

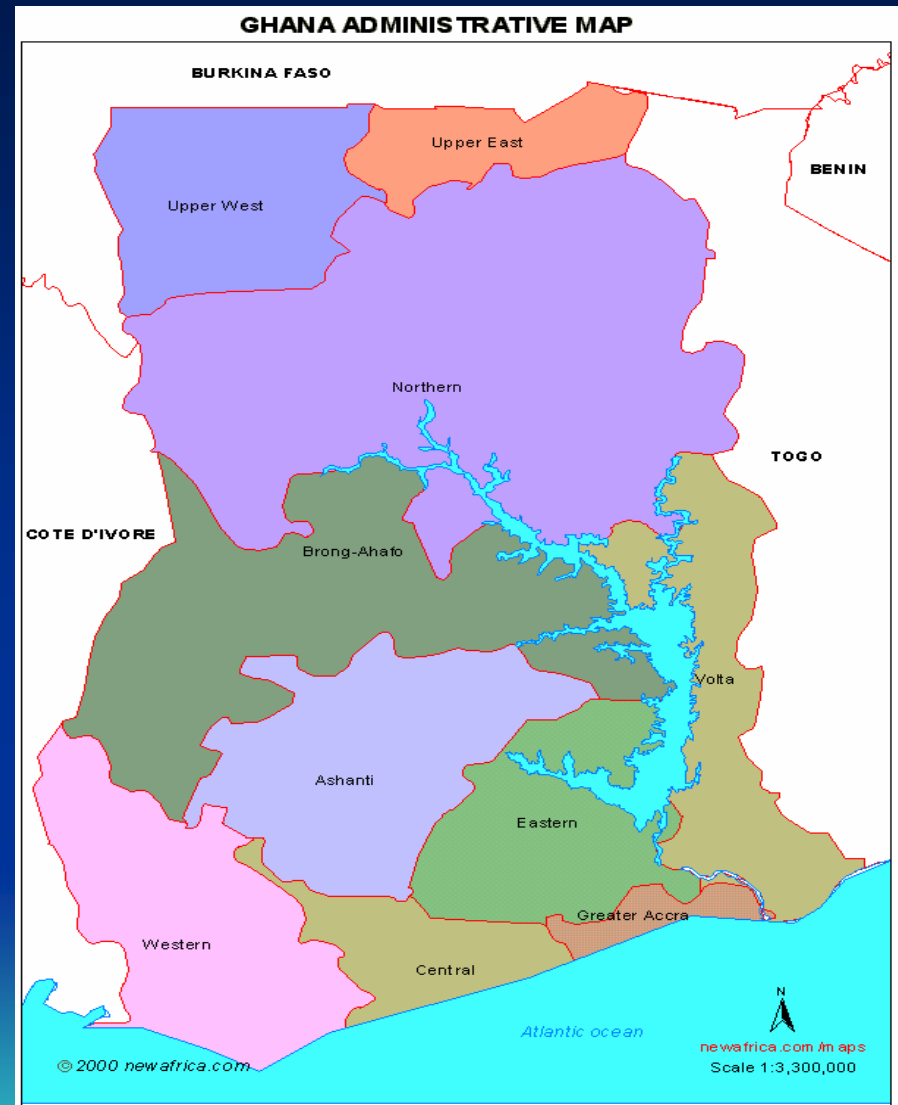
Traditional Ecological Knowledge in Addressing Global Warming- The Ghana situation

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- Ghana lies on the West coast of Africa
- Pop is 20million
- The total land area of Ghana is 238,539km² ..
- Agriculture represents the most important land use type in terms of its spatial coverage.
- Agriculture in the forest takes up more than 75% of the land while in the northern savannas, the coverage is between 50 and 60%. About 11% of the land area of Ghana is under conservation.



Introduction

- Background to the state of Ghana's natural resources.
- The presentation draws attention to indigenous or rural people's knowledge and the underlying scientific principles behind its generation.
- The paper concludes with recommendations for supporting integrated, cross-sectorial efforts to fight environmental degradation that consequently has a bearing on global warming.



