Cuttack. Sea waves reaching 7 metres rushed 15 kms inland. Ten thousand died, one-third of the total population of the state was affected.

Drought

Drought is a recurring phenomenon in several parts of India. It occurs because of lack of rainfall, unfavourable distribution of rainfall in the agricultural periods as well as inadequate conservation of moisture in the soil to meet the evaporation and transpiration needs of the area. Droughts occur due to insufficiency of rain for an extended period, which causes a considerable water imbalance and, consequently, water shortages, crop damage, stream flow reduction, and depletion of ground water and soil moisture. The heavy concentration of rainfall within a span of three months in most areas causes heavy run-off and high floods. Non-availability of moisture over most parts of the year, particularly in the arid and semi-arid regions, renders 68 per cent of the land-mass vulnerable to drought.

In 2001, more than eight states suffered the impact of severe drought. Analysis of rainfall behaviour for the past 100 years reveals that the frequency of occurrence of below-normal rainfall in arid, semi-arid, and sub-humid areas is 54 to 57 per cent, while severe and rare droughts occur once every eight to nine years in

ISSN 2454-9169

arid and semi-arid zones. In semi-arid and arid zones, about 50 per cent of the severe droughts cover 76 per cent of the area. In this region, almost every third year was a drought year. The impact of drought varies from year to year in various parts of the country.

The 1987 drought, which was one of the worst droughts of the 20th century, with overall rainfall deficiency of 19 per cent, affected 58-60 per cent of cropped area and a population of 285 million. Over 267 districts and 166 million people were recorded drought-affected.

Earthquakes

Earthquakes are caused by the abrupt release of strain that has built up in the earth's crust. Most zones of maximum earthquake intensity and frequency occur at the boundaries between the moving plates that form the crust of the earth. Major earthquakes also occur within the interior of crust plates such as those in China, Russia and the southeast United States.

In India, 56 per cent of the country is prone to seismic activity. During the International Decade of Natural Disaster Reduction (IDNDR), India suffered the adverse impact of several earthquakes, the most significant being in Uttarkashi, Latur and Jabalpur. Some of the most devastating earthquakes which India has faced in the past include the Kutch earthquakes of 2001 and 1819, the Shillong earthquake of 1897, the Kangra earthquake of 1905, the Bihar-Nepal earthquake of 1934, the North-East and Assam earthquake of 1950, the Anjar earthquake in Gujarat of 1956, etc. The Seismic Zonation Map of India shows the north-eastern states, Kutch region of Gujarat and Uttaranchal as most vulnerable.

The Kutch earthquake on 26th January 2001 once again underlined the lack of preparedness to respond to a natural disaster of such severity, in spite of the best efforts of the government, voluntary organisations, local communities, neighbouring states, corporate sector, etc. The Himalayas are considered the world's youngest fold mountain ranges. The subterranean Himalayas are, therefore, geologically very active. Four earthquakes exceeding magnitude 8 have occurred in this region in the last 95 years: the Assam earthquakes of 1987 and 1950, the Kangra earthquake of 1905 and the Bihar-Nepal earthquake of 1935.

The peninsular part of India comprises continental crust regions, which are considered stable as they are far from the tectonic activity of the boundaries. Although these regions were considered seismically least active, an earthquake that occurred in Latur in Maharashtra on September 30, 1993 of magnitude 6.4 on the Richter scale, caused substantial loss of life and damage to infrastructure.

A considerable research has been done to predict earthquakes using conventional technologies, but the results to date are inconclusive.

Tsunami

In Japan earthquakes occur very often under the sea, which is TSUNAMI in Japanese language. The term TSUNAMI is defined as: TSU – shipyard NAMI – Sea Waves. Recently, in English the waves were termed as "Tidal Waves" this term does not mean sea water flow, but combination of rays/vibrations of sun, moon and planets. The Scientists termed it as "SEASMIC" sea waves. Even this term does not give correct meaning why because TSUNAMI will occur without

ISSN 2454-9169

earthquake. Therefore, even this was termed as Harbour Waves and gained no importance. Finally, it was termed as Tsunami. As the earthquake occurs at the bottom of the earth. TSUNAMI will occur at a depth of 20 to 25 km. in the sea. As Volcanoes exist on earth, they exist also at the bottom of the earth, which causes tremors in the angles. It is difficult to identify the tremors because they occur at different levels, and they never cause extreme damage to any ships. During the year 1958 great TSUNAMI took place in the lower sea of Alaska country. The height of the wave was estimated as 516 feet while the speed of the waves of the recent TSUNAMI was estimated from 500 to 1000 kms. speed.

The earthquake originated in the Indian Ocean just North of Simeulue island, off the western coast of Northern Sumatra, Indonesia at 07:58:53 local time (06:58 IST) on December 26, 2004. At a magnitude of 9.0 (second largest earthquake since the 9.2 magnitude, Good Friday Earthquake off Alaska in 1964) and tied for fourth largest since 1900, generated a tsunami that was among the deadliest disasters in modern history. The tsunami devastated the shores of Indonesia, Sri Lanka, South India, Thailand and other countries with waves of upto 15 m (50 feet) high. It caused serious damage and deaths as far as the East Coast of Africa, with the furthest recorded death due to the tsunami occurring at Port Elizabeth in South Africa, 8000 km (5000 moles) away from the epicentre.

The number of countries affected were 12 – Malaysia in the East to Somaliya, an East African nation. The recent tsunami was the fifth biggest earthquake since the beginning of the 20th century and the most devastating in the past 40 years. While the Pacific countries frequently experience tsunami, this phenomenon was rare in the countries of Indian Ocean. The Pacific and other countries around Pacific Ocean (26 in number) have already got early warning system and therefore, are in a position to take protective measures in time when tsunami hits any of these countries. On the other hand, none of the Indian Ocean countries have such a devise due to rarity of the tsunami in this region (only on two occasions, 1881 and 1941 mild effect was experienced). It is for this reason that having observed the impact of the earthquake near Sumatra Island of Indonesia, none of the affected countries were prepared to face the disaster and as a result faced havoc of the tidal waves devastating entire coastline along the Indian Ocean covering more than a dozen countries.

The earthquake of 26 December, 2004 was of very high intensity – 9 on Richter Scale – with epicenter close to Sumatra Island of Indonesia, generated high waves moving with jet speed (about 650 km/hr) took just 30 minutes to hit Andaman and Nicobar Islands of India and two and half-hours to hit Sri Lanka and Eastern Cost of India causing huge death of human beings and loss of property and all physical infrastructure that came in the way of 30-40 feet high tidal waves. The estimated loss of lives in all the countries put together is above 1.50 lakh with thousands still missing. In India, Tamil Nadu and Andaman and Nicobar Islands bore the brunt of the killer waves. The death toll crossed 10,000 and more than 3000 missing from all affected areas of the country. The most hit States in India are Tamil Nadu, Andhra Pradesh, Kerala and Andaman and Nicobar Islands.

From the information available from different sources, the number of deaths and injured in the most affected Asian

ISSN 2454-9169

countries are as follows.

Country -	Death	+	Injured
1. Indonesia -	94,100	+	100,000
2. Sri Lanka -	30,196	+	16,665
3. India -	15,160	+	NA
4. Thailand -	5,104	+	8,457
5. Maldives -	74	+	NA
6. Malaysia -	68	+	299
7. Myanmar -	59	+	45
8. Bangladesh -	2	+	NA
9. Tourist - (missing)	359	+	9,720

Apart from the dead and injured tens of thousands remain unaccounted for.

Damage Due To Natural Disaster in Some Developing Countries

During the last 40 years, natural disasters have caused the death of millions of people world-wide and have affected many more millions. The economic costs of natural disasters are on an alarming rise: compared to the 60s, the economic loss burden due to disasters has increased eightfold, discounting inflation. In the last ten years alone, major natural disasters have caused economic losses of more than US $400 billion. Thus, natural disasters have become a serious threat to development, especially to the developing countries. Ninety per cent of the natural disasters and ninety-five per cent of all deaths from natural disasters occur in developing countries. Among the top ten countries, in terms of average annual loss to life due to natural disasters, all except Australia are developing countries. China tops the list with average annual, population affected being about 99 million and India follows second with 56.56 million (See Table-1). The Asia-Pacific region experiences nearly 60 per cent of the world's natural disasters.

Table - 1: Top Ten Countries In Terms of Average Annual Number of People Affected By Natural Disasters (1987-1996)

S.No.	Country	Affected Population (in Million)
1	China	99.07
2	India	56.56
3	Bangladesh	18.57
4	Ethiopia	4.02
5	Philippines	3.69
6	Australia	2.28
7	Thailand	1.67
8	Sudan	1.48
9	Malawi	1.44
10	Pakistan	1.40

Source: Sinha and Sharma, 1999

Damage Due To Natural Disasters in India

India on account of its geographical location, climate and geological setting, is the worst affected country in the South Asian region. Floods, droughts, cyclones, earthquakes, and landslides are some of the major natural disasters that affect India. Thus, we can say that India's unique sub-continental dimensions, geographical position, and the behaviour of the monsoons make the country one of the most disaster-prone areas in the world.

Table - 2 reflects the incidence of natural disasters and the trends in consequent losses in India from 1985 to 1997. However, after1997 the trends of the losses due to natural disasters have increased in India because Orissa super cyclone and Gujarat earthquake were the two devastating disasters, which occurred after 1997. Each year, natural disasters cause extensive damage to life and property, losses being exacerbated by rapid population growth, unplanned development and unchecked

ISSN 2454-9169

environmental degradation. As stated above, in India, we generally face cyclones, floods, landslides, droughts, and earthquakes.

Table - 2: Annual Damage Due To Natural Disaster in India (1985-1997)

Year	Number of People Killed or Missing	Number of People Affected (in Millions)	Number of Houses and Buildings Partially or Totally Damaged	Amount of Property Damages (in Rs.Billion)
(1)	(2)	(3)	(4)	(5)
1985	1,804	59.56	2,449,878	4.06
1986	1,200	55.00	2,049,277	3.74
1987	1,835	48.34	2,919,380	2.57
1988	4,533	10.15	242.533	4.63
1989	1,718	3.01	782,340	2.41
1990	1,855	3.17	1.019.930	1.71
1991	1,860	34.27	1,190,109	1.90
1992	1,367	19.09	570,969	2.05
1993	9,936	26.24	1,529,916	5.80
1994	2,344	23.53	1,051,223	1.83
1995	2,508	54.35	2,088,355	4.73
1996	3,789	54.99	2,376,693	5.43
1997	1,881	44.38	1,103,549	NA

Source: Anshu Sharma, Manu Gupta, Kokil Gupta (2002). Corporate Social Responsibility and Disaster Reduction, SEEDS, India.

Conclusion

Disaster will strike from time to time since we have forgotten to live according to the laws of nature but the political leadership and administration should act decisively to mitigate the loss of life and suffering. The managers must act with greater urgency and clear understanding of the need. But disaster management entails enormous resources. Co-ordination, storage, dispatch and distribution are specialized jobs needing meticulous, sustained efforts. These, if done precisely, will go a long way in relieving the distress. Tsunami relief material meant for the Andaman and Nicobar Islands were rolling in some parts of the mainland long after the relief operations were over. This earthquake disaster management in Jammu and Kashmir has been hampered not by lack of heart but by absence of expert handling.

The losses due to natural disasters reduce the pace of sustained economic development in the already resource-scarce states and often lead to a heavy drain on available resources, diverting them from development activities. It is necessary to move away from the relief mode after a disaster to preparedness, prevention and mitigation, as this will be more cost-effective and sustainable. This will have to be implemented through a massive campaign by mobilizing the participation of local communities, voluntary organizations, community-based organisations and the private

ISSN 2454-9169

sector.

India must create an organization with headquarters in New Delhi and centres in various parts of the country. The National Disaster Management Authority as envisaged in the Act must take care of resources like heavy earth-movers, tents, water tanks, prefabricated movable shelters, boats, blankets etc. and minimum stock level of essential items. In insurgency – affected areas, low flying helicopters pose dangers. In spite of this, aid has to be brought to the distressed people. The nefarious designs of terrorists must not pose any obstruction.

References

Central Water Commission. 1966. *Report of the Working Group on flood Management for the 9th Five-Year Plan (1997-2002)*, CWC, New Delhi.

Government of Gujarat. 2001. *Earthquake: Human Approach Towards Earthquake Victims*, Directarate of Information, GOG, Gandhinagar.

Ramesh, K. S. 1999. *Cyclone Disaster Management in Coastal District of Andhra Pradesh: A Case Study.* In Vinod K. Sharma (ed.), Disaster Management: National Centre for Disaster Management. Indian Institute of Public Administration, New Delhi.

Sinha, A. and V.K. Sharma. 1999. *Culture of prevention natural disaster management.* National Centre for Disaster Management. Indian Institute of Public Administration, New Delhi.

Sujata Gupta, Javed Akram, and Divya Dutt. 2003. *Economics of Flood Protection in Indias, Natural Hazards*. Kluwer Academic Publishers, Netherlands.

World Disaster Report. 1999. International Federation of Red Cross and Red Crescent Societies, Geneva.

ISSN 2454-9169

SURYADATTA

Development of Awareness about Environmental Laws in India: A Study

Dr. Dhananjay Awasarikar

Introduction

In the twentieth century not only the need but also the purpose of Environmental Laws was realized by the International Community. The community was driven by the objective knowledge about the negative impacts that human beings were having on the Planate. The uniqueness about Environmental Laws across the Globe is that they are similar in fundamental objectives as well as principles.

In this context, a quote of Dan Tarlock, Professor of Law and Co-director of Program in Environmental and energy Law in Chicago-Kent College of Law, U. S. A. is worthwhile to note. He says, "Environmental Lawyers speak a universal, legal, scientific and ethical language .....The Institutional Problems that give rise to Environment Degradation, Pollution and loss of Biodiversity are basically similar throughout the world and variations in response come more at the Enforcement rather than at the Legislative Level."

Rationale of the Paper

If a question about the Environmental Laws those are existing or executable in India would be asked to the responsible citizens of India, I seriously doubt as to how much percentage would really come out with the correct replies. When the same question was asked in one of the classes, last Academic Year, indeed, hardly one or two percent of the students, that too, belonging to the studious class, could reply the same question partially satisfactorily. If, at all, any government organization would explore the same question, as a part and parcel of a social research, say, either at the district level, state level or national level, real and proportionate percentage of satisfactory replies appears doubtful. The fundamental cause for this environmental scenario seems to be lack of awareness about existing environmental laws. Here, in this paper there is an honest attempt to develop awareness about all such Laws and to infer the content of each relevant law.

Objectives of the Paper

1. To Study Environmental Laws in India
2. To Develop Awareness about Environmental Laws in India

Dr. Dhananjay Awasarikar
Professor,
SIMMC, Pune
dp.avasarikar@suryadatta.edu.in

ISSN 2454-9169

Scope of the Paper

The scope of this paper firstly extends to the brief study of different environmental laws in India and further it extends to the development of little awareness about them.

Methodology Adopted for Paper Writing

The methodology adopted for writing this paper is as follows.

1. The review of literature was done through several books and significant websites (Secondary Data) in order to study environmental laws in India and to develop little awareness about them.

2. The paper is based on secondary data.

Sources of Secondary Data

The sources of secondary data collected for this paper include several books and other websites, the details of which are given in the section, of Categorized Bibliography, which is located towards the end of this paper.

Environmental Laws in India

The environmental laws in India are discussed in brief in the following few lines.

1. The Environment Protection Act, 1986

It authorizes the Central government to protect and improve environmental quality, control and reduce pollution from all sources and prohibit or restrict the setting and operation of any industrial facility on environmental grounds.

2. The Environment Protection Rules, 1986

It lays down the procedures for setting standards of emission or discharge of environmental pollutants.

3. Hazardous Waste Management and Handling Rules, 1989

The objective of these rules is to control the generation, collection, treatment, import, storage and handling of hazardous waste.

4. The Manufacture, Storage and of Hazardous Rules, 1989

They define the terms used in this context and sets up an authority to inspect, once a year, the Industrial Activity connected with hazardous chemicals and isolated storage facilities.

5. The Manufacture, Use, Import, Export and Storage of Hazardous Micro-Organisms or genetically Engineered Organisms, or Cells Rules, 1989.

They were introduced with a view to protect environment, Nature and Health, in connection with the application of the Gene- Technology and Micro-Organisms.

The Public Liability Insurance Act and Rules and Amendment, 1992

These were drawn up to provide for Public Liability Insurance for the purpose of providing immediate relief to the persons affected by the accident while handling any hazardous substance.

ISSN 2454-9169

1. The National Environmental Tribunal Act, 1995

It is established to award compensation for damages to persons, property and the environment arising from any activity involving hazardous substances.

2. The National Environment Appellate Authority Act, 1997

It is formed to hear appeals with respect to restrictions of areas in which classes of industries, etc., are carried out or prescribed subject to certain safeguards.

3. The Biomedical Waste Management and Handling Rules, 1998

They act as a legal binding on the Health Care Institutions to streamline the process of poor handling of hospital waste such as segregation, disposal, collection and treatment

4. The Environment Siting for Industrial Projects Rules, 1999

They lay down detail provisions relating to the areas to be avoided for siting of Industries, precautionary measures to be taken for site selecting as also the aspects of Environment Protection which should have been incorporated during the implementation of the Industrial Development Projects.

5. The Municipal Solid Wastes Management and Handling Rules, 2000

They are applicable to every Municipal Authority responsible for collection, segregation, storage, transportation, processing and disposal of municipal solid wastes.

6. The Ozone Depleting Substances Regulation and Control Rules, 2000

They have been laid down for the regulation of production and consumption of ozone depleting substances.

7. The Batteries Management and Handling Rules, 2001

They apply to every manufacturer, importer, re-conditioner, assembler, dealer, auctioneer, consumer and bulk consumer involved in the manufacture, processing, sale, purchase and use of batteries and components so as to regulate and ensure the environmentally safe disposal of used batteries.

8. The Noise Pollution Regulation and Control Amendment Rules, 2002

They lay down such terms and conditions as are necessary to reduce noise pollution, permit use of loud speakers or public address systems during night hours (between 10.00 P. M. to 12.00 A. M. – Midnight) on or during any cultural or religious festive occasion.

9. The Biological Diversity Act, 2002

It is an act to provide for the conservation of Biological Diversity, Sustainable Use of its Components and fair and equitable sharing of the benefits arising out of the use of biological resources and knowledge associated with it.

10.The National Green Tribunal Act, 2010

It enables the creation of Special Tribunal towards effective and expeditious disposal of cases related to environmental protection and conservation.

ISSN 2454-9169

11.Air Prevention and Control of Pollution Act, 1981

Air Prevention and Control of Pollution Act, 1981 provides for the establishment of Boards those were concerned with the power of Preventing, Controlling and Abetment of Air Pollution.

12.The wild Life Protection Act, 1972

The wild Life Protection Act, 1972 focuses on the Prohibition of Hunting Wild Animals and Prohibition of Picking and Uprooting of specified plants.

13.The Forest Act, 1980

The Forest Act, 1980 has instituted a Restriction on the De-reservation of Forests or use of Forest Land for Non-Forest purpose.

Recent Trends in Environmental Laws

Montreal Protocol is one of the ***treaties*** aimed at the Protection of Ozone Layer by phasing out substances that cause Ozone Depletion.

The United Nations Framework Convention on climate change (UNFCCC) focuses on stabilizing the concentration of greenhouse gases in the atmosphere at a level that would prevent dangerous interference with the climate system.

In the year 2008, eight years back, ***Ecuador,*** a country in South America, became the first country ***to incorporate the Rights of Nature in the country's constitution.***

The law of ***Rights of Mother Earth*** (defined as '.....the Dynamic Living system formed by the indivisible community of all life systems and living beings whom are interrelated, interdependent, and complementary which share the common destiny') include seven specific rights namely, *Right to Life, Right to Diversity to Life, Right to Water, Right to Clean Air, Right to Equilibrium, Right to Restoration, Right to Pollution-free Living.*

This law gives a *Legal Identity* to a Natural System. This empowers Indian citizens, on behalf of Mother Earth, to engage in legal actions against individuals and organizations that infringe on the integrity of Mother Earth. This can also be considered as a shift form an *Anthropocentric Perspective to Earth-Community Perspective.*

Limitations

1. As the study for this paper is purely based on Secondary Data, all the limitations of Secondary Data have direct and deep impact on the various views formed and inferences arrived at by the Researcher in this paper related to Environmental Laws in India.

2. The study for this Paper is purely of academic orientation solely based on secondary data. Therefore, some level of adaptation may be required in practical decision making situations regarding execution of Environmental Laws.

3. The Environmental Laws in India are dealt with, quite briefly, in this Research Paper for want of the length of the Research Paper.

4. There is an honest attempt on the part of the author to include all the important Environmental Laws as it is simply not possible to cover each

and every such Law.

In other words, the list of the Environmental Laws mentioned in this Paper is not, at all, exhaustive, but, it is suggestive and indicative in its practical nature and character.

Scope for Future Research

During the course of the study of this research paper, the researcher found out that there is an ample scope and adequate potential for research in future for the following topics related to the Environment.

1. An Analytical Study of Execution of Environmental Laws in India
2. An Empirical Study of Current Trends of Environmental Laws in India
3. A Contemporary Study of Future of Environment Laws in India

Categorized Bibliography -

Books

Brrow C. J. 2014. .Environmental Management: Principle and Practice. Roultelge, England, London.

Jaswal P. S., Jaswal, Nishta. 2009. Environmental Law. Allahabad Law Agency, India, Faridabad.

Mallick (Justice) M. R. 2013. Environmental Laws. Professional Book, India, New Delhi.

Polonsky, Michael.Jay, Mintu. Wimsatt, Alma T. 2010. Environmental Marketing: Strategies, Practice, Theory and Research. Jaico Publishing House, India, New Delhi.

Sankar R. N. Ajith. 2015. Environmental Management. Oxford University Press, India, New Delhi.

Uberoi N. K. 2007. .Environmental Management. Excel Books, India, New Delhi.

Usha A. 2007. .Environmental Laws-Principles and Governance. The ICFAI University Press, India, Hyderabad.

Websites

1. www.ciel.org
2. www.earthjustice.org
3. www.ecolex.org
4. www.ciel.org
5. www.elaw.org
6. www.wcel.org

ISSN 2454-9169

SURYADATTA

Environmental Accounting - An Upcoming Concept in Accounting in India

Khushali Oza

Introduction

In India both "Environmental Protection" and "Economic Development" are matters of great importance. However some sort of tradeoffs is needed between the two. For this purpose Environmental Accounting is required to measure the environmental impact of economic activities by corporate sectors. A standard system of this type of accounting is still evolving in India. The Article provides an insight into the concept in the Indian perspective.

Accounting and Environment

Accounting is a discipline of measuring, communicating and interpreting financial activity. Environmental Accounting can be considered either a sub-set or a superset of accounting proper. It aims to incorporate both economic and environment information. It can operate at the company level as well the national level. Environmental Accounting means identification and reporting of environment specific costs such as liability cost and waste disposal costs. It is accounting for any costs and benefits that arise from change to a firm's products and processes where the change also involves a change in environmental impact.

Environmental Cost

Environmental cost can include cost to clean up or remediate contaminated sites, environmental fines, penalties, purchase of pollution prevention technologies and waste management cost. Environmental Accounting is often referred to as Green Accounting which incorporates environmental assets and their source in national and corporate accounting.

Environmental Accounting System

Environmental Accounting system is composed of environmentally differentiated conventional accounting and ecological accounting. Environmentally differentiated accounting measures impacts of natural environment on a company in monetary terms. Ecological Accounting measures the impact a company has on the environment, but in physical units (e.g. kilograms of waste produced, kilojoules of energy consumed) rather than in monetary terms.

Prof. Khushali Oza
Asst. Professor
SIMMC, Pune
khushali.oza@suryadatta.edu.in

ISSN 2454-9169

Rationale of Environmental Accounting

There are several reasons why business may consider adopting environmental accounting as a part of their accounting system:

(1) Possible significant reduction or elimination of environmental cost.
(2) Environmental costs and benefits may be overlooked or hidden in overhead accounts.
(3) Possible competitive advantages as customers may prefer environmentally friendly products and services.
(4) Can support the development and running of an overall environmental accounting system, which may be required by the regulation for some types.

Different Environmental Accounting Disciplines

Environmental Accounting can be broken down into three disciplines:

Global Environmental Accounting

Global Environmental Accounting is a methodology that deals with energies, ecology and economics at a global scale. The earth is the system of interest with the input and dissipation of solar energy which constitutes its energy budget.

National Environmental Accounting

National Environmental Accounting is an accounting approach that deals with economics on a national level. It is a macroeconomic measure that looks at the use of natural resources and impact of national policies on the environment.

Corporate Environmental Accounting

At its simplest, corporate environmental accounting is about making environment related cost more transparent within corporate accounting systems and reports.

