

Enhancing the Role of Youth in Climate Action as a Mechanism to Reduce Environmental Corruption

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Abstract:

This study aims to highlight the key aspects of enhancing the role of youth in environmental governance to address environmental corruption. It discusses tackling climate change through artificial intelligence, as well as fostering innovation and entrepreneurship among youth as a mechanism to combat climate change. The study concludes with a section containing results and recommendations.

Keywords: Environmental; Youth; climate change; artificial intelligence.

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1. INTRODUCTION

Undoubtedly, climate change has recently become one of the biggest challenges facing humanity, as it significantly impacts the environment, national economies, and public health. It is primarily attributed to human activities. The natural layer of greenhouse gases in the atmosphere keeps the Earth warm enough to support life as we know it. However, human-caused emissions of greenhouse gases have thickened this layer, trapping heat and leading to global warming. Fossil fuels are the largest single source of human-induced greenhouse gas emissions.

Burning coal, oil, and natural gas releases billions of tons of carbon each year, which would otherwise remain buried underground, along with large amounts of methane and nitrous oxide. More carbon dioxide is also released from deforestation and the failure to replant trees. At the same time, methane is emitted from vast livestock sectors, rice paddies, and landfills, while nitrous oxide is produced from fertilizer use.

It is likely that the frequency of natural disasters such as droughts, floods, and others will increase, directly and indirectly threatening human safety and health. Several international bodies have highlighted the potential health impacts of climate change, including the spread of infectious diseases.

However, it is clear that what we need now is to prioritize the interests and views of the youth worldwide when developing balanced policies to address the climate change dilemma. The youth are the ones who will bear the brunt of the consequences of climate change in the coming years, whether in terms of their way of life, health, or available resources. Therefore, it is essential to listen to the voices of the rising generations and provide them with an opportunity. From this perspective, the following issues arise:

How can the various skills of youth be refined to enable them to tackle the issue of climate change? And how can the cost of transitioning to green energy (from traditional to renewable and clean sources) be made into a viable investment for youth?

To answer these questions, one needs to delve deep in the cases of this detrimental issue in order to discuss and analyze it in the proper and accurate way and attempt to provide significant recommendations about how should youth tackle it in our modern technological era.

2. Supporting Youth in Tackling Climate Change with Artificial Intelligence

Humanity is facing an unprecedented challenge in the field of climate change, with its destructive impacts increasing globally. These effects include rising temperatures, extreme weather events, melting glaciers, and rising sea levels, all of which require urgent action. Fortunately, artificial intelligence has developed as a powerful ally in this context, with the potential to revolutionize the fight against climate change and achieve a sustainable future for humanity. In this chapter, we will first discuss the concept of artificial intelligence in Section One, followed by the role of youth in combating climate change through AI in Section Two.

2.1. The Concept of Artificial Intelligence

When discussing the concept of artificial intelligence, we must first define it, then explore its goals and limitations.

2.1.1. Defining Artificial Intelligence

Artificial intelligence (AI) can be defined as a set of technologies and systems aimed at enabling computer systems to perform tasks that require thinking and decision-making similar to human actions. It can also be described as intelligence exhibited by an artificial entity created by humans¹. AI is one of the branches of computer science that studies the development of algorithms and intelligent techniques to be applied in computers and robots, enabling them to perform tasks or solve problems with intelligent behavior.

When AI is integrated with a working environment, interacts with it, and learns from it, it is then referred to as an intelligent agent. AI is also viewed as the study of intellectual abilities using computational models, focusing on simulating human thinking. The central goal of AI is that both humans and the model make predictions about specific phenomena through signs, signals, or evidence. A broader definition could be that AI is the ability to think and make sound decisions using non-human intelligence.

2.1.2. Goals and Limitations of Artificial Intelligence
artificial intelligence has many goals; among them, one can cite the following²:

1. Developing systems that can perform human tasks effectively or even exceed human capabilities.
2. Understanding and simulating human cognitive processes, such as learning and decision-making.

3. Enhancing performance and increasing efficiency in industrial processes and businesses.
4. Improving human-machine interaction and developing innovative user interfaces.
5. Developing applications in fields such as healthcare, education, medicine, and security.

