

**Summer Training Report
(Work from home by Mentor)**

By

**Adarsh Singh
(Roll no.: 0044)**

**MBA (Rural Management)
2019-21**



AKNOWLEDGEMENTS

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them. I am highly indebted to Prof. Hemant Mishra for his guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

My thanks and appreciations also go to my colleagues in developing the project and people who have willingly helped me out with their abilities.

I would like to express my gratitude towards my parents for their kind co-operation and encouragement which help me in completion of this project.

Table of content

Part 1 - Report on work from home

- ❖ **Is protection of environment for sustainable development required in Uttar Pradesh**

Abstract.....	5
Introduction.....	6
Methodology.....	7
Key findings	
• Land degradation.....	7
• Water pollution.....	9
• Air pollution.....	10
• Forest depletion.....	11
• Wildlife depletion.....	13
Achieving sustainability through green business strategy.....	15
Including sustainability & environment literacy in management education.....	17
Conclusion.....	18
Bibliography.....	18

Part 2 – Report on online course

Name of course.....	23
Course description.....	23
Objective of course.....	23
Content of course.....	23
• Why be green.....	24
• How to be green: environmental strategy.....	25
• Case studies in environmental strategies.....	26
• Looking back and looking ahead in green business.....	27
Learning methodology used.....	29
Key learnings from the course.....	29

PART – 1

REPORT ON WORK FROM HOME

Is Protection of Environment for Sustainable Development is required at Uttar Pradesh, A systematic Review

**Adarsh Singh, Student, MBA Rural Management, IIHMR University, Jaipur-302029,
Rajasthan.**

Abstract

With increased urbanization and industrialization there has been a vast increase in the usage of natural resources to cater to the need of the increasing population which has put the environment on risk i.e. degradation of natural habitats, loss of biodiversity and extinction of species etc. Human has already started seeing its consequences in the form of different hazardous diseases, reduction in life expectancy and an unhealthy lifespan etc therefore there should be some ways to stop that and the way lies in sustainability but the question is what is the main reason behind environment degradation and how to attain sustainability to tackle this. In the era where inhuman practices have become common and everyone is involved in rat race, people just talk about sustainability but no one know how to achieve it except few experts and officials.

This present study aims to conduct a systematic review to study the different types of environmental degradation activities, its effects, causes and the ways to tackle it so that community can lead a sustainable life and to find that out we selected few literature, journals, articles, online course and secondary data based on the topic of environment degradation, biodiversity and sustainability in the state of Uttar Pradesh and came up with a solution of adopting green business strategy and the inclusion of sustainability in the management education based on some successful model adopted in different countries.

(Key Words: Sustainable development, Environment, Industrialisation, Green business Strategy, Management education, impact)

Introduction

Environment has always been a vital part of the life of human beings, and includes water, air, and soil. In other terms the environment could be defined as a composition of biological, physical and socioeconomic factors i.e. climate, flora, fauna, employment etc. ^[1]

In recent years it has been seen that due to the interference of anthropogenic activities, the environmental conditions are deteriorating, Degradation of environment is the leading issue in the present scenario, when we look into the causes of such degradation there are plenty of them such as overpopulation, growing industrialization, urbanization etc. Global warming is one of the well know issue which almost everyone is aware about, it is the gradual increase in the earth's temperature which possess a serious threat to life, it is caused due to the emission of greenhouse gases into atmosphere and many factors contributes to the release of these gases like vehicular pollution, cutting of trees which brings an imbalance in the ecosystem, it is necessary to maintain equilibrium in the nature so that life can sustain much comfortability. United Nations (UN) launched Sustainable Development Goal (SDGs) to bridge this disequilibrium.

According to Sustainable Development Commission “Sustainable development means development for the present generation should be done in such way that it does not affect or compromise the ability of the future generation to meets its need and requirement” , it does not mean that the present generation should compromise their quality of life but should find better alternatives of doing things which will be beneficial for both i.e., the present and the future generation. Sustainable development is all about bringing balance between the environment and society and making life compatible ^[2]. Although there are many acts and provision to control the degradation of the environment and protect the environment such as Forest Conservation Act, Environment Protection Act, Public Liability Insurance, Air and Water Pollution Prevention Act, Biological Diversity Act, Wildlife Conservation Act etc. Various government schemes are also there to clean rivers, for afforestation, reforestation and wildlife protection but these are not enough to stop the ongoing degradation therefore alongside all these conservation initiatives there is a need of more attention towards the measures to tackle the environment degradation^[3]. In the lack of sufficient evidence, there is a need to conduct systematic review research to study the different papers published by the researcher and data shared by the government to study and understand all the different degradation activities going on so that the present situation could be analyzed and accordingly different solution can be made and implemented. Hence, the objectives of this paper are to examine the various environmental degradation activities in the state of Uttar Pradesh and pay attention towards the most common degrading factor.

Methodology

This review article is based on various literature available on the state of Uttar Pradesh. For this secondary data were collected from various literatures, journals, articles, government website and different experiments conducted by various professors from different organisation. For this, the researcher has selected articles from different browser such as google scholar, Yahoo, NCBI and PubMed. Various articles were collected on the topic of environment degradation and sustainable management to find one common link among them. Altogether, more than 40 articles were selected by inculcating the words such as “environment” “degradation” “sustainability” “Uttar Pradesh” etc. All the articles were reviewed thematically, and analysis was made to conclude.

