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A RESPONSIBLE CLIMATE APPROACH: A NEW STAGE IN REDUCING THE CARBON TRACE AND WASTE PROCESSING

Zamira Muratalieva

PhD in political science,part time Associate Professor of the American University of Central Asia,department of International and Comparative Politics

Shahina Jurayeva

a teacher in the Department of Political Science at UzSWLU.

Annotation: This article thoroughly analyzes current climate change issues, including the increasing carbon dioxide emissions and the consequences of improper waste management. The main focus is on international experience in reducing the carbon footprint, in particular, the European Union's Fit for 55 program. Additionally, ways to ensure environmental sustainability through waste collection, processing, and product lifecycle monitoring will be considered. The article provides recommendations on the possibilities and necessary measures for implementing these approaches in the context of Uzbekistan.

Keywords:climate change, carbon footprint, waste management, recycling, Fit for 55, carbon tax, green economy, sustainable development, climate policy, environmental safety.

In recent years, dramatic changes have been observed in the global climate system. According to international scientific research, the average temperature on our planet has increased by 1.1-1.2°C compared to the period of the Industrial Revolution. This change is mainly due to increased concentrations of greenhouse gases - in particular, carbon dioxide (CO_2), methane (CH4), and nitrogen oxide (N_2O). The largest contribution is made by industrial enterprises, the energy, transport, and agricultural sectors.

Today, the amount of CO_2 in the atmosphere has reached 420 ppm (millions of a million), which is the highest figure in the last 800 thousand years. According to data, if climate policy does not change significantly, the average global temperature may rise by 2.5-3.5°C by 2100. This leads to the melting of glaciers, rising sea levels, desertification, water scarcity, and an increase in extreme weather events.

Improper waste management is also a direct cause of the deepening of the climate crisis. In particular, the dumping or burning of plastic, organic, and electronic waste into a common landfill without separation poses a serious threat to health and the environment. As a result of the decomposition of organic waste at landfills, methane gas is formed - it is a greenhouse gas 25 times stronger than CO_2. Also, as a result of insufficient control over the life cycle of products (production, use, disposal), resource waste and waste volumes are increasing. This problem is especially acute in developing countries, where the infrastructure for separate collection and processing of waste has not yet been fully formed.

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Forecasts for the future show that climate change creates various threats on a global and regional scale. According to reports from the World Bank, the UN, and other international organizations, if the current path is not abandoned, about 200 million people may be forced into climate migration by 2050.

A responsible approach to climate refers to conscious, systematic, and long-term actions by individuals, organizations, and states aimed at preventing and adapting to climate change. This approach is aimed not only at eliminating environmental problems, but also at making fundamental changes in the spheres of production, consumption, and management, rational use of resources, and ensuring sustainability. In a responsible approach, scientifically based decisions take precedence. Any project or political decision will be assessed for its impact on the climate. For example, if a new industrial facility is built, how much carbon emissions it will emit, how it will affect the surrounding water and soil resources, these factors will certainly be analyzed in advance.

Also, reducing the carbon footprint is one of the main directions of this approach. Measures such as the use of renewable energy sources, the introduction of energy-saving technologies, and the widespread use of public transport and electric vehicles are important for reducing greenhouse gas emissions. The population itself should actively participate in the responsible approach. Practical actions, such as separate waste collection, the use of environmentally friendly products, and energy saving, not only protect nature, but also give positive results to citizens through tax benefits, bonuses, or other incentives.

The European Union announced a comprehensive climate policy called "Fit for 55" in 2021. This program was developed within the framework of the European Green Deal, the main goal of which is to reduce greenhouse gas emissions by 55% by 2030 compared to the 1990 level. This initiative is an important part of the European Union's Strategy for Achieving Full Climate Neutrality by 2050.

The "Fit for 55" program provides for dramatic changes in several sectors: energy, industry, transport, construction, and agriculture. In particular, new economic mechanisms are being introduced to reduce carbon emissions. One of the most important tools is the Emission Trading System (ETS). Through this system, carbon quotas are sold and controlled in order to limit or stimulate the activities of enterprises that emit large amounts of carbon dioxide. Fit for 55 expands this system to include the transport and building sectors, meaning fuel suppliers will now also have to pay for carbon emissions.

The program also introduces a carbon dioxide-based border tax system. This is a system known as the "Carbon Border Adjustment Mechanism," where products imported into the European Union, such as steel, cement, aluminum, and chemicals, are evaluated based on the carbon footprint. This approach also puts pressure on global producers to reduce carbon emissions and fosters fair competition in the international market.

Another important aspect of the Fit for 55 program is the decarbonization of the transport sector. According to it, starting from 2035, the sale of new cars with internal combustion engines in the European market will be prohibited. It is planned to strengthen broad cooperation between governments and the private sector for the transition to electric vehicles, hydrogen technologies, and renewable energy sources. In addition, increasing the share of renewable energy sources is also one of the important areas. According to the program, at least 40% of the European energy system should be based on renewable sources by 2030. This calls for the efficient use of solar, wind, bioenergy, and water resources.

