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The Deterioration of human life in vulnerable areas- White Nile State – Sudan

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أستاذ مشارك ، وباحث في جغرافية التنمية

جامعة دنقلا ، كلية الآداب والدراسات الإنسانية ، السودان

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مستخلص الدراسة:

هدفت الدراسة إلى بيان العلاقة التبادلية بين النشاط البشري في مناطق الهشاشة - نطاقي شبه الصحراء والسافانا المكشوفة- والجفاف والتصحر. وتكمن مشكلة الدراسة في أن منطقة النيل الأبيض الغربية تعاني من مشكلة الجفاف والزحف الصحراوي ، ما أدى إلى تغيير في نوع العمل والنشاط البشري في المنطقة. استعرضت الدراسة عوامل التدهور بنوعها الطبيعي المتمثل في الجفاف والتصحر ، والبشرية المتمثلة في الزراعة و الرعي الجائر ، وقطع الأشجار والغابات. وتوصلت الدراسة إلى نتائج التأثير المتبادل منها هجر حرفة الزراعة ومهنة الاحتطاب وعمالة الأطفال والهجرة الموسمية وهجرة الأسر وغيرها. أوصت الدراسة بضرورة حظر قطع الأشجار وتشجيع استزراع الغابات وتكثيف الزراعة المروية بالمنطقة.

كلمات مفتاحية : تدهور - بيئة- نشاط بشري - علاقات تبادلية- تأثير.



Abstract:

The study aimed to demonstrate the interrelationship between human activity in areas of vulnerability - semi-desert / open savanna zones - and drought / desertification. The problem of the study lies in the fact that the western White Nile region suffers from the problem of drought and desert creep, which led to a change in the type of work and human activity in the region. The study reviewed the factors of deterioration , both natural, represented by drought and desertification, and human, represented by agriculture and overgrazing, and diminishing of forests . The study found the results of the mutual influence, including the abandonment of the agricultural profession, the profession of wood cutting, child labour, seasonal migration, family migration, and others. The study recommended the necessity of banning tree cutting, encouraging forest cultivation, and intensifying irrigated agriculture in the region.

Key words: environment- deterioration- impact- mutual relation- human activities.

Introduction:

The people affects environment and vise-verse, and that has results which appeared quietly in the area of vulnerability. This relationship has generated a number of theories that either focused on how people affect the environment or how the environment affects on people. Few theories explicitly focus on the interaction. This article will establish the range of data required to give an assessment of how likely an ecosystem is being change(which we label environmental sensitivity), and the ability of communities to adapt(social resilience). These findings allow us to generate a new method for assessing the reflexive relation between human society and the environment.

Human environmental interactions are the interrelations and complex dynamics that exist between human beings and the natural environment. Driven by various political, social, and cultural processes, human activities such as landscape fragmentation strongly modify natural environments in order to fit societal needs with mountains, fragile and



marginal areas being particularly affected. This development endangers ecosystems existentially and directly impacts human well-being. At the same time, these changes can lead to conflicts between different interest groups. It is the objective of this trans-disciplinary research group to study and devise sustainable and implementable solutions for viable interaction between human and environment.

The problem of the study:

The Human settlement in any area depends on the satisfaction of basic needs. The people in the area of study depends on cultivation of multiple crops and animal breeding. These professions will affect the future of land use. So to what extent the human activities affects negatively the environment.

The objective of the study:

- The study tries to reveal the mutual relations between the human activities and the phenomenon of drought and desertification.
- The study aims to demonstrate the vulnerability hits the area since 1984 drought in Sudan.
- Also the study attempts to identify the changes in human activities that affected by natural conditions.
- Draw attention of the government and organization to the rural area, especially vulnerable areas.