Key Findings:

Land Degradation

Land degradation is one of the major degradations which occurs due to natural and man-made hazards like deforestation, water logging, ground water depletion, waterlogging and the agricultural activities. Although tillage practice has been suggested as an important activity to improve the physical and chemical characteristics of the soil to improve the crop production but tillage for a long period of time also has a negative impact on the soil as it decreases the water holding capacity of the soil, its porosity, organic carbon, nitrogen and other different components of the sodic soil. Land to man ration has also decreased because of the tremendous pressure of people and livestock, land to man ratio was 1.16 hectares in 1971 which fell to 0.86 in 1996-97 and the per capita net sown area was 0.20 hectares in 1971 which fell to 0.10 hectares in 2001, this shows how the increased population and livestock lead to the increased production of food grains which involved the intensive use of cultivation methods involving the tremendous use of chemical fertilizers, pesticides and ground water for irrigation which degraded the land and the environment as well^[4,5]. Table 1 shows the extent and type of land degradation in Lalitpur and Bahraich district which has 25 % and 23% of degraded land respectively. According to the state planning commission about 74.48 lakh hectares of land which is 30.77 percent of the area is considered as degraded land in Uttar Pradesh, and NRSA estimated around 38.84 lakh hectares which is 13.19 percent of the area is degraded land.

Table 1: Land Degradation in Uttar Pradesh (in Lakh hectares)

Types of degradation/Year	NRSA (2000-01)	GOUP (2002)
Soil Erosion	-----	36.82
Salt Affected Area	5.81	7.63
Waterlogged Area	4.98	7.30
Marshy/Swampy Area	0	-----
Gullied/Ravines Area	2.81	9.23
Land with or without scrubs	5.5	-----
Sandy Areas	0.47	-----
Riverine Land	0	13.5
Barren/Stony/Sheet Rock Area	1.18	-----
Shifting Cult	0	-----
Grass/Grazing Lands	0.45	-----
Degraded Plantation Crops	0.05	-----
Degraded Notified Forest land	3.4	-----
Salt/Pans/Snow Covered	13.17	-----
Steep sloping area	0.99	-----
Mining Area	0.03	-----
Total Wasteland Area	38.84	74.48
Total Geographical / Reporting area	294.41	243.02
Percent of the Reporting Area	13.19	30.77

Source: NRSA, 2000-01 and Government of Uttar Pradesh, 2002-03

It shows a glimpse of how bad the situation was in that time and since then the problem of land degradation has been increasing at a rapid rate with the rise in population and the livestock as it puts a tremendous pressure on land to grow and cultivate more and more crops to cater to the need of the growing population and the different practices to get more yield causes the loss of land productivity i.e. decline in the fertility of land because of which the lands get barren, improper use of ground water for agricultural practices causes the depletion of the level of ground water which also adds to the reason of land degradation^[6]. Another study conducted points towards the mining activities in Jhansi which says that mining activities also causes a degree of degradation during the extraction of mineral ore as a large area of land forest and agricultural land is used for mining and large area is also used as a dumping ground, mining leads to landslides, destruction of forest land, drainage issues and soil erosion^[7]. Keeping in eyes all the various causes and types of degradation the leading cause of degradation is the dumping of the solid and non-biodegradable Industrial wastes, According to a study conducted in three major cities of Uttar Pradesh namely Lucknow, Agra, Kanpur and Ghaziabad it was found that hundreds of big industries like Paper, Tannery, textile, chemical and leather which produces numerous toxic and non-biodegradable wastes such as acid, slag, resins, salt mud and

various solvents which deteriorates the soil, even than all these activities are unseen and neglected^[8].

Water Pollution

Water is the basis of life and is one of the most important elements of the biodiversity, which plays an important role in making the life sustainable for all organisms in the world. With growing industrialization and urbanization, the quality of water is deteriorating at a rapid rate be it surface water, ground water, rivers, oceans and other small and large water bodies. Around 1-2 billion people are facing the issue of freshwater availability and water scarcity which plays a vital role in the survival and healthy life of human, plants, animals and other species. Human activities are effecting the water ecosystem because of which many water species are on the verge of extinction and the people living in rural areas are going to suffer with the disturbance of aquatic environment as around 70 percent of the total poor in the world are in rural sector which depends on aquatic environment for the livelihood and well-being^[9]. Future of India's water is at stake because of the growing industrial, agricultural and domestic activities which are directly or indirectly disposed into rivers. There are many rivers in India which supports the basic life activities and are therefore indispensable, Ganga river which covers about 26.3 percent of the India's total geographical area is the biggest river and it passes through different cities of the Uttar Pradesh like Kanpur, Prayagraj and has a total stretch of 1425 km along with Uttarakhand. Main source of pollution are the fertilizers and used pesticides used by the farmers which are washed by the rain into the river because most crops are cultivated in the banks of river and around 47 percent of the total irrigation is done at Ganga basin, other sources of pollution are the chemical waste products, the dirty coolant water and domestic sewage produced by the big industrial cities like Kanpur and are disposed into river^[10]. Kanpur being densely populated city of 2,920,067 people supports a large number of anthropogenic activities deteriorates the surface water quality on a day to day basis, with the study conducted on the quality of ganga river it was found that it contained an uneven level of various components and elements like chloride, Nitrate, phosphate, magnesium, chromium etc and low level of dissolved oxygen and high alkalinity which makes it unfit for drinking but could be used for irrigation purpose^[11]. Other rivers like Gomti in Lucknow and river Kali in the western Uttar Pradesh were also studied for pollution level and showed the similar level of Total dissolved solid like Zinc, Iron, Chromium, Phosphate and the high alkalinity and low dissolved oxygen because of the industrial discharge and domestic sewage therefore their water were declared unfit for drinking and irrigation activities as well^[12,13]. Potable or drinking water

is the basic need of all human being for a healthy life but the drinking water is being contaminated and the quality of potable water is declining at a fast rate therefore water management is the need of the hour. Groundwater is one of the primary and major sources of the drinking water and is also used in agricultural purposes, about 90 percent source for both the activities is groundwater. With growing population, the demand for groundwater also increase which leads to increased industrial, agricultural and domestic activities because of which not only the level of groundwater decreases but also led the increment of pollution level in the groundwater. With a study conducted on groundwater quality in Varanasi by taking water from dug well and borewell it was concluded that most of the sample showed uneven level of total dissolved solvent in the water which made it unfit for drinking^[14]. Another study was conducted in Kanpur city in which various samples were collected from hand pump in the industrial and agricultural areas and it was concluded that there was a high concentration of organochlorine, organophosphorus pesticides and malathion (2.618 ug/l) which made the water unfit for drinking^[15]. Some urban water bodies like ponds are also one of the rich sources of the fresh water which plays an important role in the ecosystem as they are the natural habitats of flora and fauna and are also essential for the sustainable development. There are over millions of pond which provide essential service to both rural and urban population but with increased human activities like disposal of domestic sewage, throwing of tied polythene bags and other anthropogenic activities, these water bodies are facing degradation and to show that a study was conducted by collecting various samples from different ponds in Lucknow city and it was concluded that because of the increased human activities the ponds are facing depletion of flora and fauna , loss of water storage capacity and poor water quality^[16].

