



# Climatic change : The Impediment in Business Growth and Sustenance.

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**Abstract:** The world businesses are largely facing the global warming issues as their pivotal concern. There is an entirely a new approach to conveniently mold the new products being introduced in the market. Any assessment of the market conjointly involves taking a really careful insight into what is accelerating the aggregate demand in economy..

The overall combination impact of temperature change on economic process has brought about paradigm shift that can presumably be negative within the long-term but a lot many opportunities can be explored to the advantage as well.

Although there'll be winners and losers from temperature change at variable levels of warming, the impact of rising temperatures are widespread, partly because of the money, political and economic integration of the world's economies. The balance between winners and losers turns more and more negative as temperatures rise. The damaging effects on stock levels and upcoming products could be felt in the global markets lately.

The paper streamlines the causes , impact and sure future consequences of his current state of affairs of world warming and climate. It additionally highlights the experiments done for new inventions regarding new products and innovations in prevailing product to match up to the dynamic demands of the erratic world environment. The paper throws light on some 'Sustainability mega forces' ensuing into distinctive collaborations and property innovations which will end in ways which will form the markets of the decades to come.

**Key Words:** paradigm shift, climatic change , global warming, inventions , innovation , business models, sustainability mega forces.

## **INTRODUCTION:**

There is a spectrum of opportunities' that the global business world is ready to explore in the form of changed methods and techniques in alignment with the changing global climate. Climatic change in itself is a globally prominent issue. It is difficult to bring about or initiate a transformation of the entire existing business practices or methods, but new ventures, startups and existing businesses are relentlessly trying to make their business models environment friendly yet profitable.

## **Definition of climatic change:**

Nasa defines global climate change as: "a broad variety of worldwide phenomena created preponderantly by burning fossil fuels, that add heat-trapping gases to Earth's atmosphere. These phenomena embrace the accumulated temperature trends represented by heating, however additionally comprehend changes like water

level rise; formation loss in Greenland, Antarctica, the Arctic and mountain glaciers worldwide; shifts in flower/plant blooming; and extreme weather events."

Climate change is the catch-all term for the shift in worldwide weather phenomena related to a rise in international average temperatures. It's real and temperatures are mounting round the world for several decades..

### **What is a business model?**

A business model may be an abstract tool to assist and perceive on how a firm will carry on business and might be used for analysis, comparison and performance assessment, management, communication, and innovation (**Osterwalder and Pigneur, 2005**)

The literature presents varied views on the business model: **Magretta 2002, Zott and Amit, 2010 and Beattie and Smith (2013)** describe business models as a holistic description on 'how a firm will do business' .

**Osterwalder and Pigneur, 2005, Osterwalder and Pigneur, 2010** describe a business model as a series of elements: the worth proposition (product/service providing, client segments, client relationships), activities, resources, partners, distribution channels (i.e. price creation and delivery) and price structure, and revenue model (i.e. price capture).

**Tece (2010)** describes that a business model articulates however the corporate can convert resources and capabilities into quantity. it's nothing but the organisational and monetary 'architecture' of a business and includes implicit assumptions concerning customers, their wants, and therefore the behaviour of revenues, prices and competitors (**Tece, 2010**).

**Richardson (2008)** supported a large vary of literature, proposes a consolidated read of the parts of a business models as: the worth proposition (i.e. the supply and therefore the target client segment), the worth creation and delivery system, and therefore the price capture system

### **What are "sustainability mega forces"?**

In Feb 2012, KPMG published a report titled, "**Expect the Unexpected: Building business value in a changing world.**" The report explains that over the next 20 years, businesses will be exposed to several environmental and social changes that could bring both risks and opportunities. Despite the challenges, businesses can actually thrive by turning the risks into opportunities, with proper planning and foresight.

Pioneers of the global business should perceive however these megaforges operate and have an effect on their company, and assess and manage these risks in their future strategic designing. At constant time, they have to conjointly perceive that these megaforges don't operate in isolation from one another, and act as a fancy and unpredictable system.

Climate change is a vital world megaforce that directly impacts all the opposite megaforges. The risks embody new laws and government initiatives to tackle temperature change like energy potency necessities and standards, carbon taxes, emissions cap and trade systems and fuel tariffs.

