

Effects of Climate Change on Local Economic Development in Ghana, and Resilience Measures to Promote Sustainable Rural Development

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Abstract

According to the Ghana Meteorological Agency, historical climatic data from 1960 to 2000 show a consistent and obvious rise in temperature and a corresponding decline in rainfall across all biological zones. Rainfall in the Semi-Deciduous Forest zone is anticipated to increase by 2.8%, 10.9%, and 18.6%, respectively, in 2020, 2050, and 2080. These figures and estimates are concerning given Ghana's population of 31.07 million, with agriculture employing around 52% of the labor force, services employing 29%, and industry employing 19%. Women account for around 39% of the agricultural labor force. Agriculture accounts for 54% of Ghana's GDP, more than 40% of export revenues, and more than 90% of the country's food needs. These initiatives highlight agriculture's significant contribution to national and local economic development. Agriculture is the backbone of most rural economies in Ghana; thus, these data and projections are concerning, given the rise in temperature and decrease in rainfall, which would impede most agricultural activity in rural areas. Climate change poses a threat to national development, necessitating the development of a resilience strategy to mitigate its effects. Because local economic development is a crucial part of forward-thinking local growth, climate change has an impact on it. In order for local and regional governments to effectively respond to the most urgent demands of the local community, local economic development is a crucial duty of local government. More than merely economic growth, local economic development also requires fostering participation and community dialogue and connecting people with resources. It is important to examine climate change and create resilience strategies to lessen the problems it provides in rural communities in order to increase employment and quality of life for both men and women in rural Ghana.

Keywords

Local Economic Development, Climate Change, Sustainable Development, Climate Resilience, Rural Welfare.

Introduction

Climate Change & Local Economic Development

Climate change describes a change in the average conditions in a region over a long period of time, including shifts in temperatures and weather patterns. These shifts may be natural, such as variations in the solar cycle, but human activities have also contributed to climate change, primarily through the use of fossil fuels such as coal, oil, and gas. Ghana has a population of 31.07 million people, with agriculture employing around 52% of the labor force, services employing 29%, and industry employing 19%. Women make up roughly 39% of the agriculture labor force. Agriculture accounts for 54% of Ghana's GDP and more than 40% of export profits, while also meeting more than 90% of the country's food needs. These foundations illustrate agriculture's substantial contribution to national and local economic development. According to the Ghana Meteorological Agency, the country's historical climate data between 1960 and 2000 reveals a steady and noticeable rise in temperature and a concurrent drop in rainfall across all biological zones. Rainfall in the Semi-Deciduous Forest zone is expected to fall by 2.8%, 10.9%, and 18.6% in 2020, 2050, and 2080, respectively. Agriculture is the backbone of most rural economies in Ghana; therefore, these records and projections are concerning given the rise in temperature and decrease in rainfall, which would impede most agricultural activity in rural regions. Climate change is a challenge to national development, necessitating the establishment of a resilience plan to mitigate its effects. Local economic development is an essential component of progressive local administration. It is a method that brings together different partners in the local region to work together to harness resources for sustainable economic growth. Local economic development is increasingly being recognized as a critical function of local government and a means of ensuring that local and regional governments can address the most pressing needs of local populations in a sustainable manner. Local economic development entails more than just economic growth; it entails encouraging involvement and local discussion, linking people and resources in order to improve employment and quality of life for both men and women.

Effects of Climate Change on Local Economic Development in Ghana

The implications of climate change range from sea level rise, protracted droughts, erratic weather patterns, and more frequent extreme weather events to biodiversity loss and disease risk. Although climate change impacts both urban and rural communities, rural areas bear the brunt of its consequences. This is because those who are already poor are disproportionately harmed by climate change.

Ghanaian rural communities depend on natural resources-based livelihoods for their food security and income.

These are the very people who are directly affected by climate change related risks. Most large scale and peasant farmers depend on their farm produce for their living, which has been sustaining them for ages. The decline in rainfall and the uncertainty in weather pattern impede their agricultural activities, which is the source of food and income for people living in rural communities, and causes hunger, malnutrition and shortage of food supply.

A terrestrial ecosystem provides agriculture, forestry, and livestock services.

Most rural entrepreneurs are into large scale agriculture which depends on rainfall and stable weather patterns and other ecological factors, some are into legal forestry services including production of timber for industrial purposes which provides income and create jobs for rural economic growth, large and small sale livestock services provides most benefit to market and business economies in rural communities, the climate change and adverse effect it brings affects all these economic activities and results in loss of livelihood and create cycle poverty.

Aquatic ecosystem provides fisheries services.

The coastal areas in Ghana have been the major producers of seafood in Ghana for years, other river bodies in rural communities also provides source of fisheries for local consumption and commercial services. These provides household consumption and income for people in rural communities involved in fisheries services. Climate change activities such as the rise in sea levels and drought poses a major threat to fish farmers and sellers, this leads to the possibility of food and water shortage, poverty and hunger in local communities.