Air Pollution

Air is one of the most essential unit of life which contains essential elements like oxygen, nitrogen, hydrogen and many other gases and substances in an appropriate percentage which makes life possible without which no living organism can, on an average a person breaths about 20,000 litres of air per day survive therefore it should always be clean and in required percentage to support life all around but because of the growing urbanization and different anthropogenic activities air is getting polluted with various chemicals and toxic gases which degrades the air quality and causes global warming, ozone layer depletion and acid rain. With a study conducted by collecting samples from different area of Jhansi city in different seasons to find the presence of particulate matters like SPM, RSPM, SO and NO which signifies the toxicity level of the air, it was found that the air in summer season contained higher

SPM level than in winter season and the most part of the pollutants are generated through vehicles which is about 70 percent, dangerous level of toxic pollutant in most of the area showed that pollution is well dispersed in urban area^[17]. This article paid attention towards only the vehicular pollution and didn't mentioned the other big sources of pollution. Pollutants emerging from both natural and man-made sources like automobiles, industries, dust storm and household fuels like PM₁₀, PM_{2.5}, CO₂, NO₂ and SO₂ not only causes outdoor pollution but also indoor pollution which affects the health of mostly urban people and with a study in 13 districts it was found that AQI was very high and people were suffering from respiratory diseases like bronchial asthma, trachea, lung cancer and cardiopulmonary diseases etc causing 0.80 premature deaths and about 6.4 million lives are lost per year. According to WHO air pollution is the deadliest environment degrader affecting both flora and fauna^[18]. Air pollution not only affects the human being and animal but also the plants and vegetation, as we know that plants are natural air filters but even they have a tolerance level while conducting a study in 3 different plant species to know the effect of different pollutants with the help of biochemical indicators like chlorophyll, catalase it was concluded that different plant species reacted differently to concentration of pollution level^[19]. Uttar Pradesh is the largest producer of wheat, which is the most important crop is also getting affected by the increasing pollution level, different pollutants like organic acid, oxides of nitrogen, oxides of chlorine, oxides of carbon and ammonia etc accumulate on the surface of wheat which are absorbed are the acid forms which destroys the wheat flowering and thereby deteriorates the crop and reduces the production of the wheat^[20].

Forest Depletion

Forests are a rich source of biodiversity, natural habitats and it consists of the biophysical and different components of environment which includes land, river, forests, wildlife and other biological resources. It consists of a vast species of flora and fauna which plays an important role in the environment. Forests has always been the most important and vulnerable ecosystem as they are the home of about half of the world's biodiversity and about one tenth of the land is covered by them and are the most important global health determiner, they not only provide habitat to large species of flora and fauna only but a large proportion of humans is dependent upon forests for food security and livelihood. Uttar Pradesh (UP) has a recorded forest area of about 16,583 km² which is about 6.88% of the total geographical area majority of the forest is dry tropical dry deciduous. According to Indian Forest Policy the forest cover should be 20%

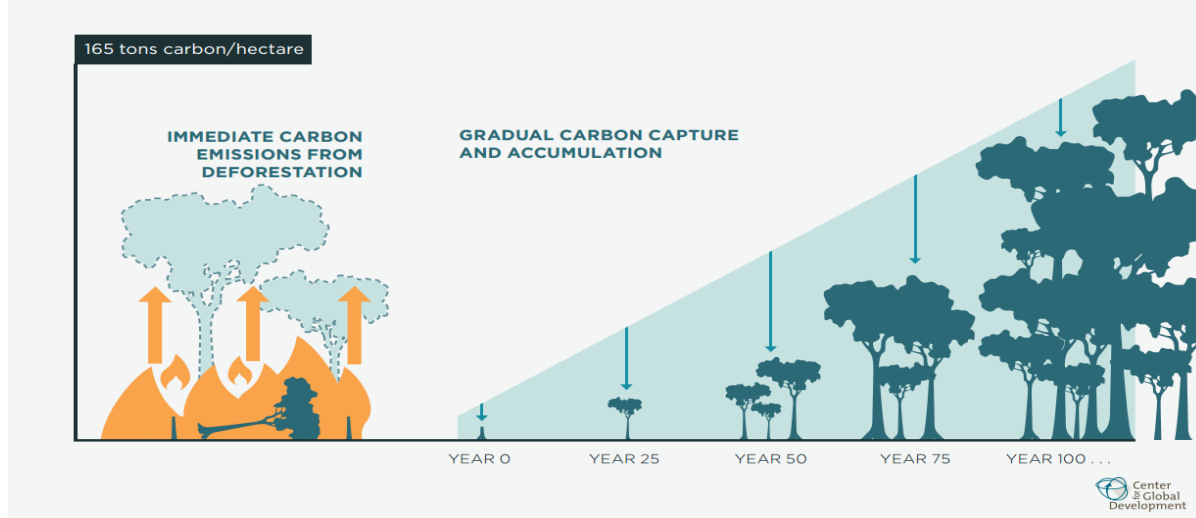
of the geographical area but only Sonbhadra and Chandauli districts match this criterion while some are near about the criteria and some much far away^[21].

