

Revista de la Universidad del Zulia

Fundada en 1947
por el Dr. Jesús Enrique Lossada



Ciencias
Sociales
y Arte

Año 10 N° 28

Septiembre - Diciembre 2019

Tercera Época

Maracaibo-Venezuela

Ecological Consequences of Climate Change on Pioneer Business

Mazhar Abbas *
Muhammad Salman Shabbir **
Nimer Qayum Mir *
Asia Bibi ***
Ahmed F. Siddiqi ****

ABSTRACT

Climate change is impacting business matters with a wide range of ramifications including ecological, political, social and economic. It is evident that certain sectors, companies, industries and regions are prone to climate-related risks more than others in the same field. It presents itself a central challenge to business enterprises. This study derives different methods to address the World's biggest challenges. For this purpose, DuPont organization engaged in R & D, new innovations, youth educational programs, rural communities' development. Other than that management approaches are reducing the foot prints, escalating the innovation process of company to develop the advanced agriculture and nutritional products and this will be possible only through sustainable innovation process and providing the transparency & engagement to its society and shareholders. This study tries to described that how the Ecological Consequences of climate changes effect the business methods and research methods of the company. Furthermore, our paper contributes to the literature on business and the natural environment by identifying how the climatic changes force the organization to take different decisions?

KEYWORDS: sustainability, DuPont, innovation, R & D

*College of Business Administration, Department of Management & MIS University of Hail, Kingdom of Saudi Arabia, mazhar.abbas562@gmail.com

**Assistant Professor, Department of Management, College of Commerce and Business Administration Dhofar University, Postal Code: 211 Salalah Sultanate of Oman, mshabbir@du.edu.om

***Assistant Professor, Department of Management Sciences, Lahore Garrison University, Pakistan, asiabibi@lgu.edu.pk

****UCP Business School, University of Central Punjab, Lahore, Pakistan, dr.ahmedsiddiqi@ucp.edu.pk

Recibido: 11/10/2019

Aceptado: 21/11/2019

Consecuencias ecológicas del cambio climático en los negocios pioneros

RESUMEN

El cambio climático está afectando los asuntos comerciales con una amplia gama de ramificaciones que incluyen ecológica, política, social y económica. Es evidente que ciertos sectores, empresas, industrias y regiones son más propensos a los riesgos relacionados con el clima que otros en el mismo campo. Se presenta un desafío central para las empresas comerciales. Este estudio deriva en diferentes métodos para abordar uno de los mayores desafíos del mundo. Para este propósito, la organización DuPont se involucró en I & D, nuevas innovaciones, programas educativos para jóvenes, desarrollo de comunidades rurales. Aparte de eso, los enfoques de gestión están reduciendo las huellas, intensificando el proceso de innovación de la compañía para desarrollar productos agrícolas y nutricionales avanzados y esto solo será posible a través del proceso de innovación sostenible y proporcionando transparencia y compromiso a su sociedad y accionistas. Este estudio trata de describir cómo las consecuencias ecológicas de los cambios climáticos afectan los métodos comerciales y los métodos de investigación de la empresa. Además, nuestro documento contribuye a la literatura sobre negocios y el entorno natural mediante la identificación de cómo el cambio climático obliga a la organización a tomar decisiones diferentes.

PALABRAS CLAVE: sostenibilidad, DuPont, innovación, I & D

Introduction

With the climate change accord, style of doing of business also changes over time. It is not entirely new to look at efforts of adaptation to climate change. In history, it is find that societies and organizations working in that tend to change in response to the changing ecological conditions in the region. For instance, they adapt themselves to new technologies by bringing modifications to their crops and exploring new ways in construction industries and production systems. Nonetheless, the recent observations on the comparative ratio between the rate of adaptation by society to the rate of climate change that happens over time suggest a different story and demand urgent actions from stakeholders and policymakers (Jones et al., 2014). Companies are aware of the severe impacts of weather on economic conditions. Therefore,

with the wave of climate change, all business sectors will be aware of different kinds of threats and opportunities while responding to the new challenge.

Companies are exploring different methods to fulfill the increasing demand of increasing population. How Climate changes modified the corporate decision process? DuPont identify three opportunities related to ecology and climate change, including the need for climate adaptation, and how DuPont considers this need in upcoming products openings.

DuPont offers multipurpose products those can attract enhanced response coupled with different attributes of adaptation including effects of riskier climate events. There are numbers of possible physical risks associated with climate change and ecology those are given due diligence by climate scientists and different climate models. Here, we can take the definition of potential risks from the Intergovernmental Panel on ecology and Climate Change that measures those risks in terms variations in rainfall patterns, variations in weather unpredictability and its frequent extreme trends, dwindling freshwater resources and changes in agriculture production recorded across different regions of the world. There are products those can improve the agriculture productivity include Tyvek® Weatherization Systems, StormRoom® with Kevlar®, and SentryGlas®. In addition to that, there are other numbers of efforts those can boost productivity like Pioneer seeds those show resistance to hostile environmental, resist pests, and boost fertilizers 'efficiency. Finally, they make it possible for the farmers to get high yields with lower input costs and also help them better equip against the climate challenges. Global reporting Initiative report (2017) Climate change compelled the organization to take following decisions.

