

PDF - IMPACT OF CLIMATE CHANGE ON WILDLIFE RESOURCE CONSERVATION IN NSUKKA AGRICULTURAL ZONE OF ENUGU STATE - researchcub.infoAbstract

The study determined the impact of climate change on wildlife resource conservation in Nsukka Agricultural zone of Enugu State. Specifically, the study identified the impacts of climate change on wildlife habitat, wildlife forages, wildlife health and reproduction, environmental degradation threats on wildlife conservation and sustainable wildlife conservation practices to preserve wildlife resources. Five research questions and five null hypotheses guided the study. The study adopted a descriptive survey research design. Five research questions were answered and five null hypotheses were tested at 0.05 level of significance. Structured questionnaire was used to collect data for the study. The population for the study was 138 comprising 115 registered farmers (hunters) and 23 extension agents in Nsukka Agricultural Zone of Enugu State. No sample was drawn as the population was manageable. The research instrument was subjected to face validation by three experts, all from the Department of Agricultural Education, University of Nigeria, Nsukka. The instrument was trial tested on 20 respondents outside the study area. The data collected were subjected to reliability test using Cronbach Alpha which yielded a coefficient of 0.78. The instrument was administered by the researcher with the help of three research assistants. One hundred and thirty four out of 138 copies of the instrument administered were duly completed and returned reflecting a return rate of 97%. The data collected were analyzed using Mean to answer research questions while t-test was used to test the hypotheses at 0.05 level of significance (p). Findings of the study, among others, revealed that flooding destroys nesting home for wildlife; drought affects forest tree growth and regeneration; drought conditions alter breeding sites; climate change favours the growth of plant pests and diseases; heavy rainfall events cause flooding of wildlife habitat; thunder storm sets habitat on fire; alteration of habitat by extreme weather events makes habitat unproductive; strong winds pull down tree and expose the habitat and excessive sunshine affects vegetative growth. Based on the findings of the study, it was recommended among others that the findings on the impact of climate change on wildlife habitat should be packaged and used as tool for public enlightenment and education by the National Orientation Agency to sensitize Nigerians on the dangers of climate change.

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CHAPTER ONE

INTRODUCTION

Background of the study

Agriculture produces the basic necessities for human survival. It is the production of crops and rearing of livestock for man's benefit (Tatathi, Naik and Jalgaonkar, 2011). It forms the basis for industrial and economic development (Steward, 2000). It includes the raising of animals and cultivation of crops for food, fibre, bio-fuel, drugs and other products meant for sustainability of human life. In Nigeria, agriculture provides a source of employment for more than 70% of her population and contributes 33.69% to the Gross Domestic Product (GDP) (National Bureau of statistics, 2013). The major agricultural produce in Nigeria are Rice, Cowpea, Millet, Sorghum, Maize, Palm Oil, Rubber, Goat, Sheep, Pig, Poultry, Timber and wildlife, among others. Apart from crop production and domestication of livestock, agriculture also involves conservation of wildlife.

Wildlife is one of the ecological capitals comprising every form of life from the tiniest microbes to the mightiest beast and the ecosystems of which they are part of (Osinem, 2005). According to the International

Hunter Education Association (2003) wildlife refers to plant and animals that are not normally domesticated by man but are essential for his survival. They are living things that can die and be replaced by others of their type. In the context of this study, wildlife refers to wild animals only. Osinem (2005) stated that wild animals provide humanity with a cornucopia of goods and services for food, energy and materials to genes which protect the crops and heal diseases. The products from wild animals are regarded as wildlife resources.

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Wildlife resources are those products or materials obtained from wild animals to satisfy specific needs of man (Preres, 2001). Wildlife resources include such products like fibre, food, fuel, meat, industrial raw materials like hide and skin, hoof and timber, among others (Osinem and Mama, 2008). According to the authors, wildlife resources have nutritional, economic, health, ecological, cultural and religious importance to the users. It is a source of income and a means of livelihood to humanity. Almost all forms of wildlife resources are subject to capture or control by man who depend on them for survival. Osinem and Mama (2008) indicated that wildlife resource exists in various forms as mammals, reptiles, birds, aquatics and arachnids. The authors further explained that a variety of wildlife depend on vegetation for their existence and survival. Machl et al, (2007) stated that tropical cyclones have the potentials to devastate wide expanse of vegetation, causing loss of wildlife resources. Conservation of wildlife resources is dependent on climate. Climate is the average weather condition of a place taken over a long period of time (American Meteorological Society AMS, 2011). Weather as a climate variable is the atmospheric condition determining the intensity of sunshine and amount of rainfall in a given environment. Climate defines the measures of temperature, humidity, pressure, wind, rainfall, sunshine intensity in a given area over a long period of time (Inter-governmental Panel on Climate Change, IPCC, 2007). Farmers suffer a lot of crop and animal failure whenever there are changes in rainfall pattern and change in climate in general.