Benefits of Corporate Environmental Accounting

- Identification and greater awareness of environment related cost.
- Provides opportunities to find ways to reduce or avoid these costs.
- Improve environmental performance.
- Respond to environmental challenges.
- Focus on bottom line imperatives.

Corporate Environmental Accounting is further sub-divided into:

Corporate Management Accounting

Environmental Management Accounting essentially involves refining a management accounting system so that it more tightly and rigorously accounts for environment costs. Often these environmental costs are lost in general overhead accounts and therefore not focused on by the management such as waste management cost, energy consumption cost, water usage cost etc.

Environmental Financial Accounting

Environmental Financial Accounting is used to provide information needed by the external stakeholders on a company's financial status. This type of accounting allows companies to prepare financial reports for investors, lenders and other interested parties.

Environmental Accounting and Reporting In Indian Companies

Legal Framework for Environmental Accounting in India

ISSN 2454-9169

The environmental clearance from various government authorities has taken the centre of attraction with the abolishing of industrial licensing for all practical purposes. India has a Union Ministry of Environment with the motive of coordinating among the states and the various ministries, the environmental protection and anti pollution measures. The country has also passed various legislations to ensure the protection of environment. The latest Companies Act, 2013 also incorporates a stress on green initiatives. The various laws pertinent to environmental protection in the country are listed below under two different heads:

Directly related to the protection of environment

- Water (Prevention and Control of Pollution) Act, 1974
- Water (Prevention and Control of Pollution) Cess Act, 1977
- Air (Prevention and Control of Pollution) Act, 1981
- The Forest Conservation Act, 1980
- The Environment (Protection) Act, 1986

Indirectly related to the protection of environment

- The provision in the Constitution (Article 51A)
- The Factories Act, 1948
- Hazardous Waste (Management and Handling) Rules, 1989
- Public Liability Insurance Act, 1991
- The Motor Vehicle Act, 1991
- Indian Penal Code
- The National Environment Tribunal Act, 1995
- Indian Fisheries Act, 1987

Environmental Accounting Practices in Indian companies

Environmental accounting is at inception stage in India. In the context of requiring environmental related disclosures from business units on a periodic basis, the first public announcement was made by the Government of India in 1991, immediately after adopting the financial reforms that liberalized the economic policies of the country. The Ministry of Environment and Forests has proposed that "Every company shall, in the Report of its Board of Directors, disclose briefly the particulars of steps taken or proposed to be taken towards the adoption of clean technologies for prevention of pollution, waste minimization, waste recycling and utilization, pollution control measures, investment on environmental protection and impact of these measures on waste reduction, water and other resources conservation."

In 2011, the Securities and Exchange Board of India mandates listed companies to report on Environmental, Social and Governance (ESG) initiatives undertaken by them, according to the key principles enunciated in the 'National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business.'

The Companies act 2013 emphasizes on corporate social responsibility that makes it mandatory for certain class of profitable enterprises to spend money on social welfare activities. It is mandatory for companies with net worth of more than Rs 500 crore, or turnover of Rs 1,000 crore to adopt a CSR policy. Also it provides that the companies are required to give more disclosures besides Company's general state of affair and financial performance regarding

ISSN 2454-9169

conservation of energy and environmental protection.

Also, The Union Ministry of Environment and Forests has issued various instructions in to prepare environment statements. It is mandatory in the country to get an environmental clearance for all new projects that concerns both the Union Ministry of Environment and Forests and the corresponding State Government department of environment. There are various guidelines in this regard and all such projects are expected to obtain environmental and antipollution clearance before they are actually set up. It can be observed through their accounts that mainly the following set of information is disclosed.

- What type of devices are installed to control pollution
- The steps taken for energy conservation
- Steps taken for optimum utilization of resources
- Steps taken for decompose the waste water and production process waste
- Steps taken for improving the quality of product and services, production process etc.

A gazette notification on environmental audit has been issued by ministry of environment and forests on 3-3-1992 which was amended through a notification on 22-4-1993(India: Environment Statement, as a part of Environment Audit, Govt. of India, 1993) requires the submission of an environment statement to the Central Pollution Control Board. This notification is applicable to any person carrying out an industrial operation or process requiring consent to operate by under section 25 of the Water (Prevention and Control of Pollution) Act 1974, under section 211 of the Air (Prevention and Control of Pollution) Act, 1981 or both, or authorization under the Hazardous Waste (Management and Handling) Rules, 198, issued under the Environment (Protection) Act, 1986. In this environment statement, the concerned industry is required to provide information on:

- Water and raw material consumption
- Pollution generated
- Impact of pollution control measures on conservation of natural resources
- Nature of hazardous and solid wastes produced and disposal practices adopted
- Measures taken for environmental protection, and
- Steps taken to popularize the benefits of environmental accounting and reporting among the corporate sector.

Challenges of Environmental Accounting and Reporting

Even though the environmental accounting and reporting practices are being attempted by many countries, the concept has certain obstacles in implementation. The major limitations are as follows:

1. Environmental accounting lacks economic value.
2. There is no standard method of estimating the social value of environmental goods and services.
3. Social value given to environmental goods and services are changing so fast that the estimates are likely to be obsolete before they are available for use.
4. There is no accounting standard for environmental accounting
5. It involves inapplicable assumptions
6. Environmental accounting is not a

ISSN 2454-9169

legal obligation except for few industries in India.

7. It lacks reliable industry data.

Environmental Audit

By compliance with environment audit, companies avoid the risk of prosecution and fines arising from present and potential environmental breaches. Environment Audit helps to review and compare a company's activities and business targets against all relevant regulations, code of conducts and government policies and verify environmental performance to staff, regulators and general community.

Limitations of Environmental Accounting

Environmental Accounting also suffers from some serious limitations:

- There is no standard accounting method.
- Comparison between two firms or companies is not possible if method of accounting is different which is quite obvious.
- Input for environmental accounting is not easily available because costs and benefits relevant to the environment are not easily measurable.
- Environmental Accounting is a long term process, therefore to draw a conclusion with the help of it is not easy.

Environmental Accounting cannot work independently. It should be integrated with financial accounting which is not an easy task.

Conclusion

Environmental accounting needs to work as a tool to measure the economic efficiency of environmental conservation activities and the environment efficiency of the business activities of the company as a whole. It is the call of the time that pollution controls, comply with the related rules and regulations, and mention adequate details of environmental aspects in the annual statements. Neither the latest company law nor the accounting standards by ICAI prescribes the disclosure norms for environmental related aspects in the corporate financial reports. As the environmental disclosures are voluntary in nature, except few industries for which environmental accounting is mandatory such as oil and petroleum, natural gas, cement, steel, etc. the companies hesitates to implement the practice in their books of accounts. The poor environmental performance of the company may also bind them to no-disclosure. The lack of awareness and commitment on the part of company management about the social responsibility of the firm also keeps the firms away from reporting environmental costs and benefits. Thus, it can be concluded that the absence of a standardized environmental accounting practice and disclosure norms at national as well as international levels spur the corporate to be away from the environmental accounting practices and to shut their eyes towards the deterioration in the environment.

References

Banerjee, B. (2005). Corporate Environmental Accounting & Reporting Practices in India. *Indian Accounting Review*, December, 25- 46.

Bhate, S. (2002). One World, One Environment, One Vision: Are we close to achieving this? An Explanatory Study

of Consumer Environmental Behavior across three countries. *Journal of Consumer Behavior,* 2(2), 169 –184.

Gray, R., Javad, M., Power, D. and Sinclair, C. D. (2001). Social and Environmental Disclosure and Corporate Characteristics: A Research Note and Extension. *Journal of Business Finance & Accounting,* 28(3&4), 327–356.

Harte, G. and D. Owen. (1991). Environmental Disclosure in the Annual Reports of British Companies: Research Note. *Accounting, Auditing &accountability Journal*, 4(3), 51-61.

Hossain, M. (2002). Corporate Environmental Disclosure in Developing Countries: Evidence from Bangladesh. *Bangladesh Environment*, 1(12).

Mobus, J. (2005). Mandatory Environmental Disclosure in a Legitimacy Theory Context. *Accounting, Auditing & Accountability Journal, 3(2).*

Pramanik, Alok Kumar Chandra, Nikhil and Das, Bhagaban. (2007). Environmental Accounting and Reporting With Special Reference To India. *Munich Personal RePEc Archive*, December

Roy, Avik Ranjan. (2008). *Environmental Accounting & Environmental Management Accounting.* Management Accountant, June.

ISSN 2454-9169

Corporate Social Reporting By Indian Banks Post Companies Act 2013 and CSR Spending on Environment

Dr. Devendra Prasad Pandey

Introduction

Corporate Social Reporting has been made mandatory by the government through the enactment of the new Companies Act in 2013. Clause 135 of the Companies Act 2013 requires that the board of the company shall, after taking into account the recommendations made by the corporate social responsibility (CSR) committee, approve the CSR policy for the company and disclose its contents in their report and also publish the details on the company's official website, if any, in such manner as may be prescribed. If the company fails to spend the prescribed amount, the board, in its report, shall specify the reasons. Prior to 2012-13, many banks were voluntarily making donations and spending on community development and mitigation of environmental pollution. It is only since 2012-13 that firms have started allocating funds for CSR activities specifically. This was in response to the Securities and Exchange Board of India (SEBI) circular dated August 2012, which mandated all top 100 listed companies to include business responsibility report as a part of their annual report.

The Corporate Social Responsibility and Reporting

Sachar Committee (1978) appointed by Government of India argued that "the company must behave and function as a responsible member of the society just like any other individual…….This implies that the claims of various interest groups will have to be balanced not on the narrow ground of what is best for the shareholders alone, but from the point of view of what is best for the community at large. The company must accept its obligation to be socially responsible and to work for the larger benefits of the community". This suggests that companies should assess and report corporate social performance. Corporate social reporting is a gesture to demonstrate organisation's commitment towards sustainability.

According to Friedman (2006) "There is one and only one social responsibility of business- to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud". In contrast to Friedman's statement, Robbins and Coulter (2007) explained that the management's social responsibility goes beyond

Dr. Devendra P Pandey
Head, Department of
Rural Management, MGCG University,
devendramgcgv@gmail.com

making profit to include protecting and improving social's welfare of its stakeholders and the environment in which the firm carries out its operations. This statement is based on the belief that corporation are not independent entities responsible only to stockholders. They also have the responsibility to the society that allow their formation through various laws and regulations and support them through purchasing their products and services (Carroll, 2008). Zain (2008) extending the Carroll's statement said that ethical standards play an important role in a firm's success in the long-run. The social responsibility standards and moral activities by a firm can create a positive rapport between the firm and all its stakeholders.

The World Business Council for Sustainable Development in its publication Making Good Business Sense by Lord Holme and Richard Watts, used the following definition of CSR, "Corporate Social Responsibility is the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large"

Corporate social reporting is referred as the process of communicating the social and environmental effects of economic organisations. The reporting is a form of corporate self-regulation integrated into a business model. Its policy functions as a self regulating mechanism whereby business monitors and ensures its active compliance with the spirit of the law, ethical standards and international norms. Corporate social reporting has been broadly defined as the process of communicating the social and environmental effects of organisation's economic actions to particular interest groups within society and to society at large. (Gray et al., 1996).

Corporate social reporting involves reporting nonfinancial and financial information to a broader set of stakeholders than just shareholders. The reports inform stakeholder groups of the reporting organization's ability to manage key risks. Because these interests vary, the type of information varies; however, much of it has to do with the company's economic, operational, social, philanthropic and environmental objectives.

Since the beginning of 21st century, the demand for disclosure of most important listed companies has dramatically increased and the failures of large companies listed on the most important stock exchanges have placed extra pressure on them and on standard setters for the increase in the quality of corporate reporting (Beretta and Bozzolan, 2004). Brammer and Pavelin (2006) found that larger, less indebted companies with a large number of shareholders are significantly more likely to make voluntary environmental disclosures, and that the quality of disclosures is positively associated with firm size and corporate environmental impact. Silva Monteiro and Aibar-Guzman (2009) revealed that, in spite of the fact that the level of environmental information disclosed during the period 2002-2004 is low, the extent of environmental disclosure has increased as well as the number of Portuguese companies that disclose environmental information. Moreover, the company's size and its listing on the stock market are positively related to the extent of environmental disclosure.

The paper extends literature on corporate social reporting by banks in

India. The paper attempts to study the corporate social reporting practices among Indian banks, more specifically to evaluate the levels, magnitude, role and themes of corporate social reports. There are few advertisement issued by banks as part of corporate social responsibility which is evident that banks are making all efforts to be responsible financial institution.

Objective of the Study

The objective of the paper is to study the magnitude, area, spending of funds and other dimensions of Corporate Social Reporting by Indian banks. The main objectives of the paper are:

1. To study the concept of corporate social responsibility and reporting (CSR).
2. To study the major areas of CSR initiatives and CSR spending on environment in Indian Banking Sector.
3. To study the corporate social responsibility reporting Practices in Indian Financial Sector.
4. To analyze various social advertisements issued by different banks as part of corporate social reporting.

Methodology

The design of this study is descriptive research design. Random Sampling technique is used for selecting the banks for this study in which the major players four each from Public Sector and Private Sector have been selected for the study i.e. State Bank of India (SBI), Punjab National Bank (PNB), Union Bank, Corporation Bank from public sector and Yes Bank, Axis Bank, HDFC and ICICI Bank from private sector. The Data is collected from secondary sources particularly from concerned Bank's Annual Report, newsletters and data and reports from different newspapers, magazines and journals.

The sampling frame of the study consisted of the selected commercial banks operating in India that had posted their full copy of annual report for the year ended 31 March 2014 on their websites and issued various advertisements exhibiting their involvement in corporate social responsibility. Annual reports of the surveyed banks were used to collect data for the study in keeping with other similar studies. Annual report is the document regularly produced in compliance with regulatory requirements, and more importantly is central to the organization's construction of its own external image. Banks have issued corporate social reports in the form of advertisement in print version of media. The study enlists these reports as social reporting by banks. Banks promoted cause related marketing in print media through social reporting. The cause related marketing helped them in increasing their consumer base on the on hand and increased societal role on the other hand.

The Banking Sector

In India, banking companies have a great role to play in sustainable development because it is the most trusted avenues of investment of fund by investors. Indian banks show their interest in integrating sustainability into their business models but because of absence of mandatory provisions regarding CSR practices they are far behind from the international level. Indian banks are the catalysts of the inclusive growth of the economy and it is advisable to adopt the new concept of

reporting because of its consequential benefits for its own and nation's interest. In regard to the significant role of banks in sustainable development, K C Chakrabarty, RBI deputy governor stated that a bank can be a burden on society when it makes too much of a profit or when it makes very little money. "When they make too much money, it is the customers who are paying. When they make losses, it is the taxpayers' money which is being used for a bailout". In addition, he stressed the need for banks to integrate sustainability into their core business operations: "Charity is not sustainability, this is what we have to understand. Inclusive growth is not possible without sustainability".

Indian banks have improved their non-financial reporting practices over the period but they are still far from satisfactory because no single bank has yet been able to touch level 5 i.e. the highest level of CSR activities. In 2009, only Yes bank had reached to level 4 but it has again dropped down to level 3 in 2010 and most of the banks are in the level 2. The core thrust areas of their social activities are rural development, women empowerment, poverty eradication, community welfare, education and employment, vocational training, children welfare, health care, responsible banking. There are only few banks, which report their activities on triple bottom line principles.

To highlight the role of banks in corporate social responsibility the RBI circulated a notice on December 20, 2007 for all the scheduled commercial banks, with title "Corporate Social Responsibility, Sustainable Development and Non-Financial Reporting – Role of Banks". Major issues discussed in the notice were regarding Corporate Social Responsibility, Sustainable Development, and Non-Financial Reporting. Briefing about the corporate social responsibility program to other member commercial banks RBI followed many international initiatives to highlight the importance of this notice like United Nations Environment Program Finance Initiative (UNEPFI), Global Reporting Initiative (GRI), International Finance Corporation, The Equator Principles, and Declaration on Financial Institutions. Apart from these international initiatives, RBI report also talked about other important and urgent issues regarding global warming & extent of problem, the economics of climate change, the Happy Planet Index, the Kyoto Protocol etc and requested to implement the same earnestly and sincerely. (Choudhary and Tandon, 2013)

Harnessing the power of business to improve social and environmental conditions across the world has thus become a priority for policymakers and other stakeholders, and it represents a central aim of the corporate social responsibility (CSR) movement. In theory, corporate disclosure pushes the CSR movement forward by providing stakeholders with "actionable" information that can be factored into future decisions. Investors deciding where to direct their money, employees deciding where to work, public policymakers deciding what to regulate, consumers deciding what goods to purchase — all these groups benefit from corporate disclosure of CSR-related information. CSR reporting can also be an effective backdoor into bolstering companies' CSR programs and initiatives.

Banking plays a fundamental role in economic progress of a country. It inculcates the habit of savings among

people, hence helps in boosting the investment base and speeding up the capital formation. At the same time it also helps out the needy, by providing them timely credit at an affordable cost. But majority of poor rural and semi urban population in India are unable to avail the basic banking facilities. As a result they are made to rely on private money lenders, charging exorbitant interest rates and are trapped in vicious circle of debt. Since independence, the efforts of the Government have revolved around expanding financial institutions to rural and unbanked areas, so as to increase access to formal credit in rural underdeveloped regions. Banks were supposed to concentrate on rendering service to underprivileged people, living below poverty line, and cover more and more unbanked areas rather than just concentrating on their own profitability. Social banking policies were made to shift the focus of commercial banks from „selective banking to "mass banking". Social banking is rightly defined by Dr Roland Benediktar (2011) as "banking with a conscience". Here the bank focuses on investing in community, providing opportunities for the disadvantaged, and supporting social, environmental and ethical agenda. Rather than just concentrating on traditional bottom line i.e. profits, bank emphasizes on achieving triple bottom line of profit, people and planet.

The commercial banks were nationalized with the main objectives of allocating funds to the deprived so as to enhance social welfare, eliminating the monopoly control of private business houses and corporate families on banks, extend banking across the country, reducing regional imbalances etc.

Initiative by Reserve Bank of India

There is a visible trend in the financial sector of promoting environment friendly and socially responsible lending and investment practices. The United Nations Environment Programme (1972) advocates that the financial sector has a role to play in protecting environment while maintaining profitability of their business. The concept of triple bottom line espoused by John Elkington, encompasses social, environmental and financial accounting. Keeping these perspectives in view, the Reserve Bank of India (RBI) has issued 'moral suasion' policy for banks on CSR.

The Reserve Bank of India (2011) on stressing the need for CSR, suggested the banks to pay special attention towards integration of social and environmental concerns in their business operations to achieve sustainable development. RBI also pointed out to start non financial reporting (NFR) by the banks which will cover the work done by the banks towards the social, economic and environmental betterment of society. The CSR in Indian Banking Sector is aimed towards addressing the financial inclusion, providing financial services to the unbanked or untapped areas of the country, the socio-economic development of the country by focusing on the activities like, poverty eradication, health and medical care, rural area development, self employment training and financial literacy trainings, infrastructure development, education, and environmental protection etc.

Recognising the contribution of financial institutions including banks to sustainable development considering the crucial role they play in financing the economic and developmental activities, the RBI had drawn the attention of banks

to their role in Corporate Social Responsibility, Sustainable Development and Non-Financial Reporting in its circular dated December 20, 2007. Since the loan management in banks is in their operational domain, banks were exhorted to keep abreast of the developments in this regard and dovetail / modify their business strategies in the light of developments. Apart from this, even internal efforts to make their day-to-day operations cleaner, greener and more efficient can help. However, as remarked earlier, the position continues to be in early stages of development and lot of work is needed in this direction. Recognising the need of social reporting by banks, Chakrabarty (2011) said, "One of the key initiatives of RBI and where we are different from any other regulator is in the area of sustainability reporting and financial inclusion. Sustainability has been an integral part of our inclusive growth agenda. We have tried to convey to banks that they must have an objective of financial inclusion. All the banks have been advised to prepare a board approved financial inclusion plan. As we are following a bank-led inclusive growth agenda, they must demonstrate their commitment to do so. That will give sustainability a greater depth and penetration. Now, whether we make NFR mandatory- makes it a part of disclosure- has been engaging our attention. But, in so far as directing banks that sustainable growth can be an important agenda for banks, guidelines have been issued."

Reserve Bank of India issued an advice to all banks on social reporting wide its circular number RBI/2007-08/216 DBOD. No.Dir. BC. 58/13.27.00/2007-08 dated December 20, 2007 advising banks to take note of the issues raised and consider using the same to put in place a suitable and appropriate plan of action towards helping the cause of sustainable development, with the approval of their Boards. The circular noted, "In order to be able to make an impact, banks need to integrate the concepts of Corporate Social Responsibility (CSR) and Sustainability with their business strategy. This can be done through:

1. Commitment to Sustainability
Banks must expand their missions from ones that prioritize profit maximization to a vision of social and environmental sustainability.

2. Commitment to 'Do No Harm'
Banks should commit to do no harm by preventing and minimizing the environmentally and/or socially detrimental impacts of their portfolios and their operations.

3. Commitment to Responsibility
Banks should bear full responsibility for the environmental and social impacts of their transactions.

4. Commitment to Accountability
Banks must be accountable to their stakeholders, particularly those that are affected by the activities and side effects of companies they finance.

5. Commitment to Transparency
Banks must be transparent to stakeholders, not only through robust, regular and standardized disclosure, but also through being responsive to stakeholder needs for specialized information on banks' policies, procedures and transactions.

Transparency in disclosures can be implemented by banks through Sustainability Reporting, a process for publicly disclosing an organisation's economic, environmental, and social performance. Through sustainability

reporting, banks can report on progress against performance goals not only for economic achievements, but for environmental protection and social well-being. The GRI guidelines provide a generally accepted framework that can simplify report preparation and assessment, helping both reporters and report users gain greater value from sustainability. The Global Reporting Initiative (GRI) is a long-term, multistakeholder, international process whose mission is to develop and disseminate globally applicable Sustainability Reporting Guidelines".

Reporting under the Companies Act

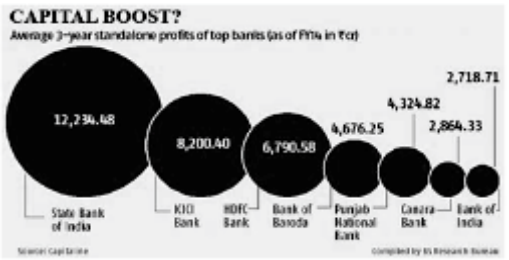
Clause 135 of the Companies Act 2013 requires that the board of the company shall, after taking into account the recommendations made by the corporate social responsibility (CSR) committee, approve the CSR policy for the company and disclose its contents in their report and also publish the details on the company's official website, if any, in such manner as may be prescribed. If the company fails to spend the prescribed amount, the board, in its report, shall specify the reasons.

The earlier Companies Act 1956 governed the overall regulation of companies in India and included sections on disclosure and reporting on various aspects of company operations. Section 217 of the Act stipulated that the Board of Directors' Report (attached to every balance-sheet tabled at a company annual general meeting) shall contain information on conservation of energy. The latter was expected to include:

- Energy conservation measures taken;
- Additional investments and proposals, if any, being implemented for reduction of the consumption of energy;
- Impact of the measures taken above for reduction of energy consumption and consequent impact on the cost of production of goods; and
- Total energy consumption and energy consumption per unit of production in respect of specified industries.

The CSR Spending

The CSR spending of the companies in India for the year 2009-10 was $7.5 billion. Public sector companies spent about $700 million annually on CSR activities. (World Bank 2013) There has also been a significant increase in the average CSR expenditure by domestic firms as compared to foreign firms. Average CSR expenditure by domestic and foreign firms was Rs 3.79 and 8.5 million respectively in 2011-12, but this increased to Rs 22.6 million and 19.5 million respectively in 2012-13. Foreign firms increased their expenditure, because they might have been driven by the need to protect their brand name. Anticipated future pressure from consumers, investors and NGOs may also have been the driving force for foreign firms to invest in socially responsible activities. A study of annual reports of Nifty companies by Economic Times showed that 48 companies spent a combined Rs 4,252 crore during FY15. This is 1.6% of the standalone net profit earned by Nifty companies for FY15.