The area of study:

The area chosen to be studied is vulnerable area, because it lies in a transitional zone between semi-arid and sub-humid (open savannah) region. This area lies at the left bank (west) of White Nile in Sudan. It contained savannah grassland and acacia trees which appears on sandy land (Goz land) west of the Nile. The area witnessed changes from rain belt to another on clay soil in dominant trees and not In grass(Saudi:1985:116). The area of study divided to:

- **Semi-desert zone from Umdorman to Edduaim:**

This zone constitute and important area of the country. Annual rainfall ranges from 75mm in the north to 300 in the south. According to the soil and vegetation is subdivided into:

1. Desert scrub: Acacia Tortilis and Maerua crassifolia which are dominant species as: Acacia radiana, Caparis deciduas, Ziziphus spina-chiristi, Balanites aegyptiaca, and Salvadora persica. In addition to Acacia mellifera in clay soil areas.
2. Semi-desert on sand soil: The trees composed mainly of Acacia radiana, Acacia mellifera, Commiphora Africana, Leptadenia pyrotechnica, Cassia acutofolia and Calotropis procera. Acacia Senegal appeared in the wetter parts in the south(Tothill :1948). This zone witnessed a huge changes in its rain and vegetation cover, that made it part of the extension of Sahara desert. The new situation led to changes in lifestyles and activities.
3. Low rainfall woodland: Savannah zone from Edduaim to Kosti characterized by annual rainfall between 250 mm to 500mm. It is subdivided into two zones according to soil type:

The clayey areas: the main species are Acacia mellifera, Commiphora Africana, Boscia senegalensis, Acacia seyal, Balanites aegyptiaca, Dalbergia melanoxylon, Combretum hartmannianum, Anogeissus leiocarpus, Boswellia papyrifera and Sterculia setigera.

- **The sandy areas zone:** The main species are Acacia radiana, Faidherbia albida, Adonsonia digitata, Acacia Senegal, Maerua cassifolia, Combretum cordofanum, Dalbergia melanoxylon, Sclerocarya birrea, and Tamarindus indica.

Most of this vegetation cover subjected to deterioration during long period of time, resulting in minimizing the forest areas and species. The majority of people in this area deserted lands for years after drought 1984, and the rest took long journey to reach the Nile breeding their livestock and cultivate in small areas.

The Deterioration agents:

“ Sudan has been struck by long periods of drought which continued for years starting in 1968 and reaches its peak in 1984. Misused or overexploitation of natural resources were the major causes of the problem. The drought problems are closely related to the reproduction of forest covers in addition to desert creep southwards(Abu Sin:1991)”

Man has been the most powerful and persistent factor that caused the deforestation and disturbance of Sudan natural ecosystems. The main human activities that are threatening the tree species and endangering some of them are unregulated cutting for timber and fuel wood, clearing of forestland for agriculture, overgrazing of livestock, burning. The mentioned agents divided into two main concepts; one is natural and the other is man-made as followed:

1. **The natural agents:** Include drought and desertification; however, desertification is a phenomena caused by man and nature.

Desertification: is the absence of living circumstances or ecological disturbance leads gradually to dryness and minimizing the ecosystem(Ali labib:2004). Some of human activities caused desertification are:

- Cultivation of fragile soils, or exposed to erosion by wind or water; mainly in Goz lands and vast mixed soil in the area.
- Over-cultivation: involve cultivation in vulnerable areas, pastures and forest zones. This type ignored the conservation of natural resources as soil not coincide with environmental differentiation in arid zone(Abdelatif:1993:61). The expansion of agriculture in natural forests zone exposed soil to erosion and los of its fertility.

Overgrazing: Occurs when plants are exposed to intensive grazing for extended periods of time, or without sufficient recovery periods(<http://en.wikipedia...>).

Overgrazing remove vegetation that prevents soil erosion. The existing settlement can exploit only small proportion of the region, and elsewhere the extensive grazing afforded by the natural vegetation has attracted various nomads' tribes, both cattle owning with mixed flocks and herds of camels, sheep, and goats(Barbour:1961). As over grazing and collecting wood increasing in semi-arid and semi-dry, the annual rapid growing grass replaced the permanent grass and trees. These new vegetation was sensitive towards rains than the permanent one, and absolutely not growing in dry years, so livestock lost its natural pastures(Ibn Auf:2001:88).

Heavy grazing is one of important factors causing grassland desertification in semi-arid region, also in vegetation deterioration and decrease the bearing capacity of grassland and productivity.

Overcutting: define as the act of cutting trees for charcoal, firing, shelter ,lumbering and agricultural expansion. overcutting threaten forest in many ways, and it also threaten human social life and economic well-being. Widespread cutting create forest fragmentation and leads to a loss of biodiversity (<http://www.vasic@un.org>).