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The Fit for 55 program aims to adapt the market to the climate by making polluting technologies economically harmful and clean technologies beneficial. This will ensure environmental safety, public health, and energy independence.

Uzbekistan has also committed to strengthening sustainable development and climate resilience by 2030. From this point of view, experiments like Fit for 55 can be a useful model for Uzbekistan. In particular, the development of adapted strategies in the areas of waste reduction, increasing energy efficiency, introducing a carbon tax system, and developing waste processing infrastructure is a pressing issue.

There are 3 proposals which will assist in improving the climate resilience, air quality and carbon management in Uzbekistan.

1. Personal Carbon Account and Carbon Loans Application (based on the experience of Estonia and Sweden):

A digital application (app) will be implemented that will determine the annual carbon footprint of each citizen or family, taking into account transportation, electricity consumption, waste volume, and food choices in everyday life. Through this system, people can see their environmental footprints in real time, and carbon "bonuses" or preferential services are provided for those who emit less carbon than the norm. This not only raises the environmental awareness of citizens, but also motivates them to use energy-saving methods and reduce waste. For example, a person who uses an electric bicycle or properly separates waste can be rewarded by government or private companies through discounts, tax breaks, or social services.

Implementation in Uzbekistan: At a time when e-government systems and mobile technologies are rapidly developing, this system can be widely used among young people and urban residents. Through this, it is possible to hold competitions such as "green compatriot" through social networks.

2. Proposal: "Green Product Passport" system (based on the experience of Germany and the Netherlands):

A "green passport" will be introduced for each technical product or building material, clothing, and electronics, providing complete information about its production, service life, and disposal (processing) process. This provides accurate information about how environmentally friendly the product is, where and from what material it is made, and how much it is processed. With this approach, consumers avoid environmentally harmful products and prefer "stable products." Thus, manufacturers entering the market will be forced to implement technologies that cause less harm to the environment.

Implementation in Uzbekistan: It is possible to stimulate local industrial enterprises through green certification and introduce an environmental passport for exported products. This will also be an additional advantage for entering European markets, especially after the CBAM (Carbon Border Tax) system comes into effect.

3. Proposal: "Climate Map" - a green rating system for cities and regions (based on the experience of France and Japan).

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The environmental performance of each region, district, or city will be assessed based on indicators such as the level of waste processing, air quality, energy efficiency, tree planting, and the impact on the climate in transportation. These results are published in the form of a "green rating" and are updated quarterly. Each region is assigned climate rating points, and social or financial incentives (e.g., grants for eco-programs, government orders, advertising incentives) are distributed accordingly. This approach encourages governments, enterprises, and communities to be competitive and climate-friendly. The population will have open and understandable information about the ecological state of their area of residence. In France, an "eco-index" of cities is maintained, while in Japan, some regions are ranked as "the most stable places of residence," which affects the decisions of investors and the population on migration.

In its fight against climate change, the government of Uzbekistan has also taken on international commitments. After joining the Paris Agreement in 2017, the country developed a “Green Energy Transition” strategy in 2021, aiming to increase the share of renewable energy sources to 25–30 percent by 2030. Additionally, an international platform for the restoration of the Aral Sea region has been established, and various projects are being implemented. However, the effectiveness of these initiatives has so far been limited.

One of the main reasons for this is the lack of financial resources. Local budgets are often insufficient to fully fund environmental projects. The weakness of technological infrastructure – in particular, the shortage of waste sorting equipment and environmental monitoring tools – also poses a significant barrier. Moreover, cooperation between the government and the private sector remains underdeveloped, with most programs being carried out solely within the public sector. Due to the low level of environmental awareness and literacy among the population, it is difficult to involve the broader public in actions such as waste separation, energy saving, or showing concern for environmental issues. Legal mechanisms are also weak, and the enforcement of existing environmental regulations is neither consistent nor strictly monitored.

Implementation in Uzbekistan: This system can be implemented in cooperation with the Ministry of Ecology, the State Statistics Committee, and local councils. The rating results will be published on social networks, in the media, and on a special platform. Students and journalists can be involved in this process through monitoring.

In conclusion, the responsible participation of each state, each sector, and each citizen is crucial for overcoming global climate challenges. Comprehensive approaches to reducing the carbon footprint and waste recycling, in particular strategic programs such as Fit for 55, serve as an effective tool for reducing the negative impact on the environment. For Uzbekistan, the development of firm political decisions, legal frameworks, and technological solutions in this direction is also relevant. A responsible approach to climate plays an important role not only in environmental sustainability, but also in economic competitiveness and public health.

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