Benefits people obtain from ecosystems

ECOSYSTEM SERVICES

PROVISIONING

- Food
- Freshwater
- Fuelwood
- Genetic resources

REGULATING

- Climate regulation
- Disease regulation
- Water purification
- Pollination

CULTURAL

- Spiritual & religious
- Recreation & ecotourism
- Aesthetic

SUPPORTING

Soil formation

- Nutrient cycling

- Primary production




State of environment in Ghana

- Since the Stockholm and Rio Conferences on the environment in 1972 and 1991 respectively, the state of environment has markedly deteriorated.
- Ghana's environment and key natural resources have been increasingly threatened by escalating and unsustainable pressures from fast growing population, expanding agricultural and industrial activities and rapid urbanization.
- Deforestation
- Expansion of agric. Into marginal lands
- Land degradation
- Loss of biodiversity
- Decline in water quality
- Increase in human health status

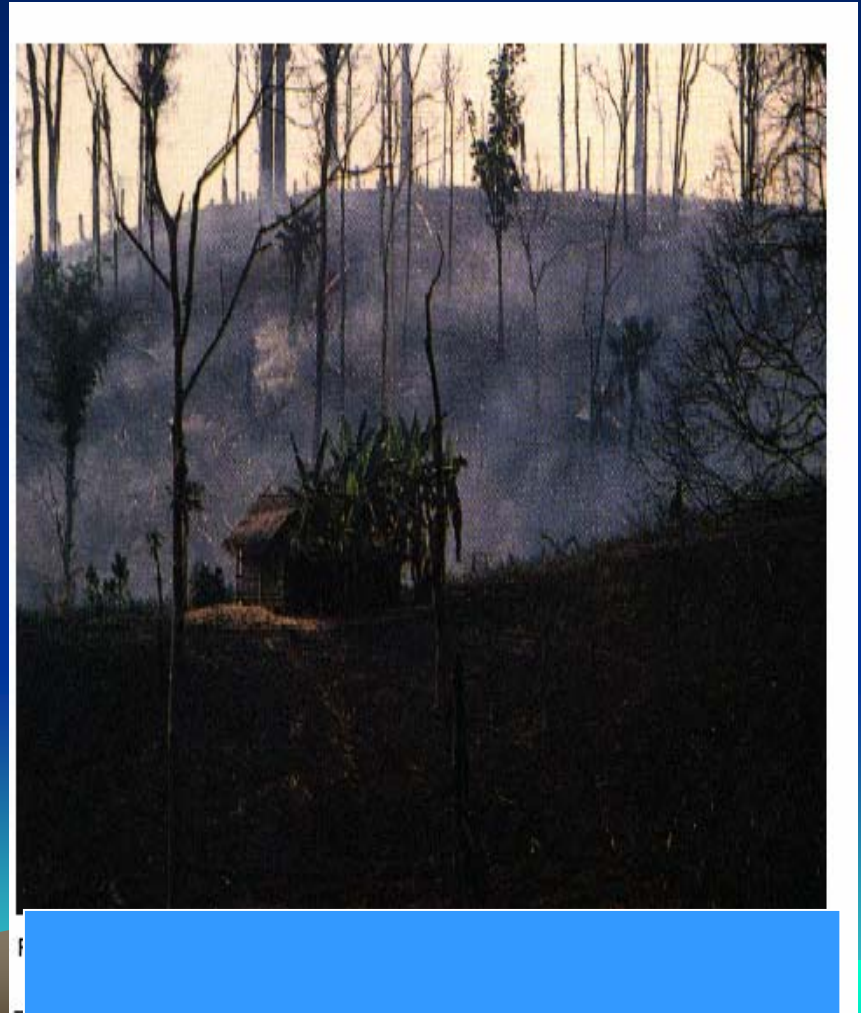


Biodiversity and climate change

- Ghana is well endowed with a diversity of landscapes, ecosystems, habitats and plant and animal life.
 - These have constituted the basis of survival of local populations throughout the country.
 - Local populations have developed and practiced traditions and knowledge systems, which have protected and conserved plants, animals, water resources and other components of their life support systems.
 - One other major issue associated with biodiversity in Ghana is the loss of habitat and the depletion of biological resources.
 - Savannas and forests are the dominant ecosystems in the country,
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Biodiversity and climate change

- Persistent exploitation of the savannah has resulted in widespread degradation.
- Forest vegetation and soils hold almost 40% of all the carbon stored in terrestrial ecosystems.
- Release of carbon as a result of deforestation contributes to global climate change.
- For example, a closed primary forest contains some 280 tons of carbon per hectare, If converted to pasture or permanent agriculture, it would release more than 200 tons of carbon into the atmosphere.