The Limitations of Artificial Intelligence primarily include:

1. **Data:** The ability to acquire large quantities of high-quality data that enhance the learning and adaptation capabilities of intelligent systems.
2. **Computational Power:** Advanced computational technologies and powerful central processing units (CPUs) provide greater capacity to process data.
3. **Advanced Algorithms:** The development and use of advanced algorithms that enable systems to perform tasks effectively.
4. **Funding and Investment:** Investment in research, development, and the infrastructure necessary to advance AI technologies.
5. **Legislation and Ethics:** Establishing laws and ethical guidelines to ensure the proper and safe use of intelligent technologies

2.2. Enhancing the Role of Youth in Combating Climate Change Through Artificial Intelligence

There is no doubt that youth, as the fundamental element of society, are heavily relied upon to develop various aspects of contemporary life. Undoubtedly, AI applications occupy a significant role among the youth, especially if they are optimally utilized. In this section, we will attempt to clarify the main uses of artificial intelligence in combating climate change in the first subsection, and the role of youth in applying AI to address climate change in the second subsection.

2.2.1. Key Applications of Artificial Intelligence in Combating Climate Change

AI applications play a crucial role in combating climate change. They can be used to improve energy efficiency in industries and homes, optimize electricity distribution, and enhance public transport planning to reduce carbon emissions. Additionally, AI can help monitor and analyze environmental changes, supporting the preservation of forests and oceans.

Moreover, AI can assist scientists in analyzing large climate data, guiding environmental policies and actions to address this global challenge.

A report by the Boston Consulting Group (BCG) on AI for climate states that 87% of executives in AI and climate sectors, both public and private, believe AI is an essential tool in tackling climate change. The most prominent applications include mitigation (61%), emissions measurement (57%), risk forecasting (44%), managing vulnerabilities and exposures (42%), emissions removal (37%), and facilitating climate research, climate finance, and education (28%).

Thus, AI offers various ways to combat climate change, including reducing emissions. AI can help lower emissions by improving energy usage in buildings, transport, and industry. It can also enhance energy efficiency by analyzing data from sensors and other sources to identify areas where energy use can be reduced.

AI also contributes to improving environmental governance, safety, and reducing environmental risks, focusing on information management for decision-making. It uses deep learning applications, big data analytics for managing water and air quality, and adopts cloud computing applications and energy-efficient data centers. Furthermore, the role of digital transformation in government functions can reduce paper usage, employ social networking applications for information sharing, and promote sustainable initiatives that raise environmental and climate awareness. This approach helps prevent or minimize the impact of misinformation on public perceptions of climate change, while strengthening the role of civil society and all stakeholders in addressing the phenomenon³.

2.2.2. The Role of Youth in Applying Artificial Intelligence to Combat Climate Change

Climate change is one of the greatest challenges facing humanity in the 21st century. While adults play a crucial role in addressing this issue, youth can also have a significant and impactful contribution. One of the technological tools that youth can leverage is artificial intelligence (AI). With their advanced technical skills and natural ability to work with technology, young people can utilize AI to analyze large climate-related datasets and make accurate predictions, thereby guiding efforts and enabling effective decision-making to combat climate change.

In addition, AI can assist youth in developing new solutions and technologies to reduce carbon emissions, improve resource efficiency, and promote renewable energy. This creates opportunities for entrepreneurship and jobs in fields related to climate change mitigation.

However, despite the vast opportunities that AI offers, youth must also be mindful of potential challenges, such as security, privacy, and the environmental impact of AI technologies. Their efforts should focus on using AI in an ethical and sustainable manner. This ensures that technological advancements not only address climate change but also uphold principles of social responsibility and environmental stewardship

3. Promoting Innovation and Entrepreneurship Among Youth as a Mechanism to Address Climate Change

Youth today represent a driving force for change, and innovation can play a critical role in tackling the challenge of climate change. Innovation manifests in various forms, including clean and sustainable technology projects aligned with the objectives of the Paris Agreement⁴, which will be discussed in later. The Paris Agreement instilled a sense of responsibility toward future generations for a better life on Earth, emphasizing the role of youth in shaping the planet's future in the upcoming section, we will explore the role of youth in raising awareness among local communities about the importance of environmental preservation.

3.1. Youth Projects for Clean and Sustainable Technology Aligned with the Paris Agreement

Green technology, also known as sustainable or clean technology, is a broad term that describes the use of environmentally friendly technologies and products. It applies to any high-efficiency and low-cost products or services aimed at reducing energy consumption and minimizing negative environmental impacts⁵. Examples range from energy generation technologies producing clean energy without fossil fuels to the development of non-toxic cleaning products.

This subsection will explore:

Algeria's Commitment to Green and Sustainable Technology Under the Paris Agreement: Examining the country's adherence to implementing sustainable green technologies.

Environmental Taxation as a Model for Green and Sustainable Technology: Highlighting the role of environmental taxation in fostering sustainable practices and technologies.

