

# Advancing Materials towards Climate Neutrality by 2050

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**In the new decade, International Association of Advanced Materials (IAAM) is committed with its 2030 agenda on “Advancement of Materials to Sustainable and Green World” working in line with the United Nations’ (UN) Sustainable Development Goals. The IAAM also synchronizes its agenda with the action plans of European Green Deal which is aimed to making the Europe as climate neutral by 2050 for which they have taken a set of policy initiatives. The present scenario of the world climate shows that the climate change and the environmental degradation are a major cause of worry for the whole world and an immediate treatment into the situation is the utmost need of the hour.**

The European Green Deal (EGD) aims at increasing the European Green Gas Emission reduction by 2030 to at least 50% [1,2]. It aims at economic growth being decoupled from resource consumption and no people or places are left out [3,4]. The major goals are aimed at three main objectives, and they are: (i) Economic Recovery, (ii) Poverty Eradication, and (iii) Reduced Carbon Emission and Ecosystem Degradation [5,6]. International Association of Advanced Materials (IAAM) has been taking several initiatives to ensure advancing the materials for the achievement of the ‘Sustainable and Green Goals’. Elimination of poverty, zero hunger, ensuring healthy lives, gender equality, quality education, affordable and clean energy, clean water, and sanitation are some of the set goals by IAAM where they are putting their best efforts to bring in the stakeholders and the academia together to work together for a better and healthy world [7,8]. IAAM has also been focusing on various green initiative to bringing the stakeholders from academia and industries together on its ‘R&D World Links’ and ‘Project Consortiums’ on green and recycle friendly materials to contribute for the sustainable society [9,10].

Likewise, climate change is the major problem that the whole world is facing now and the most important action that need to be taken up by any organization or any country revolves around the problem and how to solve it [11,12]. Advanced Materials and Nanotechnology have the synergy to make things organic as well as climate neutral [13]. IAAM has been preferentially using advancement of

materials as its preferential subject matter to deal extensively in mitigating climate change and other burning environmental issues [14]. The EGD has a definite action plan under which they aim to promote the efficient use of resources by switching to a clean circular economy and at the same time promote all possible measures to save the biodiversity and reduce pollution [15]. The EGD has tucked up various plans under its initiatives to reach its goals. It has set various strategic goals set in an entire timeline from 2019 till the date. It engulfs various fields like adoption of an EU industrial strategy to future proof the economy, adopting various strategies to make food systems more sustainable, chemical strategies for sustainability, zero emissions action plan and many more [16,17].

The EGD has taken under its wings various policies like biodiversity, from farm to fork, clean energy, sustainable agriculture, sustainable industry, etc. (Fig. 1) [18,19]. It would further need action in various sectors like supporting innovative industries, cleaner, cheaper, and healthier forms of private and public transport, decarbonization in the carbon sector and working with global associates to improve overall environmental guidelines [20]. The EGD is going a long way in bringing a revolutionary change in the entire climatic neutrality in Europe and will set a golden example for other countries to achieve the same [21,22]. From contributing financial and technical support to those most affected by the green transmission it has also been able to gain confidence among the commoners in setting the goals for a change that it required in the whole world now. With competence of green deal, IAAM has continuously been making attempts to establish active international networks on “Sustainable Research, Innovations and Technology” and has been arranging consortiums, training, innovations, and conferences to exchange ‘green practices and protocols’ at the global arena [23].

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A brief insight into the policies of Green Deal would give a clear view of how it is working in various fields to ensure its goals of ‘zero net emission of greenhouse gases’ and ‘climate neutrality’ are given below [2,3]:



**Fig. 1.** Action plans to promote the efficient use of resources by switching to a clean circular economy by adopting biodiversity and reduce pollution, and chemical strategies for sustainability and zero emissions.

- **Biodiversity Strategy:** It is a comprehensive, long term and ambitious project to protect nature and stop the destruction of the ecosystem. As a central part of the EGD, the strategy will also support a green recovery after the heavy destruction from the Covid 19 pandemic.
- **From Farm to Fork:** It aims at resolving the issue of food sustainability and ensure support to the producers i.e., the farmers and the fishermen.
- **Sustainable Agriculture:** The EGD aims to promote sustainable agriculture through the common agriculture policy (CAP), which will ensure Europe to be socially, economically, and environmentally sustainable.
- **Clean Energy:** Climate Neutrality is one of the main goals of the EGD to be attained by 2050 for which they have set a goal to decarbonize their energy system by aiming to achieve zero net emission of greenhouse gas by 2050.
- **Sustainable Industry:** The Industrial strategy aims to empower citizens, revitalize regions, which would be helpful in saving the environment and building a healthy atmosphere.
- **Construction and Renovation:** It focusses on the development of construction and restoration like increasing digitalization, weather proofing buildings, etc.
- **Sustainable Mobility:** It aims at the increase of implementation of sustainable and unconventional energies in road, air, and marine transport under one plan of “Single European Sky”.
- **Elimination of Pollutants:** The “Zero Pollution Action Plan” aims to accomplish no pollution from every source like air, water, and soil.
- **Climate:** Climate Neutrality is one of the main goals of the EGD and all the plans and policies revolves around it to ensure a better environment and after the pandemic it seems to be the utmost need of the hour.

In the latest development of the EGD, the European Commission and European Industry are investing EUR 22 billion in new European partnerships to find major solutions to major societal problems [24].

To achieve the main aim of climate neutrality, IAAM has focused on bringing experts groups and technology alliances like sustainable materials, green innovations, translational research, and many more to focus Climate Neutrality. Moreover, UN has also described several policies that would not only encourage economic recovery but at the same time improve the sustainability of the world economy working towards attaining the main goal of climate neutrality [25].

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