Biodiversity and climate change

- Another major biodiversity issue in the country is wetlands ecosystem degradation.
- Coastal and inland wetlands in Ghana have been regarded as wastelands, which constitute habitats for pests and threat to public health.
- As a result of this perception, wetlands in general have been under constant threat from development activities.



Evidence of global warming

- The following are evidence of global warming in Ghana
 - Decreased rainfall, increase temperature and evaporation in dry areas
 - Frequent drought spells leading to severe water shortage
 - Change in planting dates of annual crops
 - Increased fungal outbreaks and insect infestations due to changes in temperature and humidity
 - Decrease in forest area and area under cultivation
 - Decline in crop yield
 - Increased risk of food shortage and famine
 - Reduction in ecosystem integrity and resilience, and decline in biodiversity
 - Increased potential of malaria transmission and burdens on the country's health care system

How global warming has affected my country/ culture

- The most damaging impacts to climate change for my country has been to water resources, agriculture, and droughts.
- Nearly 80% of Ghana's population depends on Agriculture for a living
- Agriculture in Ghana is highly vulnerable to climate change variability and long term climate Change
- which would result in a higher food prices, lower domestic revenues and widening of current account deficits due to lower export earnings together with increased inflation and increased external indebtedness.



What is this Traditional Knowledge

- Traditional knowledge can be seen as that which emerges from the interaction amongst individuals and between individuals and their environment, resulting in a product, which has been formed and transformed by the society itself.
- The knowledge, which is a social construct, is culturally specific and has its distinct characteristics, which may be similar to or different from other constructs.
- It is embedded in social value, beliefs or norms, expressed in stories, traditional music and other cultural activities.



Traditional Knowledge that addresses climate change

- Local knowledge that addresses climate change can be made from three types of information:
 - Accumulated cultural knowledge
 - Knowledge modified through contact with other cultures, and
 - progressive learning of the environment



Traditional Knowledge that addresses climate change

- Indigenous People have historically played an active role in the conservation of eco-systems crucial to the prevention of climate change
- TEK has been used in the area of soil and agricultural production, specifically in soil and fertility. Protection of the environment by way of preventing land degradation in bushfire controls.



Traditional Knowledge that addresses climate change

- The traditional bush fallow system a method where by land is allowed to be fallow for a number of years to gain its fertility
- It has to some extent improved agricultural production in the rural areas.
- Vegetation on these fallow lands regenerate and fallen leaves decompose to replenish the soil with organic matter.
- Such approaches to agricultural practices of the local people contribute to carbon accumulation.

Traditional Knowledge that addresses climate change

- Agriculture can be an accumulator of carbon, when organic matter is accumulated in the soil, or when above ground woody biomass acts either as a permanent sink or is used as an energy source those substitutes for fossil fuel.
- Sustainable management practices restore soil organic matter and soil carbon. Farmers have longed practiced the system of converting their arable into planting leguminous trees.
- This system increases soil organic matter and the accumulation of above ground woody biomass system.