Other risks embody a semi permanent world temperature rise leading to near-total DE glaciation, contamination of groundwater supplies, water shortages, lower agricultural yields and a lot of deficiency disease, infectious diseases and deaths from heat waves, severe floods, droughts and storms.

## **LITERATURE REVIEW:**

With prospects of a rising international population, fast international development and associated increasing resource use and environmental impacts, it appears that the present degree of caution in business models is not enough for a sustainable economy . However the planet is presently behaving as equivalent of 1.5 planets to support human activities (WWF, 2012)

Features of a sustainable business economy (developed from Jackson, 2009) may be:

- A system that encourages minimising consumption, or imposes personal and institutional caps or quotas on energy, goods, water, etc.
- A system designed to maximise social and environmental profit, instead of prioritising economic growth;
- A closed loop wherever nothing is allowed to be wasted or discarded into the atmosphere, that reuses, repairs, and remakes in preference to recycling;
- A system that emphasises delivery of practicality and knowledge, instead of product ownership;

- A system designed to produce fulfilling, rewardful work experiences for all that enhances human creativity/skills
- A system engineered on collaboration and sharing, instead of aggressive competition.

### Why are business models vital for sustainability?

Eco-design and eco-efficiency enhancements have motor-assisted in reducing energy, resource intensity, and emissions and waste per unit of production. as an example, **Evans et al. (2009)** describe cases of firms, that reduced the energy want to build their product by over four-hundredth in 5 years. However, these enhancements are short up to now to offset the rising resource use and environmental impacts related to a growing developing international population.

For example, UNEP (2012) found that within the context of transport, technological enhancements up to now (e.g. fuel-efficient vehicles and different power sources) haven't been speedy enough to offset the impacts of this growth. Moreover, these potency enhancements might cause inflated product and repair use by creating these cheaper and accessible, reflecting the thought of 'rebound effect' (**Herring and Sorrell, 2009**).

Building on **Garetti and Taisch's (2012)** views on property producing, business models preserve the atmosphere, whereas continuing to enhance the standard of human life.

**Stubbs and Cocklin (2008)** assert that property business models use each a systems and firm-level perspective, repose on the triple bottom line approach to outline the firm's purpose and live performance, embody a good variety of stakeholders, and contemplate the atmosphere and society as stakeholders. Extending this, a property business model aligns interests of all neutral teams, and expressly considers the atmosphere and society as key stakeholders.

One of the key challenges is coming up with business models in such a way that allows the firm to capture the amount for itself through delivering social and environmental advantages (**Schaltegger et al., 2012**).

It appears that this field of analysis can expand considerably as corporations more and more obtain opportunities to realize competitive advantage in a world defined by modification regulation, acquiring resource supplies, global climate change effects, and shifting social pressures.

Business model innovations for property area unit outlined as: Innovations that make important positive and/or considerably reduced negative impacts for the atmosphere and/or society, through changes within the method the organisation and its value-network produce, deliver price and capture price (i.e. produce economic price) or amendment their value propositions.

One of the key challenges is planning business models in such a way that permits the firm to capture quantity for itself through delivering social and environmental edges (**Schaltegger et al., 2012**).

While potency and quality enhancements of the past could have without delay translated into profits, it's not perpetually therefore clear however delivering social and environmental worth may translate into profit and competitive advantage for the firm. Still, the growing attention to the business model within the literature and observe suggests this is often a helpful framework for company innovation, and thence is also accustomed drive property innovation forward (**Stubbs and Cocklin, 2008, Lüdeke-Freund, 2010; Boons and Lüdeke-Freund, 2013**).

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Business model innovations for property area unit outlined as: Innovations that make important positive and/or considerably reduced negative impacts for the atmosphere and/or society, through changes within the method the organisation and its value-network produce, deliver worth and capture worth (i.e. produce economic worth) or amendment their value propositions.

## METHOD:

### Statement of the research problem

Drawing on comprehensive research and analysis done in the recent past it is evident that there have been financial repercussions on the global economy in terms of increased costs of productions and minimisation of carbon emissions in particular. This paper aims to streamline the causes of changes in business models due to climatic change, reveal the impact of climate change on the global economy and 'sustainability mega forces' that will affect every global business in the times to come. Further the paper throws light on a few innovative and out of the box business ideas that have hit the world market due to environment friendly initiatives by world leaders.

