

GLOBAL JOURNAL OF ENGINEERING SCIENCE AND RESEARCHES

IMPACT OF CHEMISTRY AS A MAJOR TOOL IN SUSTAINABLE DEVELOPMENT OF SOCIETY

Abhilasha Jain* & Savita Shrivastava

Department of chemistry, Govt. M.L.B Girls College Bhopal (M.P.) India

ABSTRACT

The traditional definition of sustainability calls for policies and strategies that meet society's present economic, social and environmental needs without compromising the ability of future generation due to several economic and environmental reasons sustainable development of society has become a burning challenge for our scientist and policy maker's Chemistry will definitely play an essential role as one of the largest and most diversity industries shaping economic activities in both traditional and technologically advance industries and acting as an important engine for innovation for other sector. Green chemistry is a tool for the sustainable development of the chemical industries. It will be one of the most important fields in the future and developed rapidly in the last 20 years promoting green chemistry is a long turn task and many challenging scientific and technological issues need to be resolved.

Keywords: Economic, Sustainable, Innovation, Environmental, Diversity.

I. INTRODUCTION

Implementing and advancing sustainable development is partly dependent on having sound approaches to evaluate progress in sustainable development in space and time. Any region, country or city must be able to evaluate its sustainability and development progress from time to time, in order to direct its resources in a manner that is supportive of the gold's of sustainable development. This paper introduces an evolution framework, the sustainable development footprint, for analyzing sustainable development risks and opportunities in space and times. The model account for deferent types for capital: economic environmental and human / societal. It offers an interdisciplinary framework to evaluate sustainable development it is use to evaluated and examine Cross national variation in the sustainable development status and progress of 35 deferent countries. The result so that there are sustainable development risks and opportunities in the three forms of capital and different space and time contest this work is potentially useful to decision makers and researcher in their efforts to maximize opportunities and minimize risks as they advance sustainable development in international, national and regional contests.

Sustainable development is a concept that appeared for the first time in 1987 with the publication of Bruntland report, warning of negative environmetantal consequences of economic growth and globalization, which tried to find possible solution to the problem caused by in by industrialization and population growth.

Sustainable development is development that meets the needs of the present without compromising the ability of future generation to meet their own needs. it is the organizing principle for meeting human development goals while at the same time sustaining the ability of natural system to provide the natural resources and ecosystem services, upon which the economy and society depend . it has been suggested that term 'sustainability' should be viewed as humanity's target goal of human ecosystem equilibrium.

II. ROLL OF SCIENCE AND CHEMISTRY IN SUSTAINABLE DEVELOPMENT

Science must play an important role in the pursuit of sustainable development. Scientists have already made important contribution to the understanding of many serious environmental problems such as the casual relationship between certain synthetic chemical and destruction of the ozone layer.

[FRTSSDS- June 2018]

DOI: 10.5281/zenodo.1293845

ISSN 2348 – 8034

Impact Factor- 5.070

New report finds that stronger bridge between science and policies is needed to achieve sustainable development goals.

Chemistry is the key to achieve the sustainable development goals and solving the sustainable development goal riddles

It is crucial to find sustainable solutions to far reaching challenges, including

- Energy provision
- Environmental protection
- Food and water safety
- Global health care

III. PROBLEMS AGAINST SUSTAINABLE DEVELOPMENT

Billions of people around the world are facing shortages of clean water. At least 80 countries already have water shortages that threaten human health and economic activity. The situation may worsen with population growth and climate change.

What can be done to sustain the farmland, energy and water supplies needed to keep everyone fed. We can prevent food borne illness that continue to threaten the global food supply . How to supply humanity with enough food, energy, chemical and materials sustainably without damaging our planet, is an avoidable issue.

Climate change has become a major concern for countries across the globe as the environment catastrophe manifests its self form of drought cyclones, floods, etc in different parts of the world. Industries are also adopting strategies which can lead to more sustainable development. Chemical used across the industries can pave the way for developing new eco – friendly product which can be manufactured using less resources and thus, result in carbon footprint reeducation.