- a) Change in the cropping patterns:
- b) Development of the draught tolerant hybrids
- c) GMO crops to maximizing the per acre yield
- d) Introducing the product mixed strategies
- e) Disease resistant hybrids
- f) Efficiently utilizing water friendly hybrids.

g) Attaining the sustainability in changing environmental conditions by looking forward as below according to the DuPont research (Global reporting Initiative report 2017).

1. Materials and methods

DuPont committed to two outstanding targets of allocating \$10 billion for R&D and till the end of 2020, they aimed to bring out 4,000 new products. There comes the question that how they will manage the investment? (DuPont Sustainability Reporting, 2017).

-Progress: R & D Innovation

Goal 2020: Dollar 10 Billion R & D Investment Help Feed the World.

Year	R & D Investment
2012	\$1.200 B
2013	\$1.295 B
2014	\$1.236 B
2015	\$1.146 B
2016	\$1.040 B

Remaining: \$4.083 B

-Progress: New Product Innovation

2020 GOAL: 4,000 NEW PRODUCTS

Year	New Product
2012	1,039
2013	693
2014	603
2015	633
2016	503

Remaining:525

Engaging and Educating Youth

In order to cope with the changes in the environment, DuPont is working on a scheme of transferring knowledge of sustainable products especially related to food and agriculture to young people. And they are estimating that by the end of 2020, 2 million young people will

benefit out of it and it will have a substantive effect on the growing population. (DuPont Sustainability Reporting 2017).

-Progress: Youth Engagement

2020 Goal: 2 Million Youth Engagement

Year	Youth Engagement
2012	451,846
2013	774,295
2014	793,143
2015	192,820
2016	309,606

Improvement of Rural Communities

DuPont is determined to increase the revenue of 3 million agriculturalists by strengthening systems of agriculture. Targeted partnerships shall be adopted through investments to facilitate availability of culturally appropriate and nutritious food (McCarty, 2001).

-Progress: Rural Development

2020 GOAL: Improve Livelihood of 3 Billion Small Holder Farmer and their Rural Communities.

Year	Small holder Farmer & Rural Communities
2012	169,247
2013	205,752
2014	314,626
2015	533,841
2016	477,801

Remaining: 1,298,733 (better business & sustainable development commission) (Pearson, Dawson, 2003).

Reducing our energy intensity and GHG emissions respectively 10%(2010 baseline) and 7% (2015 baseline) will definitely improve the environmental footprint along with meeting the 2020 sustainability objectives. It might be further improved by ensuring risk mitigation

concerning water resource and waste management objectives of businesses in specific sites. The innovation process at our site was enriched with sustainable innovation objectives so that forthcoming products of our firm might contribute to an environment friendly world. DuPont addressed the issues and emerging challenges of environment like human rights, economic empowerment, natural environment and health by aligning its sustainability objectives to UN standards postulations depicted as UN sustainable development goals(SDGs) 2020. The firm is engaging various stakeholders to build collaboration and induce strategic insight for implementation of SDGs. DuPont 2020 goals comprising of food security, innovation and environmental footprint have gained support and are in accordance with SDGs (DuPont Sustainability Reporting 2017).

DuPont Facts and Figures for 2016

1600 New product commercialization.

Only in US, DuPont incurred a spending of \$3.1 Billion for buying spaces accompanied with different small and diverse suppliers. Since start of the compliance in 2012, DuPont has involved youth (2.5 million) in food and agriculture sector and as a result it was recognized ten times a suitable working place for equality of LGBT. Its contribution to the environmental footprint is well assessed by a decrease of 8.7 % in emissions corresponding to absolute greenhouse gases since 2012

Management Approach

Furnishing accurate information to stakeholders about environmental performance has been one of the three core areas of our management practices. Environmental considerations regarding conduct of business and decreasing footprint impact are the other key management areas pertaining to safety and health in general (Edwards and Richardson, 2004).

2. Results

Almost ten years ago, DuPont started focusing on the environmental effects of their processes and go for the urgent need of the environmental adaptability. In 1989, DuPont first set of

corporate goals came into light with a target of reducing the environmental footprint on the manufacturing side. The later sustained efforts on sets of corporate sustainability goals pushed us towards a smaller footprint and helped to bring sustainable solutions by applying science and innovation.

For instance, in 2006, we started reporting on our many publicly-announced 2015-foot print goals like 15% greenhouse reduction target. In 2013, we succeeded in securing most of our 2015-foot print goals.

As its 2020 vision of sustainability, DuPont established the following goals and publicized them at large (DuPont Sustainability Reporting 2017).

-Energy Efficient DuPont: DuPont will follow its energy efficient organization goal which was originated in 2011. Thus, a 10 percent decrease in use of renewable energy will be monitored in comparison with the baseline price of dollar assumed in 2010.

