Urbanization and Desertification in the Sudan with special Reference to Khartoum

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Abstract: Urbanization-desertification interactions in the arid zones of the Sudan represent a challenge for future management planners. Desertification leads to a considerable movement into the towns, thereby encouraging the urbanization process. However, due to the large pull effect of large urban centres which are limited in number and unevenly distributed over the area, most of the migration is oriented towards them. This tendency is strengthened, furthermore, by the present planning trends of growth pole centres. The result is overcrowding, negative over-urbanization diseconomies and more pressure on the natural resources in the immediate hinterland, thus further accelerating the desertification process. Some examples are given in the paper to show how the rapid increase of urban population and the rapid growth of urban centres have reflected themselves in difficulties in procuring wood fuel or naturally grown raw materials for traditional and small urban industries. The specific example of Khartoum, the largest urban centre in the Sudan with the highest rate of growth is treated in detail to show how rapid urbanization processes would result in intensified desert conditions and how ecological interactions and effects would be faster and more serious in a more vulnerable ecological location.

Introduction

It is generally accepted that there exists a close interrelationship between urbanization and desertification in arid areas. For many years aridity has stimulated the growth and formation of urban centres and dryland settlements. Movement into dryland towns, due to a worsening of environmental conditions and marked population increases, has led to an acceleration of the urbanization process. Today 20 – 30 % of the population of dry lands is defined as 'urban' (Kates, 1976). On the other hand, increasing aridity has played an adverse role in certain areas. "Numerous abandoned sites of ancient settlements in the north Sahelian zone testify to the regression of fixed dwellings over a number of centuries. In Air, numerous stone-built towns and villages have been forsaken and replaced by straw encampments or tents. The worsening of climatic conditions presumably brought about the abandonment of a sedentary, sometimes even agricultural way of life". (Bernus, 1975).

The relationship between urbanization and desertification embraces many other aspects. Two types of urban-arid interactions have been identified by Kates and Johnson (1976). The intrinsic type relates to problems which might arise from any concentration of population in arid lands, such as the need for fuel, shelter, water and food which may not be available in sufficient quantities in the immediate hinterland of the urban centre. Exploitation of the local hinterland to satisfy these needs often leads to serious problems, such as destruction of plant cover, soil erosion, pressure on limited water resources, etc. The other type of interaction includes all positive and negative aspects resulting from the sudden and heavy rural-urban migration being induced and caused by desertification. The positive effects may include a higher standard of living for the migrants and the possibility of establishing a permanent urban-rural link. This helps in the development of rural areas through modernization and the technical efficiency of a rural economic base, in the creation of a bigger market for rural pro-
duce and in the supply of more and relatively efficient services to rural areas. The negative aspects of this migration to urban centres in developing countries, already inadequate in maintaining services to their inhabitants, may lead to over-urbanization, diseconomies such as the creation of slums and increases in disease, poverty, juvenile delinquency, crime etc.

Historical evidence in the Sudan shows that in arid regions many towns developed around the limited water resources and in the limited agricultural land. Urban centres such as Kobe, El Fasher, Qoz Ragab, Berber and Suakin acted for a long time as administrative, market or caravans centres. Today, most of the urbanization process in the Sudan is taking place in the arid areas. The fact that more than 80% of the urban population of the Sudan is found in these areas highlights the importance and validity of research into the interacting processes of desertification and urbanization. This paper is a modest contribution in this field which aims to throw light upon current research work and to encourage more intensive investigation.

Delimitation of Areas Affected by Desertification

The definition of the southern limit of the areas threatened or severely affected by desertification in the Sudan has been subject to different interpretations (Rapp 1974, Mensching 1978, Ibrahim 1979, El Arifi 1979, etc.). One method is to adopt a climatic classification and to draw boundaries of the climatic regions of the Sudan showing the degree of aridity. Even here there have been many different criteria adopted and different interpretations made (Köppen, Harrison 1957, Barbour 1961, White 1966, Grigg 1970, El Tom 1974, etc.). The matter still needs serious consideration, but for the purpose of this paper it is preferred to adopt the delimitation of Mensching and Ibrahim (1978) and Ibrahim (1979), taking both climatic regions and anthropogenic effects into account. Accordingly, three major areas are identified: arid, semi-arid and semi-humid. An area generally lying between the isohyets 250–500 mm is identified as the Sahel zone which has been severely stricken by desertification.

Evolution of Urban Centres

The problem of defining an urban centre in the Sudan has long been the subject of much discussion. Various criteria have been used, such as size of population, administrative position and the function performed by the settlement (1st census 1955/56, El Bushra 1971, MEFIT 1978). Accordingly, threshold figures ranging between 700 and 8000 inhabitants have been suggested as the definition of an urban centre.