3.1.1. Algeria's Commitment to Green and Sustainable Technology Under the Paris Agreement

Algeria must adopt a new industrial model that respects the environment, enhances competitiveness, creates job opportunities, and contributes to

local development. Achieving an energy transition and fostering green sectors are integral to this goal. However, these efforts must be consolidated into a cohesive national strategy to promote a green economy⁶. Algeria has introduced several financial mechanisms for sustainable development, including funds such as:

The Environment and Pollution Removal Fund,
The Special Fund for Developing Southern Areas,
The National Fund for Coastal and Shoreline Protection,
The National Fund for Sustainable Development and Urban Planning,
The Special Fund for Economic Development in the Highlands,
The Mountain Fund, and the Fund for Combating Desertification and Developing Pastures and Steppes⁷.

Moreover, the mechanism of projects funded by the Youth Support and Employment Agency, particularly those related to recycling, as well as the “White Algeria” project aimed at plastic removal, banning the use of black plastic bags, and recovering those present in the market—estimated at 15 million bags daily—has been implemented. The execution of the plan for the environment and sustainable development has begun, targeting the improvement of public health and citizens’ quality of life, the protection and enhancement of natural capital, the reduction of economic losses, the improvement of competitiveness, and the overall safeguarding of the environment.

Green technology plays a vital role as a new driver of economic growth by creating new jobs, eradicating unemployment, providing a healthy and suitable environment, optimizing natural resources, and ensuring a safer environment. Given that environmental impacts transcend borders, international cooperation becomes essential, particularly from developed countries, to support developing nations in adopting green technology programs. This is particularly crucial in light of the lack of necessary funding in these countries. Additionally, efforts must focus on reducing environmental problems linked to industrial activity, mitigating emissions, and efficiently utilizing raw materials and energy.

Thus, green technology applications are not only about reducing environmental pollution but also about enhancing the quality of industrial processes in their entirety and across all stages. This focus has made adherence to environmental standards a significant factor in attracting local and foreign investments and building confidence in the national economy.

Furthermore, recycling is one of the most critical benefits of green technology for the environment, as it helps restore ecosystems by eliminating all sources of pollutants affecting environmental elements such as water, air, and soil. Key renewable energy sources include water, solar energy, and wind power. Additionally, adopting specific strategies and steps to make buildings entirely green and transforming manufacturing industries to align with environmental standards are essential goals.

Governmental and Youth Initiatives:

Algeria has initiated programs, including those funded by the Youth Employment Support Agency, focusing on recycling projects and "White Algeria" initiatives aimed at eliminating plastic waste. Measures such as banning black plastic bags and recovering those already in circulation, with an estimated usage of 15 million bags daily, are part of this effort. Algeria is implementing the Environmental and Sustainable Development Plan to:

Enhance public health and citizens' quality of life,

Protect and improve the productivity of natural capital,

Reduce economic losses,

Boost competitiveness, and Safeguard the environment as a whole.

Green technology is considered a new driver of economic growth, fostering job creation, reducing unemployment, promoting a healthier environment, conserving natural resources, and ensuring environmental safety. Environmental challenges that transcend borders highlight the importance of international cooperation, particularly from developed nations, to help developing countries adopt green technology programs. These efforts are critical in addressing environmental issues associated with industry and emissions, optimizing raw material and energy use, and improving the overall quality of industrial processes.

Green technology applications extend beyond reducing environmental pollution to improving the quality of the industrial process at every stage. Compliance with environmental standards has become a significant factor in attracting local and foreign investments and building trust in the national economy.

-Recycling and Renewable Energy:

Recycling plays a vital role in green technology by addressing environmental pollution and restoring ecosystems. Renewable energy sources such as water, solar, and wind power contribute to sustainable development. Efforts to make buildings fully "green" and adapt

manufacturing industries to align with environmental standards are additional examples of Algeria's commitment to sustainable technology⁸.

By integrating green technology into its economy, Algeria aims to improve industrial efficiency, foster sustainability, and position itself as a leader in the global transition to a green economy.

3.1.2. Environmental Taxation as a Model for Promoting Green and Sustainable Technology

Environmental taxation plays a crucial role in integrating social costs into market prices. When set at an appropriate rate, such taxes incentivize reduced pollution and encourage the adoption of environmentally friendly technologies⁹.

Environmental taxes are imposed on polluters whose economic activities result in environmental harm. These taxes target individuals and entities using environmentally harmful production techniques or producing polluting products. The goal is to shift behaviors toward greener alternatives, pushing polluters to adopt cleaner technologies and sustainable practices.