## Research Methodology

The approach followed in this paper is descriptive research design. A descriptive research design is a scientific method which involves observing and describing the behaviour of a subject without influencing it in any way. Many scientific disciplines, especially social science and psychology, use this method to obtain a general overview of the subject.

Data and information required for the purpose of analysis has been collected through secondary and published sources primarily. This paper is a descriptive and qualitative research paper compiling the data and information from secondary sources to reach a conclusion.

## Observations and analysis

### I. Adaptation of sustainable business models:

According to an article, The Intergovernmental Panel on climate change (IPCC), remarked to the United nations inevitably the global temperature is rising each microsecond and the accelerated rise in the temperature is 90 % credited to the human activities.

As the CO<sub>2</sub> levels and other greenhouse gases rise in concentration, an immense magnum of heat is trapped in the outer atmosphere and the glacier melting temperature is the outcome and final effect. This leads to an immensely harmful change in timing and occurrence of the frequent precipitation. Climatic change has an adverse effect on the floods causing phenomenon, rising sea levels and an alteration of the cosmic ecosystems.

How to cut down CO<sub>2</sub> gas Emissions in trade has been a mandatory concern of major industrial units. The trade sector produces merchandise and raw materials for everyday use, each single day. The greenhouse gasses that industrial production emits are split into 2 categories:

- Direct emissions. Greenhouse emissions that are made at the facility itself.
- Indirect emissions, that are measures related to the facility's use of energy, however happen off site.

Several ways are being suggested to reduce carbon emissions by industries. The two most important ones are listed below:

- **Measuring the carbon footprint** : Measuring Carbon Footprint by assessing what proportion of pollution an organization's actions generate, you'll begin to ascertain how to change the few of many policies here, and there will considerably scale back upon the general carbon footprint.
- **A carbon footprint** is measured by enterprise greenhouse emission (GHG) emissions assessment. Once the scale of a carbon footprint is understood, a method is devised to scale it back, e.g., by technological developments, better process and product management, changed Green Public or Private Procurement (GPP), carbon capture, consumption strategies, and others.
- **Carbon Capping** : The US Carbon Cap-and-Trade arrangement may be a policy that will primarily place a value on greenhouse emission emissions by auctioning off permits to emit the gas.
- Each large-scale electrode, or company, can have a limit on the number of gas that it will emit. The firm should have an "emissions permit" for each ton of greenhouse emission it releases into the atmosphere. These permits set an enforceable limit, or cap, on the number of gas pollution that the corporation is allowed to emit.
- Over time, the boundaries become stricter, permitting less and less pollution, till the last target reduction goal is met. It's like the cap and trade program enacted by the **Clean Air Act** of 1990, that reduced the sulfur emissions that cause acid precipitation, and it met the goals at a far lower price than trade or government foretold.
- Reducing Energy Use (Buildings Are the Biggest Energy Users) The building industry now has more energy efficiency certifications than ever. The standards help set measurable and achievable goals for energy use reductions.
- Other alternatives could be **Rewarding Green Commutes, Standing Up Against Coal, Tar Sands and Fossil Fuels, Investing in Renewables, Learning to Adapt to Climate Change, Energy Star Target Finder, Net Zero Energy Building Certification and High-Performance Building Program by ICLEI**

## II. The transformation in the products and techniques :

1. Power generation : A Canadian company General fusion viably created a commercially acceptable nuclear-fusion-energy power plant. The world economic forum report says “Fusion produces zero greenhouse gas emissions, emitting only helium as exhaust . It zeros the possibility of a meltdown scenario and no long lived waste is produced and there is enough fusion fuel to power the planet for hundreds of years.
2. OOH0 edible water bubble: To try to fight back the problem of excessive use of plastic bottles, Rodrigo García González, Pierre Paslier, and Guillaume Couche from the Imperial College London have been sincerely exploring on an **innovative** solution — water trapped inside an **edible** container made using seaweed. All the consumer has to do to quench his/her thirst is to make a hole in the surface layer or, better still, pop the entire blob into the mouth. The creative team , who have been working on the Ooho bubble since 2014, use a simple two-step culinary process called spherification to create the **inspired** container. They begin by **immersing** a frozen ball of water or juice into a calcium chloride solution. This helps form a **gelatinous** layer around the liquid. The ball is then soaked in a solution made from brown algae extract. This creates a second layer, helping **reinforce** the structure so that the water or juice does not leak. In addition to saving our environment, the **biodegradable** packaging costs just two cents each, making it cheaper to manufacture than plastic.
3. A company called Sidewalk Labs( Which is a part of Alphabet Inc , the parent of Google) is doing, harnessing digital technologies to solve the currently pressing urban problems. One Of their current projects involves looking at how traffic flows through a city and how hotspots of congestion might be resolved. This could dramatically reduce air pollution in our cities. Giant undertakings that are members of the breakthrough energy coalition (BEC) like Jeff Bezos from Amazon, Jack MA from Ali Baba group and Richard Branson , Have committed to investing more than \$1 billion in new technologies over the next 20 years.