(Source: Business Standard, February 13, 2015)

The passing of the Act also led to a steep rise in the number of firms disclosing their CSR expenditure. In 2010-11, 336 firms had disclosed their donations and expenditure on community and environment related activities. This number rose to 504 in 2011-12, and to 1,470 in 2012-13. There was an increase in environmental reporting by firms as well. In 2010-11, only 35 firms had complied with environmental reporting, while 52 had filed reports in 2011-12. But in 2012-13, there was an increase of 211.5%, with 162 firms disclosing their environmental performance information. In 2012-13, 760 firms had crossed the threshold of Rs 5 crore net profit, but their total CSR contribution was lesser than the 2% criterion as laid down by the Act. The total CSR spending by firms was Rs 33,668 million, but the required spending should have been Rs 45,154 million. (Rai and Bansal 2014)

The analysis of the CSR spending of 19 Indian banks reveals that the sector is yet not prepared for 2% of the net profit spending on CSR projects. A report prepared by NGO Book found that 19 banks have to spend INR 1628 Crores on CSR Projects in FY 2014-15 while their actual CSR spending in FY 2013-14 was INR 535.85 Crores. The 19 banks analyzed in this report have spent just 0.70% of their average net profit of FY 2011, 2012 and 2013. The situation is even worse with public sector banks. Out of the 19 banks, 12 are public sector banks and their CSR spending is just 0.43% of their average net profit of FY 2011, 2012 and 2013. Private sector banks have been spending a lot more on CSR, than their peers in public sector. Private sector banks have spent 1.17% of their average net profit of FY 2011, 2012 and 2013 on CSR projects. INR Crores 2% of Average Net Profit of FY 11, 12 and 13 1533.4 Actual CSR Spending in FY 2014 535.9 CSR Spending Requirement in FY 2015 1628.1 Overall, these 19 banks have spent INR 535.85 Crores on CSR activities in FY 2013-14 and they need to spend almost three times of this amount, INR 1628.1 Crores, in FY 2014-15 to comply with the mandatory CSR clause of the new Act. (NGO Book: CSR spending in banking sector in India, 2014-15)

The Finance Minister has clarified that deductions specifically allowed under Sections 30 to 36 of the Income Tax (IT) Act, 1961 could be availed. In effect, Section 30 of the IT Act can be used for availing deductions against expenditure incurred on repairs and insurance in respect of machinery, plant and furniture used for CSR activities. Rent, rates, taxes and repairs incurred on buildings or other assets taken on lease earmarked for CSR activity would also qualify for deductions. Companies can also claim deduction towards depreciation on assets used for CSR purposes. State Bank of India (SBI) and AXIS Bank spent 1.27 and 1.25 percent respectively of the profit on CSR in the year 2011-12.

Banks and Their Current and Potential CSR Spending

Bank	CSR spending in 2012-13	2% of average PAT of FY 10,11,12
State Bank of India	123.27	194.25
HDFC Bank	39.01	80.27
ICICI Bank	116.55	104.27
AXIS Bank	42.42	67.63
Kotak Mahindra Bank	4.08	16.43

Bank	CSR spending in 2012-13	2% of average PAT of FY 10,11,12
Bank of Baroda	7.17	82.03
Punjab National Bank	3.32	88.15
Canara Bank	11.20	88.87
Bank of India	1.10	46.06
Indusind Bank	9.12	11.80
Yes Bank	6.50	14.54

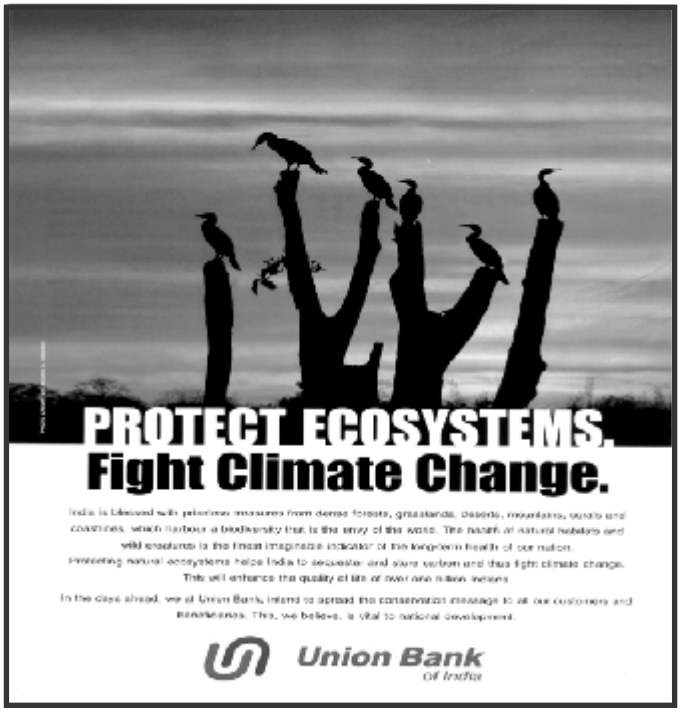
(Source: Partners in Change, 2014)

Analysis of Social Reporting By Banks

Many private and public sector banks have issued advertisements in print and electronic media to propogate their contribution in the social development. These advertisements can be categorized as advertisements promoting their increases involvement in corporate social responsibility programmes, social initiatives by banks, cause related marketing initiatives, social reporting in financial reports to aware different stakeholders on their involvement in activities beyond profit making, environmental awareness.

Corporate social reporting through advertisement by State Bank of India issued in the news papers. The advertisement exhibits contribution of SBI in providing safe drinking water in a government primary school. It is well known fact that children are victims of so many water borne diseases and to get safe drinking water is a distant dream in rural parts of the country.

ISSN 2454-9169



A social reporting initiative by Union Bank to generate awareness on the protection of eco-system and motivational call for the fight against climate change. The advertisement issued by Union Bank spread the conservation message to all customers and beneficiaries.

ICICI bank issued mass advertisement in the print India on its celebration of 50 years of service. The above social reporting reflects its involvement in the social responsibility with clip of a girl child schooling initiative.

ISSN 2454-9169

Corporate social reporting through advertisement with the financial statement as on 31.3.2012 by State Bank of India in the news papers

Conclusion

In an open economy like India, the role of banks both the public and private sector is more important. The government's mandate to cover all under Jan Dhan Yojna and provide opportunity to open bank account is evident that their role is expected even more. With the enactment like Companies Act 2013, the larger banks like SBI will have more reserves and allocations of fund on corporate social responsibility. The banks have been undertaking various socially responsible initiatives in the service of needy community. They have showed

these initiatives in the form of advertisements both in print and electronic media. these advertisements helps in brand building, image improvement, stakeholder management and support to government's mandate of social banking. They also need to pay more attention to the environmental issues.

References

Belkaoui, A. and Karpik, P. (1989). Determinants of the Corporate Decision to Disclose Social Information. *Accounting, Auditing & Accountability Journal,* 2(1), 36-51.

Beretta, S. and Bozzolan, S. (2004). A framework for the analysis of firm risk communication. *The International Journal of Accounting*, 39(3), 289-295.

Brammer, S. and Pavelin, S. (2006). Voluntary environmental disclosures by large UK companies. *Journal of Business Finance and Accounting*, 33(7), 1168-1188.

Bowman, E.H. and Haire, M. (1976). Social Impact Disclosure and Corporate Annual Reports. *Accounting, Organizations and Society*, 1(1), 11-21.

Chakrabarty, K. C. (2011). Non-financial Reporting – What, Why and How - Indian Perspective (Address at National Conference on " Non-Financial Reporting and Risk Management for Financial Institutions in India" on June 6, at Mumbai).

Friedman Milton. 1970. The Social Responsibility of Business is to Increase its Profits. The New York Times Magazine, the New York Times Company NGO Book: CSR spending in banking sector in India, 2014-15(September 13).

Gray, R., Kouhy, R. & Lavers, S. (1996). Corporate Social and Environmental Reporting: A Review of the Literature and a Longitudinal Study of UK Disclosure. *Accounting, Auditing and Accountability Journal,* Vol. 8 No. 2, 47-77.

Golob, U. and Bartlett, J.L., (2007). Communicating about corporate social responsibility: A comparative study of CSR reporting in Australia and Slovenia. *Public Relations Review,* 33(1), 1–9.

Hackston, D. and Milne, M. (1996). Some determinants of social and environmental disclosures in New Zealand Accounting. *Auditing and Accountability Journal,* 9(1), 77–108.

Mammatt, J., Marx, B. and van Dyk, V. (2009). Sustainability reporting and assurance: the way of the future. *ASA Accountancy Journal*, December 2009/January 2010 Issue, pp.22-25.

Moneva, J.M., Archel, P. and Correa, C. (2006). GRI and the camouflaging of corporate unsustainability. *Accounting Forum*, 30(2), 121-137.

Ruben Zandvliet. (2011). Corporate Social Responsibility Reporting in the European Union: Towards a More Univocal Framework. *Columbia Journal of European Law*, 18 Colum. F. 38.

Silva Monteiro, S.M., and Aibar-Guzman, B. (2009). Determinants of environmental disclosure in the annual reports of large companies operating in Portugal. C*orporate Social Responsibility and Environmental Management.* [online] Available at: http://www3.interscience.wiley.com/c gi-bin/fulltext/122437579/PDFSTART

Vikas Choudhary; Suman Tandon. (2013). Corporate social responsibilities

of public sector banks in india. *Galaxy International Interdisciplinary Research Journal,* Vol.1 (1).

Waddock, S.A. and Graves, S.B. (1997). The corporate social performance – financial performance link. *Strategic Management Journal*, 18(4), 303–319.

World Bank. 2013. Development dialogue, South Asia.

ISSN 2454-9169

Green India - Increased Forest Cover in India

Dr. Shabeen Ara

Introduction

The climate change phenomenon will seriously affect and alter the distribution, type and quality of natural biological resources of the country. Sustainable development identifies the close linkage of the economy with its natural resource base, and cautions that climate-sensitive sectors such as forestry and agriculture may face a major threat because of the projected changes in climate. This will have repercussions on livelihoods of people in general, and forest-dependant communities in particular. The influences and potential that the forests and other natural ecosystems have on climate adaptation/mitigation, and food, water, environmental and livelihood security of tribal and forest dwellers specifically, and the nation at large, in the context of climate change.

Over the past decades, national policies of conservation and sustainable management have transformed the country's forests into a net sink of CO2 . From 1995 to 2005, carbon stocks stored in our forests are estimated to have increased from 6245 million tonnes to 6622 million tonnes thereby registering an annual increment of 37.68 million tons of carbon or 138.15 million tonnes of CO2 equivalent[1].

Food Security

Forests are essential for maintaining favourable and stable conditions needed for sustained agricultural productivity. In Nayagarh, Orissa, maintaining agricultural productivity is one of the key reasons for forest protection by the community. According to a study by adkarni[2], as much as 50% of the productivity of paddy fields in the Western Ghats is actually attributed to leaf litter collected from the forests. Organic matter is essential to maintain the fertility, structure and water-holding capacity of soils in the high rainfall region. Forests provide food directly in the following categories: fruits, flowers, leaves, stems, seeds, roots, tubers, mushrooms, etc.

Water Security

Forests are vital for maintaining the hydrological cycle and regulating water flows and sub-soil water regimes, recharging the aquifers and maintaining the flow of water in rivers and rivulets. However, the relationship between forests and water

Dr. Shabeen Ara
Director Communications
SIMMC, Pune
E-mail:shabeen.ara@suryadatta.edu.in

flows, especially the low base flows, is not always as straight forward as often believed. Forest ecosystems are the source of a large number of rivers and rivulets in the country. The forested watersheds have better availability as well as quality of water than watersheds under alternative land uses. For example, the Shimla catchment forest was established in the early 20th century exclusively for securing the catchment and to protect 19 springs and streams that provided drinking water supply for Shimla town, the summer capital of British India. It comprises more than 1000 ha of very dense forest.

Livelihood Security of Local Communities

Forests provide a range of provisioning services, particularly fuel wood, fodder, small timber, NTFP and medicinal plants, and artisan raw material like canes and bamboo, that are crucial to livelihood security of forest-dependent communities. Nearly 27% of the total population of India, comprising 275 million rural people, depends on forests for their livelihoods. This number includes 89 million tribal people, who constitute the poorest and most marginalized section of the country. NTFP sector with an annual growth rate between 5-15% also contributes to 75% of the forest sector export income.

Objectives

1. Study of programmes of conservation and sustainable management of the country's forests.
2. Identify the key challenges to Forests due to Climate Change.
3. Enhancing Quality of Forest Cover and Improving Ecosystem Services.
4. Strengthening Local Community Institutions for Decentralized Forest Governance.

Methodology

To study the above objectives the methodology used is by reviewing the National Mission for a Green India by the Ministry of Environment and Forests[3]. The implementation period of the Mission is spread over 10 years, coinciding with the 12th and 13th five year plan periods. This paper is specifically focusing on the areas of the Mission interventions, awareness and capacity building.

Forests and Climate Change: Key Challenges

On account of the demand and supply gap of various provisioning services from forests, particularly fuelwood, fodder/grass/grazing, timber, cane/bamboo, NTFP etc., creating unsustainable pressure and contributing to degradation of forests and ecosystems.

The productivity of Indian forests is low as compared to the world standards, worsening the gap between demand and supply of various forest products.

Through the scientific modeling done it is projected that nearly 77% and 68% of the forest grids are likely to be impacted by climate change.

Use of the dynamic global response model IBIS (Integrated Biosphere Simulator) predicts the percentage of forested grids expected to undergo vegetation change range from 3.5% in the North-Eastern states to 73% in Chhattisgarh[4].

Already challenged forest eco-systems will become much more vulnerable to the adverse climatic conditions. The forests

would be vulnerable on account of the altitudinal and latitudinal shift of the species of the forest ecosystems and also on account of increased occurrences of fire, pests/diseases, invasive species, change in species assemblage/forest type, forest die-back and loss of biodiversity.

As a result, forest-dependant livelihoods may get severely affected, especially of women who depend on fuel, fodder and food from forests, thus enhancing vulnerability of forest-dependant communities.

Enhancing Quality of Forest Cover and Improving Ecosystem Services

Conservation and Sustainable Management of Moderately Dense Forest Cover

Though recorded as moderately dense coverix, many of these forests / ecosystems are subjected to degradation on account of recurrent fire, unregulated grazing, invasive species, shifting cultivation and illicit felling etc. Conservation and sustainable management of these forests has the potential to provide both, mitigation as well as adaptation benefits. Better protection, fire management, regulated grazing, invasive species eradication, management of insects and other pathogens, improving hydrological regime through infiltration zone identification and protection, soil/ moisture conservation (on ridge to valley basis) would form some of the key interventions. Sustainable management of these forests would lead to increase in stocking density, enhanced biomass and carbon stocks, along with flow of forest goods like NTFPs, fuelwood, small timber/timber for direct livelihood benefits to dependant local communities.

Eco-Restoration of Degraded Open Forests

Presently open forests, mostly on the fringes of villages, with crown density between 10-40%, constitute 28.84 million ha (State of Forest Report 2009)[5]. Most of these forests are subjected to intense biotic pressure and unsustainable removals. These lands have immense potential for meeting the fodder, fuel wood, small timber, NTFP requirements of the dependent village communities while enhancing water recharge and the carbon sinks substantially.

Broadly, three types of open degraded forests are envisaged: i) Type A with plenty of root stock, with little or no scope for planting, ii) Type B with open blanks having limited root stock, and iii)
Type C largely open areas with sparse undergrowth

Restoration of Grasslands

Grasslands are often highly degraded ecosystems, and are recognized primarily as a resource for promoting animal husbandry. Native palatable species of grasses grown either by themselves or in combination with shrubs/trees of fodder value could restore these ecosystems. These lands, though predominantly located in arid or semi-arid zones, are also found in wet areas. Eco-restoration of these grasslands would render them as a good resource for animal husbandry. Effective protection, soil and moisture conservation work, seeding/slip-planting of native grasses and legumes, and good management practices such as deferred/ rotational grazing (within the carrying capacity) would be of great value in restoration of such ecosystems. This could be supported by improved animal

health services and, where feasible, improvement of livestock quality based on indigenous improved breeds, and reduction in the number of nondescript animals, improvement in marketing of animal products etc.

Rehabilitation of Shifting Cultivation or Jhum

A combination of socio-cultural, legal and bio-physical characteristics of shifting cultivations in a given location lends uniqueness to shifting cultivation. Although Alder based agroforestry in the shifting cultivation areas in Nagaland has been successful, monocultures need to be guarded against pest attack and vulnerability to market risk. Optimum utilization of indigenous knowledge based on multiple species must be factored in any jhum management[6].

The Mission will support fallow land management within the overall framework of socio-culturally valued, fast-growing species managed by the community. Services of agronomy and silvicuture experts along with community indigenous knowledge will be put to maximum use for fallow-management under the Mission. Learning's from existing jhum management models, both community-driven and those supported by the project/ agencies, will be used.

Restoration of Mangroves

Mangrove vegetation is spread over 4,639 sq km or approximately 0.4 m ha, of which 30% is categorized as very dense; 35% as dense and 34% as open mangrove forest. Mangrove and coastal ecosystems deserve special conservation efforts as these ecosystems save lives and property from natural calamities such as cyclones, storm surges and erosion, and are the breeding, feeding and nursery grounds for many estuarine and marine organisms. Unfortunately, these areas are used for captive and culture fisheries often to the detriment of the mangrove ecosystem.

Andaman and Nicobar Islands present a unique situation where following the tsunami of 2004, upliftment of land in the northern islands and sinking of land in the southern islands has taken place. As a result some luxuriant mangroves in north Andamans are drying up on exposed lands which lack inundation by sea water. These areas therefore will need to be treated in a different manner. Planting of littoral species and mangrove associates to restore vegetation cover of indigenous species will be taken up. Development of artificial channels in uplifted areas to facilitate inundation by sea water and restore mangrove through planting of mangrove species along the channels will be taken up. These measures will not only restore mangrove ecosystem but will help immensely in boosting the local economy which is based primarily on fishing and collection of marine resources in the mangrove areas.

The target of 0.10 m ha of mangrove restoration will primarily involve lands which were mangroves historically but are not under mangrove vegetation now. Along with protection/restoration of mangrove ecosystems, patches of biodiversity-rich habitats in the coastal, riverine and deltaic belt would also get protection.

Enhancing Tree Cover in Urban and Peri-Urban Areas

India has been experiencing an unprecedented pace of urbanization since the 1990s. Today, with 310 million people living in India's cities, every fourth

Indian is a city dweller. It has been estimated that by 2030, more than 40% of India's population will be living in urban areas, and by 2045, India's urban population would be 800 million. Urban forests have been providing ecological services as well as supplying fuelwood to the urban poor. The National Sample Survey, in 2006, estimated that 21% of urban households use fuelwood as their primary source of cooking. Increase in urbanization, however has also meant deterioration of air quality, increase in air temperature, noise level, and water and land pollution. Urban forests emerge as an exciting opportunity to help a) mitigate climate change, b) ameliorate air pollution c) improve the overall water regime, d) nurture urban biodiversity and e) provide shade and reduce ambient temperatures and the heat-island effect. It is estimated that the total carbon stored by trees in urban areas is 23.89 million tonnes from an estimated 7.79 million ha urban area[7]. Thus, there is ample scope to increase the contribution of urban forests to overall carbon stocks.

The Mission supports urban greening by various interventions, categorising urban forests in the following broad categories:

i Recorded or notified forest patches which are threatened by expanding urban/industrial development. Such notified forest patches in urban and especially in peri-urban zones will be secured by appropriate fencing (wall or a combination of wall and wire mesh); restoration of representative ecosystems and plantation of biodiverse species mix to supplement natural regeneration. Special care will be taken to retain the natural local mix of grasses, herbs and shrubs along with tree species.

ii Open spaces/green spaces like parks/wood lots set up on municipal land will be supported to enhance their biodiversity status.

iii Diffused planting such as on avenues and in households: The Mission will support plantation of multiple species.

iv Institutional lands, especially lands belonging to or allotted to business/industrial houses and educational institutions will be supported for taking up planting of native species having multiple values for users.

Strengthening Local Community Institutions for Decentralized Forest Governance

Strengthening Decentralized Governance through Gram Sabha and Its Committees/ Groups

Local institutions have a significant bearing on forest conservation and its sustainable use, more so at a time when market forces are putting tremendous pressure on natural resources. The institutions at the local level to deal with forests include: Joint Forest Management Committeesxiii (JFMC), Community Forest Management groups (a large number in Orissa), Van Panchayats (Uttarakhand), traditional village level institutions/ Village Councils (schedule VI area), Biodiversity Management Committees, Forest Committees set up under rule 4 (e) of FRA etc., Self Help Groups /Common Interest Groups have also been set up at the village level to promote forest-based livelihood activities.

The spread of Joint Forest Management, despite several limitations and uncertainties in terms of tenurial insecurity, inadequate silvicultural development, and restricted harvesting and market access, has helped in

regenerating forests and meeting local needs (Milne, 2006)[8] .

Panchayati Raj Institutions (PRIs) are constitutionally mandated bodies for decentralized development planning and execution at the local level. The Scheduled Tribes and Other Traditional Forest Dwellers(Recognition of Forest Rights) Act, 2006, in addition to individual rights, provides for Community Forest Rights, including the right to protect, regenerate and manage Community Forest Resource17. It is obvious that this right also places a great deal of responsibility on the community which it has to fulfil. The Gram Sabhas have been authorized to set up institutions to ensure this (4 (e) of Rules).

Strengthened Gram Sabhasxiv hold the key to decentralized governance of forests and natural resources. Informed Gram Sabhas would mean better coordination and linkages across different institutions at the local level, and improved accountability of such institutions.

The Mission would therefore help strengthen Gram Sabhas as the overarching institutions. Village-level institution dealing with protection and management of forests will need to be set up by the Gram Sabha. This would not only help in strengthening the GS, but would also help in necessary convergence of resources and integrated planning at the village level. Leadership provided by the committees of the GS and the UGs/SHGs would contribute to strengthening of Gram Sabha.

Livelihood activities and enterprises as well as protection of forests have often been effectively addressed at the cluster level/sub-landscape level, led by federations of SHGs/Common Interest Groups (CIGs) and federations of forest committees. The Mission would therefore encourage federations of thematic committees /groups such as JFMCs /CFM/VPs/FRA committees etc, as well as livelihood promotion groups like SHGs/CIGs to plan for forest protection, conservation and livelihood activities. However, making of such federations needs the decision of communities and their respective Gram Sabha.

Larger landscape-level governance /management needs to emerge over time, engaging a diversity of institutions, depending on the local context and learning from the successes and failures of initiatives at the landscape/sub-landscape level. These learnings need to come from an array of initiatives initiated by Government and Non-Government Organizations.

Building Capacity of Local Institutions

The Mission will support capacity building of the local community institutions as a longterm measure to help them effectively protect, regenerate and manage forests and undertake forest-based livelihood enterprises. Sustainable forest management and utilization will require sound knowledge in inventorization (including growingstock enumeration, regeneration surveys, biodiversity and carbon assessment etc), adaptive silvicultural practices, sustainable NTFP harvesting, value addition and marketing; and monitoring of impacts. Traditional Knowledge, forestry science and 18 Information and Communication Technology will provide the building blocks of the capacity-building endeavour.

Building a Cadre of Community Foresters

The Mission is meant to nearly double the ongoing efforts of greening the country. This will necessitate developing extra hands from within the community, namely youths from the community who on one hand would provide service to the community, and on the other hand would link to a large number of other service providers, including the Forest Department and other agencies.

Given the fast changing rural scenario with an increasing number of educated unemployed/underemployed youth, the Mission will support development of youth cadres as Community Foresters to lead the charge at the local level. Support of the Forest Department, research institutions, universities/colleges from local area and NGOs would help develop this cadre of Community Foresters as self-employed change agents. The Mission has the potential to develop about one lakh skilled local community youths who would provide support in community-based forest conservation, community livelihood enhancement and change monitoring etc., these youth will also act as a bridge between the community and the service providers like the Forest Department.

The example of the Carbon assessment under "Project Kyoto: Think Global Act Local in Uttarakhand", 2009 in Lamgarha block in Uttarakhand proves the point that rural educated youthare quick to pick up skills, and have a huge potential to provide support to the community in planning, implementation and monitoring of the greening program at the local level. The Mission will learn from such examples and develop innovative and cost-effective models that would be replicable with ordinary resources and by building the capacity of community youths.

Role of NGOs

The Mission envisages the role of NGOs as partners in furthering the Mission mandate specially in community mobilization, strengthening of the Gram Sabha and its myriad bodies, in facilitating community ownership and management of natural resources, developing the cadre of skilled community youths etc. NGOs and as Process Support Groups would help in strengthening of institutions at various levels, from village level institutions to the State bodies. The Mission will ensure representation of NGOs in decision making bodies at different levels. The Mission will set the process guidelines for engagement of NGOs with proven track record. The State Mission organization, by using the guidelines, will be able to identify such NGOs and provide them with necessary support to help achieve the Mission objectives.

Engaging Schools and Colleges

School-children and college students are a valuable and enthusiastic group to help further the Mission objectives, while in turn receiving real-life learning by their involvement. India has about 1 million recognized schools18 and some 10,000 colleges. Programs such as the National Green Corps (NGC) coordinated by MoEF, NCC and NSS, and many other initiatives taken by NGOs have shown a great deal of potential to engage school and college students and teachers in monitoring natural and restored forests and other landscapes as well as in actual "greening" activity. Working in tandem with these programs/initiatives and organisations, the Mission would help put more meaning into such programs /initiatives while also scaling them up. One of the key handicaps in rural schools is inadequate fencing of the school

plantation and its maintenance during the summer holidays. The Mission will provide support to enhance protective fencing and after-care of the plantations taken up under such initiatives.