Climate change refers to a noticeable variation in weather condition which last for a decade or more affecting both plants and animals in their environment and usually caused by nature and human activities. IPCC (2007) explained climate change as a significant

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variation that persists for an extended period, typically decades or longer. Lemke (2006) defined climate change as a complete variation in the average state of the atmosphere over time, ranging from decades to millions of years in a region or across the entire globe which can be caused by internal and external forces from space or human activities. Ozor (2009) explained climate change as a variation in weather over time, which could be due to natural variability or as a result of human activity. Climate change has some effects on the frequency, intensity and duration of extreme weather events which could negatively affect agricultural production in some of the most vulnerable areas. Wildlife resources are generally more vulnerable to climate change than other sectors of the economy like education and manufacturing sector. Vulnerability is the extent to which climate change may damage or harm a system (IPCC, 2007). In Nigeria, the vulnerability of wildlife to climate change can be seen in terms of climatic impact on wildlife habitat and forages.

Impact refers to an immediate and strong effect of something or somebody on another thing or person after an encounter (Gadby, 2007). It is the difference made or outcome after an event (Championing Voluntary and Civic Society (CVCS, 2013). It is a measure of the tangible and intangible effects (consequence) of one

thing or entity, action or influence upon another. It is more-or-less the observed differences between the past and present or future state of an object after the effect of change (IPCC, 2017). Impact in this study is the noticeable effect of climate change on wildlife conservation. It is however, important to note that climate change does not have the same impact on all parts of the world equally and some of the changes are positive (Ajaero, Akukwe and Asuoha, 2009). According to the authors, a normal climate event such as normal and adequate rainfall, normal temperature and sunshine favour high growth of wildlife in a breeding season. They

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further stressed that this positively increases the availability and sustainable supply of wildlife resource product to human beings. The normal climate also favours the growth of wildlife habitat which is very essential in wildlife resource conservation. This agrees with the opinion of Osinem (2005) who noted that any effort made to ensure survival of wildlife resources requires first growing and protecting wildlife habitat. Furthermore, the author affirmed that extreme weather events such as flooding, drought, heat stress, tornadoes among others may drastically result in death and migration of wildlife, loss of forages, habitat destruction and starvation of wildlife which may also lead to extinction of the said species. To ensure sustainability of wildlife resource for man's use, there is need for their conservation.

Conservation deals with the wise use of any material or natural resources to ensure its adequate use and reduce the disappearance (extinction) of such resources (Irandu, 2003). With reference to wildlife, Jibowo (2005) explained that wildlife conservation is the art of making the land produce a valuable population of animals. This definition implies that wildlife conservation focuses on the control of pest population to limit the negative effects on wildlife. Therefore, in addition to making the environment conducive, wildlife conservation equally involves direct population management (control of harvest, transporting) and indirect management of population through habitat manipulation to favour target species (Egwuma, 2013). Wildlife conservation is also defined as the practice of protecting endangered plant and animal species and their habitats, (Baldus, Kibonde and Siege 2003). Wildlife conservation is the wise use of wildlife resource in a way that it will be available to the present and the future generation (Osinem, 2005). Osinem and Mama (2008) emphasized that wildlife conservation efforts are meaningful when the citizens appreciate the

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positive values of wildlife and the important role it plays in the maintenance of delicate balance of nature. It is therefore noted that wildlife conservation is very crucial to make the resources available for future generations. To ensure that wildlife resources are available for future generations through conservation, its sustainability is necessary in every part of the world including Nsukka Agricultural Zone.