Figure 1: Uttar Pradesh Forest Map (maps of India 2011)



According to a study conducted in Mirzapur district it was found that there is a drastic increase in the urbanization and agricultural activities in open forest area which leads to the increase in forest degradation as the forest is getting over exploited for economical purposes like extraction of woods and other medical plants and the clearance of forest to create land for the agriculture to provide food to a large and growing population and activities like mining, cutting trees as fuel woods, land clearance for colonisation etc causes forest degradation which not only affects the human but also leads to the decline of the wildlife which are also essential part of the nature as they maintain balance in the ecosystem^[22], declining of the vegetation cover as well as unsustainable extraction of forest resources more than the regenerative capacity of the forest leads to degradation of the forest^[23]. This article didn't mentioned the role of industries therefore we searched for the role of industries and according to another study conducted in Lucknow based on the mathematical interpretation it was found that industries like paper mill, furniture etc are solely dependent on the forest and not only uses it for timber and non-timber purposes but also releases toxicants which degrades the forest and causes the depletion of wildlife which disturbs the carbon cycle.

The carbon released immediately from deforestation can take a century to reestablish through forest growth



Carbon cycle involves forest ecosystem as an important component as the forests are great carbon sinks and therefore cutting of forests at rapid rate or the deforestation leads to the release of the carbon present in plants and soil which brings an imbalance in the nature which leads to global warming as lots of greenhouse gases are emitted through deforestation, ozone depletion, air pollution and other environment degradation^[24]. Clearance of forests has never been in favour of the human being, vector borne diseases are one of the most well-known outcome of the deforestation which causes by activities like colonization, overgrazing by cattle, use of woods as medium of fuel, mining and other different human activities, vector borne diseases like malaria, filariases and Chagas disease are the parasitic infection which increases because of the loss of natural forests^[25].

Wildlife Depletion

Animals has always been the essential part of the ecosystem as they maintain the balance of nutrient cycle and the flow of energy, every animal be it small or large, carnivores or herbivores are crucial to the environment and have different role to play even a small bee maintain the balance by their pollen carrying activity without which no plants, flowers or grass will bloom. Herbivores control the growth of unwanted plants which could be harmful to some species and delicious to other, carnivores keep a check on the population of the herbivores and other small carnivores. Birds like vultures are important as they eat the dead and decomposing body of the animals which otherwise takes much longer time to decompose and thereby pollutes the environment therefore extinction of any species affects the food chain and brings an imbalance in nature^[26]. Uttar Pradesh has a rich biodiversity and the wildlife, there are

around 56 mammal species, 552 bird species, 19 amphibian species, 47 reptiles and 79 fishes. It consists animals like tiger, deer, Asian elephant, wild boars, chinkara, sambhar, antelopes etc. Some species like leopard, Asian elephant, tiger, swamp deer, baobabs marmot, Gangetic dolphin, wild dogs and musk deer are the endangered species which are on the verge of extinction. Birds species include great Indian horned owl, black and white necked storks, jungle owlet, sarus cranes, woodpeckers, kingfishers and bulbul etc among which 24 species are endangered like jungle owlet, pink headed duck, Himalayan quill, Jerdon's courser and vultures. In recent years various mammals, birds, amphibian, reptiles and fishes have become extinct and various others are on verge of extinction because of activities like poaching, hunting, clearing of forest and scrub jungle, mining, plantation of exotics, conversion of forest areas for timber and non-timber plantations and pollution etc.^[27,28] The uncommon reason of wildlife extinction also needs to be considered, to find that we looked into the sudden depletion of vultures. Vultures have an important ecological role as they are the carcass eating species which eats the dead and decaying animals which could spread various disease among humans and other animals. In Uttar Pradesh there are 6 species of vultures out of 9 in India and 3 of them are critically endangered species which are White backed vulture, Slender-billed vulture and long billed vulture. The population has been declining for 10-15 years because of the veterinary use of the non-steroidal anti-inflammatory drug diclofenac on the livestock and the loss of habitat, talking about diclofenac, it enters into the vulture when they eat the carcass which has been treated with that drug just before the death of cattle which causes kidney damage, visceral gout and death^[29,30]. From this example we concluded that negligence and lack of awareness also adds to the loss. According to a study conducted in Jhansi about the impact of mining it was calculated that the mining activities directly and indirectly causes loss of biodiversity as the activities include blasting on sites, dumping of extra material while ore extraction which cause landslides and soil erosion, toxic waste and use of heavy machine. All such activities put the wildlife on the verge of extinction as they disturb the nutrient cycle and food chain^[31].

Illegal wildlife trade is the 2nd biggest reason of the wildlife depletion after the loss of habitat, it pushed species like tiger, elephant, leopard on the verge of extinction. Tigers and leopards are killed for the bones, blood, skin and nails etc, while rhinos are killed for the horn and elephants for their tusk to use it for the medical purposes but it's their wrong belief. According to a report about 100 million tonnes of fish and 1.5 million birds are traded in a

year, it is said that in terms of value the wildlife trade is 2nd just after the illegal drug trade, all these data are enough to understand how worst is the situation^[32].