Research to Support Mission Aim and Objectives

The Mission will identify research priorities in support of the Mission aim and objectives. Some of the key research areas would include long-term research to study vegetation response to climate change; silvicultural and management response to achieve the Mission objectives; pilot adaptation projects to develop adaptation options, strategies and practices; benchmarking carbon capture potential of ecosystems and economic evaluation of ecosystem goods and services; measuring degradation within density class ranges; social and economic research and studies, etc. The scientific and technical capability of forestry research institutions including Indian Council of Forestry Research and Education (ICFRE) would be significantly enhanced for ecological research and modelling of climate change impacts, mitigation and adaptation aspects. The Mission would support the strengthening of the research institutes under ICFRE and the State Forest Departments, including financial support for increased strength of scientists and their support staff, better infrastructure, equipment, etc.

Conclusion

The paper finally concludes that if serious efforts are made forest cover in India can increase and we can have a Green India. We are aware that forests are important for food security, water security and for lively hoods of the local communities. The Green India Mission is making efforts at the larger government level, along with local communities, NGOs and students for a Green India.

References

1. Kishwan, Jagdish, Rajiv Pandey and VK Dadwal. 2009. India's Forests and Tree Cover: Contribution as a Carbon Sink, Technical paper. Indian Council of Forestry Research and Education, Dehradun.

2. Nadkarn, M.V. with SA Pasha and LV Prabhakar. 1989. The Political Economy of Forest Use and Management. Sage Publications, New Delhi.

3. Ministry of Environment and Forests. (nd). National Mission for a Green India (Under the National Action Plan on Climate Change). Government of India.

4. Chaturvedi, R.K., ,Ranjit Gopal Krishnan, Mathangi Jayaraman, G Bala,, NV Joshi, R Sukumar and NH Ravindranath. Impacts of climate change on India's forests: a dynamic vegetation modelling approach, Mitigation and Adaptation Stratagies of Global Change.

5. Forest Survey of India. State of Forest Report. 2009. Ministry of Environment and Forests, Dehra Dun.

6. MoEF. 2008. Shifting Cultivation. Report of National Task Force for Rehabilitation of Jhum Area. Ministry of Environment and Forests, Government of India, New Delhi.

7. Saibal Das Gupta, Rajesh Kumar & Prakash Lakhchaura. (2008). Urban Trees for Combating Climate Change. Geography and You, Vol 8, Sep- Oct;

Special Issue on Climate Change in India.

8. Milne. 2006. Unlocking Opportunities for Forest Dependant People in India. World Bank Report No. 34481 – In Volume 1.

ISSN 2454-9169

SURYADATTA

The Role of HRM in Changing Environment

Dr. Safia Farooqui

Introduction

Today's competitive business environment changes much faster than it did earlier due to the advancement of technologies. To remain competitive, organizations today must be flexible and be able to respond promptly to changes in their environment and changes in customer demand. In our fast moving, global environment, managing human resources effectively is more important to competitive success than ever. Developing a competitive strategy that exploits the strengths of a company's human resource can create a powerful competitive advantage.

Human resource management has been extensively considered as the key element by all top management because of its significance on overall operations and organizational effectiveness/efficiency. It is extremely essential to identify, understand, and assess the key factors and the relationships among them in order to increase the overall performance of the organizations.

Human Resource Management plays a vital role in today's competitive business environment and is one of the major factors in gaining competitive advantage. It can create new environment in the business world and dramatically after the landscape in the existing environment. The development and innovative use of human resource management can give an organization a distinctive competence that is difficult to match. In the rapidly changing social economic, political and environmental situations the world over, the Human Resource Management in service and government organizations everywhere are under remarkable pressures for responding to the changes. The responses are quick and confident in certain areas of HRM but slow and impulsive in many other areas.

The management of change, however, is possible only by managing efficiently and effectively our country's natural, physical, intellectual and human resources. It is in this both fluid and amorphous situation that it has now become necessary to review the prevailing human resource management practices, the trends emerging therein, the direction, and the magnitude of each of these and also to evaluate them against the perspective of the global changes.

Dr. Safia Farooqui
Asst. Professor,
SIMMC , Pune
safia.farooqui@suryadatta.edu.in

Objectives of the Study

In order to examine the changing role of human resource management in today's business environment. The specific objectives of this study are as follows:

1) To examine the factors responsible for changing role of HRM.

2) To study the recent trends in HRM.

3) To anticipate future challenges likely to be faced by HRM.

HRM in Changing Scenario

Changes are unavoidable everywhere i.e. in our personal life, social life, work life, in nature, in society, in universe etc. We cannot avoid changes but we can adjust and adapt to such changes for betterment. HRM has to play a crucial role in today's business scenario. Today's age is age of globalisation which is characterized by intense competition, technological innovations, consumer satisfaction, competitive advantage etc. It is the human resource that provides impetus to business organization to deal with such complex situations in the business world. Human Resource Management (HRM) is concerned with the human beings in an organization. Unlike in the past, the term HRM which is quite new in its beginning reflects a new philosophy, a new outlook, approach as well as strategy as it considers an organization's manpower as its valuable assets.

In Human Resource Management the term 'Resources' denotes the meaning which can be drawn on. Human Resources are human wealth. To be more precise, the recent terminology is Human Capital as valuable as money (capital) another input of a business organization. Human Resources is the sum total of inherent abilities, acquired knowledge and skills represented by the talents and competencies of the employed persons in an organization.

In earlier days, the role of HRM was restricted only to limited activities as this department used to hire and fire the employees. The role was more of record keeping type. In fact HR department was called as "Health and Happiness Department" in earlier days since it used to arrange for employee picnics and farewell parties after their retirement.

Evolution of HRM is directly related to evolution of business or industry itself. According to changing role of HRM, the terminology of the subject has also undergone changes. In the past it was known as employment management. Then it became personnel management.

The change in attitude of management towards labour is generally responsible for the changing role of HRM. Today labour is no more treated as commodity but as a valuable asset. Because of this change in attitude, various concepts emerged in due course of time such as workers' participation in management, collective bargaining, total quality management, employee empowerment, Quality of Work Life , outsourcing, flexible time etc.

Factors Responsible For Changing Role of HR - Past Present and Future

Today's world has become very fast. Even economic developments take place very fast. It is quite interesting to note that in the past, social as well as economic progress was measured in terms of centuries. But today it is measured by decades. Not only economic changes but social as well as technological changes

are affecting the business and which pose a major challenge to human resource management.

As compared to other inputs of a business organization, people have always been central to organizations but their strategic importance is increasing in today's knowledge based industries. An organization's success increasingly depends on the (KSA,s) skills, knowledge and abilities of employees, especially because they establish are competencies which may distinguish an organization from its competitors. When employees' talents are valuable, an organization can achieve competitive advantage through people.

There is increasing impact of information technology on managing people. Advanced technology has reduced number of jobs which require little skill. In fact it has resulted into increase of number of jobs that require considerable skill. Today the shift is towards knowledge work for which there is need of knowledge worker.

The idea that organisations **"Compete through people"** highlights the fact that success increasingly depends on a organization's ability to manage human capital. The term human capital describes the economic value of knowledge, skills and capabilities. Although the value of these assets may not be shown directly on a company's balance sheet it nevertheless has tremendous impact an organization's performance.

Recent Trends in HRM

It is the human resource which brings innovation, quality customization speed etc. As such, the increased importance to the customer and enhanced customization brought remarkable changes in human resource management. Continuous changes in technology, economic, social and psychological understandings and structures have influence on both Human Resources and their management.

Organizations approach their human capital in a more sensitive way in order to win the loyalty and commitment of them, while increasing profit and maximizing the efficiency/effectiveness of its work power.

Human Resources Management helps achieving these goals by recruiting, training, developing, motivating and rewarding employees. Therefore, the identification of current research interests is essential to lead them in defining organizational human resources strategies.

Conclusion

Thus we can conclude that HRM is more crucial today for the success of any organization done ever before. The Indian organizations are experiencing some transitions and changes. As a result of constant and rapid increase in technology and education, the development of multinational corporations and frequent changes in economic status and structures, the competition is getting tougher and harder. Therefore, Human Resources have become the most efficient and the most reliable management department within the organizations. This change in practice leads to the change in HRM research.

References

Adhikari, D. R. (2010). Human resource

development (HRD) for performance management: The case of Nepalese organizations. International Journal of Productivity and Performance Management, 59 (4), 306 –324.

Brunoro Kadash, C., & Kadash, N. (2013). Time to care: a patient centered quality improvement strategy. Leadership in Health Services, 26 (3), 220 231.

Thompson, D. (2004). Project management gives BAT a boost. Human Resource Management International, 12 (1), 21 23.

ISSN 2454-9169

SURYADATTA

Sustainable Tourism Development : A Challenge To Tourism

Jyoti Raju

Introduction

Tourism is one of the most rapidly growing industries in the world and has contributed to the economy, environment and society in innumerable ways. The benefits clearly outweigh the drawbacks, but in the third world countries the shortcomings have been dangerous. However these effects are now surfacing, which has prompted several organizations – international & domestic, public and private - to examine the affliction, specifically, on the ecological & social environment. The afflictions, specifically, on the ecological & social environment are now surfacing and are being examined by several organizations – international & domestic, public and private.

Going by numbers, International Tourist arrivals of 1.1 billion in2010 rose to 1.4 billion in 2015 (WTO, press release-2016), and is projected to reach 1.6 billion in 2020. Such escalating figures indicate that sustainable tourism is the need of the hour because it 'is a resource industry, one which is dependent on nature's endowment and society's heritage' (Murphy, 1985).

Objective

The objective of this paper, is to explore the approaches of sustainable tourism as a barrier to tourism development itself.

Methodology

This is an exploratory study based on the secondary data.

Sustainable Tourism and its Growth

The World Commission on Environment and Development (WCED, 1987) in their report 'Our Common Future' (WCED, 1987) drew attention toward sustainable development and defined it as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. This definition is coherent with the approach of saving the environment for our children. However, given the escalation in international tourist arrivals, and the enormous economic attributes of tourism, this definition is very rigid. Therefore, it is essential to include the definition of Bramwell & Lane (1993), that sustainable tourism development is a "positive approach intended to reduce tension and friction

Prof. Jyoti Raju
Asst. Professor,
SCHMTT, Pune
jyoti.raju@suryadatta.edu.in

created by the complex interactions between the tourism industry, the visitors, the environment and the communities which are host to holidaymakers". While this definition emphasizes the relations between tourists and locals, it completely ignores the vital role of the physical environment comprising of natural & manmade attraction features, which are the fundamentals of the tourism phenomenon.

Thus to tackle the problem of defining sustainable tourism development, in 1999 the WTO structured an all encompassing definition as: "Sustainable tourism development meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, and biological diversity and life support systems."

Thus, now, the definition of sustainable tourism development has become broader and includes several components. Sustainable tourism development proposes to preserve and protect the natural and cultural heritage of the destination. It includes provision of employment opportunities to the resident population and contribution toward a better quality of life. Additionally, it also intends to satisfy the needs and demands of the tourists. It is assumed to be economically viable and to ensure a return on investment for tourism service providers. Mostly, it should provide impartial allocation of economic benefits amongst all sections of society; it will also ensure a balance of resources for present and future generations.

The Challenges

The primary challenge lies with the theoretical weaknesses of the concept of Sustainable tourism development; unless the theoretical links between sustainable tourism and sustainable developments are explored, the notion, that development as a contributor to tourism and vice-versa, will continue be perceived as a potential barrier to development.

A highly biased and value-laden perspective on tourism indicates that 'true' sustainable tourism development is unachievable in practice because of focus on issues pertaining to tourist attraction and local control on services & facilities.

Several policies and practices aim to preserve the natural and socio-cultural resources, instead of optimizing the contributions from tourism toward wider sustainable development. According to Sharpley and Telfer (2002), these activities have proven detrimental to the achievements of 'true' sustainable tourism development as enumerated below:

a) The lack of adoption of a holistic approach to assess the impact of developmental activities in the socio-cultural, political and ecological context. The inability arises from the diverse character of tourism which is fragmented, profit-oriented and dominated by the private sector.

b) The structure, control and ownership of the tourism industry are regionalized. The popularity of certain destinations attracts political attention and interference in its functioning; which, in turn,

influences policies relating to international tourist flow. This presents a hindrance to the equitable geographical development.

c) Most plans and policies focus on the short-term profitability of tourism businesses and ensuring continued development of tourism rather than rather than long-term sustainable development through tourism.

Ironically, a natural contradiction of sustainable tourism is that it minimizes rather than optimizes the benefits to local people and restricts opportunities for tourists to participate in such different forms of tourism. It poses a query toward satisfying increasing demands from tourists for 'sustainable tourism experiences' and involving greater numbers of local people to contribute and benefit from sustainable tourism.

In their article on 'Tourism and Development in Generating Countries' (2002), Sharpley and Telfer argue that, in general, mass tourism itself presents a challenge to sustainable tourism in the sense that - when mass tourism began in the 90's in regions like the Dominican Republic and Cyprus, these regions which, in the 70's, were otherwise unaware of the benefits of tourism and therefore deprived of development and economic growth, experienced rapid socio-economic development. However, due to general reluctance in accepting and applying sustainable practices of tourism, these regions undoubtedly suffer a variety of environmental and socio-cultural problems arising from sudden mass tourism.

The demand for 'authentic', 'natural', 'traditional' tourism experience, are increasing among tourists who seek to experience environments that are different from their modern and developed home environment. Such expectations put a tab on the development activities that cause aesthetic alterations of the destination. Globalization has caused homogenization of cultures and physical aesthetics. Thus according to Silver (1993) that, 'indigenous peoples can only continue to be attractive to tourists as long as they remain undeveloped and, hence, in some way primitive', eventually limits the potential for modernization.

Sustainable development is often criticized for being a western-centric development paradigm which maintains the existing, unbalanced world order. It fails to answer a number of questions with respect to equity, freedom of choice, value and judgment, and about acceptable environmental degradation and who benefits from this development, challenge the global applicability of sustainable development. The same criticism may also be justifiably directed at sustainable tourism, particularly when attempts are made by western-based groups or organizations, such as the pressure group tourism concern, to influence or change the nature of tourism development in other countries. For example, the Gambian Government's decision in 1999 to ban all-inclusive holidays was reversed following external pressure from front-line tourism operators.

There have been several discussions on the concept of sustainable tourism, yet the guidelines for assessing practices for their sustainability is missing. This proves a gap between the theory and practices of ST. In some cases local bodies may diligently put into practice sustainable activities like good waste management systems but on the other hand consumption of fossil fuels is

constantly on a rise causing opposite effects on every component of the environment.

Also the activities of tourism are not found to be homogeneous in practice at all places and at all times. Especially in developing nations, the main cause seems to be the great numbers of front-line operators in the unorganized format, who lack plans, policies and systems that make the management of tourism business uniform and standardized across wide geographical area.

What Needs To Be Done: Defining The 'Intentions?'

Primarily, with diminishing resources and increasing populations, management of all resources is vital. So that tourism can flourish and society can progress, resources will have to be used; therefore resource management must be in tandem with environmental legislations allowing flexibility for development activities.

It is also important to maintain and fulfill social obligations, which mainly encompasses social equality, value for customs and traditions and preserving culture and heritage.

Finally, the need to sustain our basic life support systems is paramount. If these basic needs are not met, then our higher level and discretionary needs like travel will fail to materialize.

Many of these intentions must culminate into the following actions:

a) Develop an interdisciplinary approach combining theories and facts to create a basis for translating ideas into actions.
b) Training programs to empower local population by creating awareness of their rights as hosts.
c) Encouraging public participation to sustainable development ensuring economic growth, democratic governance, equity & environment preservation.
d) To develop environment friendly business practices for long-term mutual progression.
e) There must be a relevant tourism information base to permit recognition, analysis and monitoring of the tourism industry in relation to other sectors of the economy.

Turning 'Intentions' into 'Action'

With reference from Markowitz (2001), in the Draft White Paper on Sustainable Tourism Development and Promotion in the Western Cape, the following suggestions which can be suitably applied to other regions

1. Tourism strategy to be synchronized with destination carrying capacity: mass tourism to be encouraged in developed urban areas and eco-tourism in less developed rural areas.
2. Proposals for Commercial and infrastructure development, and tourism to be assessed for mutually benefit.
3. Major constructions to be sanctioned after evaluating eco-friendliness and aesthetic homogeneity.
4. Local population to be educated about forms of pollution, their causes & control. Liaise with environment conservation and protection agencies, thus ensure general upkeep of the destination
5. Recognize and promote world heritage sites as a major attraction. Identify USP's - unique selling propositions and initiate special attraction programs. Transform a

state into a brand promote it. Design the national marketing programs and encourage competition at state level. Integrate public-private enterprises, initiate collective marketing opportunities for global and local tourism organizations.

6. Increase tourist safety and security and market it.
7. Provide tourism-related infrastructure and facilitate its provision, Promote entrepreneurship, with special emphasis on neglected communities, regularize the unorganized sector by making registrations compulsory. Provide guidelines for operations and guarantee compliance. Establish customers' grievance cell and conduct audits to ensure quality of product and services.
8. Welcome participation of local communities in tourism development.
9. Implement tourism awareness to improve overall tourist experience.

Conclusion

Sustainable Tourism development is not the responsibility of any one person or organization. It is a gathered effort of hosts and tourists. Surveys done by Omnibus surveys, on eco-tourists indicate that they do not have a clear picture of the tourists' commitment to sustainable tourism development.

It is indicative of the need for greater integration of governments, academia and front-line industry practitioners in order to modify their perspectives and operate as a knowledgeable community.

We need to see tourism as an integral component of a macro-development policy, which gives several alternatives to developmental. However to achieve this development we must be cautious of indiscriminate use of resources. Similarly, environmentally sound production and consumption practices should be encouraged on both ethical and commercial grounds bearing practicality in mind.

Additionally, one must be aware that different regions and destinations are at different levels of development. Thus, we must first identify this level and then strategize accordingly.
Carrying capacity management will remain a key issue in sustainable development and need to be addressed very carefully, case to case. Then we can anticipate more tangible progress regarding tourism and sustainable development.

Sustainable Tourism Development requires a holistic approach encircling the futurity of global eco-systems and equitable growth of all societies. The objectives must focus upon improvement of quality of life, satisfaction of basic needs and self-reliance through economic freedom. Controls on population levels, consumption of resources and pollution must be implemented.

However Some Questions Remain Unanswered

While the local government and people strive for sustainable development of tourism, will the gross benefits of tourism reach to them? Or will the local elites and multinational corporations be the main beneficiaries of tourism development? Will tourist become sensitive to sustainability of tourism for future and therefore involve in responsible tourism?

References

Bramwell, B. and Lane. B. (1993). Sustainable Tourism: An Evolving Global Approach. Journal of Sustainable Tourism.

Cernat, L. and Gourdon, J. 2007. Developing The Sustainable Tourism Benchmarking Tool, UNCTAD. Retrieved from http://unctad.org/en/Docs/ditctncd20065_en.pdf.

Murphy, P.E. 1985. Tourism – a community approach. NY, Routledge.

Markowitz, L. 2001.White Paper on Sustainable Tourism Development and Promotion in the Western Cape.

Neto, FA. 2003. New Approach to Sustainable Tourism Development: Moving beyond Environmental Protection. DESA discussion paper, UN.

Pacific Asia Tourism Association. 1999. 21 Issues & Trends That Will Shape Travel and Tourism in the 21st Century. Pacific Asia Tourism Association, retrieved from www.PATA.org.

Sharpley, R. and Telfer, D.J. 2002. Tourism and Development-Concepts and Issues. Clevedon, UK, Channel view publications.

Silver, I. (1993). Marketing authenticity in Third World countries. Annals of Tourism Research.

Theobald, W.F. 2004. Global tourism – 3rd edition, Burlington, USA, Elsevier publications.

World Tourism Organization. 2016. Press release WTO.

WTO. 1993. Sustainable Tourism Development: A Guide for Local Planners. Madrid, WTO.

WCED. (1987). World Commission on Environment and development Our Common Future, retrieved from http://www.un-documents.net/our-common-future.pdf

ISSN 2454-9169

SURYADATTA

Energy Poverty – Indoor Air Pollution: A Saga of the Rural Population in India

Dr. Rachana Kale

Introduction

Energy Deprivation is one of the basic features for all almost all the developing countries of the world. Importance of access to clean and reliable energy for poverty alleviation has been increasingly recognized by poverty alleviation planners. Improving the poor households' access to modern energy sources can make a positive difference to their welfare and the access to energy can be a catalyst for human development. The UN's Millennium Development Goals had clearly acknowledged that access to energy services is a prerequisite to halve the number of people living below the poverty line by 2015. This target failed miserably because electricity generation was shifted to atomic energy source and the Kudankulam atomic project planned in 2002 faced stiff resistance by fishermen in Tirunelveli (Tamil Nadu) and Jaitapur Atomic Electricity Generation project in Konkan (Maharshtra) also faced stiff resistance. Thus generation projects leading to 1.5 Giga watts and 1 Giga watt respectively were stalled. Energy poverty continued beyond 2015 and therefore the Economic Poverty levels continued.

Energy poverty

Energy Poverty has been one of the important causes of concern for policy makers throughout the world. Modern Energy services are not only important for well being but also the development of the country is incomplete without the availability of modern energy sources. Energy Access basically forms one of the core pillars of development.

Energy poverty is lack of access to modern energy services. It refers to the situation of large numbers of people in developing countries whose well-being is negatively affected by very low consumption of energy, use of dirty or polluting fuels, and excessive time spent collecting fuel to meet basic needs. It is inversely related to access to modern energy services, although improving access is only one factor in efforts to reduce energy poverty. Energy poverty is distinct from fuel poverty, which focuses solely on the issue of affordability[1].

No doubt the pace of economic growth is increasing year on year but along with that population is also increasing and therefore the demand for energy is also growing. All the developing

Dr. Rachana Kale
Asst. Professor,
SIMMC, Pune
rachna.kale@suryadatta.edu.in

countries including India are unable to meet the increased demand and thus facing huge deficit in power supply. The table given below shows the total number of population who do not have access to electricity.

Table 1
People without access to Electricity in the World, 2011

	Country or Region	Population in Millions	Percentage of Population
1	Developing Countries	1257	23%
2	Africa	600	57%
3	Sub-Saharan Africa	599	68%
4	Nigeria	84	52%
5	South Africa	8	15%
6	North Africa	1	1%
7	Developing Asia	615	17%
8	India	306	25%
9	Pakistan	55	31%
10	Indonesia	66	27%
11	China	3	0%
12	Latin America	24	5%
13	Brazil	1	1%
14	Middle East	19	9%
15	World	1258	18%

Source: International Energy Agency 2011.

The chart above contains information about the consumption of energy sources of different countries and regions. It is heartening to see that millions of people have gained access to modern means of energy since 1980, especially China and India. But there still is a large number of people having no or less than required access because of rapid industrialization and inability of governments to cope with the growing needs in developing regions, including Africa and Asia[2]. Thus there are millions of people who do not have access to electricity. By 2030, if present trends continue, 1.4 billion people will still lack access to electricity—only 200 million fewer than today. And more than 2.6 billion will still rely on traditional biomass fuels—an even larger number than today. Since for poor people biofuels are the cheapest source of energy. It is evident from Table No 2.

Table 2
People relying on biomass for cooking and heating in developing countries, 2011

	Country or Region	Population in Millions	Percentage of Population
1	Developing Countries	2642	49%
2	Africa	696	67%
3	Sub-Saharan Africa	695	79%
4	Nigeria	122	75%
5	South Africa	6	13%
6	North Africa	1	1%
7	Developing Asia	1869	51%
8	India	818	66%
9	Pakistan	112	63%
10	Indonesia	103	42%
11	China	446	33%
12	Latin America	68%	15%
13	Brazil	12	6%
14	Middle East	9	4%
15	World	2642	38%

Source: International Energy Agency 2011.

There is thus heavy reliance on biomass for cooking and heating in developing countries. India has become one of the fastest growing economies of the world in the past few years. But providing modern services to the poor is an enormous challenge for the government. No doubt the fast economic growth has brought enormous benefits to the country but the energy sector is way behind the developed countries in terms of the development of the cheap efficient and healthy sources of energy. The rural population in India relies heavily on traditional biomass-based fuels (fuel wood, crop residues, and animal dung) for meeting its energy needs. Approximately 96% of rural households

are estimated to be using bio-fuels (NSSO 1997). These fuels dominate the domestic sector and are primarily used for cooking. Fuel-wood is the primary energy source for cooking used by rural households (78%) (TERI 1999a). In actual volumes as well, fuel wood ranks first, at 252.1 million tonnes, followed by dung-cakes, at 106.9 million tonnes and agricultural residue, at 99.2 million tonnes of annual consumption (TERI 1992)[3].