IV. GREEN CHEMISTRY: ITS FIELD AND PART IN SUSTAINABLE DEVELOPMENT

Green chemistry which was established two decades ago can be a tool for sustainable development of the chemical industry. it reflects the efforts of academia and industry to address the challenges related to sustainable development of the chemical industry. Briefly green chemistry is the utilization of a set of principles to reduce or eliminate the use or generation of hazardous substances in the design, manufacture and application of chemical products. Green chemistry is a multidisciplinary field and covers areas such as synthesis solvents, catalysis, raw materials, products and efficient processes. Green chemistry was established to recognize and promote fundamental and innovative chemical technologies that accomplish pollution prevent through source reduction And that are useful to industry.

V. PRINCIPLE OF GREEN CHEMISTRY TO GET SUSTAINABLE DEVELOPMENT

1. It is better to prevent waste than treat or clean up waste after it is formed
2. Synthetic method should be designed to maximize the incorporation of all materials used in to the final product
Where ever practicable, synthetic methodologies should be use and generate substances that possess little or no toxicity to human health and environment
3. Chemical products should be designed to preserve efficacy of function while reducing toxicity
4. The use of auxiliary substances (e.g. solvents, separation agents etc) should be made unnecessary where ever possible and innocuous when used
5. Energy requirement should be recognize for their environmental and economic impacts and should be minimized. Synthetic method should be conducted at ambient temperature and pressure

6. A raw material of feed stock should be renewable rather than depleting where ever technically and economically practicable
7. Unnecessary derivatization (blocking group, protection / de protection, temporary modification of physical/chemical processes) should be avoided when ever possible.
8. Catalytic reagents (as selective as possible) are superior to stoichiometric reagents.
9. Chemical products should be designed so that at the end of their function they to not persist in the environment and break down into innocuous degradation products
10. Analytical methodologies need to be further developed to allow for real time, in –process monitoring and control prior to the formation of hazardous substances.
11. substances and the form of a substance, used in a chemical process should be chosen so as to minimize the potential for chemical accident including releases, explosions and fires

VI. CRITICAL EVOLUTION AND CONCLUSION

This article presents a dual (conceptual / narrative and visual/graphic) discussion of sustainability and sustainable development, and argues in favor of having the two perspectives complementing each other. On the conceptual side, sustainability and sustainable development are discussed using a systemic framework highlighting the plurality of interpretations arising out of the deferent specification of the system considered, the valuation function used, and the theoretical perspective adopted. The relation between development, and material and non material economic growth (including sustainable de growth) are examined from the stand point of sustainability. On the visual side, a composition is made of different integrated visualizations of sustainability containing we three basic dimensions (social, environmental, economic) some of them differentiate between equilibrium scales and aggregation scales, whereas other make explicit the intergenerational aspect. Description are also given of representation that include, in Addition, the political institutional dimension, and that contain systemic interrelations, different dimensions and Victoria representation of sustainability. Lastly, A number of general from a systemic perspective conclusion are presented with a view to advancing of sustainability processes.

Further it is to be noticed that green chemistry is a tool in achieving sustainability not a solution to all environmental problem .The conservation and management of resources for development are the main focus of interest, where chemistry will have to make a considerable contribution by more efficient and environmentally more benign chemical process by providing chemical product that are environmentally more benign and that allow us to enhance significantly the efficiency of production process in other industrial areas combined with minor environmental impact and allowing the consumer to use resources more effectively . Innovation is investigated exemlarify for a sustainable development with regard to their ecological, economical and social dimensions

REFERENCES

- [1] Minu Gupta Bhowon :- *Chemistry for sustainable development.*
- [2] Wiley-VCH :- *Green Chemistry for sustainable development.*
- [3] Neil Winterton :- *Chemistry for sustainable technology*