-Initiative of Green House Gas Emission Reduction: The greenhouse gas emissions will be 7% less from a 2015 baseline.

-Generate less waste: Each DuPont corporate will manage a waste goal for 2020 compatible with the processes it has and needs to report that annually.

-Advance water stewardship: By 2020 DuPont sites marked as extraordinary or exceptionally high water-risk will work on plans of water risk mitigation coupled with priority implementation objectives. At present, reasons behind the higher growth and value recorded by the DuPont is because of taking the leadership role in key areas of agriculture, nutrition, working on the enhanced capabilities of advanced material and putting company resources in action to establish a world-leading bio-based industrial business.

The outspread of low-carbon economy has imposed certain demands on the businesses for which DuPont has uniquely positioned itself to avail the opportunities arising from this scenario for which most of the businesses in the same category are not prepared yet. Its long run focus has resulted in many divestitures and acquisitions during the past decade. This has led DuPont to emerge as solution provider for the biggest and dominant challenges of the world that include shifting from resource heavy technology (fossil fuels) to resource light technology at the

top. It is furthered by environment protection and food security. It is believed that demand for green products is increasing. Following this consistent evaluation process, DuPont was in a better position to declare a new version of 2020 Sustainable Innovation Goal in 2015 (DuPont Sustainability Reporting 2017).

3. Discussion

DuPont will readily craft more sustainability in its innovative processes and functioning of all to be launched products. It will be a contribution for more appropriate, safer and healthier world. Sustainability on its innovative products can be measured by the extent to which these products have contributed to healthiness and environment footprint. These environmentally responsible goods are evolved through a new goal that begins with a history derived from its original market place reflecting a commitment made in the year 2006. No doubt, it was meant to make healthier and safer commercially viable products. The transparency of social and environmental issues is continuously ensured by following sustainability frameworks pertinent to producing environmentally responsible products. DuPont publishes Global reporting initiative, surveys from the stakeholders and offer submission to CDP (formerly Carbon Disclosure Project) along with strict compliance of rules and regulations. A part from disclosing, sustainability frameworks and civil society activist organizations are also engaged by DuPont. Although World business council for sustainable business development has been advocating global climate change and remained pioneers in adopting United Nations Global Compact, yet their very existence was revealed by DuPont, for example. Further, direct engagement with the stakeholders, investors and customers by the DuPont enhanced the belief that it has credible and accurate information about climate change to act upon. The vitality of this information is strengthened by integrating it with their management strategy consistently.

Hence, DuPont ensures safety and sustainability in its processes. They claim themselves to be the first business companies in the USA who reported 'corporate environmental goals' in the year 1992 and recently among the one who shows progress over their 'footprint reduction targets'. In 2006, DuPont expanded their visions of sustainability by committing to the

sustainable targets related to their products in the market also bringing awareness to their customers towards sustainable products.

Moreover, targets set in 2015 were aimed at bringing sustainability in 'footprints' and also enhancing R&D investment by introducing direct, quantifiable environmental benefits. With that, a sustained policy of bringing products those ensure the safety of people, introducing products those ensure both at the same time enhance revenue generation and reduction in green gas emissions and boosting revenues from products made out of renewable products. As a matter of fact, DuPont were able to secure their targets in 2013 and were motivated to go for the final target. In late of this year, DuPont came up with a new vision of sustainability targets for 2020 (DuPont Sustainability Reporting2017).

4. Future recommendations

By focusing the different methods to cope up with changing climate, organizations can stand in a better position and can flourish its different businesses according to the current demands of changing environment. Changing of strategies with the change of climatic conditions are only single way to survive its businesses. Organization have different tools to achieve its goals that is R & D, development of innovations related to the society, industrial development & other management tools could be utilized for to face the climatic changes. Other than that organization can focus its employees to guide its customers to cope the climatic changes. Education of local community according to the climatic changes could be another one.

References

DuPont Sustainability Reporting (2017). DuPont Sustainability Report 2- 2-Retrieved fromn.<http://www.dupont.com/corporate-functions/sustainability/sustainability-commitments/performance-reporting/sustainability-reports.html>.

Edwards M., Richardson A.J. (2004). Impact of climate change on marine pelagic phenology and trophic mismatch, *Nature*, 430 (7002): 881.

Global reporting Initiative report (2017). Annual Dupont 2017 Global Reporting Initiative Report. Retrieved from <http://www.dupont.com/content/dam/dupont/corporate/our-approach/sustainability/2017Documents/2017%20DuPont%20Sustainability%20Report.pdf>.

Jones, R., Patwardhan, A., Cohen, S., Dessai, S., Lammel, A., Lempert, R., & von Storch, H. (2014). Foundations for decision making.

McCarty .JP. (2001). Ecological consequences of recent climate change, *Conservation biology*, 15 (2): 320-331.

Pearson R.G., Dawson T.P. (2003). Predicting the impacts of climate change on the distribution of species: are bio climate envelope models useful? *Global ecology and biogeography*, 12 (5): 361-371.