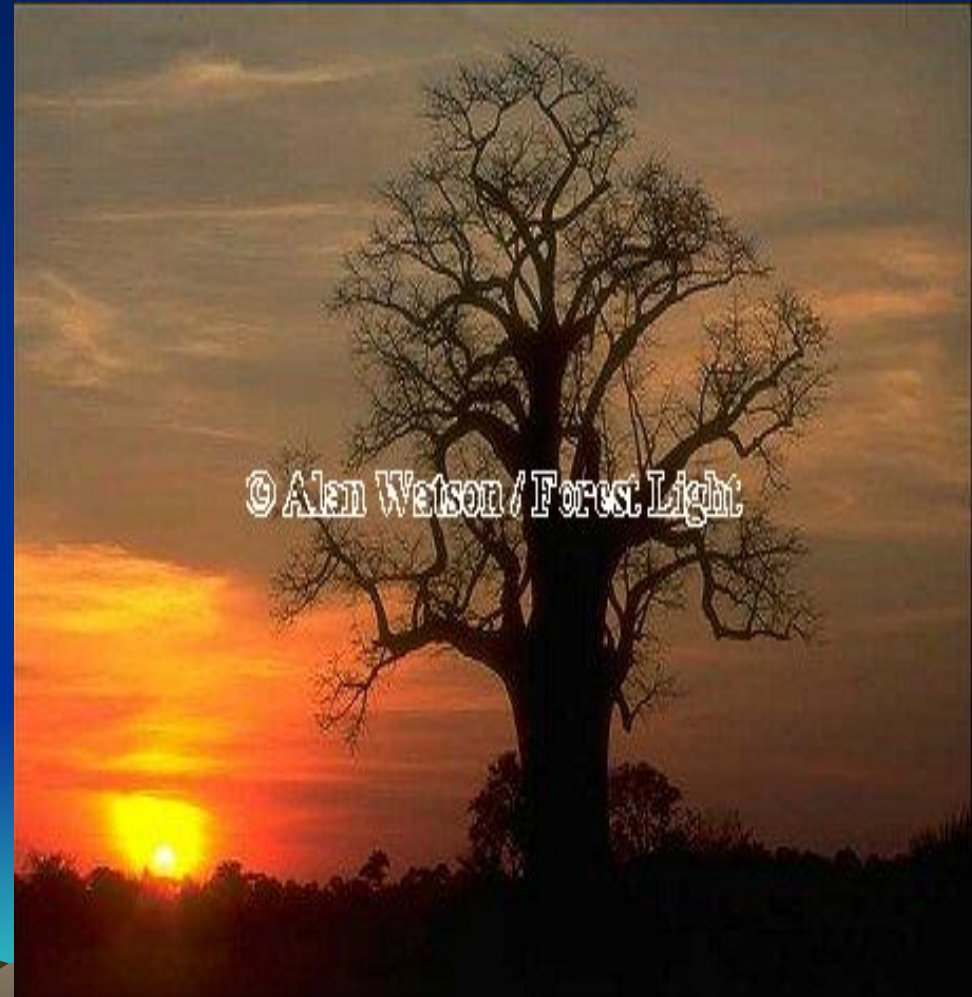
Traditional Knowledge that addresses climate change

- The traditional concept of forest management by the preservation of sacred grooves have gone a long way to conserve forest and stopped the indiscriminate way of forest degradation.
- Traditional norms and rules have it that some days are prohibited for the harvesting of fuel wood in these forest grooves.
- These measures go a long way to allow the forest to recover and create the condition for the forest to serve as a carbon sink to avert global warming.



Traditional Knowledge that addresses climate change

- Sacred grooves or areas are often associated with cultural rituals, such as rainmaking
- Members of the community are prohibited from performing certain activities in them, including hunting, gather, wood cutting, cultivating, grazing, etc.
- In some areas trees are deliberately planted on them.
- These act as in-situ gene banks for some of the local plant and wildlife species.



Traditional Knowledge that addresses climate change

- Since the forest is a major determinant of the climate situation, changes in the forest conditions also means changes in the climate conditions.
- Taboo days and the institution of local laws on hunting and fishing have helped to conserve biodiversity



Importance/Relevance of (TEK) in understanding and dealing with global warming

- TEK is important in understanding and dealing with global warming because it can help in social policy and planning in the third world.
- TEK can also provide insight into how local people categorize and perceive their environment. It shows what people consider important and practical.
- Through traditional knowledge, one can gain an understanding of how much control one perceives as having over the elements, and what they base their future expectations and predictions on.

Recommendations

- The introduction of improved land management practices
- Measures to improve the management of areas of importance for the conservation of biodiversity, particularly in our forest should be institute
- Involvement of local people in the protection and management of the environment. This calls for multisectorial approach to a sustainable development strategy of the environment
- Indigenous People have historically played an active role in the conservation of eco-systems crucial to the prevention of climate change . Research should not ignore TEK



Conclusion

- The extent to which, Ghana is vulnerable to climate change depends on both exposure and sensitivity to changes in climate, as well as the ability to adapt to new conditions. Sudden shocks caused by climate change, when coupled with existing vulnerabilities and institutional weaknesses, could lead to much larger and longer term poverty traps than local livelihood system.



THANK YOU !