Burning biomass for energy emits large amounts of air pollution, and endangers human health. Biomass fuel consists of wood, dried animal dung, crop residue, leaves, twigs and charcoal (product of incomplete burning of wood) which is cheap and easily available. It is estimated that one half of the world's population, approximately 3 billion people worldwide use biomass fuel for cooking and heating purpose, 2.4 billion burn biomass and 0.4 billion use coal[4].

Objectives

The objectives of the study are as follows:

- To understand how air pollution is caused by bio mass.
- To bring to light the various health problems caused due to bio mass among women and children in rural areas of India.
- To find out the correlation between energy deprivation and poverty in India.

Research Design and Methods

The research methods used in this paper are purely qualitative in nature and the research design is exploratory in nature.

Literature Review

Lalita Fernandes and Anthony M. Mesquita (2014) in their article have highlighted that Chronic Obstructive Pulmonary Disease (COPD) is an important non communicable disease with rising morbidity and mortality worldwide. This results in an economic and social burden, and hence is a major public health concern. COPD is predicted to be the third commonest cause of death by 2030. In developing countries like India, women exposed to biomass smoke are at a greater risk of developing COPD but the awareness of biomass smoke exposure associated COPD in women, is low among treating physicians.

Ankita Kankaria, Baridalyne Nongkynrih and Sanjeev Kumar Gupta (2014) in their research paper provided an evidence based insight into what is Indoor Air Pollution, how it caused and what is are the various adverse effects on health and what could be the possible measures that should be undertaken to control it.

Jyoti Parikh (2011) explores the inter-linkages of gender, energy use, health and hardships in the Himalayan State of Himachal Pradesh in India. It brings out a gender-differentiated and age-differentiated picture of hardships and health impact on the use of traditional bio fuels.

Wickramasinghe (2001) identifies different types of physical ailments women suffered due to fuel wood. She describes how the bio-fuel cycle imposes hardship, stress and physical discomfort for women.

Bio-mass Fuels

Bio mass is a renewable energy resource derived from the carbonaceous waste of various human and natural activities. It is derived from numerous sources, including the by-products from the

timber industry, agricultural crops, raw material from the forest, major parts of household waste and wood.

Biomass contains stored energy. That's because plants absorb energy from the sun through the process of photosynthesis. When biomass is burned, this stored energy is released as heat.

Burning biomass releases carbon dioxide. However, plants also take carbon dioxide out of the atmosphere and use it to grow their leaves, flowers, branches, and stems. That same carbon dioxide is returned to the air when the plants are burned.

Biomass fuels used in India account for about one third of the total fuel used in the country, being the most important fuel used in over 90% of the rural households and about 15% of the urban households[5].

Types of Bio-Mass Fuels

Woody Fuels

Wood wastes of all types make excellent biomass fuels and can be used in a wide variety of biomass technologies. Combustion of woody fuels to generate steam or electricity is a proven technology and is the most common biomass-to-energy process. Different types of woody fuels can typically be mixed together as a common fuel, although differing moisture content and chemical makeup can affect the overall conversion rate or efficiency of a biomass project. There are at least six subgroups of woody fuels. The differentiators between these subgroups mainly have to do with availability and cost.

- **Forestry residues**-in-forest woody debris and slash from logging and forest management activities. Mill residues—byproducts such as sawdust, hog fuel, and wood chips from lumber mills, plywood manufacturing, and other wood processing facilities.

- **Agricultural residues**-by products of agricultural activities including crop wastes, vineyard and orchard prunings or turnings, and rejected agricultural products.

- **Urban wood and yard wastes-** residential organics collected by municipal programs or recycling centers and construction wood wastes.

- **Mill Residues-** Mill residues are a much more economically attractive fuel than forestry residues, since the in-forest collection and chipping are already included as part of the commercial mill operations. Biomass facilities collocated with and integral to the mill operation have the advantage of eliminating transportation altogether and thus truly achieve a no-cost fuel. Mill residues have long been used to generate steam and electricity.

- **Dedicated biomass crops-**trees, corn, oilseed rape, and other crops grown as dedicated feedstocks for a biomass project.

- **Chemical recovery fuels (black liquor)-** woody residues recovered out of the chemicals used to separate fiber for the pulp and paper industry.

Animal Wastes

Animal wastes include manures, renderings, and other wastes from

livestock finishing operations. Although animal wastes contain energy, the primary motivation for biomass processing of animal wastes is mitigation of a disposal issue rather than generation of energy. This is especially true for animal manures. Animal manures are typically disposed of through land application to farmlands. Tightening regulations on nutrient management, surface and groundwater contamination, and odour control are beginning to force new manure management and disposal practices. Biomass technologies present attractive options for mitigating many of the environmental challenges of manure wastes. The most common biomass technologies for animal manures are combustion, anaerobic digestion, and composting. Moisture content of the manure and the amount of contaminants, such as bedding, determine which technology is most appropriate.

Dry Animal Manure

Dry animal manure is produced by feedlots and livestock corrals, where the manure is collected and removed only once or twice a year. Manure that is scraped or flushed on a more frequent schedule can also be separated, stacked, and allowed to dry. Dry manure is typically defined as having moisture content less than 30 percent. Dry manure can be composted or can fuel a biomass-to-energy combustion project.

Animal manure does have value to farmers as fertilizer, and a biomass-to-energy project would need to compete for the manure.

Wet Animal Manure (Dairy Manure Slurry)

Wet animal manure is typically associated with larger and more modern dairy operations that house their milking cows in free-stall barns and use a flush system for manure collection. The combination of free-stall barns and manure flushing collects all of the milking cow manure with every milking cycle, two or three times a day. The manure is significantly diluted through the addition of the flush water, but after separation of some of the flush water, the slurry is an excellent fuel[6].

Biomass Smoke

Worldwide wood is the most commonly used biomass fuel. More than 2 billion kg of biomass is burnt everyday in open fires and inefficient cookstoves. The biomass smoke also contributes to outdoor air pollution. Wood smoke released during incomplete combustion is a complex mixture of various volatile and respirable particulate substances derived from wood polymers and resins. More than 200 chemicals and compound groups are identified and >90% of these are in the respirable size range11. Biomass smoke constituents are known to be toxic or have irritant effect on respiratory tract. They include particulate matter < 10 microns in aerodynamic diameter (PM10) and 2.5 microns (PM 2.5), carbon monoxide (CO), nitrogen dioxide, sulphur dioxide, aldehydes (formaldehyde), polycyclic aromatic hydrocarbons (benzopyrene), volatile organic compounds, chlorinated dioxins and free radicals. When coal is used, sulfur, arsenic and fluorine may also be present in the smoke. Amongst these PM10 has significant adverse health effects and in homes using biomass fuel, the mean 24 hrs PM10 levels reach as high as 300 – 3000 ug/m3 with peak reaching 20,000ug/m3 during cooking. The safety standard set by US Environment Protection Agency (EPA) for

24 hour average PM10 exposure should not exceed 50ug/m3 and annual mean not exceeding 20ug/m312. Thus indoor air pollution due to biomass fuel use is 10 – 70 times above those observed in the most polluted cities of the world. The mean carbon monoxide concentrations in homes using biomass fuel is in the range of 2 – 50ppm (parts per million) which can increase to 500ppm during cooking. The safety standard for CO for 8 hours is < 9ppm. Individual exposures are influenced by fuel type, stove type, kitchen type (indoor/ outdoor), ventilation in kitchen and duration of cooking. The exposure is significantly lower for those using open outdoor kitchens due to dispersion of smoke. Homes having kitchen indoors without partition, have high concentrations of pollutants in living room areas exposing other members of the family to toxic effects of biomass smoke. The solid biomass fuels have low energy conversion efficiency ranging from 12% to 25%. Crop residue, dung (12%), wood containing 15% moisture (15%), charcoal burnt in traditional stoves (20%), bituminous coal (25%), kerosene used in wick stoves (35%) and pressure stoves (55%) while LPG energy conversion is 60%13. However due to socio economic reasons people use easily available and cheap biomass fuel for cooking and heating purposes[7].

Health Effects of Smoke from Solid Fuel Combustion

Exposure to indoor smoke from cooking and heating has been linked to a host of respiratory diseases, including acute respiratory infections, chronic bronchitis, asthma, and tuberculosis. It has also been linked to lung cancer, adverse pregnancy outcomes, cataract, and blindness. Moreover, there is reason to expect an association with heart disease.

Acute respiratory infections in children

ARI is a disease category that includes severe respiratory infections from a range of viruses and bacteria with similar symptoms and risk factors. ARI is a leading cause of childhood illness and death worldwide, accounting for an estimated 6.5 percent of the global burden of disease. More than two-dozen studies have examined the effects of cooking smoke on ARI in children. Several of them show that young children living in homes that burn biomass fuels have two to three times the risk of developing serious respiratory infections than children who are not exposed.

Ear Infection:

Environmental tobacco smoke (ETS) is a known risk factor for middle ear infections (Strachan & cook, 1998a). There is some evidence, mostly from developed countries, of an association between cooking smoke and middle ear infection (otitis media) in children, which often results from upper respiratory infections (Daigler, Markello, & Cummings, 1991). Wood burning stoves and open fires in developed countries have been associated with otitis media (Daigler et al., 1991). A comprehensive review of studies on indoor air pollution and acute respiratory infections in children can be found in Smith, Samet, Romieu, & Bruce (2000).

Chronic obstructive pulmonary disease

Tobacco smoking is a known risk factor for chronic bronchitis, emphysema, and chronic obstructive pulmonary disease. Yet, high levels of chronic lung disease are reported among non-smoking women in

many developing countries, implicating indoor air pollution from cooking with solid fuels. There is strong evidence from laboratory studies that wood smoke exposure causes broncho-constriction, emphysema, bronchiolitis, and lung fibrosis (Hsu, Lai, & Kou, 1998; Lal, Dutta, Vachhrajani, Gupta, & Srivastava, 1993). A number of studies have reported an association between biomass smoke and chronic bronchitis and chronic obstructive pulmonary disease (Albalak, Keeler, Frisancho, & Haber, 1999; Bruce, Neufeld, Boy, & West, 1998; Perez-Padilla, Regalado, Vedal, Pare, Chapela, Sansores, et al., 1996; Dennis, Maldonado, Norman, Baena, & Martinez, 1996; Sandoval, Salas, Martinez-Guerra, Gomez, Martinez, Portales, et al., 1993; Dhar & Pathania, 1991; Behera & Jindal, 1991; Pandey, Basnyat, & Neupane, 11 1988; Malik, 1985; Pandey, 1984; Padmavati & Arora, 1976).

Asthma

Asthma is a chronic respiratory disease characterized by sudden attacks of labored breathing, chest tightness, and coughing. It is a complex multifactorial disease with both genetic and environmental components. Asthma has been on the rise in many parts of the world (WRI, 1998; Platts-Mills & Woodfolk, 1997). A rapid increase in the prevalence of asthma in recent years cannot be ascribed to changes in genetic (heritable) factors; the focus, therefore, should be on environmental factors. A number of studies have suggested that ambient air pollution can trigger asthma attacks (Bjorksten, 1999; Koren & Utell, 1997).

Tuberculosis

Tuberculosis, which kills about 2 million people each year worldwide, is resurgent. Tuberculosis is an airborne contagious disease that is transmitted by coughing, sneezing, or even talking. Once a person becomes infected, any condition that weakens the immune system can trigger the development of active tuberculosis. Exposure to cooking smoke can increase the risk of tuberculosis by reducing resistance to initial infection or by promoting the development of active tuberculosis in already-infected persons. As indicated earlier, extended exposure to the pollutants contained in biomass smoke can weaken the immune system, impair the lungs, and make them more susceptible to infection and disease. Cooking smoke also tends to increase coughing, which contributes to the spread of tuberculosis infection. Empirical research linking cooking smoke and tuberculosis is very limited.

Cataract and blindness

Blindness is another important public health problem in many developing countries. Long-term exposure to cooking smoke probably contributes to impaired vision and blindness mainly through oxidative damage to the eye lens and severe eye irritation, leading to cataract and other disorders. Worldwide, the most important direct cause of complete blindness is cataract, a progressive condition in which the lens of the eye becomes increasingly opaque. In India, for example, cataract accounts for more than 80 percent of complete blindness. Another direct cause of blindness, conjunctivitis, may also be aggravated by long-term exposure to cooking smoke. Trachoma, which also can cause 15 blindness, can be contracted when irritation from exposure to smoke causes people to rub their eyes frequently.

Adverse pregnancy outcomes

Smoke from combustion of solid fuels in simple, poorly vented cookstoves produces large volumes of carbon monoxide, which binds to hemoglobin and forms carboxyhemoglobin. This reduces oxygen carrying capacity of blood to body tissues. A developing fetus, deprived of adequate oxygen, suffers intrauterine growth retardation and subsequent reduced birth weight. Particulate matter and other pollutants in biomass smoke may also increase the risk of adverse pregnancy outcome by reducing mother's 16 lung function and increasing the risk of maternal lung disease, and in turn reducing oxygen delivery to the fetus (Boy et al., 2002).

Cancer

Tobacco smoke is known to be the single largest risk factor for lung cancer in developed countries. Biomass smoke contains several mutagenic and carcinogenic compounds, such as polycyclic aromatic hydrocarbons, formaldehyde, and other organic matter, yet there is little epidemiological evidence connecting biomass smoke to lung cancer (Smith 2002)[8].

Effects of Bio-fuel Usage:

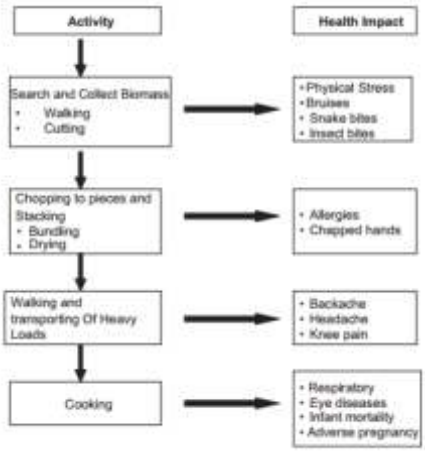


Figure 1.1
Indirect effects of biofuel usage.

Modern Energy services are very crucial for a decent and healthy life. Access to modern energy is essential for the provision of clean water, sanitation and health care. According to World Energy Outlook a population similar to that of the EU and US combined lives without clean cooking facilities in India by far the largest population of any country in the world[9].

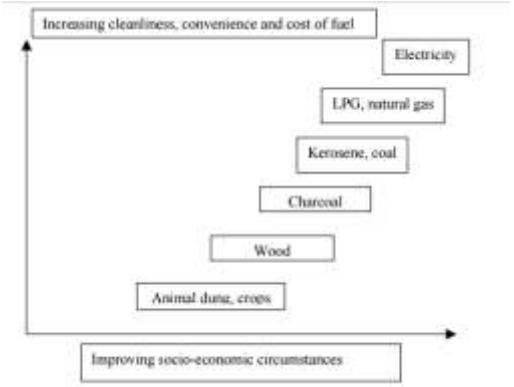
Apart from the direct health problems caused due to Biomass pollution there are other indirect effects of it. The gathering of biomass and burning of biomass is a vicious cycle, people especially women have to spend on an average two to five hours gathering fuelwood or other forms of biomass. Walking and carrying heavy loads causes' backache, headache and knee pain[10]. As is evident for the above given figure 1.1.

The Energy Ladder

The "Energy Ladder" hypothesis confirms that households switch their fuel use from biomass to modern energy sources as income increases and development takes place. The Energy Ladder model emphasis on the role of income in determining fuel choices of the individual.

The fuels on the energy ladder are ordered according to the household's preferences based on physical characteristics, including cleanliness, ease of use, cooking speed and efficiency. The process of climbing the energy ladder is described by a linear movement as given in the figure 1.2

Figure 1.2
The Energy Ladder



Source: Smith et al. [1994]

Animal dung is on the lowest rung of the ladder progressing to crop residues, wood, charcoal, kerosene, gas, and finally electricity. Thus, Biomass fuels are at the high end of the fuel ladder in terms of pollution emissions, and at the low end in terms of combustion efficiency. Biomass burning during daily household cooking usually in un-vented kitchen emits very high levels of smoke that contains a wide range of potentially hazardous pollutants. People generally move up the ladder as socio-economic conditions improve.

Thus to overcome the negative effects of traditional energy on human health and the environment and to enhance the livelihood conditions of a poor, a transition towards cleaner and more efficient forms of energy is needed[11].

Conclusion

India's per capita power consumption (1010 KWH) is among the lowest in the world. Around 280 million people in the country do not have access to electricity. In comparison, China has a per capita consumption of 4,000 KWH (kilo watt hours), with developed nations averaging around 15,000 KWH per capita. This info unfolds our energy poverty. Shortage of gas cylinders and filling stations makes LPG a rare commodity for households. The poor hand to mouth people go about pastures and arid lands to pick up dried bio mass or dead wood for cooking. This fact puts India in the fourth world (Ronald J. Sider1978).
Thus the majority of the rural India who fall into the bracket of Energy driven Poverty have to rely completely on Biomass for cooking and heating purpose. This Indoor Air Pollution is leading cause of Global Warming, Deforestation and Environmental Pollution. But it also affects the health condition of the poor rural people who are completely dependent on bio fuel further deteriorating their living conditions.

References

1) https://en.wikipedia.org/wiki/Energy_poverty

2. http://www.muimun.org/wp-content/uploads/2014/03/ECOSOC-2014-Research-Report-Topic-B.pdf.

3. "Energy Working Notes". http://siteresources.worldbank.org/INTENERGY/Resources/EnergyWorkingNotes_4.pdf

4. Indoor Air pollution and health, Factsheet Sept 2011. World Health Organisation.

5.http://edugreen.teri.res.in/explore/renew/biomass.htm

6.http://www.hurstboiler.com/biomass_boiler_systems/biomass_fuel_types

7. Lalita Fernandes and Anthony M. Mesquita: "Household Air pollution due

to Biomass smoke exposure and Chronic Obstructive Pulmonary Disease", International Journal of Biomedical And Advance Research, ISSN: 2229-3809 (Online) Journal DOI: 10.7439/ijbar CODEN:IJBABN, (2014) 05 (02) www.ssjournals.com.

8.http://www.eastwestcenter.org/system/tdf/private/POPwp117.pdf?file=1&type=node&id=31978

9. www.worldenergyoutlook.org/resources/energydevelopment.

10. Jyoti Parikh: "Hardships and health impacts on women due to traditional cooking fuels: A case study of Himachal Pradesh, India", Energy Policy 39 (2011) 7587–7594, 8 July 2011, journal homepage: www.elsevier.com/locate/enpol.

11. Dr Siddhartha Sarkar, Indoor Air Pollution and Women Health in the Informal Sector. No. PHW-082/03-04 (ERO).

- Bianca van der Kroon, Roy Brouwer, Pieter J.H van Beurling: "The energy ladder; Theoretical myth or Empirical truth? Results from a meta analysis, Renewable and Sustainable Energy Reviews 20 (2013) 504-513, 12 Jan 2013. www.elsevier.com

- Neelam D Sukhsohale, Uday W Narlawar and Mrunal S Phatak Indoor Air Pollution from Biomass Combustion and its Adverse Health Effects in Central India: An Exposure-Response Study, Indian J Community Med. 2013 Jul-Sep; 38(3): 162–167, doi: 10.4103/0970-0218.116353 PMCID: PMC376032 . http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3760325/.

- Ankita Kankaria, Baridalyne Nongkynrih and Sanjeev Kumar Gupta: "Indoor Air Pollution in India: Implications on Health and its Control", Indian Journal of Community Medicine, Vol 39, Issue 4, 2014.Page203207.http://www.ijcm.org.in/article.asp?issn=09700218;year=2014;volume=39;issue=4;spage=203;epage=207;aulast=Kankaria

- Balakrishnan K, Mehta S, Kumar S, Kumar P. Exposure to indoor air pollution: Evidence from Andhra Pradesh, India. Regional Health Forum. World Health Organisation. 2003; 7: 56–9.

- Om P Kurmi, Sean Semple, Graham S Devereux, Santosh Gaihre, Kin Bong Hubert Lam, Steven Sadhra, Markus FC Steiner, Padam Simkhada, William CS Smith and Jon G Ayres: "The effect of exposure to biomass smoke on respiratory symptoms in adult rural and urban Nepalese populations", Environmental Health 201413:92, DOI: 10.1186/1476-069X-13-92, © Kurmi et al.; licensee BioMed Central Ltd. 2014. Www. http://ehjournal.biomedcentral.com/articles/10.1186/1476-069X-13-92.

- User Guide for India's 2047 Energy Calculator Cooking Sector. http://indiaenergy.gov.in/docs/Cooking.pdf.

- Indoor air pollution in India - a major environmental and public health concern. ICMR Bulletin 2001;31:1-9. Available from:http://www.icmr.nic.in/bumay01.pdf.

- Tielsch JM, Katz J, Thulasiraj RD, Coles CL, Sheeladevi S, Yanik EL, et al. Exposure to indoor biomass fuel and tobacco smoke and risk of adverse reproductive outcomes, mortality, respiratory morbidity and growth among newborn infants in south India. Int J Epidemiol 2009;38:1351-63.

- Wickramasinghe, A., 2001. Gendered sights and healthy issues in the paradigm of bio-fuel in Sri Lanka. ENERGIA News 4 (4), 12–14

- Nandini Shekhar (2010): "Popularization of Biomass Briquettes- A means for Sustainable rural Development", ASIAN JOURNAL OF MANAGEMENT RESEARCH, Volume 2 Issue 1, 2011. ISSN 2229 – 3795.

ISSN 2454-9169

SURYADATTA

Water Harvesting: Methods, and Some Best Practices

Rambha Tripathy

Introduction

As per Wikipedia Rainwater harvesting is the accumulation and deposition of rainwater for reuse on-site, rather than allowing it to run off. Rainwater can be collected from rivers or roofs, and in many places the water collected is redirected to a deep pit (well, shaft, or borehole), a reservoir with percolation, or collected from dew or fog with nets or other tools. Its uses include water for gardens, livestock, irrigation, domestic use with proper treatment, and indoor heating for houses etc. The harvested water can also be used as drinking water, longer-term storage and for other purposes such as groundwater recharge.
The paper is to generate awareness among the management students with regards to water harvesting, its methods and its uses.

Objective of the study

1. Understanding the concept of water harvesting.
2. Understanding the methods and techniques in practice.
3. Identifying some best practices in India.

Methodology

The methodology used is by studying secondary data available on the website. All the website and sources are mentioned in the references section.

Methods in Practice

Water harvesting can be undertaken through a variety of ways:
- Capturing runoff from rooftops
- Capturing runoff from local catchments
- Capturing seasonal floodwaters from local streams
- Conserving water through watershed management

These techniques can serve the following the following purposes:

- Provide drinking water
- Provide irrigation water
- Increase groundwater recharge
- Reduce storm water discharges, urban floods and overloading of sewage treatment plants

Rambha Tripathy
Sr. Manager,
Corporate Communication
Development Alternatives, New Delhi
trambha@gmail.com

- Reduce seawater ingress in coastal areas.

In general, water harvesting is the activity of direct collection of rainwater. The rainwater collected can be stored for direct use or can be recharged into the groundwater. Rain is the first form of water that we know in the hydrological cycle, hence is a primary source of water for us. Rivers, lakes and groundwater are all secondary sources of water. In present times, we depend entirely on such secondary sources of water. In the process, it is forgotten that rain is the ultimate source that feeds all these secondary sources and remain ignorant of its value. Water harvesting means to understand the value of rain, and to make optimum use of the rainwater at the place where it falls.

Urban Scenario

The total amount of water that is received in the form of rainfall over an area is called the rainwater endowment of the area. Out of this, the amount that can be effectively harvested is called the water harvesting potential[1].

Water harvesting potential = Rainfall (mm) x Collection efficiency

The collection efficiency accounts for the fact that all the rainwater falling over an area cannot be effectively harvested, because of evaporation, spillage etc. Factors like runoff coefficient and the first-flush wastage are taken into account when estimated the collection efficiency.

The following is an illustrative theoretical calculation that highlights the enormous potential for water harvesting. The same procedure can be applied to get the potential for any plot of land or rooftop area, using rainfall data for that area.

Consider your own building with a flat terrace area of 100 sq m. Assume the average annual rainfall in your area is approximately 600 mm (24 inches). In simple terms, this means that if the terrace floor is assumed to be impermeable, and all the rain that falls on it is retained without evaporation, then, in one year, there will be rainwater on the terrace floor to a height of 600 mm.

1. Area of plot = 100 sq. m. (120 square yards)
2. Height of the rainfall = 0.6 m (600 mm or 24 inches)
3. Volume of rainfall over the plot = Area of plot x height of rainfall
4. Assuming that only 60 per cent of the total rainfall is effectively harvested
5. Volume of water harvested = 36,000 litres (60,000 litres x 0.6)

This volume is about twice the annual drinking water requirement of a 5-member family. The average daily drinking water requirement per person is 10 litres.

