



An overview of Role of Chemistry to Accomplish Sustainable Development goals

Mr. Satish Y. Mane

Department of chemistry, Shivneri mahavidyalaya Shirur Anantpal,

Dist-Latur, 413544 . Maharashtra, India.

Email- sssymane@gmail.com

Abstract

In present article we are trying to study the role of chemistry in the aspect of all round development with special reference of sustainable development goals. Natural resources is very limited on the earth to fulfill the need of growing population and hence research of new alternatives is very crucial therefore recent research work in chemistry is highlighted in present paper and its application to attain SDGs is discussed. Steps taken by the world and government india is very briefly discussed in present paper.

Key words: Sustainable, Development, chemistry, technology, SDGs, Five P's.

Introduction:

⁴In the year 2015 ,195 united nations members were agreed to adopt 17 sustainable development goals and 169 target .⁵The goals and target will stimulates action over in areas of critical importance for the huminity and planetes, they can change the world and well being of the society, SDGs will be more ambitious than the millennium development goals, covering a very broad range of interdependent issues from limitations of natural resources to economic growth to social welfare .Five P's are very important in SDG's People, planet, prosperity, peace and partnership ,amongst these partnership will made very crucial role to achieve SDG's .¹The developing country need to invest in very large scale than current investement in the sector of development of basic infrastructure, road, rail ,port, power station, sanitation, agricultural and rural development climate change mitigation and adaptation, health and education to achieve SDGs. India mapped to end hunger and ensure acces by all people especially very poor people and valunrable section of society by 2030.Indian government taken step to double an agricultural productivity and income and ensure sustainable food production system with maintaining ecosystem that strengthen the capacity of adaption to climate change extreme wheather, drought flooding and other natural clamities and that can improve quality of soil an land.⁴In india SDGs are mapping by CSS and ministries of government of India and allocate to concern ministries and departments under the title of central sectoral scheme.

Methodology:

Role of chemistry

“Chemistry is known as central science which deals with the study of chemical composition, structure and properties of matter” our universe and surroundings is a made up of matters and it is very important to study the properties of each matters i.e. behaviour of matters for all round developments like technological development. Our future is depends upon achievements in research which play a vital role



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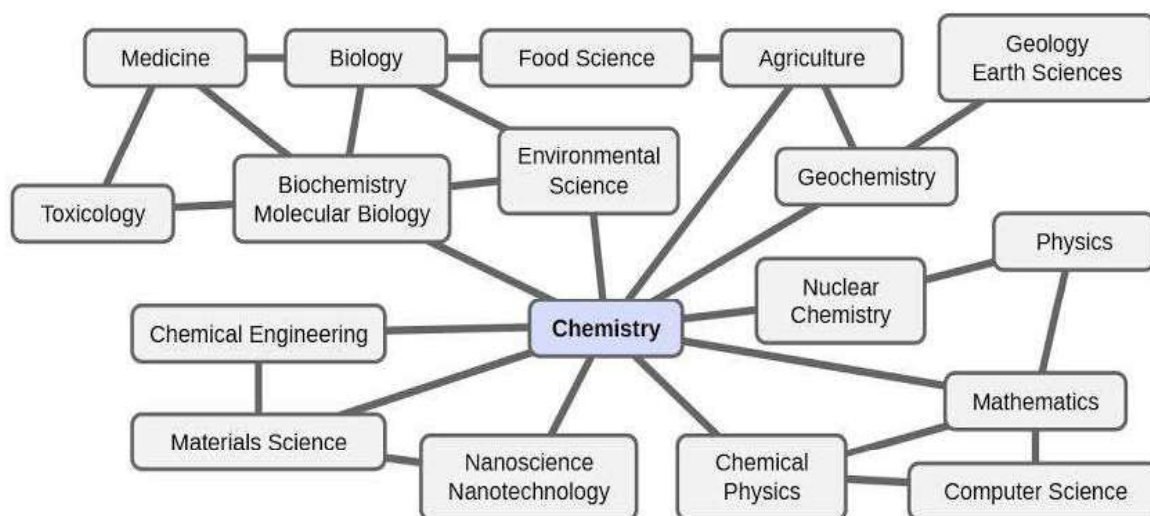
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in the economic growth which helps to achieve SDGs.³ Chemistry has numerous applications in different fields. Research in chemistry provides a solution to all major problems facing humanity on the planet earth like energy generation, food security, health issues, technological development, environmental pollution etc.⁶ Some fundamental research in chemistry helps to face the challenges by society including global warming i.e. climate change. For example, research and development in chemistry creates an alternative source of energy which lowers an emission of greenhouse gases. Recent development in electrochemistry by some scientists in lithium ion batteries which is an ecofriendly clean alternative source of energy to the biofuel burning which also plays an important role in five P's of SDGs. Agricultural fungicides, pesticides, herbicides developed by chemists have increased crop yield in millions of tonnes specifically in food grains which help to eradicate hunger in the world, which is the second SDG in 17.⁷ Chemical industries play a vital role in the development of economy and technology to develop ecofriendly sources of energy. The research on a bionic leaf is opening new ways to generate energy by splitting of water by photochemical use of sunlight creating liquid fuel that can be stored in batteries.² The new development in research of degradable and recycled polymers minimizes waste to prevent environmental pollution and decrease hazardous effects on the ecosystem. It also lowers the greenhouse gas emissions and effective recycling of products and waste. Economies of each country in the world try to promote sustainable growth and alternative methods for reduction of demand of natural resources which are non-renewable. Research of organic photovoltaic solar cells gives the solution for the demand of green source of energy.





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SUSTAINABLE DEVELOPMENT GOALS



Some selected research in chemistry for technological development and its impact on welfare of human being.

Sr.No	Research in chemistry	Application in technology	Application to achieve SDGs
1	First synthesis of DDT by the scientist, Othmar Zeidler	Development of plant growth promoters, crop protection agents contributed in agrochemical industries. Major contribution in green revolution	The second SDGs zero hunger can be achieved by such types of research in chemistry.
2	Discovery of chiral catalysed hydrogenation reaction and oxidation reaction.	This research helps in industry in the production of L-DOPA drug which is used in the treatment of Parkinson's disease. This research provides basis for the synthesis of pharmaceutical products such as antibiotic, anti-inflammatory drug.	Good health and well being
3	Discovery of dechlorinating agents, sodium thiosulphate, sodium hydroxymethanesulphonic acid	Chemicals used in dechlorination of water at commercial level	Clean water and sanitation
4	Development in lithium ion	Clean source of an energy Lithium ion batteries revolutionised	This research will help



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	batteries	the world of technology for electric power generation .	To achieve seventh SDGs Affordable and clean energy. vehicles.
5	Synthesis of polymer	Polymer provide platform to all types of industries.	Decent work and economic growth, rubber and plastic companies predominantly involved in manufacturing industries
6	Discovery and development of conductive polymer	Development of light emitting diode, solar cells and displays in telephone mini format television screen.	Industry modification and infrastructure
7	Discovery of chemical processes on solid surfaces	Surface chemistry can explain destruction of ozone layer	Climate action

Conclusion :

From above discussion it may be concluded that, chemistry plays an important role in holistic development in technology which impact on economic, industrial, agricultural, pharmaceutical development. Research in chemistry has power to change the world and therefore they provide solution to achieve SDGs agenda 2030 of world.

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