## III. The sustainability mega force and the effect on business and global economy:

Business leaders have a a challenge ahead of them to learn the working of these forces and also to combat the effect of these unavoidable circumstances.the major effects are as follow:

1. **Inflation and growth** : The entire world economy will be affected adversely in terms of losses to infrastructure and property. This is in turn going to affect the growth rates and stability in all the economies of the world. It will lead to loss of productivity , increased costs of maintenance , costs of innovations according to the environment and mass migrations due to low per capita incomes and earnings per head. Inflation will be at a high due to the high equilibrium prices also. As shown in fig 2.
2. **Reduced disposable income**: Due to increased prices the consumers disposable income also gets reduced affecting the standard of living of the occupants of that country.
3. **Reduced land availability**: climatic changes will result in reduction in land availability for global industrial production as well as agriculture, because many of the areas of the world will become inhabitable and barren.
4. **Global Production function** : If we talk about the global production function as  $Y= f(L,K)$  , there will be less productive resources available with the world due to climatic changes and the level output in the economy would go down, with reduced productivity. Fig 1 depicts the change in the production function as a result of reduced labor productivity.

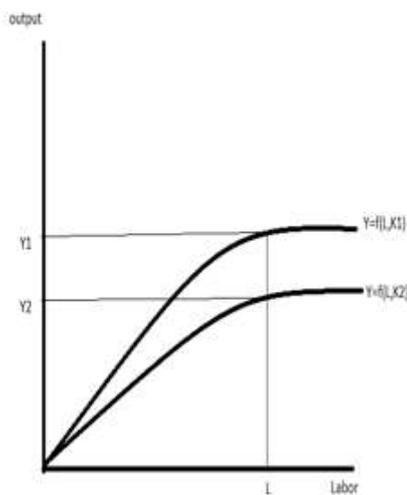


Figure 2: Production function of the global economy

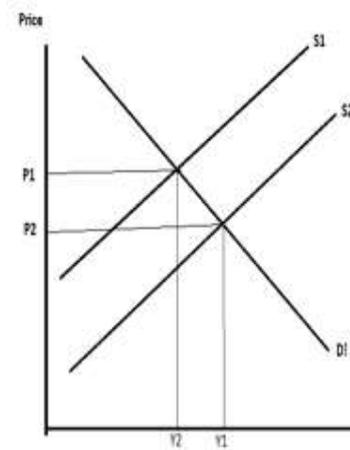


Figure 3: Supply and demand effect

5. **Equilibrium supply and demand:** If the output levels in the economy decrease there will be a direct impact on the level of aggregate supply causing a backward shift in the supply curve, in the economy as well which will in turn lead to inflation in order to lower down the increase in the aggregate demand, increasing due to ever increasing population.
6. Each business will have to look for inexpensive ways to reduce their costs of production because a magnum of financial resources will go in **research and development** of new and innovative techniques of production that will be nature friendly
7. Many other repercussions could be the threat to food security. Reduces productivity of human workforce and labor force and pushes **insurance costs** higher as the cost of medical facilities increases due to high risk of life.

## CONCLUSION / SUMMARY:

While this temperature increase is specifically cited as warming, global climate change is the term presently favoured by science communicators, because it expressly includes not solely Earth's increasing average temperature, additionally the climate effects caused by this increase are horrendous.

However, increasing awareness of the problem suggests that there's a growing demand for investments into products that are environment friendly and thus many business houses and start-ups have involved themselves into extensive research to develop products that meet the standard needs of this changing planet. Many such products in the global market have managed to pull up a large share of the market for themselves. In response, the educational community is leading the means in an endeavour to encourage money market participants and governments also to encourage and fund such business ventures.

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