Rural Scenario

Community based rainwater harvesting in rural areas of India - the paradigm of the past - has in it as much strength today as it ever did before. It is, in fact, only with this rudimentary technology that people are able to survive in water scarce areas. Recognising this fact, our ancestors had learnt to harvest water in number of ways:

- They harvested the rain drop directly. From rooftops, they collected water and stored it in tanks built in their courtyards. From open community lands, they collected the rain and stored it in artificial wells.
- They harvested monsoon runoff by capturing water from swollen streams during the monsoon season and stored it various forms of water bodies.
- They harvested water from flooded

rivers

Assuming that the average Indian population of an Indian village in November 2000 is approximately 1200. India's average rainfall is about 1170 mm. If even only half this water can be captured, though with technology this can be greatly increased, an average Indian village needs 1.12 hectares of land to capture 6.57 million litres of water it will use in a year for cooking and drinking. If there is a drought and rainfall levels dip to half the normal, the land required would rise to a mere 2.24 hectares. The amount of land needed to meet the drinking water needs of an average village will vary from 0.10 hectares in Arunachal Pradesh (average population 236) where villages are small and rainfall high to 8.46 hectares in Delhi where villages are big (average population 4769) and rainfall is low. In Rajasthan, the land required will vary from 1.68-3.64 hectares in different meterological regions and, in Gujarat, it will vary from 1.72-3.30 hectares. And of course any more water the villagers catch can go for irrigation.

Does this sound like an impossible task? Is there any village that does not have this land availability? India's total land area is over 300 million hectares. Let us assume that India's 587,000 villages can harvest the runoff from 200 million hectares of land, excluding inaccessible forest areas, high mountains and other uninhabited terrains, that still gives every village on average access to 340 hectares or a rainfall endowment of 3.75 billion litres of water. These calculations show the potential of rainwater harvesting is enormous and undeniable.

Methods of Rainwater Harvesting

Broadly there are two ways of harvesting rainwater.

1. Surface runoff harvesting
2. Roof top rainwater harvesting

Rainwater harvesting is the collection and storage of rainwater for reuse on-site, rather than allowing it to run off. These stored waters are used for various purposes such as gardening, irrigation etc. Various methods of rainwater harvesting are described in this section.

Surface Runoff Harvesting

In urban area rainwater flows away as surface runoff. This runoff could be caught and used for recharging aquifers by adopting appropriate methods.

Roof Top Rainwater Harvesting

It is a system of catching rainwater where it falls. In rooftop harvesting, the roof becomes the catchments, and the rainwater is collected from the roof of the house/building. It can either be stored in a tank or diverted to artificial recharge system. This method is less expensive and very effective and if implemented properly helps in augmenting the ground water level of the area[2].

Rain Water Harvesting By Freshwater Flooded Forests

Rain water harvesting is possible by growing fresh water flooded forests without losing the income from the used /submerged land. The main purpose of the rain water harvesting is to utilize the locally available rain water to meet water requirements throughout the year without the need of huge capital expenditure. This would facilitate availability of uncontaminated water for domestic, industrial and irrigation needs.

New Approaches

Instead of using the roof for catchment, the Rain Saucer, which looks like an upside down umbrella, collects rain straight from the sky. This decreases the potential for contamination and makes potable water for developing countries a potential application. Other applications of this free standing rainwater collection approach are sustainable gardening and small plot farming[3].

A Dutch invention called the Groasis Waterboxx is also useful for growing trees with harvested and stored dew and rainwater.

Traditionally, storm water management using detention basins[4] served a single purpose. However, Optimized Real-Time Control lets this infrastructure double as a source of rainwater harvesting without compromising the existing detention capacity. This has been used in the EPA headquarters[5] to evacuate stored water prior to storm events, thus reducing wet weather flow while ensuring water availability for later reuse. This has the benefit of increasing water quality released and decreasing the volume of water released during combined sewer overflow events.

Generally, check dams are constructed across the streams to enhance the percolation of surface water in to the sub soilstrata. The water percolation in the water impounded area of the check dams, can be enhanced artificially many folds by loosening the sub soil strata / overburden by using ANFO explosives as used in open cast mining. Thus local aquifers can be recharged quickly by using the available surface water fully for using in the dry season.

Case Studies

It is very necessary to quote some very successful methods of water harvesting found on the website[6]:
http://www.rainwaterharvesting.org/methods/harvesters/

Case Study-1

Kunhikannan Nair's gait is easefully languid, verging on sloth. There is an unmistakable economy of movement. But his hands are different. Varicose veins wrap around supple muscles. Symbols of endless toil and latent power. He looks very young for his 55 years. Just like the man who will carve out asurangam, a 300-metre-deep tunnel in rock, which collects rainwater from the ghats.

Nair's fields in Village Kodom Vellur of district Kasargod, Kerala, are a thick green, characteristic of God's own country, as the state is called. There is coconut, areca nut, rubber, pepper and a little paddy. Although plantations have mushroomed in this northern part of Kerala, there is not a lot of money to make in the fields.

Nair recalls the sleepless nights he used to spend thinking about water for his fields. Kerala is one of the wettest states in India. But the slope of the Western Ghats makes it difficult to store the water from the heavy rains during the monsoon.

The region's answer to the problem is the surangam, a two-feet wide tunnel that is about as high as an average person. It collects rainwater from the hilly catchment above. A study by the Centre for Water Resources Development and Management (CWRDM), Kozhikode, found some 570 surangams in district

Kasaragod. "I always wanted to make one. But it requires money. I did not have it earlier. Besides, I had too many other things on my hands," says Nair, dressed in a red lungi rolled up to his knees.

At age 53, he arranged for a loan of Rs 5,000 from a cooperative bank to make his first surangam. Making a surangam means as much hard work as money. It is only about two-feet-wide and only high enough for a person to barely stand. For 45 days, Nair hammered and chiselled at the hard weathered laterite of the ghats to carve out his surangam. He had to hire labourers as well. He will get it extended to catch more rainwater when he has the money.

The surangam means no more sleepless nights for Nair. He has assured water supply for paddy. He now saves the money spent on hiring a pump-set. The yield of coconut has risen. There is enough water for daily needs in the house. Enough to spare. Throughout the year. This is the striking aspect of Nair'ssurangam: it has water round the year. As surangams go, this is not very common.

The surangam is a curious structure, as much in terms of engineering as history. It is quite similar to theqanat of western Asia, which were popular in Syria, Iraq, Iran and Palestine in 700 bc. Researchers have not been able to establish any link between the surangam and the qanat. But it is widely believed that Kerala's structure came from western Asia.

The technology of making a surangam is quite intricate. Nair, a man of few words, struggles to explain it. His knowledge of the terrain and behaviour of water has not come from a formal school. It is a result of toiling on the fields. But Nair knows that there is water where there are pala trees (trees with white milky sap). He also knows that water is limited where there are rubber trees.

After deciding on the catchment, the hammering begins. By instinct, Nair knows the gradation of digging. The CWRDM has studied the digging of a surangam. There researchers will tell you that it is most appropriate right above the layer of granite, which does not allow water to seep in. The weathered laterite rock overhead, on the other, gives passage to water. Nair knows all this without ever attending school. Like so many other farmers in the region, his calculations are solid. The failure rate of surangams is only 10 per cent in northern Malabar.

Sitting in the neat and simple brick structure that is his house, Nair says the government should provide more loans for making surangams. He does not want much more.
He is capable of doing the rest himself.
Age: 55
Town: Kodom Vellur
District: Kasargod
State: Kerala

Case Study-2

We are at the gateway of the Indian Thar desert. Domes dot the sandy fields of the village of Lahsedi in district Churu, Rajasthan. At the edge of each dome are little holes, surrounded by a clean circular area. They look like upturned cups in saucers staring at the sky. So does Ran Singh, who has made many of these. Habitually, he looks or points towards the sky. Awaiting rain.

The structures are kundis. Small, covered tanks to store rainwater captured by the neat surrounding 'saucers'. Under the dome is a well which

holds the water. They are the main source of water for the villagers. The saline groundwater is no good.

Official statistics put the average annual rainfall in Churu at 325 mm. There is a government pipeline some two km off Lahsedi. It supplies water once a week. For two hours. Or as and when the administration remembers that Lahsedi needs water. But villages here do not depend on the vagaries of the administration. They rely on Ran Singh and his kundis.

The tall, well-built jat is sure-footed, even though 62 years have taken their toll on his physique. He knows what he is all about. And of the five protagonists featured in in this section, he is the most articulate. He likes to speak. He has opinions. On everything.

"Pipeline is unpredictable. The government waterworks are like waterless eyes that cannot see. What is their use?" he demands. He does not remember how he learned to make kundis. His early childhood memories describe a Muslim craftsman who came to the village from Ramgarh to make a kundi. Ran Singh was impressed by the structure.

He saw. He learned. And he made kundis. About 400, he recounts. Or 450. He made his first kundi at the age of 13. Who did he learn from? "God is my guru. I just improvise from what I see. God is responsible for rain, without which we cannot exist," he says. This is characteristic of the man. He is philosophical about everything, exhaling smoke from his hookah.

Singh's philosophy is rooted in his observation. He is a man who has seen. Watched closely. He understands rain. The behaviour of water, how it travels and how it should be stored. "In the three months of the monsoon, we are okay if it rains thrice. If it is less, then we are in trouble. If it rains four times, then its time to sow chana (gram)," he says between pauses.

But what marks him out as a kundi-maker are his engineering skills. As he stands near one of his kundis, the farmer on whose land it was built explains: "There are others who make kundis. But the water is either bad in quality or inadequate. Ran Singh's kundis are more reliable. His understands the depth and width very well." Ran Singh says the villages prefer him because he finishes his work in little time.

Making a kundi is no easy task. It takes about 25 days. After selecting an appropriate area, the first consideration is the incline towards the holes. The inclination should catch as much rainwater as possible.

At the same time, it should not be too steep to send too much sand with water. The depth of the well is varied, depending on catchment and requirements. Generally, it is about 5 metres deep and 2.5 metres in diameter.

However, the most important consideration is leakage. Any flaw in the plastering and the water will seep out into the greedy sand. Ran Singh uses cement. After the walls have been plastered, the convex lid is placed on top. This is made with cement.

Kundis have brought Ran Singh the respect of his village. Visitors are a regular feature at his house throughout the day. As he moves about, people salute him. They joke with him. Despite his age, a good joke is never lost on him. He

catches it like water.
Ran Singh
Age: 62
Town: Lahsedi
District: Churu
State: Rajasthan

Case Study – 3

If you met Ganesan on the street, you will never know that his work requires the skills of a top-of-the-drawer business executive. He manages the water supply of Madaivini Patti, a hamlet on the outskirts of Village Vairavan Patti in district Madurai, Tamil Nadu. He is a neerkatti (the irrigator in Tamil).

The chief ministers of Tamil Nadu and Karnataka will do well to use his water management skills to settle the Cauvery riverwater dispute. There has never been a major dispute among the farmers of his village regarding water.

Madaivini Patti consists of some 35 families. Poverty, though not abject, is clearly visible. There is only one child who has completed higher secondary schooling. In the off-season, the entire village works as casual labour in neighbouring areas.

Agriculture is limited to subsistence. There is hardly any surplus. Paddy is the main crop and water is essential. The only source is the run-off from the monsoon. This travels down the invisible slope of the Eastern Ghats, and collects in the age-old kanmoy, as tanks are known here. Effective water management is crucial to social harmony. Ganesan provides it.

He comes from the pallar caste, which is listed as a scheduled caste in the state. But there are no special benefits from the government for Ganesan. He lives on what he earns. Which includes the respect of the entire village. His caste status never clouds the recognition and appreciation of his skills. Pallars have traditionally managed the water supply in this area.

At all community functions, the village priests have to accompany Ganesan to the market to make purchases, a symbol of his special status. He is the authoritative mediator, the honest broker, the village elder. In not just the water disputes but even the social disagreements within the village.

Says S Subramaniam, executive committee member of the village's Tank Farmer's Association: "Theneerkatti tradition is of great benefit. Faith in the neerkatti is crucial to the smooth functioning of agriculture. Otherwise everyone will fight."

Ganesan knows the topography of the village like the palm of his hand. He knows exactly where the water comes from and where it should go. He knows the water need of each and every farmer, each and every crop. His work starts before the monsoon. He walks through the channels, digging and clearing in rhythmical motion. Singing a song or two.

Then there is the maintenance of the embankments of the kanmoy. But the most crucial part is the operation of the wooden sluice valves that release water in the channels. This is where the fate of all the farmers rests. While operating the valves, Ganesan is dealing with the life-blood of the village economy. One mistake in the calculation of waterflow and timing of the valves can ruin a poor farmer's crop. Yet it never happens.

Ganesan's social status apart, his

economic condition is no better than the rest of the village. For maintaining the channels and the kanmoy, he receives rice from each farmer in proportion to the size of the fields (4.5 kg of rice per 60 cents of crop area). In addition, he gets 4 kg of rice from each farmer for operating the sluice valves. If he requires an additional hand or two in his endeavours, it is his own headache.

However, work in the village is restricted to the monsoon. That, too, once in three years. He has two brothers who are also neerkattis. They take up water management in turns.

In the off-season, Ganesan has to go looking for daily wages to either the neighbouring fields as agricultural labour or to the nearby towns as a loader. Some days are good. He manages to earn Rs 50. Others are bad.

Ganesan's two sons and four daughters are not interested in carrying on the neerkatti tradition. But as long as there are paddy fields, the limited water will need to be managed with care.
There will have to be aneerkatti. A tradition.
Ganeshan
Age: 57
Town: Madaivini Patti
District: Madurai
State: Tamil Nadu

References

1. Puja Mondal, Rain Water Harvesting in India: Need, Methods and other Details.
http://www.yourarticlelibrary.com/water/

2.wikipedia.org/wiki/Rainwater_harvesti g

3. Groasis Waterboxx,
https://en.wikipedia.org/wiki/Groasis_W aterboxx

4.https://en.wikipedia.org/wiki/Detentio n_basin

5. United States Environmental Protection Agency,
https://en.wikipedia.org/wiki/United_Sta tes_Environmental_Protection_Agency

6.http://www.rainwaterharvesting.org/m ethods/harvesters/

ISSN 2454-9169

SURYADATTA

Factors Influencing Employee Empowerment In The Banking Sector

Dr. Lalitha Balakrishnan & V. Sudha

"In technology, it's about the people–getting the best people, retaining them, nurturing a creative environment and helping to find a way to innovate." Marissa Mayer

Introduction

Employee empowerment is a management technique that gives employees more autonomy and freedom in their jobs. It is a strategy that permits employees to make decisions with regard to their jobs, ultimately helping them assume accountabilityand facilitate consumer interface. Empowerment allows an individual to resolve a problem and assists him in taking critical decisions. Participative management is one of the most commonly practiced styles in organizations that follow modern management techniques. Employee empowerment is a breed of this modern approach that leads to a positive change within an organization. Employees are given responsibilities that do not confine them to certain processes, but provide them with opportunities, thereby permitting them to perform more than mere subservient roles in the organization. There is a need for employee empowerment in every organization so that employees will be equipped with decision-making skills and adapt to changes in their work environment. Organizations that follow this participative management practice have been known to experience low attrition.

Banking Sector

Service sector is the backbone of any country's progress. It is composed of financial services, trade, health, education, restaurants, media, entertainment and social service. Banking sector is one of the most important sectors, thereby facing immense competition from across borders and on a virtual platform. Chen (1998) 1 accentuated that service operations are characterized by extensive interactions between customers and providers. Consequently, consumer satisfaction is closely associated with service performance and other service-related facets within the systems. Employee empowerment is a management tool, if applied appropriately can refine employees' performance, promote efficiency and enhance job satisfaction. Taking initiative translates to utmost significance, ultimately providing one a sense of ownership and equipping him with independence and acquires satisfaction from within his work environment. In the wake of empowering an employee, the

Dr. Lalitha Balakrishnan
Principal
Prof. V. Sudha
Associate Professor
M.O.P Vaishnav College for Women
Chennai
venkatadrisudha@gmail.com

individual is inadvertently conditioned to cater to the broader needs of the customers. The level of interaction that takes place between employees and customers will impact the current and prospective customer base. Observing the outcomes from a longer perspective, an empowered employee will be induced to contribute more to the organization and append to the service quality. Along with recognizing consumer expectations, freedom of action with the employee's suggestions and perspective will eventually contribute to the prosperity and growth of the business organization.

Problem Statement

The services performed by the banking industry are almost similar, but the approaches undertaken to gain more market share and customers may be different. Service providers seek to differentiate themselves from their competitors by providing high quality service. Employees in the bank must be competent enough, not only to provide good quality service but also possess extensive knowledge about the execution of the job. Employee empowerment requires the employee to be given certain degree of authority and freedom to perform the job and make appropriate decisions. Usually in a service industry, the employers prefer to overlook the interaction between the employees and the consumers, hence imposing certain restrictions on the employee. The aforementioned issue prompted the researcher to study and surmise the impact of employee empowerment and its effect with regard to efficiency and effectiveness in an organization. The researching attempts to study the perception of the mid-level and senior level management with respect to employee empowerment, and concomitantly comprehending the level of authority given to them with regard to making certain decisions and accordingly apprehends the degree of employee empowerment.

Research Methodology

The present paper's significant objectives are to find out the factors influencing the employee empowerment and whether the determinants of employee empowerment enhance the efficiency among the public sector bank employees in Chennai city. The study was conducted in branches/ offices with a sample survey of 200 respondents belonging to public sector banks of Chennai. The respondents were middle level and senior level managers up to the rank of deputy general manager who were engaged in decision making process. The data was collected during the period from March 2015 to July 2015. The data collected was classified, tabulated, processed and analyzed in a systematic manner mainly to identify the group of determinants. Since the study consisted of an evaluation of 20 variables, the researchers felt a strong need for identifying the critical factors that influenced the employee empowerment among the public sector bank employees in Chennai city. The data was run using SPSS 21.0 version by relying on the principal component analysis (factor analysis) and one-sample t test used to find out whether employee empowerment enhance the efficiency and effectiveness among the public sector Bank employees in Chennai city.

Objectives of the Study

1 .To analyze the factors influencing the employee empowerment in public sector banks in Chennai city.
2. To study whether the determinants of employee empowerment enhance the efficiency among the public sector

bank employees in Chennai city.

Review of Literature

Cornel Ragen (2011) in his study " An analysis of factors influencing employee empowerment in an organization-A case study of Banking sector in kenya" inferred that reward or compensation and organizational structure are the factors to be considered to act as a stimulus to employee empowerment. The author recommends that the banks should consider carrying out exchange programs that will enrich work relationship and hence enables employee empowerment.

DiaZegla, Mohammad Aljaber, WasfiAlrawabdeh, The Hashemite University, (2012) through their research (structural empowerment and psychological Empowerment) validated that empowerment gives employees more authority and freedom to perform their jobs correctly.The authors through their study find that the empowered employees can be more responsible and take decisions faster to serve their customers effectively. The study also states that the banks should give considerable attention by employing work rotation, better job design, the use of latest technology and the revision of job regulations.

Hasnain Raza, Jawad Mahmood, Muhammad Owais, Aiman Raza (2015) in their study reveals that if the banks empower employees they can relish the loyalty and commitment of the employees towards the organization. Employee empowerment is a form of psychological empowerment that can bring a lot more dynamic changes in the working atmosphere of corporate banking sector.

Joseph Akanyako (2009) in his study finds that there exists a relationship between empowerment and service quality. Quality service can be assured if the employees are trained and motivated which will enable them to perform up to the satisfaction of the customers

Data Analysis and Discussion

Table 1: Demographic Distribution of Respondents

Category		Frequency	Percent
Gender	Male	158	79
	Female	42	21
Age	Up to 25 years	40	20
	26-35 years	80	40
	36-45 years	60	30
	Above 45 years	20	10
Educational Qualification	UG	120	60
	PG	50	25
	Professional	30	15
Experience	Up to 5 years	83	41.5
	6-10 years	60	30
	11-15 years	34	17
	Above 15 years	23	11.5

Source: Primary data

Table 1 shows that demographic profile of the respondents.

1. Out of 200 respondents, majority 158 (79%) of respondents are male and 42(21%) of respondents are female.

2. In connection with age wise distribution, majority 40% of respondents of banking employees were in the age group of 26-35 years, followed by 30% of respondents were in the age group of 36-45 years, 20% of banking employees were in the age group of up to 25 years and only 10% of respondents were in the age group of above45 years.

3. The educational qualification shows that 60% of respondents were graduates, 25% of respondents were post graduates followed by 15% of respondents who were professionals.

4. Experience wise, majority 41.5% of the employee having experience up to 5 years, 30% of the employees having experience between 6 to 10 years followed by 17% between 11 to 15 years and 11.5% with an experience above 15 years.

Factor Analysis to Identify the Variables Influencing the Banking Employees for Empowerment in Chennai City

The table shows that the KMO measure is 0.823. Thus, this is confirming the appropriateness of Factor analysis. Bartlett's rest of sphere city indicates whether a correlation matrix is an identity matrix, which would indicate that the variables are unrelated. The significance level shows the result of the test. The values less than 0.05 indicate that there are probably significant relationships among the given variables. A value higher than that about 0.10 or so may indicate that the data is not suitable for factor analysis. In this case, the significant level has a very small value i.e., 0.000, which is less than 0.05, thus, suggesting that the variables are highly correlated.

Table 2

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.823
Bartlett's Test of Sphericity	Approx. Chi-Square	6639.083
	Df	190
	Sig.	0.000

Table 3

Rotated Component Matrix (a) –Factors influencing the banking employees for Empowerment

Rotated Component Matrix[a]					
Variables	Component				
I have complete knowledge about my job	.972				
My boss is happy with my job	.970				
I have clearly defined roles and responsibilities for the work which is given to me	.966				
Job promotions are given fairly without any bias	.965				
I feel happy to do my job	.960				
I know exactly the way of performing my work	.944				
I finish my work before the dead line	.900				
My work environment gives me the opportunity to work on skills to upgrade myself	.821				
I will not hesitate to work after normal working hours if necessary	.818				
I welcome feedback from customers.	.790				
I have acquired more skills in my job now than compared to when I started my career	.533				
I am given full autonomy at the work place to do the work my self		.957			
I take initiative in my work		.923			
I am involved in making decisions that affect my work		.896			
I am a person who does work voluntarily			.938		
I am encouraged , motivated and given opportunities to grow			.937		
I am allowed to be creative when I deal with problems at work				.947	
I am given opportunity to suggest improvements				.941	
My supervisor helps to solve my work related problems					.804
Management gives me reward for the work exceptionally done					.793

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations. Employee empowerment is recognized as a major contributor for the success of any organization. Employee empowerment has positive and considerable impact on employee job satisfaction level. The above study endorses that employee empowerment leads towards higher levels of employee's job satisfaction. The study contributes to overcome the problem of employee empowerment in banking sector and give a fair idea that employee satisfaction can be attained through empowerment. The first factor is the most important factor explaining 44.615% of total variance. It is named as **"Job satisfaction"**

The second factor explains 14.308% out of total variance. In total, three statements loaded on this factor. The second factor can interpret as **"Autonomy".** The autonomy and discretion given to the employees to take decisions is always seen as a motivating factor which leads to greater profitability and retention.

The third factor explains 10.352% out of total variance. In total, two statements are loaded on this factor. It can be interpreted as **"Motivation".** Employee empowerment can be enhanced if employees are more motivated and committed to their work. The top management must emphasis on working hours, rewards, recognition and personnel development.

The fourth factor explains 2.065% out of total variance. In total, two statements loaded on this factor. It can be named as **"Creativity".** The above study shows that empowerment is essential to promote creativity among employees.

The fifth factor explains 8.217% out of total variance. In total, two statements are loaded on this factor. It can be interpreted as **"work environment".** The above study infers that the organization should not only create opportunities for job promotion but also reduce stress and tension in the working environment.

Null Hypothesis 1

The determinant of employee empowerment does not enhance the efficiency and effectiveness among the public sector bank employees in Chennai city.

Table 4

One-sample t test for whether the determinants of employee empowerment enhance the efficiency and effectiveness among the public sector bank employees in Chennai city

Dimension	N	Mean	Std. Deviation	Std. Error Mean	t value	p value
Work environment	200	3.61	1.207	.085	7.090	0.000**
Autonomy	200	3.64	1.232	.087	7.346	0.000**
Creativity	200	3.65	1.185	.084	7.756	0.000**
Motivation	200	3.69	1.159	.082	8.361	0.000**
Job satisfaction	200	3.91	.933	.066	13.719	0.000**

Source: Primary data

Note: **represents significant at 1% level.

The above table shows that One-sample t test for whether the determinants of employee empowerment enhance the efficiency and effectiveness among the public sector bank employees in Chennai city. Since the p values of all the dimensions are less than 0.01, therefore the null hypothesis is rejected at 1% level of significance.. Hence it is concluded that the determinants of employee empowerment enhance the efficiency and effectiveness among the public sector bank employees in Chennai city.

Limitations

1. The study collected data from public sector banks only and so the results cannot be applied to private and foreign banks.

