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PROMOTING VOCATIONAL EDUCATION FOR GREEN JOBS: A STRATEGY FOR ACHIEVING CLIMATE CHANGE AND SOCIAL DEVELOPMENT GOALS

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Abstract

This study explores the pivotal role of vocational education in fostering green jobs as a strategic approach to mitigate climate change and achieve sustainable development goals. As the world grapples with environmental degradation and social inequality, vocational education emerges as a critical tool in equipping individuals with the skills needed for sustainable practices and green industries. By focusing on areas such as renewable energy, sustainable agriculture, energy efficiency, and environmental conservation, vocational education can significantly contribute to reducing greenhouse gas emissions and promoting sustainable development. The study highlights the importance of developing relevant curricula, providing hands-on training, fostering industry-academia partnerships, and advocating for policy support to promote vocational education for green jobs. It also emphasizes the need for continuous improvement and adaptation to evolving green technologies and practices. Through a comprehensive review of existing literature and best practices, this study aims to provide insights into the potential of vocational education to drive sustainable development and climate action. By promoting vocational education for green jobs, governments, educational institutions, and industries can collaborate to create a more sustainable and resilient future. This study concludes that vocational education is a vital component of a holistic approach to achieving climate change and sustainable development goals, offering valuable skills and employment opportunities for individuals while contributing to the well-being of the planet.

Keywords: *Green jobs, Climate change, Development goals, Vocational Education, Skills*

Introduction

As the global battles with the problem of Climate change, environmental degradation, and social injustice, there is a call for sustainable answers to the problems. The alternative option is green jobs through vocational education which equips individuals with functional skills and knowledge required to contribute to sustainable and encouragement that is friendly to the economy. In other words, climate change is a serious challenge confronting the entire universe and needs to be averted in order to avoid hunger, unemployment, and poverty reduction. Looking at green skills and sustainable practices, vocational education plays significant role in actualizing climate goals, promoting social development creating a more resilient and sustainable future. It can empower individuals with functional skills required for green Jobs. such as renewable energy, sustainable construction. It can also enhance sustainable development by creating job opportunities which can lead to promoting the livelihood of an individual. Vocational Education leads to acquisition of specific skills and instructions for self-employment (Abenobi, et al, 2022).

Green Job is a type of job that contributes meaningfully to preservation and restoration of the environment, minimizes pollution and enhances sustainable development. It can contribute to actualizing Climate change goals through reduction of greenhouse gas emissions and promoting

sustainable development programs. Sustainable development is an approach to growth that puts the economic, social, and environment of the society into consideration in order to meet the needs of the present situation without altering the future generations' needs. This study therefore, examines the significant of vocational education for green Jobs as a strategy for achieving Climate change goals, promoting social development, highlighting the benefits, challenges and opportunities associated with this technique

Concept of Vocational Education, Green Job, Climate change and Sustainable Development Goals

Vocational Education is the kind of education that imparts specific skills that lead to job creation. It's a kind of education that combines practical skills relating to economic growth of an individual and society at large. Perry (2023) stated that Vocational training is a program or course designed to prepare individuals for a specific vocation, a job or career related to helping others. European Union (2021) also started that Vocational Education and training prepares people for work and develops citizen's skills to remain employable and respond to the needs of the economy. Vocational Education is a system of education that prepares students for a career using hands-on learning.

Green Jobs are new opportunities that lead to creating new jobs in all sectors that guarantee decent work and environment. It can be explained as a new job that covers all areas of human endeavors that contribute towards a quality environment that promotes human wellbeing. UNEP (2018) viewed Green Job as the work in Agricultural, Manufacturing, Research and Development, Administrative, and Service activities that contribute sustainably to preserving, or restoring environment quality. The Ministry of Employment and Labour Relations, Ghana (2021) defined Green Jobs as decent jobs that contribute to improving the efficiency of energy, raw materials and limiting greenhouse gas emissions while protecting and restoring the ecosystem. Green Jobs contribute sustainably to protecting or restoring ecosystem and biodiversity, reducing resources consumption and inefficiency, decarbonizing the economy, and minimizing or altogether eliminating all forms of waste and pollution, while also generating and supporting the well being of people (Grace and Dominic 2021).

Climate change is the change in climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over a comparable period of time. According to the Ministry of Employment and Labour Relations Ghana (2021) reported that 6Climate change is the shift which includes both the global warming driven by human emissions of greenhouse gases, and the resulting large scale shifts in weather patterns with dire consequences for sustainable Development a as a change in climate attributed directly or indirectly to human activity which alters the composition of the global atmosphere and is observed over human survival. In short climate change is shifting in temperature and weather conditions through humans activities.