3.1.2.1. Mechanism of Environmental Taxation

Environmental taxation encompasses various fees and charges imposed by the state on polluting individuals and organizations. These taxes include: Direct Levies: Charges directly targeting activities or products causing pollution.

Incentives and Exemptions: Financial benefits for individuals or organizations adopting eco-friendly technologies or engaging in sustainable practices.

This dual approach ensures that polluters bear the cost of environmental damage while rewarding those who take proactive steps to reduce their ecological footprint.

3.1.2.2. Impact on Green Technology

Encouraging Cleaner Production: By imposing costs on polluting activities, environmental taxes motivate industries to invest in cleaner technologies and adopt sustainable production methods.

Promoting Innovation: Tax incentives for eco-friendly practices can drive technological innovation, leading to advancements in renewable energy, waste recycling, and efficient resource management¹⁰.

Fostering Sustainable Consumption: Environmental taxes can alter consumer behavior by increasing the cost of environmentally harmful goods, thereby encouraging the purchase of sustainable alternatives.

3.1.2.3. The Implementation of Environmental Taxation in Algeria

In Algeria, environmental taxation has been integrated into broader strategies to promote green technology. Tax incentives and exemptions are provided to businesses and individuals who employ sustainable technologies in their operations. This approach aligns with the country's goals of enhancing industrial efficiency, conserving natural resources, and protecting the environment.

Environmental taxation not only discourages harmful practices but also serves as a financial tool to fund green initiatives, such as renewable energy projects, waste management systems, and sustainable urban development. This dual function makes it an effective mechanism for achieving environmental sustainability while supporting economic growth.

Through environmental taxation, Algeria aims to strengthen its commitment to a green economy and align with international agreements like the Paris Accord, ensuring a balance between economic development and environmental conservation.

3.2. The Role of Youth in Raising Awareness Among Local Communities About the Importance of Preserving the Environment

According to the latest reports by the World Bank, the youth in the Middle East and North Africa region find themselves in what is described as "the hottest region in the world." This poses a serious warning about the escalating impacts of climate change that today's youth must confront. Deteriorating climatic conditions, rising temperatures, sea level rise, floods, and erratic rainfall patterns are factors that could lead to food insecurity and conflicts over water resources.

This has highlighted the necessity for youth to actively engage in raising awareness within their local communities about the importance of preserving the environment. This involvement can be seen in various initiatives and efforts. Consequently, this section will be divided into two parts: Defining Environmental Awareness and Youth-led Groups and Organizations Addressing Climate Change.

3.2.1. Definition of Environmental Awareness

Environmental awareness is an essential requirement for all members of society, irrespective of age, social class, or economic background. It represents the understanding of the intricate relationship between humans and nature and the positive or negative consequences of their interactions.

The study of environmental education highlights how human activities impact the environment.

It aims to identify negative effects, such as pollution, noise, toxic gases, and hazardous waste, and address them proactively.

-Preserving Human Achievements and Culture:

Environmental awareness is crucial to safeguard public health, protect cultural heritage, and sustain societal progress.

-Addressing Environmental Challenges:

By spreading awareness of issues like ozone depletion, global warming, and climate change, environmental consciousness motivates individuals and communities to adopt sustainable practices.

-Focusing on Future Generations:

A key component of environmental awareness is emphasizing that the Earth is a shared resource, not solely owned by the current generation.

Efforts to protect the environment ensure the well-being of future generations. Key Players in Promoting Environmental Awareness are:

Government Agencies:

Through legislative measures, enforcement of environmental laws, and community outreach programs

-Civil Society Organizations:

Conducting workshops, campaigns, and initiatives to educate the public on environmental conservation.

-Private Sector Contributions:

Implementing corporate social responsibility (CSR) initiatives aimed at promoting sustainable development and environmental stewardship.

-Community Engagement:

Encouraging individuals to develop skills and knowledge to work individually or collectively in addressing local environmental problems.

Environmental awareness is not merely about recognizing environmental challenges but also involves fostering a culture of responsibility. It requires collaborative efforts from individuals, institutions, and governments to ensure the preservation of natural resources, mitigate environmental risks, and promote sustainable practices. These efforts must prioritize the active participation of youth, who are not only the most affected by climate change but also the most capable of driving innovation and change¹¹.

3.2.2. Youth-Led Groups and Organizations Tackling Climate Change

Across the globe, youth-led groups and organizations are emerging as powerful forces in the fight against climate change, working to create more

resilient communities and foster sustainable practices. These initiatives not only aim to mitigate the effects of climate change but also inspire and equip the next generation with the tools to lead the sustainability movement.