Employment creation in rural economies

In the face of climate-related environmental change, such as the decline of productive agricultural land, rural residents may be forced to migrate in search of work. This leads to reduction of the labour force in the rural areas.

Health of Rural Residents

Climate change affect the health and wellbeing of rural communities through the impacts of extreme events such as, worsening air quality, changes in the spread of infectious diseases, threats to food and water quality and quantity, this has the long-term effect of increasing risk of diseases and poverty.

Resilience Measures to Climate Change that Promote Sustainable Rural Development in Ghana

Climate resilience is the ability to predict, prepare for, and adapt to potentially harmful climate events, trends, or disruptions. Taking steps to better cope with climate-related threats is an example of resilience activity, climate change resilience measures and policies act as a mechanism which aid in climate planning that attempts to foster rural economic growth while preserving the quality of the environment, culture, reducing poverty and social inequality and improving social welfare. On the other hand, Sustainable development is an approach to the economic development of a country without compromising with the quality of the environment for future generations which includes economic growth, social equity, environmental protection and social development of all forms. The development and adoption of resilience measures to the detrimental effects of climate leads to sustainable growth, poverty and hunger reduction, and elevation of indices of well-being of people and society.

Integrated water resources management

Even the most fertile soil cannot produce a yield without water, and as such to curb the decline in rainfall and rising temperature on farms, a sustainable watershed and water resource management and the application of efficient irrigation technologies should be deployed in rural communities to ensure climate-resilient agriculture. Since agriculture employs around 52% of the labour force and contributes to 54% of Ghana's GDP and more than 40% of export profits, the adoption of this resilience measure will lead to larger investment, development of industry and agriculture, and create more employment opportunities needed in rural economies, this aligns with SDG 8 and 1, because it results in expanding labour force which improves life of rural communities, provide remuneration to rural labour force and generate tax revenue to rural and national authorities.

Ecosystems management

To improve ecosystem services necessary to increase resilience. The use of biodiversity and ecosystem services, as part of an overall adaptation strategy should be promoted, to help people to adapt to the adverse effects of climate change. This will help to maintain and increase the resilience and reduce the vulnerability of ecosystems and people in the face of adverse effects of climate change. This also includes the energy infrastructure in rural economies and it aligns with SDG 7, 13 and 12. Electricity grids provide access to safe lighting and services for rural. Using clean cooking fuels, such as natural gas, has major health benefits in preventing the harmful effects of indoor smoke, energy infrastructure, social and economic development in rural economies.

Smart Communities & Transport

Without safe, sustainable and reliable transport access, rural communities have difficulty accessing markets to buy and sell goods, families cannot reach health clinics in a reasonable time and children are discouraged from attending school. Transport infrastructure development contributes to investment and economic growth through increased productivity and efficiency, because it links resources to industry, people to jobs and products to markets, this improves social and industrial welfare of local economies, and can be directly linked with SDG 11, 9, 3.

Capacity development for local people.

Training and advisory services in the form of capacity development can empower the rural people to face the climate change challenges and increase their adaptivity. Farmers should gain sufficient knowledge about alternative choice of crops and management practice. The rural people should have a sense of accountability to and ownership of the adaptation process. This will boost the labour force and reduce urban-migration. Human resource development helps to create a culture of efficiency in the working force and leads to increased productivity, this results in optimum exploitation of natural resources and results in rural socio-economic development. Human resource development develops new skills, knowledge and attitudes of the labour force in the rural areas and makes people more competent, efficient and professionals, and increases labour output, this aspect of rural economies can be attributed to SDG 4, 8 and 9.

Institutions and organizations

Organizations and institutions have a significant role in determining the economic structure of a region and the rules that govern the game of economics. Unavoidably, political influence will play a role in decision-making, but institutional change is essential for long-term rural development. This categorically aligns with SDG 16 because it seeks to promote cooperation between government organizations, authorities, and other groups, it is essential to create a strong national planning and development agency. Institutionalization in rural economies results in creative relationships in society to meet basic needs such as stability, law and order, clearly defined roles or authority, decision-making and economic policy making.

Climate risk insurance

Climate risk insurance is a tool that supports affected people as they deal with the impacts of extreme weather events, for instance by providing small-holders with financial support for lost harvests. This approach should be encouraged due to the constant climate change the 21st Century is gearing towards. The provision of this capital for climate risk will lead to a sustainable socio-economic growth. Because capital will be made available to local economic agents, in the form of seeds, fertilizers, fuel and other raw materials which are used up in the production process, this relates with SDG 2, 8, and 9 because it brings about daily benefit to individual households, industries and rural markets which enhances creation of wealth and social wellbeing in local economy.

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