# SOCIOLOGICAL AND HUMAN FACTORS

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The phenomenal growth of human population today, in Africa especially, poses a considerable problem for nature conservation. Africa is thought to have had 120 million inhabitants at the start of the century and now to have 240 million. More reliably, detailed studies like the demographic survey in Guinea in 1955 reveal annual rates of increase in the neighbourhood of 2 % equal to the doubling of the population in less than 35 years.

As an over-all rate for the whole of Africa, these figures are not particularly significant, since they would only give an increase in density from 8 to 16 per sq. km. But if we take into account the proportion of desert, the whole picture is altered. Moreover, the population is very unevenly distributed—West Africa affords a significant example. It is interesting to consider our subject according to the habitat—whether sparsely, moderately or heavily populated, which corresponds to the foreseeable trend of evolution.

Apart from exceptional cases which will be referred to later, the useful area of West Africa has been and remains sparsely populated. Over the greater part (south of the Sahara) there are less than 10 inhabitants to the sq. km. Human settlements have been established in relation to the potentialities of the habitat but perhaps more still according to the vicissitudes of history. However, with plenty of space available everywhere, extensive cultivation is the general rule. The basic technique consists in burning to clear the land. On the one hand, bush fires are used to burn the whole of the savannah in the dry season—these are responsible for the type of degenerate vegetation which, however, is so long established in the region that it must be regarded as being in equilibrium. On the other hand, there is the weedburning system which consists in preparing a field for cultivation by burning all vegetation (except for a few useful species) to free the useful soil while adding the fertilising elements contained in the ashes.

This method, very impoverishing in the long term, nevertheless has no major drawback when one realises that with the areas used and the possibilities of rotation in cropping them, fallows of thirty years and more are often found, which allows for reconstitution of the soil and of the plant cover in conditions of equilibrium of the habitat. The period is doubtless not long enough for forest; but the tendency being to return to previously cleared sectors where fresh cultivation or improved farming present less difficulty, large forest enclaves remain intact as do, in the savannah, gallery forests and certain parts which are inaccessible on account of topographical circumstances, unhealthiness, or remoteness from the villages. These continue as favoured zones for

wild life. Plant species normally eliminated by man from cropped land here survive, as does the fauna, in the conditions necessary to its existence. Probably there is no place, leaving aside religious taboos in respect of mountains or forests, unvisited by man however transiently, so that he is in contact with nature everywhere.

Nevertheless, as regards game, there remain numerous safeguards: the majority of species can flee or hide, and to this is added the limited efficiency of means of killing even when "trade" guns are used (striking power and, above all, range); then there are special sociological conditions—apart from a few big mass drives in the dry seasons each year, hunting is often the preserve of fraternities or castes which have their own rules and traditions (one has only to think of the Nigerian Sorko in their attitude to the hippopotamus), not forgetting the customary dues to chiefs in respect of game taken.

In contrast with these low-population countries, West Africa includes some very densely populated regions, such as the Yoruba countries (Dahomey, Nigeria), those of the Hausa (Northern Nigeria) and the Serere (Senegal), whose particular demographic dynamics are as yet unknown, or certain peoples anchored to defensive sites like the Kabre (Northern Togo) or the Dogon (Bandiagara sandstone massif, Mali). These are extreme situations which call for consideration in view of the lessons that they may furnish.

As countries *a priori* without excessive natural wealth, one might have thought them destined to the greatest difficulties, to the loss of substance by exhaustion of their soil, and to ruin. But, in fact, each and all of them continues to be able to feed itself and even to produce for export, whether the crop be groundnuts or the product of the oil-palm.

Agriculture has been sustained by the wise action of populations in gradually adapting themselves, as necessity dictated, to the conditions even of the most rugged habitat—for instance, of mountains where a kind of terracing is constructed to retain the soil and where the available water is impounded to water the plots thus formed. Every source of fertility is mobilised; animal or plant refuse is gathered to manure the soil and the livestock is more or less associated in this cycle. Without achieving a modern system of agriculture, since all the labour is still provided by man, these populations nevertheless practise intensive methods, in which the whole of the land is exploited with carefully determined rotations and constant regard to conserve the soil capital. It is under this heading that trees are most often associated—the "kad" of the Serere, the oil-palm in the Gulf of Guinea, both protecting and enriching the soil and affording supplementary resources, grazing material in the one case, much sought-after oil-bearing crops in the other.

Nature is obviously much transformed from its primitive state, but a new equilibrium is substituted, with its landscape and its resources which, as in the environs of Porto-Novo, support up to 500 people per sq. km. Only a few forest enclaves are enabled to survive here and there by the will of man, but wild animal life is no longer thinkable in habitats so closely settled by man, at any rate, as regards mammals of medium size upwards. These zones are as yet somewhat restricted and others round them generally remain little exploited if at all.

This brings us to consider the zones still sparsely or moderately populated, but in process of rapid increase. The former present generally difficult conditions of habitat : poor soils, unhealthiness due especially to swamps or a type of vegetation favouring proliferation of insect vectors of serious diseases. These are the areas in which, because they are practically uninhabited, it has been possible to establish without undue difficulty the great nature reserves or national parks (Niokolo-Koba, Baoule, West of the Niger), which are the refuge of flora and fauna in their primitive state and likewise a heritage safeguarded or prepared for future generations.

However, there is a danger of riparian populations casting greedy eyes on these zones, either for their accumulated capital since being placed under protection, or because they have become more accessible with technical progress (roads, drainage), or again on account of workable minerals, or simply, in forest areas, the presence of trees of trade value.

Pioneer settlements, like extensions of cultivation in zones already moderately populated, while indispensable, are especially to be feared because they are effected without thought for the morrow, with the sole aim of extracting the maximum yield from the newly broken land, even in the case of peoples originally very much alive to soil conservation. They lead to exploitation of the whole of the land, whatever its value and whatever it is fitted for, wiping out forest enclaves, galleries, mangroves, etc.

The result is the wholesale devastation of the natural habitat. While in theory the subsequent reconversion of the landscape may be possible as in the previous case, in view of the speed and scale of present means of destruction there can be no doubt but that irreversible processes are set in motion, too. There is now a danger not only of exhaustion of the soils but of their removal. Certain plant formations will disappear irretrievably for the sake of short-lived and ever diminishing profit. The haunts of animal species are disappearing while, with the withering of the power of custom and the development of means of killing (improved guns), they face an increasingly merciless struggle justified partly also by the need to protect more intensive cultivation and stock-breeding.

This reveals the need for development planning not so much by local authorities as by governments whose business it is to think ahead. A complete survey of the countries of Africa in terms of population density and the special vocation of different soils should lead to consideration of what can best be left to cultivation and what preserved for the future as a control sample of the natural habitat (total reserve) or potential resource, with spontaneous and if need be assisted enrichment and carefully regulated exploitation. Propaganda campaigns and technical information will undoubtedly be needed, to complement schemes for aiding the more rational farming of land really suited for agriculture and the opening up of new regions capable of irrigation and of bearing especially profitable crops.

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