Examples of Youth-Led Climate Initiatives

Zero Hour (Global):

Established in 2017 by four young activists, Zero Hour is a youth-driven movement that amplifies diverse voices in climate and environmental justice dialogues.

It provides training programs, resources, and entry points for new youth activists who are ready to take meaningful action against climate change¹².

-Connect with Nature (UAE):

This Emirati environmental organization aims to inspire 500,000 young people through both digital and hands-on experiences.

Its focus is on raising awareness, fostering environmental knowledge, and equipping youth with leadership skills to champion sustainability in the future.

-Arab Youth Climate Movement (Middle East and North Africa):

Launched after the United Nations Climate Change Conference in 2012, this initiative is the largest educational and awareness campaign for climate change in the MENA region.

It operates in over 15 Arab countries¹³, advocating for climate education and youth engagement in policymaking.

-Al-Mawada Initiative (Morocco):

This community-driven project involves young individuals under 30, with guidance from older experts.

It focuses on improving local community welfare by protecting essential infrastructure and enhancing food security in rural areas.

Al-Mawada won the Equator Prize in 2012 for its innovative approach to community-based climate adaptation.

-Cairo Climate Talks (Egypt):

A collaborative Egyptian-German platform that hosts monthly discussions on environmental issues with policymakers and experts worldwide.

This initiative addresses climate challenges and explores solutions, emphasizing youth involvement in environmental policymaking.

3.3. Key Characteristics of Youth-Led Climate Organizations

Inclusivity: Ensuring diverse voices and perspectives are heard in climate conversations.

Practical Engagement: Focusing on actionable initiatives, such as community-based adaptation projects or educational campaigns.

Skill Development: Equipping young people with knowledge and leadership skills to take on sustainability challenges.

Cross-Border Collaboration: Working across regions to create a united front against global climate threats.

Youth-led groups are instrumental in shaping resilient and climate-conscious societies. By inspiring peers and communities, they bridge gaps in awareness and action, ensuring that sustainability becomes a shared value across generations.

4. CONCLUSION

Protecting the environment is one of the most significant challenges facing the world today. Pollution, climate change, and the depletion of natural resources pose a substantial threat to the planet. In this context, youth play a prominent role in protecting the environment and contributing to building a better future for everyone. They possess the strength and enthusiasm necessary for change and can make a significant impact through their participation in environmental campaigns and community activities aimed at preserving the environment. Moreover, they can shed light on environmental issues and draw attention to them.

From the discussion, the following conclusions can be drawn:

1. Youth have the ability to adopt environmentally friendly lifestyles. They can reduce resource consumption and shift to clean energy sources, setting an example for younger generations to follow.
2. Youth can exert pressure on leaders and decision-makers to adopt better environmental policies. Through protests and social advocacy, they can influence governments and corporations to embrace more sustainable practices.
3. Youth represent hope for a healthy and sustainable future for Earth. By channeling their enthusiasm and efforts toward environmental protection, they can make a significant impact on the planet's future and help preserve its beauty and diversity for generations to come.

That is why we highly recommend the governments and societies should:

Advance the adoption of national policies for green technology that address energy, environmental, economic, and social issues to create a sustainable and livable green environment for current and future generations.

- Provide necessary funding to support green and sustainable technology projects, along with capacity building, training, and technical support for developing countries.
- Enhance the application of green technologies in promoting sustainable environmental development, including solutions to make buildings green or smart by leveraging technological applications and eco-friendly tools.

5. Endnotes

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Article

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⁴- Paris Agreement (Accord de Paris), also known as "COP 21," is the first global climate agreement. It emerged after negotiations held during the 21st United Nations Climate Change Conference in Paris in 2015. According to Laurent Fabius, who presented the final draft agreement in the plenary session, the agreement is appropriate, enduring, balanced, and legally binding. It was ratified by all 195 delegations present on December 12, 2015. The agreement aims to limit global warming to below 2°C, striving to keep it to 1.5°C. Goals will be reviewed every five years, and emission reduction targets can only be adjusted upward. A minimum of \$100 billion

per year in climate aid for developing countries was set, subject to review by 2025.

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¹³ -Arab Youth Climate Movement (AYCM) is an independent entity working to create an intergenerational movement in the Middle East and North Africa to address the climate crisis and support legally binding agreements to tackle climate change. It was established ahead of the 18th Conference of the Parties to the UNFCCC in Doha in September 2012, with participation from 18+ Arab countries in the MENA region.

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