The mass of continuous exploitation of biological systems led to changes affected so much in the deterioration in ecological and economical production, according to the loss of plant (trees+ grass). Practicing of overcutting and overgrazing in this vulnerable area minimizing vegetation cover and removing forest during the past fifty years. Some of the inhabitants practice overcutting as economic activity; either lumbering or charcoal, which accelerated diminishing of trees.

Drought: Is one of the most deadly natural hazards, it is the condition or quality of being dry; dryness, aridity, lack of moisture or rain(Oxford dic.2011). Also it's the failure and variability within the lowest 10% of the recorded rainfall.

The perception of drought as hazard is therefore very much and outcome of both individual's and group's perception of all the components of the physical, economic and cultural environment(Abu Sin;1991:32).So people in the area of study were not awareness the danger resulting from their interacting with the environment. The impact of drought in the area represented by the losses of livestock, less crops production,

The reasons of change:

An increase of population numbers is a deterioration factor, because it leads to pressure on resources, as we found agricultural areas after the second half of the twenty century owned by successors, minimizing the agricultural holdings. This situation of increasing number of families forced them to exploit cultivation in marginal area or expansion in pasture area. The expansion of pastures led to conflicts in the area. Impacts from human activity on land and in the water can influence ecosystems profoundly. Climate change, ocean acidification, permafrost melting, habitat loss, stormwater runoff, air pollution, contaminants, and invasive species are among many problems facing ecosystems.

The results of deterioration in the area of study:

The mutual relation between man and environment appeared clearly in the thought of environmentalism and possoblism. The relation quite obvious in the human activities involved grazing, cultivation and wood cutting, which regarded as man-made agent affected environment. The vulnerable areas need a rational treatment with awareness of negative result, because most of human activities affected in the natural environment which will influence in human life.

Without climate change, many people in the dry lands were becoming more vulnerable, especially those who were lived in rural and dispersed communities. This was a result of various processes that included in the impacts of micro-economic development which reduced the value of agricultural commodities, making more intensive competition, and increasing the cost of input, limited access to markets, and expanded of vulnerable area southwards.

During a survey; the area suffers of poverty as a result of land degradation and increasing of population. Many of the inhabitants practice semi-subsistence agriculture or pastoralist, producing a small surplus in good years to sell or barter for needed goods and services.

The main result of the effects of drought and desertification in the change of human life in semi-arid and low-rain savanna are:

- We found that the region had been affected by climatic change in the region, because I is located in the transitional zone between tropical dry-climate “desert and semi-desert and wet tropical(rainy)”. The area witnessed a decrease in rain amounts, which resulted in changing type life. So the communities transform from continued type into resumed type and became less stable.
- Low agricultural productivity: which led them to leave the profession of cultivation. Here appeared the phenomena of adult and child labour to increase their income.
- Change in number and type of livestock: the area witnessed a decrease in cattle and sheep which represented a huge amount of livestock before 1980. After the mentioned period there was an increase in goats and camel according to the reduce of vast pastures.
- Looking for daily or monthly work in or outside the area, to satisfy the needs.

- Appeared the child labour after left schools.
- The seasonal migration, mainly after rain fall season and increase family migration.

The following diagram explained the environmental adaptation to the change due to the deterioration of human life in a vulnerable rural area west of the White Nile state in Sudan.

The diagram summarized the mutual impact between environment and human activity as a result of practicing and experience, during long time since 1970s till now. The intensive exploitation of environmental resources in case of agriculture, cutting and grazing, which were the main activities of rural inhabitant(فضل الله:2005:7-8).