Achieving sustainability through Green Business Strategy

Green Business Strategy means the manufacturing of green products by the industries with a view to have a positive impact on the environment, a company with green business strategy have green principles with innovation and major decision making and have sustainability in core business strategy. During Industrial revolution, it was assumed that the environment was able to absorb all the waste of human industry i.e. that human only had a limited impact on the environment, so we could do whatever we want without needing to consider the impact, people assumed energy, water and air to be cheap, infinite and easily accessible so there was no need to conserve and the business and population could grow forever, this thinking gave rise to the environment degradation through industries which has increased at tremendous rate now and to tackle this the concept of sustainability came in. It is important to train business people and make them understand that why, when and how to align business with environment. Green is about authentically reducing the environmental impact of a business, to have low harm product, waste reduction, optimum utilisation of resources, reuse and recycling of products, manufacturing environment positive product and having economic growth without environmental harm. One doesn't have to choose between going green or making money as going green is profitable as well, high sustainable companies achieve higher financial performance because of the way in which they incorporate sustainability into how the company is run i.e. more accountable, much deeper love of stakeholder engagement and report on how they are doing, transparent with disclosing non-financial information^[33]. Uttar Pradesh adopted the successful model of United States of America for the electricity generation through solar photovoltaic power plant which is a form of renewable energy that can meet the energy need of the states without polluting environment, government also provided incentives to entrepreneurs for the setting up of solar power plant to promote renewable energy, solar energy reduces the dependence on fossil fuel generated electricity and it is easy and cheap to maintain solar energy system but these kinds of model are successful under government intervention mostly as they are funds driven therefore for a green business strategy to be successful it is important for the firms to adopt it willingly and should not consider it under some special case of provision only^[34].

Sustainability initiatives are attracting the corporates as they know that environment friendly concepts are welcomed by the generation and therefore corporates are ready to invest in this initiative as well and now, they are looking for the ways to earn profit along with public welfare. According to professors Renato Orsato there are four competitive environment strategies which enable a firm to be greener and gainer at the same time which are, Eco efficiency, Beyond compliance leadership, Eco branding and Environment cost leadership ^[35].

There are few companies which are the perfect example of how a firm could utilise the four strategies of the competitive environment to achieve sustainability and profit as well.

- IKEA – It's the world largest furniture retailer operating over 400 stores in 49 countries which consumes 1% of all the world's wood supply and cotton supply to produce about 100 million pieces of furniture per year. 1) It designs home furniture at affordable price, 2) It's a do it yourself assembly, 3) It replaced polystyrene in its flat packs with recyclable plant based material, 4) It provides sustainability report that communicates their activities externally, transparency provides IKEA with reputational benefit, 5) It satisfies expectations of consumers for low cost and expectations of reduced environmental harm and thereby uses a sustainability focus to keep its product costs low which we call an environmental cost strategy^[36,37].
- Pocheo – It makes business envelopes or ecobooks on the philosophy of "Nothing is lost and everything is transformed" i.e. it keeps its cost low through sustainable processes, it occupies 70 % of the French market and produces about two billion envelopes per year with 114 employees. 1) They have a solar roof and rain capture system for plantation and toilet use, all this helps them to save 200,000 euro per year and they also have twelve beehives. 2) They use renewable material to manufacture envelopes which are 100 % recyclable and for each tree they plant three more trees and there are no solvent or heavy metal used in ink. 3) They filter ink and glue residue through bamboo and a reel is used to pack envelopes while transporting and even encourages the customers to do the same. 4) Raw material reduction, energy conservation and water conservation help them to save and earn much higher than others and we know this strategy as eco-efficiency ^[36,38].
- Veja – It is a French footwear and accessories brand which manufactures its product with ecological material and focuses on providing a product that is rewarded by consumers by paying more for its environmental qualities. 1) 30-40 % of the soles of the sneakers are made of natural rubber from the rubber tree of Amazon by the rubber

tapers called seringueiros and also protects about 120000 hectares of forest. 2) They deal directly with 320 small scale farming families through a producer association instead of working with the market intermediary and pay 65% more than market price and pay in advance to farmers. 3) Close relationship adds to the authenticity and they conduct social audit each year to ensure compliance and to be transparent, we know this strategy as eco branding ^[36,39].

- Crystal International Group – It is an apparel and fashion industry founded in Hong Kong in 1970, it produces 350 million pieces of clothing per year and has 70,000 employees, their main focus was the improvement of the environmental effectiveness of their internal process and to receive recognition for their efforts. 1) It got ISO 14001 certification for lowering its carbon footprint, reduced energy and water consumption. 2) It started empowerment program for women and planted 19 million trees and give generously to charitable causes. 3) It got ISO50001 certification for energy management. All these certifications send a signal to firms using crystal as a supplier for brands like H&M, Lives, Victoria's secret etc which brings trust resulting in easier relations with regulators and easier approvals, it raises the bar for its competitors and could impose higher standards that its competitors need to work hard to match, we know this strategy as beyond compliance^[36,40].

Including Sustainability and environment literacy in Management Education

Sustainable development is something which everyone is aware about now and they want to do get involved in this initiative by acquiring the required skills and tools to covert the talk to action but they are not able to get the required medium and so they are left puzzled and don't know what to do. There is no environmental course in the curriculum because the assumptions about the environment were already deeply buried in the psyche of educators, students, consumers and business culture. The most famous (but not first) MBA was started at Harvard in 1908 at the time of the rise of mass production and consumption and It is same till date and there is an urgent need to include the sustainability as the essential part of the MBA curriculum^[41,42]. Universities can play an important role in preparing the sustainable leaders of tomorrow, they can shape their mind and provide them with adequate tools and techniques to take better decision for the betterment of society and environment as consumers and professionals. The inclusion of sustainability in management education has been welcomed and was successful in North America, colleges like George Washington University, University of Michigan and New York university etc included environment issues education in their MBA

curriculum and other management studies also paid attention towards sustainability due to positive results shown by students. Over the past two decades there has been some positive results with the improvement in the quality of surface water, reduction in the content of heavy toxins in certain areas which shows that the future of sustainability in Management education is positive but there will be some challenges with regards to deep understanding on the growing issues and new methods of solving them^[43]. In context to Uttar Pradesh this model can be adopted as India has always been the country whose education policy had several sustainable development principles and the supreme court has included environment education in every formal education therefore the inclusion of sustainability should be adopted and implemented in Uttar Pradesh^[44].