Sustainable Development is about integration, developing available resources (man, materials, machines, methods and money and market) in a way that benefits the larger society and even beyond the generations. Mensah (2019) stated that sustainable Development relates to the principles of meeting human development goals. Kulik (2025) viewed sustainable Development as an approach to social, economic, and environmental planning that attempts to balance the social and economic needs of present and future human generation with the imperative of preserving or preventing undue damage to the natural environment. Surana (2022) also defined sustainable Development as a development that is able to meet the needs of the current generation without endangering the health, and safety of future generations just to meet their own needs. Sustainable Development Goals are set globally for fair and Sustainable health at every level. The goals were adopted by all member states of the United Nations formally in September 2015. The goals provided the best chance of ensuring the necessary collaboration and alignment to implement global approaches to ensuring a fair, healthy, and prosperous future for ourselves, children and grandchildren.

The objectives of the Sustainable Development Goals are;

i. No poverty
ii. Zero hunger

iii. Good health and well being
iv. Quality Education
v. Gender Equality
vi. Clean water and Sanitation
vii. Affordable and Clear Energy
viii. Decent work and Economic Growth
ix. Industry, Innovation, and Infrastructure
x. Reduced Inequalities
xi. Sustainable Cities, and Communities
xii. Responsible Consumption and Production
xiii. Climate Actions
xiv. Life below Water
xv. Life on Land
xvi. Peace, Justice, and Strong Institutions
xvii. Partnerships for the Goals

Objectives of Vocational Education

The National Policy on Education (2013) listed the following objectives of Vocational Education in Nigeria. They are;

1. To provide trained manpower in applied science, technology, and commerce particularly at sub processional grades
2. To provide the technical knowledge and Vocational skills necessary for agricultural, Industrial, Commerce and economic development
3. To provide people who can apply specific knowledge in the improvements and solution of environmental problems for the use of convenience of man
4. To give an introduction of professional studies in engineering and other technologies
5. To give training and impact the skills leading to the production of Craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant
6. To enable young men and women to have an intelligent understanding of the increasing complexity of technology.

Areas That Can Contribute to Achieving Climate change and Sustainable Development Goals through Vocational Education for Green Jobs

Vocational education for green jobs can focus on various areas that contribute to achieving climate change and sustainable development goals. Some relevant areas of green Jobs Include:

1. Renewable Energy: This involves solar energy, training in solar panel installation, maintenance, repair, Wind Energy with Skills development for wind turbine installation, maintenance and Bioenergy that provides education on biomass production and conversion.

2. Sustainable Agriculture: This entails Organic Farming, training in organic farming practices, crop rotation, and natural pest control, Agroforestry that provides Skills development for integrating trees into agricultural landscapes and Permaculture that also entails education on sustainable and self-sufficient agricultural systems.

3. Energy Efficiency: This involves building Insulation, training in energy-efficient building practices and insulation techniques, Green Building that involves Skills development for constructing and retrofitting buildings with sustainable materials and practices. It also includes Smart Grids that provides education on managing and optimizing energy distribution.

4. Environmental Conservation; This entails Water Management training in water conservation, purification, and management. More so, it contains Waste Management Skills development for waste reduction, recycling, and proper disposal and ecosystem restoration that requires education on restoring and preserving natural ecosystems.

5. Sustainable Transportation: This contains Electric Vehicles, training in electric vehicle maintenance, repair and Hybrid Technology that involves Skills development for working with hybrid vehicles, then Sustainable Logistics that provides education on efficient and environmentally friendly transportation systems.

6. Green Manufacturing; Sustainable Production: This requires training in sustainable manufacturing practices and eco-friendly production methods. It also embraces Green Chemistry that provides Skills development for creating environmentally friendly products and processes. More so Eco-Design that provides education on designing products with sustainability in mind.

7. Eco-Tourism: This provides Sustainable Tourism that entails training in developing and managing ecotourism initiatives, Conservation tourism Skills development for tourism that supports conservation efforts and Cultural Heritage Preservation that provide education on preserving cultural heritage while promoting tourism.

8. Green IT and Data Centers: This provides energy-efficient Computing, training in designing and managing energy-efficient data centers, and Sustainable IT Practices Skills development for reducing the environmental impact of IT operations. In other ways, it leads to Green Data that provides Management Education on optimizing data storage and management for sustainability.