2. The study is restricted to Chennai with 200 respondents from few public sector banks.

Conclusion

Employee empowerment process helps organization obtain sustainable competitive advantage if it works efficiently and effectively. Empowered and committed employees understand what the organization is trying to achieve and how they are going to achieve it. Both the employee and organization benefit from the employees freedom to act, is based on competence, authority and accountability. Employees gradually would start to feel that they are respected, competent and the jobs they are doing have great impact and when legitimately empowered, they would continuously be in a mood to believe that they have vast opportunities to apply their skills. They are expected to change their behavior towards using their skills in the organization healthier than before and such employee driven changes are expected to bring considerable impact to the effectiveness and efficiency of the organization.

References

Chen W.H.(1998) Bench marking quality goals in service system. The Journal of Service Marketing pp 113-128

Carol Yeh-Yun(2002) Empowerment in the Service Industry An empirical study in Taiwan The Journal of Psychology pp 555-560

Cornel A.Ragen(2011) An analysis of factors influencing employee empowerment in an organization A case study of Banking Sector in kenya HR Research project

Dia Zeglat Mohammad Aljaber, Wasfi Alrawabdeh,(2014) Understating the Impact of Employee Empowerment on Customer-Oriented Behavior Journal of Business Studies Quarterly 2014, Volume 6

Gurvinder Kaur (2013) Employee Empowerment and Organizational Effectiveness: A Comparative Study of Public, Private and Foreign banks in Some North Indian States Thapar University,Punjab India

Hummayoun Naeem and Muhammad Iqbal Saif(2010)Employee empowerment and Customer Satisfaction Empirical Evidence from the Banking Sector of Pakistan African Journal of Business Management Vol 4 (10) pp 2028-2031

Hasnain Raza Jawad Mahmood Muhammad Owais Aiman Raza (2015)Journal of Applied Environmental and Biological Sciences

Joseph Akanyako (2009) The Impact of employee empowerment on service quality department of Marketing and Corporate Strategy School of Business Kwame Nikrumah University of Science and Technology

Mrs.R.Florence Bharathi, E.Kumaresan, N.Mutharasan IOSR Journal of Business and Management IOSR-JBM) pp 08-12

Said Shaban Hamed(2010) Antecedents and Consequences of Employees Empowerment Management Review: An International Journal Volume 5.

Seetaram Hebbar(2011)Employee Empowerment Quesionnaire

ISSN 2454-9169

SURYADATTA

Women's Empowerment in India: a Critical Analysis

Neelesh Pandey

Introduction

The concept of "empowerment" traces its history in the mid-17th century with the legalistic meaning "to invest with authority" (Jill Williams,2005). Thereafter, this concept was modernized to mean "to enable or permit". After 1980s, the novel concept of measuring economic development through "human development" focusing on "political empowerment" linkage with feminist discourse went a long way in shaping the idea of "women's empowerment" (Nussbaum, Martha,2000). During 1990s economists argued that "development if not engendered, is endangered" and the major component of the global society i.e. women are left outside the purview of the fruits of development and planning, we cannot achieve the desired goal of a "developed status" of an economy, whether it is developed or developing(Tzannatos, Zafiris.,1999). The United Nations has shown concern for women empowerment evident in "Millennium Development Goals" to trace the progress of women empowerment across the world.

What Is Women Empowerment?

In the simplest of words it is basically the creation of an environment where women can make independent decisions on their personal development as well as shine as equals in society. Women want to be treated as equals so much so that if a woman rises to the top of her field it should be a commonplace occurrence that draws nothing more than a raised eyebrow at the gender. This can only happen if there is a channelized route for the empowerment of women. Swami Vivekananda once said "arise away and stop not until the goal is reached" (In the 1.3.14 chapter of Katha Upanishad). Thus our country should thus be catapulted into the horizon of empowerment of women and revel in its glory.

The Modern Approach

In recent years the concept of "empowerment" was modified to include "the power in plural form as "powers". This "powers" approach was picked up by several feminist bodies and development NGOs which have argued that empowerment process should be broken down in four levels of power – power over, power to, power with and power within (Maro Pantazidou,2012). A revised definition of poverty during the

Neelesh Pandey
Research Scholar, Department of Journalism and Mass Communication, Central University of Orissa

neeleshpan@gmail.com

reforms period brought out a new dimension of empowerment. Haschemi and Schuler (1993) have identified six dimensions of empowerment based on activities of women identified as important for their day-to-day functioning. The concept "Poverty" was also redefined as "lack of real opportunity" and ultimately a matter of "capability deprivation".

Figure 1: Conceptual Model of Gender and Women's Empowerment

Table 2

Systemic		
Gender	Agency:	Achievements:
Norms	Exercise of Power	DemographicOutcomes
Economic		
Resources		

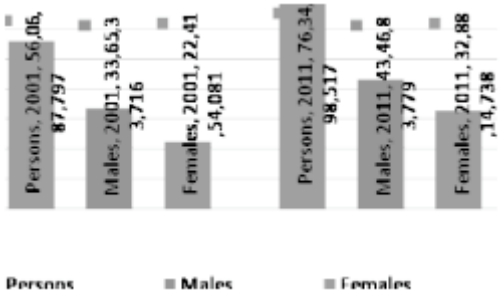
Source: Jill Williams , 2005 (IBS)

Challenges

There are several challenges that are currently plaguing the issues of women's rights in India. A few of these challenges are presented below. While a lot of these are redundant and quite basic issues faced across the country, these are contributory causes to the overarching status of women in India. Targeting these issues will directly benefit the empowerment of women in India.

Education

While the country has grown from leaps and bounds since its independence where education is concerned, the gap between women and men is severe. While 82.14% of adult men are educated, only 65.46% of adult women are known to be literate in India(Jill Williams ,2005). Not only is an illiterate women at the mercy of their husbands' or father, she also does not know that this is not the way of life for women across the world. Additionally, the norms of culture that state that the man of the family is the be-all and end-all of family decisions is slowly spoiling the society of the country.



Source: Census data 2011

Health & Safety

The health and safety concern of women are paramount for the wellbeing of a country, and is an important factor in gauging the empowerment of women in a country. However there are alarming concerns where maternal healthcare is concerned. In its 2009 report, UNICEF came up with shocking figures on the status of new mothers in India. The maternal mortality report of India stands at 301 per 1000, with as many as 78,000 women in India dying of childbirth complications in that year(Unicef Report, 2009). Today, due to the burgeoning population of the country, that number is sure to have multiplied considerably. The main causes of maternal mortality are (Unicef Report, 2009):

- Haemorrhage: 30%
- Anaemia: 19%
- Sepsis: 16%
- Obstructed Labour: 10%
- Abortion: 8%
- Toxaemia: 8%

While there are several programmes that have been set into motion by the Government and several NGOs in the

country, there is still a wide gap that exists between those under protection and those not. Poverty and illiteracy add to these complications with local quacks giving ineffective and downright harmful remedies to problems that women have. The empowerment of women begins with a guarantee of their health and safety.

Millennium Development Goal

The United Nations Development Programme constituted eight Millennium Development Goals (MDG) for ensuring equity and peace across the world. The third MDG is directly related to the empowerment of women in India. The MDGs are agreed-upon goals to reduce certain indicators of disparity across the world by the year 2015(Unicef Report, 2009). The third MDG is centred towards promoting gender equality and empowering women: "Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education by no later than 2015" While India's progress in this front has been brave, there are quite a few corners that it needs to cut before it can be called as being truly revolutionary in its quest for understanding what women empowerment is: As UNDP says: India missed the 2005 deadline of eliminating gender disparity in primary and secondary education. However, the country has hastened progress and the Gender Parity Index (GPI) for Gross Enrolment Ratios (GER) in primary and secondary education(Unicef Report, 2009).

Ministry for Women & Child Development

The Ministry for Women & Child Development was established as a department of the Ministry of Human Resource Development in the year 1985 to drive the holistic development of women and children in the country(Unicef Report, 2009). In 2006 this department was given the status of a Ministry, with the powers to formulate plans, policies and programmes; enacts, amend legislation, guiding and coordinating the efforts of both governmental and non-governmental organisations working in the field of Women and Child Development. It delivers such initiatives such as the Integrated Child Development Services (ICDS) which is a package of services such as supplementary nutrition, health check-ups and immunisation(Unicef Report, 2009). The Ministry is also implementing the Swayamsidha programme – an integrated scheme for the empowerment of women at a total cost of Rs. 116.30 Crores (Unicef Report, 2009). Core to this programme will be the establishment of women's self-help groups which will empower women to have increased access to all kinds of resources that they are denied, in addition to increasing their awareness and skills. This programme will benefit about 9, 30,000 women with the setting up of 53,000 self-help groups, 26,500 village societies and 650 block societies(Unicef Report, 2009).

The National Commission for Women is a Department within the Ministry of Women and Child Development. It was set up exclusively to help women via the Constitution – by reviewing Legal and Constitutional safeguards for women, recommending remedial legislative measures, by facilitating quick redressal of grievances and by advising the Government of India on all policy matters affecting women. The website allows for online submission of complaints and fast redressal exclusively for women. Additionally it is also a good resource of information for women and the

Commission is committed to helping out women in need.

Conclusion

Empowerment is then the process of obtaining these basic opportunities for marginalized people, either directly by those people, or through the help of non-marginalized others who share their own access to these opportunities. It is only now that globalization, liberalization and other socio-economic forces have given some respite to a large proportion of the population. However, there are still quite a few areas where women empowerment in India is largely lacking.

The opportunities denied them also deprive them of the pride of accomplishment which others, who have those opportunities, can develop for themselves. This in turn can lead to psychological, social and even mental health problems. Women want to be treated as equals so much so that if a woman rises to the top of her field it should be a commonplace occurrence that draws nothing more than a raised eyebrow at the gender. This can only happen if there is a channelized route for the empowerment of women. Most women across the globe rely on the informal work sector for an income. If women were empowered to do more and be more, the possibility for economic growth becomes apparent. Empowering women in developing countries is essential to reduce global poverty since women represent most of the world's poor population. Eliminating a significant part of a nation's work force on the sole basis of gender can have detrimental effects on the economy of that nation. In addition, female participation in counsels, groups, and businesses is seen to increase efficiency.

References

Census of India ,2011. Primary Census Abstract, Data Highlights.

Dasgupta, Ashok, 2013. NSSO data analysis: high time political parties took the economy toward higher growth http://www.thehindu.com/news/national/nsso-data-analysis-high-time-political-parties-took-the-economy-toward-higher-growth/article4843888.ece

Coonrod, (2011). Top Ten Interventions for Women's Empowerment and Gender Equality Proven ways to make programs work and empower women. The Hunger Project, Monday Developments Magazine.

Global Gender Gap World Economic Forum http://www.weforum.org/issues/global-gender-gapJohn

Hashemi, Syed Mesbahuddin and Sidney Ruth Schuler. 1993. "Defining and Studying Empowerment of Women: A Research Note from Bangladesh." in JSI Working Paper No.3. Arlington, Virginia.

Jill Williams, 2005. Measuring Gender and Women's Empowerment Using Confirmatory Factor Analysis, IDS.
Kaivan Munshi and Mark Rosenzweig, 2008. The Efficacy of Parochial Politics: Caste, Commitment, and Competence in Indian Local Governments. Economic growth Center Yale University

Kanayo Nwanze, 2011. Closing the gender gap in rural development. President, International Fund for Agriculture Development http://www.intracen.org/Closing-the-gender-gap-in-rural-development/#sthash.F2p63fz1.dpuf

Maro Pantazidou August (2012) What Next for Power Analysis? A Review of Recent Experience with the Powercube and Related Frameworks,IDS

National Family Health Survey (NFHS-3) India 2005-06 International Institute for Population Sciences, Deonar, Mumbai – 400 088

Nussbaum, Martha. (2000): 'Women and Human Development: The Capabilities Approach'. New York: Cambridge Press

Sarvananda, Swami (1987). Kathopanisad (14th ed.). Madras, India: Sri Ramakrishna Math. (Including original verses, constructed text, and word-by-word translations).

Tzannatos, Zafiris. (1999): Women and Labor Market Changes in the Global Economy: Growth Helps, Inequalities Hurt and Public Policy Matters.' World Development 27(3):551-569

UNICEF Report Card No 8 (209) on Child Protection

William, Jill (2005) Measuring Gender and Women's Empowerment Using Confirmatory Factor Analysis.Research Program on Population Processes, Population Aging Center

ISSN 2454-9169

SURYADATTA

A Study of Opportunities in Digital India for Emerging Sectors

Neha Inamdar

Introduction

Today, we are in the midst of a third industrial revolution powered by digitalization, the first two revolutions being driven by steam engine and electricity. Digital Transformation is causing massive upheaval across all the industries and societies. When it comes to pace of Technology Advancement, we are firmly in the second half of the chess board where each subsequent advancement is massively more impactful than all previous advancements. Such large scale industrial transitions almost always are accompanied by significant benefits in productivity.

Digital India is an initiative by the Government of India to ensure that Government services are made available to citizens electronically by improving Online Infrastructure and by increasing Internet Connectivity. It was launched on 1 July 2015 by Prime Minister Narendra Modi. The initiative includes various plans to connect rural areas with high-speed Internet Networks. Digital India has three core components namely, The Creation of Digital Infrastructure, Delivering Services Digitally, Digital Literacy.

Background of the Study

A two-way platform will be created within the period of 5 years where the service providers and the consumers will benefit. The scheme will be monitored and administrated by the Digital India Advisory Group which will be chaired by the Ministry of Communications and Information Technology. It will be an inter-Ministerial initiative where all ministries and departments will offer their own services to the public: Healthcare, Education, Judicial, etc. The Public–private partnership model will be adopted selectively. In addition, there are plans to restructure the National Informatics Centre. This project is one among the top priority projects of the Modi Administration.

This paper will concentrate on what kind of opportunities are available and also the opportunities that will be available in the near future for the emerging sectors in India.

Neha Inamdar
Placement Coordinator
SGI, Pune
neha.inamdhar@suryadatta.edu.in

Objectives of the Study

1. To find out the opportunities available in Digital India for Emerging Sectors.

2. To find out various sources of finance for implementation of the Project of Digital India.

For technology companies, Digital India opens up a plethora of opportunities such as building the broadband infrastructure; creating identity solutions, payment systems, web or mobile based delivery structures and so on. Cyber security is another key area of focus. As commerce and banking go online and mobile, the threat of data leaks and hacks will only increase. It is imperative that organizations of all sizes invest significantly in securing their products and services. Healthcare is undergoing its own digital transformation globally, and in a country like India, telemedicine and remote health will likely play a huge role in driving universal accessibility to quality healthcare.

Broadband in 2 lakh villages, universal phone connectivity, Net Zero Imports by 2020, 400,000 Public Internet Access Points, Wi-fi in 2.5 lakh schools, all universities; Public wi-fi hotspots for citizens, Digital Inclusion: 1.7 Cr trained for IT, Telecom and Electronics Jobs creation: Direct 1.7 Cr. and Indirect at least 8.5 Cr. e-Governance & eServices: Across government. India to be leader in IT use in services – health, education, banking Digitally empowered citizens – public cloud, internet access. The Government of India entity Bharat Broadband Network Limited which executes the National Optical Fibre Network project will be the custodian of Digital India (DI) project BBNL had ordered United Telecoms Limited to connect 250,000 villages through GPON to ensure FTTH based broadband. This will provide the first basic setup to achieve towards Digital India and is expected to be completed by 2017. Optical fibre cables have been laid out in more than 68000 village panchayats.[4]

On 28 December 2015, the Panchkula district of Haryana was awarded for being the top performing district in the state under the Digital India campaign.

Giants from Silicon Valley, San Jose, California expressed their support for Digital India during PM Narendra Modi's visit in September 2015. Facebook's CEO, Mark Zuckerberg, changed his DP in support of Digital India and started a chain on Facebook and promised to work on WiFi Hotspots in rural India. Google committed to provide broadband connectivity on 500 railway stations in India. Microsoft agreed to provide broadband connectivity to five hundred thousand villages in India and make India its cloud hub through Indian data centres. Qualcomm announced an investment of US$150 million in Indian startups. Oracle plans to invest in 20 states and will work on payments and Smart city initiatives. However back home in India, cyber experts expressed their concern over internet.org and viewed the Prime Minister's bonhomie with Zuckerberg as the government's indirect approval of the controversial initiative. Saket Suman, in his report in The Statesman mentioned, "Prime Minister Narendra Modi's chemistry with Facebook CEO Mark Zuckerberg at the social media giant's headquarters in California may have been greeted enthusiastically in Silicon Valley but back home several social media enthusiasts and cyber activists are disappointed." The journalist also questioned whether, in the absence of firm laws, the spirit of net neutrality will be throttled to strike a balance between the Digital India and internet.org

Government of India is willing to achieve

the following by Digital India initiative.

1. Infrastructure: The Digital India initiative has a vision to provide high speed internet services to its citizens in all gram panchayats. Bank accounts will be given priority at individual level. People will be provided with safe and secure cyber space in the country.

2. Governance and services: Government services will be available online where citizens will be ensured easy access to it. Transactions will be made easy through electronic medium.

3. Digital empowerment of citizens: This is one of the most important factor of the Digital India initiative to provide universal digital literacy and make digital sources easily accessible. The services are also provided in Indian languages for active participation.

9 Major Projects under the Initiative:

1. Manufacturing Of Electronics: The government is focusing on zero imports of electronics. In order to achieve this, the government aims to put up smart energy meters, micro ATMs, mobile, consumer and medical electronics.

2. Provide Public Access To Internet: The government aims to provide internet services to 2.5 lakh villages which comprises of one in every panchayat by March 2017 and 1.5 lakh post offices in the next two years. These post offices will become Multi-Service centres for the people.

3. Highways To Have Broadband Services: Government aims to lay national optical fibre network in all 2.5 lakh gram panchayats. Broadband for the rural will be laid by December 2016 and broadband for all urban will mandate communication infrastructure in new urban development and buildings. By March 2017, the government aims to provide nationwide information infrastructure.

4. Easy Access To Mobile Connectivity: The government is taking steps to ensure that by 2018 all villages are covered through mobile connectivity. The aim is to increase network penetration and cover gaps in all 44,000 villages.

5. e-Governance: The government aims to improve processes and delivery of services through e-Governance with UIDAI, payment gateway, EDI and mobile platforms. School certificates, voter ID cards will be provided online. This aims for a faster examination of data.

6. IT Training For Jobs: The government aims to train around 1cr. students from small towns and villages for IT sector by 2020. Setting up of BPO sectors in North eastern states is also part of the agenda.

7. e-Kranti: This service aims to deliver electronic services to people which deals with health, education, farmers, justice, security and financial inclusion.

8. Global Information: Hosting data online and engaging social media platforms for governance is the aim of the government. Information is also easily available for the citizens.
MyGov.in is a website launched by the government for a 2-way communication between citizens and the government. People can send in their suggestions and comment on various issues raised by the government, like net neutrality.

9. Early harvest programs: Government plans to set up Wi-Fi facilities in all universities across the country. Email will be made the primary mode of

communication. Aadhar Enabled Biometric Attendance System will be deployed in all central government offices where recording of attendance will be made online.

India has the third largest internet literate population in the world today and it is estimated that there will be over 500 million internet users in India by 2018. However, internet penetration in India is currently only 19% and there is a significant opportunity for growth in penetration and usage base in India with the Government's Digital India initiative.

More and more Indian consumers are adopting digital technologies and this opens up a plethora of opportunities in sectors such as finance and banking, retail, healthcare and education. As the Digital India initiative takes shape, demand for technology related services such as building the broadband infrastructure; creating identity solutions, payment systems, web or mobile based delivery structures and so on is expected to increase.

Inference

On the basis of Digital India Initiative the following I can be arrived at.

1. It is confirmed beyond a shadow of reasonable doubt there is a huge scope for emerging sectors through Digital India Campaign.
2. Top CEOs from India as well as abroad have already committed to invest 4.5 lakh cr. For Digital India.
3. The Government of India has initiated a giant leap forward to transform the country into a Digitally Empowered Knowledge Economy. Digital India will help in leveraging India's globally acclaimed IT Competence for the benefit of more than 120 Crore Indians.
4. It will help in reducing undesirable and time consuming paper work, it will expedite the procedures and help in reducing Corruption.
5. Some of the facilities which would be available through this initiative are Digital Locker, e-education, e-health, Digital Signature and national scholarship portal. All such facilities are beneficial for more than 120 Cr. Indians.

Suggestions

- Public-Private Partnerships will be the Key to Success.
- In order to enable Digital India it is necessary to evaluate the quality based on specific parameters of services which will be provided to Indian Citizens.
- Digital India should have strategy wherein the Government Will be providing information and services to internal and external stakeholders. This requires having a strong architecture principle and policy to host data and services to relevant cloud delivery model.

References

Article published by UK India Business Council 16 Nov 2015.
Benedict Evans weekly newsletters – refer to @BenedictEvans on Twitter
Boston Consulting Group report – India @ Digital.Bharat – Creating a $200 Billion Internet Economy
Digital India is a Roadmap to Change India's Future July 3, 2015, by Nitin Gupta
E- books published by digital India publications.
https://mygov.in/group/digital-india

ISSN 2454-9169

Indian Eating Habbits

Ulhas Chaudhari

Objectives

- Choice of food leads to healthy living.
- To observe that common eating habit of Indian commune.
- Influence of Modern age, culture, palate and social activities on daily food habits.

Indian food is known for its versatility and wide flavours, it is said that every 50 km Indian food pattern changes and every states has their own palate, ingredients and types of food.

It is observed that common eating habit across the country that Indians love to mix their food and add spices to almost every cuisine. Flavoring the food is common, hence the generous use of spices, which also extends to adding ketchup and chili powder to Spaghetti and other international cuisines.

Indian cuisine is as sundry as the Indian culture with as many cuisines as the number of states. The difference in eating habits creates challenges for international food retail companies to cater to customers and market themselves. The eating habits of Indians have been evolving recently and Indians are adapting the global eating culture. For generations eating food was always about family members getting together and spending quality family time, which is true even today. But previously it was always at home and now people have started moving out to diners, malls and specialty cuisine restaurants on special occasions and weekends. The number of working women has increased in India which additionally has resulted in the increase of home delivery orders.

In India, eating habits also reflect the religious beliefs of the country. Hinduism is the most prevalent religion in India and the followers of this religion revere cows as sacred hence beef is not sold in restaurants across the country. Islam is also a common religion here and it prohibits the use of pork in any

Prof. Ulhas Chaudhari
Asst. Professor,
SCHMTT, Pune
ulhas.chaudhari@suryadatta.edu.in

kind of food. Jainism is another commonly followed religion and Jains (followers of Jainism) are purely vegetarian. Both KFC and McDonalds took these issues into consideration and came up with ideas to tackle them. McDonalds refrained from putting any beef or pork products in the menu (beef products being their hot sellers in the Western countries) and even went to the extent of renaming the Big Mac as Chicken Maharaja Mac for India. McDonalds also developed a menu especially for India with vegetarian selections.

In fact the separation of vegetarian and non-vegetarian food products is maintained throughout the various stages of procurement, cooking and serving. To the extent that mayonnaise and soft serves are also 100% vegetarian. McDonalds also opened a vegetarian only outlet at a pilgrimage location, Golden Temple, in India. KFC is also increasingly adding vegetarian items such as Veg Zinger, Veg Snacker and Veg ZingKong on their Indian menu and has started a vegetarian only outlet in Gujarat where they serve the "Jain menu", as the majority of the population is vegetarian and this does not really resonate with their brand which stands for Kentucky Fried Chicken. McDonalds and KFC are not the only food giants opening vegetarian only outlets; Subway and Pizza Hut also have vegetarian only outlets in Gujarat.

There are a multitude of challenges that international food Retail Company's face and the likes of KFC, McDonalds, Pizza Hut and Subway are tackling such challenges in their own way, paving a way towards the Indian consumers in metros and to some extent in tier two cities. In smaller cities, though, the "dabba (tiffin)" system (getting one's own home made lunch or ordering from facilities that provide home cooked lunch) is common even today. These consumers may be the next segment the food retail brands could target and it will be interesting to see whether they succeed.

Modern age has introduced many changes in almost all walks of life. Humans from all age groups have adopted the effects in certain ways. Many people believe that this has greatly affected the children's life and their way of living. This has also altered the choices that the children use to have in food than the earlier generation. Some people believe that it is bad for their health. I completely agree with the statement and will provide some reasons to support the argument.

First, the eating habits children have adopted in the modern times are dangerous to their health. Many children, these days, prefer to eat from fast food restaurants. The food in those restaurants does not only have insufficient nutrients but it also causes diseases in them. These diseases may not be obvious at once but during later age they come into action. Among them blood pressure, heart diseases and diabetes are the commonly seen. Moreover, the food weakens a child. The low nutrients food effects the children's mental development too. Adds of certain junk food attracting tanagers to make choice of all such food which even does not have single nutrient value, packaged snaky food which have attractive packaging and food with many fascinating shapes dragging kids' attraction to eat.