Conclusion

In this study we looked into the intensity and types of various natural hazards being faced in Uttar Pradesh and concluded one common link among them as “Industry” which contributes mainly to the ongoing degradation and reason lies in the beliefs and ignorance of people who considered earth capacity providing resources and absorbing degradation to be infinite during the era of mass production and mass consumption and this same mentality and ignorance is still within the people and to change that the concept of sustainability must be embedded within the people is the most important aspect to be considered right now as when it comes to choose between planet or industry, we have to undoubtedly choose the planet as without it there will no people, no business, no poverty, no industry i.e. in short nothing at all therefore sustainable development is the need of the hour and our future depends on our decision of leading towards a sustainable life or not and for that the each and every industry should have to follow the sustainable method of production to have a positive impact on the environment and we have to prepare the present as well as future generation equipped with all such skills and tools from now onwards to prepare them to implement this forever.

Bibliography

1. (WIKI DIDACTIC, 2013)
2. (Sustainable Development Commission , n.d.)
3. Amandeep & Dixit A. K. (2020). Protection of Environment for Sustainable Development.
4. Nayak S. (2006). Land Degradation in Uttar Pradesh: Causes, Extent and Intensity. *Jodha. NS; Pushpam Kumar; Sudhakar Reddy (eds.), Ecology and Human Well-Being, Oxford Publications, Forthcoming Issue.*

5. Singh K., Mishra A. K., Singh B., Singh R. P., & Patra, D. D. (2016). Tillage effects on crop yield and physicochemical properties of sodic soils. *Land degradation & development*, 27(2), 223-230.
6. Dhawan B. D. (1995). Groundwater depletion, land degradation, and irrigated agriculture in India. *New Delhi*.
7. Singh G., Pal A., Niranjana R.K., & Kumar M., (2010). Assessment of environmental impact by mining activities: A case study from Jhansi open cast mining site. *Journal of Experimental Sciences Vol. 1, Issue 1, 09-13*
8. Cui Y. J., Emeriault, F., & Cuira, F. (Eds.). (2013). *Proceedings of the 5th International Young Geotechnical Engineers' Conference: 5th IYGEC 2013* (Vol. 2). Ios Press.
9. Jain A., Singh B. N., Singh S. P., Singh H. B., & Singh S. (2010). Exploring biodiversity as bioindicators for water pollution. In *National Conference on Biodiversity, Development and Poverty Alleviation. On 22nd May*.
10. Aenab A. M., & Singh S. K. (2013). Evaluating water quality of Ganga river within Uttar Pradesh state by water quality index analysis using C++ Program. *Civil and Environmental Research*, 3(1), 57-65.
11. Khatoon N., Khan A. H., Rehman M., & Pathak V. (2013). Correlation study for the assessment of water quality and its parameters of Ganga River, Kanpur, Uttar Pradesh, India. *IOSR Journal of Applied Chemistry*, 5(3), 80-90.
12. Srivastava A., & Srivastava S. (2011). Assessment of Physico-Chemical properties and sewage pollution indicator bacteria in surface water of River Gomti in Uttar Pradesh. *International Journal of Environmental Sciences*, 2(1), 325-336.
13. Mishra S., Kumar A., Yadav S., & Singhal, M. K. (2015). Assessment of heavy metal contamination in Kali river, Uttar Pradesh, India. *Journal of Applied and Natural Science*, 7(2), 1016-1020.
14. Singh S., Raju N. J., & Ramakrishna C. (2015). Evaluation of groundwater quality and its suitability for domestic and irrigation use in parts of the Chandauli-Varanasi region, Uttar Pradesh, India. *Journal of Water Resource and Protection*, 7(07), 572.
15. Sankararamakrishnan N., Sharma A. K., & Sanghi R. (2005). Organochlorine and organophosphorous pesticide residues in ground water and surface waters of Kanpur, Uttar Pradesh, India. *Environment International*, 31(1), 113-120.
16. Bhat M.M., Yazdani T., Narain K., Yunus M., & Shukla R.N., (2009) Water Quality Status of Some Urban Ponds of Lucknow, Uttar Pradesh. *Journal of Wetlands Ecology*, vol. 2, 67-73.
17. Ganesh S., Zaidi J., & Pal A. (2011). Assessment of Ambient Air Quality of Jhansi City, Uttar Pradesh, India. *Assessment*, 3(2), 45-50.

18. Shukla S. P., Sachan S., Dwivedi, L., Sharma K. J., Yadav V. P., & Singh N. B. (2015). Air Quality Index for Uttar Pradesh with a focus on Lucknow. *International Journal of Scientific and Innovative Research*, 3, 134-151.
19. Chaudhary A., Chaudhary S., & Sharma Y. K. (2008). Study of plants in relation to ambient air quality in Lucknow city, Uttar Pradesh. *Res. Environ. Life Sci*, 1(1), 17-20.
20. Singh R. K. (2011). Study of the Effect of Air Pollution on Wheat. *Current World Environment*, 6(2), 291.
21. Singh Y. (2012). Forest Cover in Uttar Pradesh – An Overview. *Wealthy Waste*.
22. Goparaja L. & Sinha D. (2015). Forest cover change analysis of dry tropical forests of Vindhyan highlands in Mirzapur district, Uttar Pradesh using satellite remote sensing and GIS, Vindhyan Ecology and Natural History Foundation, 22-37.
23. Dangwal D. D. (2005). Commercialisation of forests, timber extraction and deforestation in Uttaranchal, 1815-1947. *Conservation and Society*, 110-133.
24. Agarwal M., & Bhadauria A. S. MODELING THE EFFECT OF TECHNOLOGY ON THE CONSERVATION OF FORESTRY RESOURCE BIOMASS DEPLETED BY INDUSTRIALIZATION, POPULATION PRESSURE AND TOXICANTS.
25. Aguilar L. O. R. E. N. A., Araujo A. R. I. A. N. A., & Quesada-Aguilar, A. N. D. R. E. A. (2007). Reforestation, afforestation, deforestation, climate change and gender. *Fact Sheet. Costa Rica: IUCN*.
26. Walsh J. F., Molyneux D. H., & Birley M. H. (1993). Deforestation: effects on vector-borne disease. *Parasitology*, 106(S1), S55-S75.
27. Singh Y. (2012). Forest Cover in Uttar Pradesh – An Overview. *Wealthy Waste*.
28. Singh Y. (2012). Uttar Pradesh Biodiversity and Wildlife. *Wealthy Waste*.
29. Kishwan J., & Venkataraman, K. (2011). Critically endangered animal species of India. *Ministry of Environment and Forests, Government of India and Zoological Survey of India*.
30. Jha K. K. (2015). Distribution of vultures in Uttar Pradesh, India. *Journal of Threatened Taxa*, 7(1), 6750-6763.
31. Swan G., Naidoo V., Cuthbert R., Green R. E., Pain D. J., Swarup D., ... & Diekmann J. (2006). Removing the threat of diclofenac to critically endangered Asian vultures. *PLoS Biol*, 4(3), e66.
32. Sandilyan, Sambandam. (2007). Wildlife depletion due to illegal wildlife trade.
33. Friend G. (2009). *The truth about green business*. Que Publishing.
34. Srivastava B. (2018). Solar Energy Generation in Uttar Pradesh, India Using the United States of America as a Model. *IJASSH*.