In Nsukka Agricultural Zone of Enugu State, availability of wildlife resources over the years has been encouraging and as the resource serves as source of protein supply to her teeming population. Recently, the production and availability of wildlife resources have changed because most of the meats from wildlife that dominate the local market in different towns in the zone are now scarce. This might be as a result of bush burning, forest destruction or irregularity in rainfall pattern due to climate change which limit wildlife habitat growth and wildlife population. Osinem (2005) lamented that food and habitat upon which the animals depend on are constantly destroyed by human and natural events of climate change and many of the wildlife have gone into extinction and the remaining few species are endangered. It is quite obvious that the activities of man have threatened and sent some wildlife species into extinction, tagged some as endangered and are

still threatening it the more. Human population growth has profound direct and indirect effects on consumption pattern of wildlife resource. Human population growth in Nsukka Agricultural Zone predispose wildlife to poaching and habitat destruction. This eventually leads to increased hunting for home markets. Many factors such as bush burning, over hunting, deforestation, and change in climate affect the availability and conservation of wildlife resource in Nigeria of which Nsukka agricultural zone is not exempted.

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Nsukka agricultural zone of Enugu state is endowed with abundant wildlife resources. Some species of the wildlife resources are no longer available and the few available ones are hardly conserved due to numerous human and natural factors such as climate change. therefore, there is the need to investigate the impact of the climate change on wildlife resource availability and some of the sustainable conservation practices of the resources.

Statement of the Problem

Wildlife conservation is very important for nature posterity. Protection of wildlife habitat is very necessary for the conservation of Wildlife. The habitats of wild animals face a lot of threats both, anthropogenic and natural. The natural factors which threatens wildlife habitat may include extreme weather events such as volcanoes, ocean current and the earth's tilt, among others. Some extreme weather events associated with natural climate change may include prolonged drought, flooding, and heat stress. Human or anthropogenic activities contribute greatly to changing the climatic condition of a geographical location over a period of time. Man clears forest to build for residential and commercial purposes, establish infrastructure and crop production, among others. These predispose animals to poaching and migration since there are no hiding places for them.

Any effort made to conserve wildlife resources without first growing and protecting wildlife habitat will amount to wasted efforts. Extreme weather events such as flooding, drought, heat stress, tornadoes among others may drastically result in death and migration

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of wildlife, loss of forages, habitat destruction and starvation of wildlife which may also lead to extinction of some species. Threats to wildlife and its habitat are aggravated by the effect of climate change. Human-induced climate change has resulted primarily from changes in the amounts of greenhouse gases in the atmosphere, but also from changes in land use. Climate change have wide-ranging effects in all agricultural zones of Africa of which Nsukka zone is not exempted. The impacts of climate change are related to decline in water resources, agriculture, food security, human health, terrestrial ecosystem, biodiversity loss, wildlife and coastal zones. These underscore the need to investigate the impact of climate change on wildlife resources conservation in Nsukka agricultural zone.

Purpose of the Study

The main purpose of the study is to determine the impact of climate change on wildlife resource conservation in Nsukka Agricultural zone. Specifically, the study sought to find out the

1. Impact of climate change on wildlife habitat
2. Impact of climate change on availability of wildlife forages (feed)
3. Impact of climate change on wildlife health and reproduction
4. Environmental degradation threats on wildlife conservation

5. Sustainable wildlife conservation practices to preserve wildlife resources

Significance of the Study

The result of this study will be beneficial to the farmers, agricultural extension agents, non-governmental organization and other researchers. The findings of the study will provide information to the farmer on wildlife conservation practices. The farmers will utilize

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the information to preserve wildlife within the locality. The study will also suggest to the farmers some of the wildlife resource conservation practices that could help them have a sustainable supply of wildlife resource to the market.

The study will provide technical information to the agricultural extension agents on the conservation practices that could be adopted by the farmers. The information will help extension agents in teaching the farmers innovative conservation practices so that wildlife resource will be preserved for the future. The findings of the study will equip non-governmental organizations with relevant information on the sustainable conservation practices of natural resources. It could help them in selecting projects related to the conservation of wildlife resources for funding.

The study will also provide information to the foresters on the conservation practices to protect forest natural resources of which wildlife is inclusive. This will ensure a steady supply of wildlife resource to local users for today and tomorrow. The findings of the study will serve as a good resource material for researchers who may want to carry out studies on the related area.

Research Questions

1. What are the impacts of climate change on wildlife habitat?
2. What are the impacts of climate change on the availability of wildlife forages?
3. What are the impacts of climate change on wildlife health and reproduction?
4. What are the environmental degradation threats on wildlife conservation?
5. What are the sustainable wildlife conservation practices to preserve wildlife resources?

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