Second, the lifestyle children have adopted in the modern time has its own type of drawbacks. Spending a great deal of time in playing computer games and surfing internet is the most common

lifestyle which is presently seen in children. As it is a well-known fact that physical sports have its merits not only for the body health but for mental as well. Furthermore, by spending their time in the virtual world of computer they are getting away from many social aspects; for example, helping and co-operating others etc. this lifestyle is a threat to their behavioral development.

In retail sector to tackle this challenge, food retail companies like McDonalds and KFC adapted their marketing strategy in order to settle down in the Indian consumer list of preferences. KFC introduced hot spicy food which was a runaway success. McDonalds also put in a lot of effort to create an Indian menu and spiced dishes such as Burgers and Peri Peri Fries to cater to the Indian palate.

Conclusion

It is observed that Indian have adapted International cuisines such as continental, Chinese, Italian, Mexican and many other cross border food, which have reached Indian homes and have been enjoy by kids and elders both.

Today in breakfast not only Poha, Upma, Sheera, Idli, Dosas are served but also have made space for Sandwiches, Cheese, Muffins, Fruits, ect. Salads and desserts are accompanied with regular meal.

I believe that in order to make children physically and mentally healthy the caretakers should pay special attention towards their eating habits and living style as in modern times they may be detrimental for their health.

Changing eating habit of Indian have opened new scopes for many national and cuisine to get set on the plate and palate of Indian food market, this is for sure a good sign for the food industry.

ISSN 2454-9169

SURYADATTA

CSR - Doing The Motions But Are They Optimal....

Dr. Hemendra Singh

Kirloskar Oil Engines Limited (KOEL) is engaged in manufacturing and marketing engines, generator sets, pump sets etc. The Company's products have been used for wide variety of applications. These cater to sectors like agriculture, industry, stationery power plants, construction and equipment. These cater to requirements in power generation, industrial engines, agriculture and large engines catering to power plants. The Company's product range air cooled and liquid cooled engines/diesel generator sets, Kirloskar Chhota Chilli, air cooled and water cooled industrial engines, crop irrigation solutions, farm mechanisation solutions, diesel generator sets above 1.7 megawatts for stationary power plants, marine propulsion engines and auxiliary generating sets. They have four manufacturing plants which are located in Pune, Kagal, Nashik and Rajkot.

Over the years, KOEL has been making a positive difference in the areas of socio - economic development of the less privileged communities and other stakeholders. It has been a responsible business house by using business processes and strategies to meet regulatory requirements, international norms as well as its social obligations towards society in the vicinity of locations of the manufacturing plants. The focus of CSR activities has been Education, Environment and Health by integrating these objectives with those of the operations.

Changing Regulations

As per the CSR provisions in the Companies Act, 2013, it is mandatory for certain category of companies, to expend certain amounts on prescribed CSR activities. Section 135 of the Companies Act, read with Companies Rules, 2014, requires companies with turnover of Rs.1,000 crores or more or a net profit of Rs.5 crores or more, during any financial year, to constitute a 'CSR Committee'. This committee is required to formulate and recommend the CSR Policy of the Company by fixing a budget and stating the activities where it will spend.

CSR Committee consists of three Directors and it is headed by Mr. Rahul C. Kirloskar who is the Chairman, Mr. Nihal G. Kulkarni & Dr. Naushad D. Forbes are its members. The total outlay for CSR Activities from 1st April 2014, the Company shall spend at least 2% of the average net profits of the Company made during the three immediately preceding financial years

Dr. Hemendra Singh
Director
SIBMT, Pune
hemendra.singh@suryadatta.edu.in

towards CSR initiatives.

The Executive Director of the Company will file a half - yearly report to the CSR Committee, within 30 days from the end of the half - year, setting out details of CSR activities undertaken in the prescribed format. The CSR Committee of the Company can authorize the Executive Director to perform the following functions: where required, create a working group to develop the CSR Commitments of the Company; include employees in the process of implementing the CSR activities being carried out by the Company, create a CSR working group or hold a contest for the best suggestions, encouraging employees and their representatives to put some thought into their submissions. Review the CSR priorities to determine which codes of ethics or conduct fit best with the firm's goals.

Kirloskar Foundation

The Company focuses its efforts in the sectors of Education and Healthcare, through Kirloskar Foundation, a trust registered to implement initiatives. The Company's commitment to CSR may be manifested by also investing resources in any of the following areas: l. Eradicating hunger, poverty and malnutrition, promoting healthcare and sanitation and making available safe drinking water; Promoting education, including special education and employment enhancing vocation skills especially among children, woman, elderly and the differently able and livelihood enhancement projects; Promoting gender quality, empowering women, setting up homes and hostels for women and orphans; setting up old age homes, day care centres, and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups; Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agro-forestry, conservation of natural resources and maintaining quality of soil, air and water. Protection of national heritage, art and culture including restoration of buildings and sites of historical importance and works of art, setting up of public libraries, promotion and development of traditional arts and handicrafts; Measures for the benefits of armed forces veterans, war widows and their dependents; Training to promote rural sports, nationally recognised sports, Paralympics sports and Olympic sports.

Contribution to the Prime Minister's National Relief Fund or any other fund the Central Government for socio-economic development and relief and welfare of the Scheduled Castes, the Schedules Tribes, other backward classes, minorities and women; Contributions of funds provided to technology incubators located within academic institutions which are approved by the Central Government.

The surplus arising out of the CSR activities will not be considered as a part of the business profits of the company.

Monitoring CSR Activities

The CSR Committee shall be responsible for monitoring the CSR Policy from time to time. The Executive Director shall prepare and present a detailed report on the CSR activities finalized, to be carried out in each financial year, for the approval of the CSR Committee. The CSR Committee shall approve and recommend to the Board, the projects or programs to be undertaken, the modalities of execution and implementation schedule from time to

time.

Wealth Created Must Be Utilized for the Benefit of Society

KOEL recognizes its responsibility towards the society in which we operate. Being a good corporate citizen, KOEL is committed to raising the quality of life and social well-being of communities, thus contributing to the progress of the regions and the provinces in which they operate. Enriching Lives is all about continuously pursuing higher goals of economic prosperity, mass development and environmental harmony. Happy communities and sustainable businesses are parameters against which we benchmark our community efforts. KOELs social initiatives are deployed innovatively at all its operation locations namely Khadki, Kagal, Ahmednagar, Nashik and Rajkot.

KOEL has a dedicated CSR team that follows a four-pronged strategy focusing on:

1) Supporting underprivileged communities
2) Improving health-care facilities
3) Education
4) Environmental conservation

1) Education
- Cash awards to school children
- Supporting Akanksha centres
- Education sponsorship to orphans
- School stationery to needy children
- Teacher training programmes
- Career guidance workshops

Conducting vocational training programmes like computer literacy, Life Skill training, training on safety to women, Infrastructure for schools, scholarships to students in four plant locations namely Pune, Kagal, Nasik & Rajkot

2) Health
- Life skill training
- Health awareness programmes
- Workshops on de-addiction
- Awareness on HIV/Aids
- Free health check-up camps
- Water, Sanitation and Hygiene initiatives

3) Environment
-Tree plantation
- PUC check-up camps
- Environment awareness programmes

4) Livelihood
- Employability development programmes
- Livelihood Advanced Business School training programme

For the financial year 2014-15 the average net profit of the Company for the financial years 2011–12, 2012–13 and 2013–14 was at 2% of the average net profit computed at least Rs.5.19 crores and the total amount spent on CSR activities for the financial year 2014–15 was 5.37 crores.

Dr. Renu Mahtani M.D. is an exponent of yoga and has authored a book titled 'Power of Posture' which was due for release and needed a corporate in India to sponsor her effort. I am grateful to Mr. Atul Kirloskar, who was kind enough to give his assent to sponsor it as soon as he saw the book as he knew that the book holds a key to all the physical body pain and ailments faced by thousands of people in today's workaholic environment of today's corporate world. To solve the problems of thousands of people in the corporate world and he wanted his own employees to be beneficiary of this product. As we discuss various facets of what KOEL was doing in CSR he mentioned a few areas where he

is currently focused.

Education: In education he was honing skills of B.Sc. Graduates with CNC machining skills to replace engineers as they were getting bored and were leaving quickly. These graduates after intensive training every year were inducted in to a company for a period of 3 years and they were relieved by freshers of their own succeeding batch.

Heath care: On cultivating hygiene aspects he remarked that the villages he had adopted, he was not able to succeed because even after spending a lot of money in time he found that the outcome was close to his expectations. Two villages he had adopted to create sanitary facilities which were state of the art; however 2 weeks later when he went there he found that not a single fixture was there in place. Investigations revealed that villagers sold it for money and were not thinking about hygiene.

He also carried out a campaign of anti-spitting but has concluded this measure also received a serious setback as he was unable to change the culture of the people.

Therefore he has resorted that most of the money of CSR could be spent on best education for which a group of professionals on his behalf would go and train the villagers so that they can do their work more efficiently and outcome could be more productive.

They are currently focused on girls who have dropped out from schools in their early teens. And they are trained on hygiene aspects before, at birth and after to ensure that the hygiene as a culture gets inculcated in the mindset of the people and they are able to implement enable to lead a better quality of living.
In the village water tanks are not cleaned for years resulting in a number water related ailments. This he found can be successfully implemented, if periodicity is decided twice a year it can be done every year through an external agency provided the Sarpanch is cooperative.

Reference

Annual Balance Sheet 2011-12, 2012-13, 2013-14, 2014-15 as well as company's website)

1. Kindly critique the current CSR practices of Kirloskar Oil Engines and share if you can do any better.

2. Identify activities which were only philanthropic.

3. Why do promoters not go in for utilization of CSR in totality?

4. Strategy is not a part of the core strategy. Do you agree?

ISSN 2454-9169

Book Reviews - by Dr. Shabeen Ara

I. Environmental Management - authored by Ajit Sarkar R.N. Oxford University Press 2015. ISBN 0-19-945891, Rs. 450/-

The author begins the book with a preface wherein he explains that every generation lives in unique times but no generation in the history of mankind had access to the kind of physical comforts that we enjoy now. We are also witnessing an increasing prevalence of extreme weather conditions to such an extent that we have become numb to those affected by these disasters. We are going through an extinction wave where the loss of species is thousand times the normal rate, and where forest area equivalent to that of a football field is being destroyed every second. The planet is witnessing the existence of conditions vastly different from those observed in the last 6, 50,000 years. Industries ranging from insurance to winter tourism are being negatively affected by this imbalance. In this context, shouldn't 'Environmental Management' be a discipline that takes centre stage, especially in institutions that groom people on management and leadership?

This book has dedicated 12 chapters on Realm of Ecology and Ecosystems, Spiritual Perspectives on Environment, Environmental Issues, Natural Resource Management, Business and Sustainability, Processes, Tools and Standards for Environmental Management, Waste Management Systems and Practices, Biodiversity, Environmental Ethics, Environmental Laws, Policies and Treaties, Environmental Economies and Green Economy and Realm of Ecology and Ecosystems. An exclusive section details environmental management techniques and sustainable practices adopted by various organisations are included.

The book has useful features like side bars throughout the book with interesting/informative facts to build the students' interest in the subject. It contains numerous vivid images that attempt to give a broader perspective to the concepts discussed. Every chapter contains several figures and tables to support the concepts discussed. The book provides exhaustive chapter-end exercises such as multiple-choice questions, short answer, long answer, and reflective type questions as well as take-home e activities for students to test their understanding. Each chapter provides a selection of recommended books, videos and documentary films for interested readers to learn more about the subject.

The book contains important chapters that lay emphasis on companies/industries finding solutions to various environmental issues like Chapter 5 - Business and Sustainability and Chapter 6 – Process, Tools and Standards for Environmental management.

In Business and Sustainability the chapter covers:

- Extended Producer Responsibility (EPR) is a mandate making the manufacturer of the product responsible for the entire life cycle of the product, including post consumer usage.
- Cleaner production is the continuous application of an integrated preventive environmental strategy to processes, products and services to increase efficiency and reduce risks to humans and the environment.

- Cradle to Cradle (C2C) design is a bio-mimetic approach popularised by Michael Braungart. In this approach to design of systems, materials involved in industrial/commercial production are viewed as nutrients circulating in healthy, safe metabolism. The categories are material health, material reutilisation, renewable energy and carbon management, water stewardship and social fairness.
- Bio-mimicryorbio-mimetics refers to the abstraction of good design from nature. The processes and models followed by nature are observed, and they are replicated in human endeavours, primarily meant to solve a human need.
- Green building refers to a structure and using process that is environmentally responsible and resource-efficient throughout a building's life-cycle: from sitting to design, construction, operation, maintenance, renovation and demolition.
- LEED is a green building rating system. LEED India rating system has five components (a) sustainable sites, (b) water efficiency, (c) energy and atmosphere, (d) materials and resources, and (e) indoor environmental quality. Green Rating for Integrated Habitat Assessment (GRIHA) is the national green building rating system and acts as an integrating platform for various national building codes.
- Some of the techniques/tools involved in making natural buildings include adobe, cob, rammed earth, straw bale, wattle and daub, sod and roof, earth bags, papercrete, cordwood, slip straw, and compressed earth block.
- Socially responsible investing (SRI) is an investing strategy that considers financial returns, social good, and environmental impacts while making an investment. As part of managing a green portfolio the fund managers may adopt various investing strategies. This could be negative screening, divestment, shareholder activism, shareholder engagement, and positive investment.
- Green marketing is the marketing of products that are presumed to be environmentally safe. Green tries to communicate some of the benefits associated with green products/service. Green marketing, if done without sincerity, is referred to as green washing.
- Eco-labels or green labels are labelling systems that indicate that ecological considerations have been given due to importance during the life cycle (sourcing of the raw materials, manufacturing, and after-sales of the product) of a product/service.
- As per Globe Reporting Initiative (GRI), a sustainable report is organised report that gives information about economic, environmental, social, and governance performance. Some of the other sustainability reporting Initiativesare The UN Global Compact (UNGC) UN Principles for Responsible Investment (UNPRI) Carbon Disclosure Project, OECD guidelines for MNEs, Ceres Principles, the SA8000 standard, International Organisation for Standardization (IOS) and AA1000 Account Ability Principles Standard (AA1000APS).

In Chapter 6 – Process, Tools and Standards for Environmental management the author discusses:

- The process of environmental risk management involves, problem formulation, risk assessment, selection of risk management practice, and implementation of the risk management practice.
- Environmental design management process identifies opportunities of energy savings, waste and emission reduction and conservation of natural resources.
- Back-casting is the process of visualising a desirable future scenario and then

working backwards to the present by creating policies and practices which will create that desirable future.

- Ecological footprint compares human demands on the planet with the planet's capability to regenerate the required demands. Three of the drivers of ecological footprint are population growth, consumption of products/services by an individual and footprint intensity (the efficiency rate at which natural resources are converted to goods /services).
- Carbon footprint is the measure of an individual's impact on the planet in terms of the amount of greenhouse gases produced due to the lifestyle of individual, in units of carbon dioxide.
- Life cycle analysis (LCA) looks into the cumulative social and environmental impact caused by a product or service, through the entire life cycle of a product's life. 'Goal and scope defination' and 'inventory analysis' are the steps involved in LCA.
- Ecosystem services and valuation is the processes by which the natural environment creates an environment that sustains life on earth. Ecosystem services are those services that contribute directly to life.
- Ecosystem services are classified into provisioning services, regulating services, cultural services and supporting services. Provisioning services refers to services obtained from ecosystems that sustain human life. Regulating services refers to benefits derived by human beings from ecosystems. Supporting services are the services necessary for the creation and sustenance of all other ecosystems services.
- Corporate ecosystem valuation (CEV) is a process, which uses ecosystem valuation to make informed business decisions.
- Energy returned on energy invested (EROEI) is 'the ratio of the amount of usable energy acquired from a particular energy resource to the amount of energy expended to obtain that energy resource'.
- Carbon ratings are used to communicate the overall quality of an emission reduction project or overall quality of an emission reduction project, or carbon rating are used as a label in products including Fast Moving Consumer Goods (FMCG) to indicate the carbon emissions associated with the whole/partial life cycle of the product that is sold.

The book Environmental Management by Ajith Sankar consiste of all the latest information one needs to know on current status on environment. It is highly recommended for the researchers, teachers and students of Environment Management.

Environmental Management: Text and Cases, 2nd Ed. By Bala Krishnamoorty , 2008 , PHI Learning Private Limited. ISBN- 978-81-203-3329-1, Rs. 275/-

Foreword of this book is by RANJAN KUMAR, Chairperson of National Bank for Agriculture and Rural Development (NABARD), Mumbai.

He says, these are happening times for environmental management related issues in India. One of the redeeming examples is the Supreme Court of India's recent affirmative judgement requiring the Cola Companies to specify the level of pesticide content in their bottled aerated drinks. It indeed is a long march for the country from the dark days of the Bhopal Gas tragedy a couple of decades back when very little was

known or articulated on the cost in terms of human tragedies caused by the neglect of environmental management issues. Instead of confining itself from being an issue for drawing room discussions and protests by stray activists groups, environmental issues have now reached the domain of the common man's concern. It truly reflects the sensitive's of mankind about its habitat and biosphere. Rightly, environmental management is gradually assuming the centre stage on any discussions on development.

This book is organised into two parts –

The first part, consisting of Chapters 1-10, describes the various principles of environmental management.

The second part consists of six Case Studies, of which four are new to this edition.

Chapter-1 examines the emergence of interest among the management schools in including environmental management in MBA syllabus and provides a course outline for a typical course on environment management.

Chapter-2 discusses the environmental concepts and sustainable development. This chapter builds the base for discussions on Environmental Law.

Chapter-3 provides an overview of environmental law. Environmental law is so extensive that it can be the subject matter for a separate book; so an attempt is made here to provide adequate coverage of the important enactments which are significant for regulating the environmental issues. The Environmental Protection Act 1986 is dealt with in greater detail. With the advent of the Internet and increase in accessibility of information, the bare acts are available in government websites.

As a backdrop to environmental law, the international landmark events, such as the Stockholm Conference, 1972 and the Earth Summit at Rio de Janeiro in 1992 (which gave us the seminal document of Agenda 21) are also provided for reference. The national-level preparedness for managing the environmental problems developed into a full-fledged response only after the Rio conference. So, it is important that the readers be well versed with international developments affecting decision making at the national level.

Chapter-4 discusses Environmental Impact Assessment, one of the important management tools, and its effectiveness.

Chapter-5 deals with the industrial response to environmental concerns. Though environmental concerns are universally applicable to all the sectors,industry, being the major sector and expected to be trendsetter for other sectors.

Chapter-6 on Environmental Ethics places emphasis on these aspects that explain the interplay of events and provides a theoretical perspective to the facts of exploitation and human being's inherent tendencies to rule other living organisms.

Chapter-7 on Environmental Risk Communication explains the basics of risk communication. The timing of risk communication is very important, and for whom the communication is relevant also is equally important. In some of the major industrial accidents, the lack of risk communication is one of the major contributing factors.

Chapter-8 covers WTO (World Trade Organisation) and Environmental Issues. These issues have gained great significance as trade related environmental issues were not being taken into consideration by WTO earlier. Two parts are important here. One is the need to bring about a certain level of uniform environmental performance in all the sectors across the globe. The other issues is to build a certain level of preparedness among the parties involved in the deliberations so that that are willing to change the conflicting practices and trust the intent of the WTO. Looking at the sheer number of disputes in the WTO related to environmental issue of contemporary concern.

Chapter-9 on Solid Waste Management pays attention to the mundane issues of waste management, which is the most visible environmental problem handled by the municipal authorities. Waste management practices can be improved by enlisting public participation and by separating awareness about reducing waste and seeking appropriate opportunities to treat and recycle the waste.

Chapter-10 looks at the emergence of public-private partnership for hospital waste management and the regulations pertaining to it, namely, the Biomedical Waste Management Rules.

Case Studies contain six cases. These would serve as useful teaching aids to factually members and would also benefit the students. With easy access to the internet and online learning portals these days, there are plenty of opportunities available to interested individuals to build case studies.

The Case Method is especially effective for subject like environmental management, values and society, corporate governance and social responsibility as they give ample opportunity for student participation and help them relate the issues to their day-to-day dealings.

Reviewed By- Dr.Shabeen Ara, Director Communication, Suryadatta Group of Institutes, Pune. E.Mail: shabeen.ara@suryadatta.edu.in

SURYA-THE ENERGY
MANAGEMENT RESEARCH JOURNAL

SUBSCRIPTION ORDER FORM

New Subscription / Renewal

Subscription Number (If already subscribed) _____

Print Subscription

	1 Year (4 issues)
Individual / Institutions	Rs. 2000
Alumnus	Rs. 1600

Journal Mailing Address

Name : _____

Postal Address : _____

_____

City : _____ **State :** _____ **Country :** _____

Pin : _____ **Phone :** _____**Mobile :** _____

Fax : _____ **Email :** _____

Please send us your cheque / DD No. .....Dated .....

Drawn on .....Bank, in favour of **Suryadatta**

Education Foundation, payable in Pune to :

Editor
Surya-The Energy
Management Research Journal
Suryadatta Group of Institutes
Sr. No. 342, Patil Nagar, Bavdhan (Bk) Pune 411021 Maharashtra, INDIA
Tel. : +91-20-67901300 **Email :** support@suryadatta.edu.in **Website :** www.suryadatta.org

Please photocopy this form

Suryadatta - The Temple of Learning

The Suryadatta Education Foundation, SEF, is a charitable trust registered with the Registrar of Societies, Government of Maharashtra. The Suryadatta Group of Institutes was incepted in the year 1999, under the aegis of the Suryadatta Foundation, in Pune, the Oxford of the East.

The Suryadatta family has blossomed into a bouquet of academic institutions in various disciplines such as Information Technology, Management, Media and Mass Communication, Bio-Informatics, Bio-Technology, Hospitality Management, Interior Designing, Fashion Designing, Retail, IT Enabled Services, Creative Arts, Vocational, Advanced Studies, Junior College, School. Suryadatta has students from many countries and from all parts of India pursuing their education in different streams at various Suryadatta Institutions. Each Institute of the Group is strategically located in the heart of the city and has a dedicated campus providing enlightening and inspiring, academic ambience. Each Institute is spearheaded by well qualified, experienced and dedicated Directors / Principals. The faculty is a rich Academic-Industry mix, many having International exposure.

The ethos of Suryadatta is "Enlightening and Disseminating Knowledge for Prosperity" " kmZ[ZYV H ë_ fm.."

The Suryadatta Education Foundation runs the following educational institutions:

- **Suryadatta Institute of Management & Mass Communication (SIMMC)**
- **Suryadatta Institute of Business Management & Technology (SIBMT)**
- **Suryadatta Institute of Management & Information Research (SIMIR)**
- **Suryadatta College of Management, Information Research & Technology (SCMIRT)**
- **Suryadatta College of Hospitality Management & Travel Tourism (SCHMTT)**
- **Pune Institute of Applied Technology (PIAT)**
- **Suryadatta Institute of Vocational and Advanced Studies (SIVAS)**
- **Suryadatta Institute of Fashion Technology (SIFT)**
- **Surya - Kids**
- **Suryadatta National School (SNS)**
- **Suryadatta Public School (SPS)**
- **Suryadatta Junior College of Arts, Commerce & Science (SJC)**
- **Suryadatta Institute of Mass Communication & Event Management (SIMCEM)**
- **Suryadatta Center For Skill Development & CSR (SCSDC)**
- **Suryadatta Institute of Computer Technology (SICT)**
- **Suryadatta Institute of English & Foreign Languages (SIEFL)**
- **Suryadatta College of Management & Information Technology (SCMIT)**
- **Suryadatta Institute of Rehabilitation of Special Children (SIRSC)**
- **Suryadatta Fitness & Sports Academy (SFSA)**
- **Suryadatta Institute of Health Sciences (SIHS)**
- **Suryadatta Institute of Design (SID)**
- **Global Finishing School (GFS)**
- **Suryadatta Institute of Beauty & Wellness (SIBW)**
- **Suryadatta Institute of Graphics, Multimedia & Animation (SIGMA)**

SURYADATTA • Pioneer in developing industry ready professionals

Estd. 1999

Suryadatta Group
Enriching Careers
& Enhancing Lives

Suryadatta Education Foundations

SURYADATTA GROUP OF INSTITUTES

● **Registered Office** ●

2074, Sadashiv Peth, Vijayanagar Colony, Pune - 411 030, Maharashtra, INDIA

● **Bavdhan, Pune Campus** ●

Sr. No. 342, Patil Nagar, Bavdhan (Bk) Pune 41102, 1Maharashtra, INDIA

Tel No.: 020-67901300, 9763266829 **Fax No.:** 020-67901333

Email : support@suryadatta.edu.in **Website :** www.suryadatta.org

A
Category B School
All India
Consecutive 14 years
Leading National Surveys

B-School of
International Repute