35. Orsato R. (2003). Competitive Environmental Strategies: When Does It Pay to be Green? California Management Review. 48. 10.2307/41166341.
36. <https://www.coursera.org/learn/green-business-strategy>
37. Nini J. (2018). *How Sustainable Is IKEA, Really? eco WARRIOR PRINCESS*.
38. Blog, Manufacturing. (2013). Why does a French envelope manufacturer have 12 beehives on its roof? REconomy Project.
39. Desk N. (2018). The story behind sustainable sneakers brand Veja. The Jakarta Post.
40. <https://www.crystalgroup.com/sustainability>
41. Weybrecht G. (2010). *The Sustainable MBA: The manager's guide to green business*. John Wiley & Sons.
42. <https://listview.lib.harvard.edu/lists/drs-8203333>
43. Wankel C., & Stoner J. A. (Eds.). (2009). *Management education for global sustainability*. IAP.
44. Chhokar K. B. (2010). Higher education and curriculum innovation for sustainable development in India. *International Journal of Sustainability in Higher Education*.

PART – 2

REPORT ON ONLINE COURSE

1. Name of the Course

Green Business Strategy

By the University of Science and Technology on Coursera. The course duration is four weeks, which I pursued from 2nd May 2020 to 25th May 2020. There was weekly quiz, and, in each week, it was mandatory to score at least 80% to pursue the course further.

2. Course Description

Green Business Strategy is about the replacement of current business strategy with the more sustainable strategies to make a firm eco-friendly and profitable as well. In this course, we looked at how some firms are responding positively to environment concerns with new strategy. This course contains and explains some basic competitive environment strategies which enable a firm to be greener and gain at the same time. All these strategies are explained with the help of best practices of companies across countries and industries from different perspectives. This course introduces a very helpful framework to structure the thinking about environment and business strategy and it also explains that why current destructive business practices are so sticky and resistant to change.

3. Objectives of the Course

- To make people understand the importance and reason of being green in the today scenario when the degradation of the environment is at peak because of the industrial activities which are polluting the environment.
- To give an insight into the concept of green business strategy to understand why, when, and how to align environment and business strategy that they can adopt and implement when they enter into the market.
- To understand how a firm can work with a community to build value, and also to understand how firms can lose value and to know the environmental strategy framework that will help in understanding how a firm can gain a competitive advantage through its environmental action.

4. Course content

The course content is explained in four headings and sub headings which gives an insight into the working of firms and their relation with environment.

a) Why Be “Green”

In this section we learned about problems of business and environment, the meaning of being green for a firm and the motivations for green business as well as the importance of social license.

i) Perspective of business and the environment

How we see the things shapes what we choose to do. This bit is about perspective. Not about why your perspective or my perspective is better than their perspective. It's about understanding perspectives. People get stuck and become resistant to change because the differences of opinion influence how we approach change and the degree of change that is possible. There are some who question whether there is really that much harm from the business activities, and whether of the harm we see from events such as climate change are from uncontrollable changes in natural systems, there are many perspective about that some will say that it is natural and inevitable, some will say it is because of the business activities therefore human should find some ways to solve it.

ii) What does it mean for a firm to be green?

Green is about authentically reducing the environmental impact of a business. A green business might have low-harm products, materials sourcing, logistics, operations and processes, post-consumer waste reduction, reuse and recycling. A green firm is a socially responsible firm. If business activities leave society in a mess, then most likely the environment will also be a mess. This is because if people don't care about each other or their quality of life, they are not likely to care about the environment either. So, the ideal green firm is one that treats people well and the people treat their environment well.

iii) Why do firms go green?

- Many firms go green because they see new market segments that can be created. Many consumers would prefer to purchase greener products, some are willing to pay more for green products or less harmful processes.

- One of the biggest green drivers are people who look at the world and saying, hey, I want to do something meaningful with my life. I want to make this company count for something more than just profits. I want to make people proud of what we do at this company.

iv) The Social License to operate

A social license is not a formal document, it is a measure of the quality of the relationship between a firm and its community. It can't be self-awarded; it's earned and the firm has to keep earning it over time. It is granted by the community, not by any individual and it's not an official license, it's a concept, an informal measure of the how well the firm and its relevant stakeholders are getting along on a specific project.

b) How to be green: Environmental strategy

In this section we looked into the environmental strategies for business and learned that how a firm can be green.

i) Does it pay to be a green business?

Highly sustainable companies achieve higher financial performance because of the way in which they incorporate sustainability into how the company is run i.e. more sustainable, much deeper level of stakeholder engagement and report on how they are doing, transparent with disclosing non- financial information.

ii) Five strategies

Competitive environment strategy framework by Renato Orsato answers to the question, when does it pay to be green? There are four competitive environment strategy and one special strategy.