9. Sustainable Silviculture; Forest Management: It provides training in sustainable forest management practices, reforestation Skills development for reforestation and afforestation projects, timber Harvesting Education on sustainable timber harvesting techniques.

10. Climate Adaptation and Resilience: This involves Climate risk assessment, training in assessing and managing climate-related risks, resilience Building Skills development for building resilience in communities and ecosystems. In another way it brings adaptation Planning education on developing and implementing climate adaptation plans.

By focusing on these areas, vocational education can equip individuals with the skills needed to contribute to climate change mitigation and sustainable development, while also opening up new career opportunities in green industries.

How to Achieve Climate and sustainable Development Goals through Promoting Vocational Education as a Strategy for Green job

Vocational Education for Green Jobs (VEGJ) as an approach for achieving Climate Change and Sustainable Development Goals (SDGs), consists of the following strategies:

1. Raise Awareness Campaigns and Outreach: Conduct awareness campaigns to highlight the importance of green jobs and vocational training in combating climate change and achieving sustainability through involvement of Stakeholder Engagement such policymakers, educators, industry leaders, and communities in discussions about the benefits of Vocational Education Green Jobs.

2. Develop Relevant Curricula for Green Skills Training: That is designing vocational programs that focus on green skills such as renewable energy, sustainable agriculture, eco-friendly construction, and waste management, Industry Collaboration Work to ensure the curriculum aligns with current and future job market needs.

3. Provide Hands-on Training: Practical Experience offer through internships, apprenticeships, and on-the-job training in green industries to give students real-world experience. More so, provision of Simulation Labs, or workshops where students can practice green technologies and techniques

4. Foster Partnerships Industry: Academia Collaboration between vocational schools and green industries to facilitate knowledge transfer, mentorship, and job placement. In addition, Government Support through Seeking for funding and policy support from governments to develop and promote Vocational Education Green Jobs programs.

5. Certification and Accreditation: Developing certification programs for green skills to ensure quality and standards are met. Accreditation Bodies also need to work with the Institutions that are offering the program for proper recognition of Vocational Education Green Jobs programs, and ensuring they meet industry standards.

6. Promote Green Careers: Career Guidance needs to Provides career counseling and guidance to students about opportunities in green jobs. Job Fairs and Networking need to be organized and focused on green industries to connect students with potential employers.
7. Leverage Technology Online Courses Develop online vocational courses and resources to make green skills training more accessible. In addition, using digital tools and platforms to simulate green job environments and provide virtual training experiences.
8. Encourage Community Involvement: Engage students in community-based green projects to apply their skills and contribute to local sustainability efforts. Then encourage Public-Private Partnerships Collaborate with Local Governments, Non-Governmental Organizations, to support Vocational Education Green Jobs initiatives.
9. Monitor and Evaluate Impact Assessment: Regular assessment of the impact of Vocational Education Green Jobs program on climate change mitigation and sustainable development. Use feedback from students, employers, and industry experts to continuously improve the programs
10. Advocate for Policy Support Policy Development: Advocate for policies that support the integration of green vocational education into the national education system. Seek government grants and funding to support Vocational Education Green Jobs initiatives and ensure their sustainability.
By implementing these strategies, vocational education for green jobs can play a crucial role in achieving climate change and sustainable development goals, while also providing individuals with valuable skills and employment opportunities.

Conclusion

In conclusion, vocational education for green jobs is a crucial strategy for achieving the goals of climate change and sustainable development. By equipping individuals with the skills needed for green industries, vocational education can significantly contribute to reducing environmental impact and promoting sustainable practices. The development of relevant curricula, hands-on training, industry partnerships, and policy support are essential components of successful vocational education programs for green jobs. As the world continues to face the challenges of climate change and sustainable development, investing in vocational education for green jobs can yield significant benefits for the planet. Governments, educational institutions, and industries must collaborate and prioritize vocational education as a key driver of sustainable development and climate action.

Recommendations

Educational institutions should develop curricula that focus on green skills and sustainable practices, ensuring alignment with industry needs and future job market demands.

1. The government and NGOs should help to promote hands-on Training by providing students with practical experience through internships, apprenticeships, and on-the-job training in green industries.
2. Industry-Academia Partnerships that foster strong partnerships between educational institutions and green industries should be encouraged to facilitate knowledge transfer, mentorship, and job placement.

By implementing these recommendations, vocational education can play a pivotal role in achieving climate change and sustainable development goals, creating a more sustainable and resilient future for all.

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