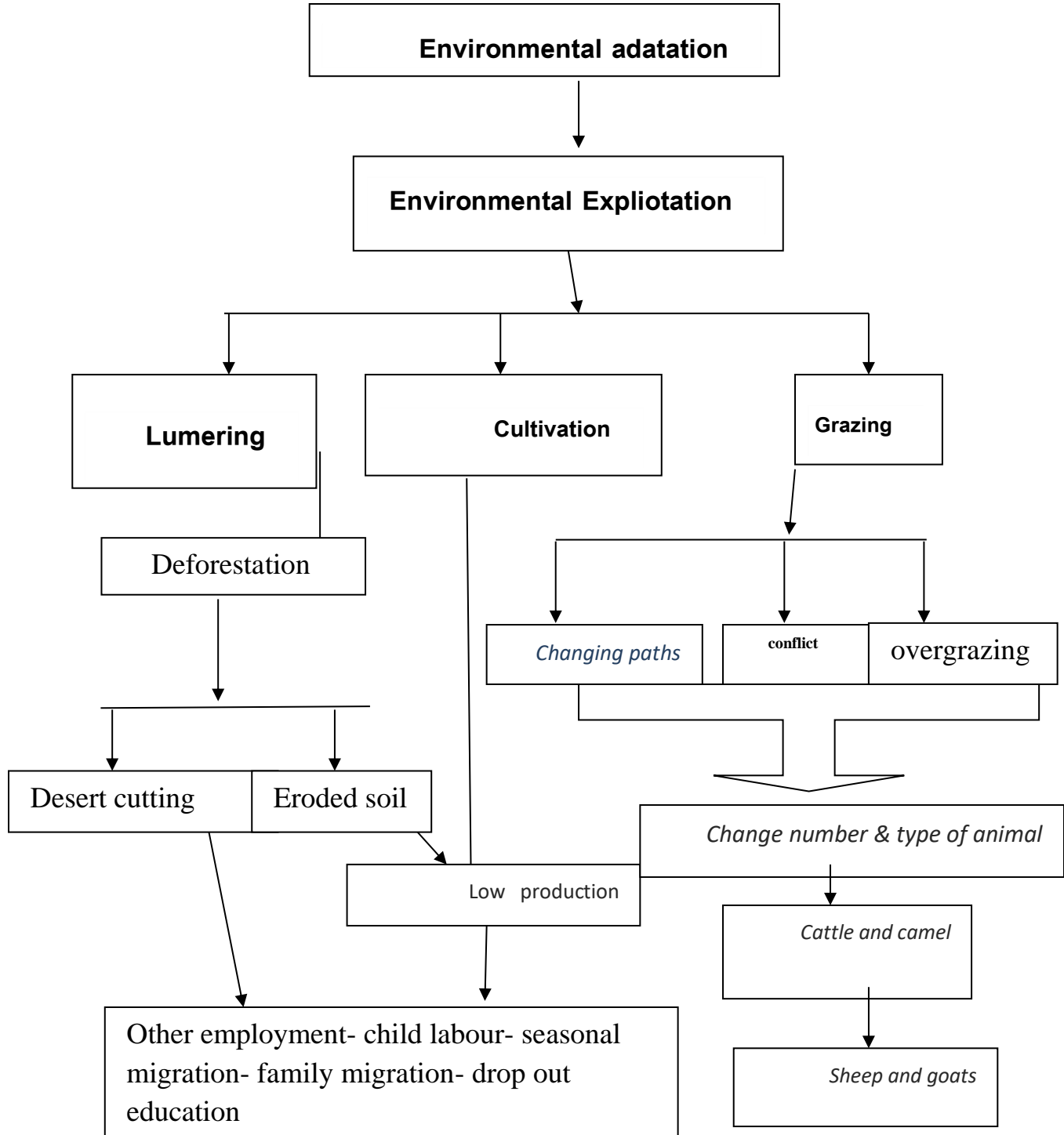
Over-cultivation, over-cutting and over grazing led to deforestation, soil degradation, changing pastoral paths and conflicts in the area. The new features reflected in low production and productivity, changing numbers and types of livestock. But the decline of production affected the social and economic life, because it led to idleness, child labour, seasonal and family migration.

According to my view this mutual change in the area of study led total migration from the region, unless development programme achieved in the rural area as repairing the ecological side by greenbelt to protect and conserve soil from desertification.

The recommendation of the study:

Finally, the study put some recommendations as:

- The organization must achieve many programmes to minimize poverty.
- The government must encourage the reforestation in the area.
- The people in the area must be aware of the negative impact of the exploitation of environmental resources.
- Conserving the forests, trees and grass from firing and overcutting and overgrazing.
- Support poor family; monthly or with productive projects.



Designed by: the researcher.



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