- **Eco efficiency** – It is about doing more with less and with lower environmental impact i.e. to reduce the amount of resource or to trim out the waste in product, low cost product.
- **Beyond Compliance leadership** – In this firms go above and beyond the environmental activities of their competitors, it can reduce reputational risk which helps in reduced cost of capital or generate goodwill.

- **Eco-branding** – In this firms sell products and services that are differentiated based on their environmental qualities. In this one can actually see a green product and customers are willing to pay for environmental features.
- **Environmental cost leadership** – In this firms sell products and services that are both low harm and low cost.
- **Blue ocean strategy** – In this firms create a new unexplored market space in which it is unchallenged, in this you have room to grow without competition for a while.

c) **Case studies in environmental strategies**

In this section different environmental strategy framework are explained with the help of case studies.

i) **Environmental cost leadership strategy**

IKEA – It's the world largest furniture retailer operating over 400 stores in 49 countries. 1) It designs home furniture at affordable price, 2) It's a do it yourself assembly, 3) It replaced polystyrene in its flat packs with recyclable plant based material, 4) It provides sustainability report that communicate their activities externally, transparency provides IKEA with reputational benefit, 5) It satisfies expectations of consumers for low cost and expectations of reduced environmental harm and thereby uses a sustainability focus to keep its product costs low which we call an environmental cost strategy.

ii) **Eco efficiency strategy**

Pocheco – It makes business envelopes or ecovelopes on the philosophy of "Nothing is lost and everything is transformed" I.e. it keeps its cost low through sustainable processes. 1) They have a solar roof and rain capture system for plantation and toilet use, all this helps them to save 200,000 euro per year and they also have twelve beehives. 2) They use renewable material to manufacture envelop which are 100 % recyclable and for each tree they plant three more trees and there are no solvent or heavy metal used in ink. 3) They filter ink and glue residue through bamboo and a reel is used to pack envelops while transporting and

even encourages the customers to do the same. 4) Raw material reduction, energy conservation and water conservation help them to save and earn much higher than others and we know this strategy as eco-efficiency.

iii) Eco branding strategy

Veja – It is a French footwear and accessories brand which manufactures its product with ecological material and focuses on providing a product that is rewarded by consumers by paying more for its environmental qualities. 1) 30-40 % of the soles of the sneakers are made of natural rubber from the rubber tree of amazon by the rubber tapers called seringueiros and also protects about 120000 hectares of forest. 2) They deal directly with 320 small scale farming families through a producer association instead of working with the market intermediary and pay 65% more than market price and pay in advance to farmers. 3) Close relationship adds to the authenticity and they conduct social audit each year to ensure compliance and to be transparent, we know this strategy as eco branding.

iv) Beyond compliance strategy

Crystal International Group – It is an apparel and fashion industry founded in Hong Kong, their main focus was the improvement of the environmental effectiveness of their internal process and to receive recognition for their efforts. 1) It got ISO 14001 certification for lowering its carbon footprint, reduced energy and water consumption. 2) It started empowerment program for women and planted 19 million trees and give generously to charitable causes. 3) It got ISO50001 certification for energy management. All these certifications send a signal to firms using crystal as a supplier for brands like H&M, Lives, Victoria's secret etc which brings trust resulting in easier relations with regulators and easier approvals, it raises the bar for its competitors and could impose higher standards that its competitors need to work hard to match.

d) Looking back and looking ahead in green business

In this section we looked back in time to understand how we ended up in an age where business and environment are in conflict and also the evolution of green business.

i) The infinite wild west

The people took environment for granted since the first industrial evolution which was driven by high cost of labour and comparatively low cost of energy, it was replaced with big industrial factories. During second industrial revolution Americans or immigrant were given citizenship which gave rise to 1.6 million claim and creation of towns and new industry west of Mississippi, assumptions about the natural environment were burned into the psyches of American businessmen. Country was so big and density was so low that people assumed energy, water and air to be cheap, infinite and easily accessible, so there was no need to conserve.

ii) Mass production and mass everything

Rise of mass production began in the early 1900's, earlier Ford used to manufacture 11 cars in a month but after the idea of assembly line, it took only 93 minutes to manufacture a car earlier it was 12.5 hours, now there was a mass production therefore there was a need of mass consumption. In 1927 the first Oscar winning movie, Wings featured a product placement of Hershey's chocolate. The link between business and art was a necessary part of stimulating the consumer demand.

iii) Institutional persistence: why we are stuck

The environment assumptions in our business thinking became sticky and resistant to change as the persistence is not because of the superior design, but because of the social systems that grew around the technology that resisted further change for example QWERTY keyboard. Business thinking spread out from the US across the world through standardized business education.

iv) Institutional Change: Getting unstuck

Institutions don't change easily but they do change only under certain conditions which are as follows

- When it's clear that past behaviour will no longer work and there is need to change your habit.

- A powerful external force, it could be regulations, binding agreements, enforced standards, coming from an external authority that can and will impose penalties.
- In which organisations change is a groundswell movement or an epiphany, an insight, many of our examples of sustainable leaders are one who wanted to do something different.

v) The evolution of green business

There are three stages of how our thinking about business activities and the earth's environment is evolving.

1st stage – US vs Them: Business takes care of itself and environment take care of itself, this is the product of the history of religion, scientific thinking and scale.

2nd stage – Environment as good business: To include environment inside our existing business thinking as the business has to go on so we try to find the ways to include environment inside our business and economic models.

3rd stage – Business is environment is business: We see firms as a part of the natural system, not separate or supreme and business rules are subordinated to natural laws.

5. Learning methodology used in the course

Video and reading material were provided during the course interval.

6. Key learning from the course

- It is possible to earn and protect the environment at the same time.
- Social license is important for a firm to operate.
- Perspective is important as how we see things shapes what we choose to do.
- The existing problems are the results of old beliefs which considered the earth's capacity to absorb the waste to be infinite.
- There is a need of change in the current methods of learning and understanding.

