

L'évolution du système agraire de 'Kano Close-Settled Zone' Nigeria, 1990-2005

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The Kano Close-Settled Zone (KCSZ) is a densely populated rural area (population: >6 million) surrounding the metropolis of Kano (population: >1.5 million) in the semi-arid zone of northern Nigeria. On-farm population densities exceed 200/km² over large areas, and there is highly intensive rain-fed farming with livestock on holdings of <1ha/capita on >80% of the land. The landscape is a mosaic of fragmented farm plots with economically valuable trees, and field boundaries planted with shrubs. *Agricultural development projects have generally aimed to support sustainable intensification and market participation.*

Changes in ecological conditions

Average annual rainfall declined by about a third between the 1960s and the 1990s, remaining at this level thereafter (though 1996, 1999 and 2003 were exceptionally dry). However the four to five-month rainy season is variable in starting and finishing. Intensity is variable but generally high. Crop selection, planting and agronomic strategies must adapt accordingly. The natural vegetation (thorny open Sudan savanna woodland) has been removed through centuries of cultivation, burning, and grazing, having been replaced by 'farmed parkland'. The trees have multiple uses, and are incorporated into the production system and rural livelihoods. There is a sharp difference between urban areas (with many exotic plants and few indigenous trees) and rural areas where the indigenous species (used for fuel, fodder, food and medicines) predominate. Soil fertility, though lower than under natural vegetation, is maintained at constant levels through the use of organic materials (manure and composting), and inorganic fertilizers when affordable.

Changes in systems of production

Crop cultivation, small ruminant livestock raising, draft animal management and the farm trees are highly integrated through using crop residues *as fodder*, livestock manure for the farms, and the trees for browsing, cooking fuel and *timber*. Fallow fields are becoming very few, and fallows last for <3 years. *They indicate a shortage of inputs rather than a fertility restoration strategy.* This intensive system has been maintained in the last 15 years. The system is supported by economic diversification strategies, which are aimed at maximizing incomes in good years and minimising losses from rain failure. Returns support *farm investments*, secure food security and finance new seeds and animals. Crop yields and animal production are thought to be increasing slowly, except when drought causes production failure which has major implications for the poorer families. However, after 2004 (a bad year), many such recovered in 2005, following a bumper harvest.

Tree densities on farms were maintained between the 1970s and the early 1990s at about 15 mature trees/ha. This was due to careful management which was consistent with the production system as a whole, in which cutting is restricted to branchwood or dead trees for meeting the fuelwood demands of resident households. Research

carried out in 1996 showed that of the 24 most useful trees, 13 have edible fruits, 20 are used for fuelwood, 14 are browsed by livestock, and 11 are used for timber. Trees are only felled if dead, diseased, *competing with nearby seedlings*, endangered by storm damage or as a last resort for owners in economic difficulties.

Changes in socio-economic conditions

During the last 15 years a great majority of the inhabitants of the KCSZ have suffered directly from negative economic and social trends expressed *countrywide* in

- Declining urban employment (about 80% of companies have closed down, and the remaining 20% are either effectively closed or operating below capacity. Youth unemployment increased from 15% in the late 1980s to 76% in 2005; and poverty from 25% to 83%).
- A high level of insecurity in the form of religious, political and ethnic conflict and social vices such as banditry and armed robbery.
- Decay in the provision of basic infrastructure - electricity, water, fuel - and social services

These astonishing impediments have both a direct and an indirect bearing on the sustainability of the KCSZ production system, leading to distortions in economic production and social cohesion which inevitably affect the productivity of ecosystems. On the other hand, the activities of some NGOs, and the persistent investments in trees, land and water (to a lesser extent) have contributed in absorbing the impact of these shocks. The restoration of Islamic (*Shari'a*) Law four years ago is *expected to strengthen governance in Kano*.

The socio-economic pressures that threatened the sustainability of the production system of the KCSZ by the turn of the 21st century include the following:

- Higher rural population densities as a result of continuing population growth, together with the wood fuel demand generated by an ever-increasing urban population.
- The increasing price of kerosene, which is the second most important cooking fuel in urban Kano, by over 1500% in nominal terms (1990-2005). Two thirds of small and medium sized families used kerosene for cooking and lighting in the early 1990s, but now only a few families do so.
- Increasing numbers of livestock, both small ruminants and cattle, especially draft bulls, which are now very common. In 1995, for example, there were only 3 ox-plough teams in the village of *Gamji Tara*, but now there are more than 10 (almost one in 3 households). This puts more pressure on feed resources, including browse.

Present assessment

With these background trends, we shall try to assess the sustainability of the KCSZ under three headings: the regenerative ability of the ecosystem, the production system, and livelihoods.

Some of the trends identified above put increased pressure on the tree resources. Evidence has been found of 'rural deforestation' in the farmed parkland. In one locality (Dausayi), between 1996 and 2000, tree felling increased from 31/yr to 102/yr over the five years, and while 68% of respondents said they used wood for cooking in 1990, 80% were doing so in 2000. From 1997, when the price of kerosene increased by 100% in a year, some farmers began the purchase and felling of live trees, for sale to dealers in urban Kano, as a major business. Unemployment, especially in the dry season, is also blamed.

However, such 'mining' of the farmed parkland is illegal, and generalisation on ecosystem health cannot yet be based on adequately comprehensive data.

With regard to the production system, it has been observed above that productivity in terms of crop yields and animal production does not appear to be in overall decline, and, together with continuing investment, suggests that most farmers – however poor - still prioritise sustainability (as shown in earlier studies). Data for the region as a whole have not, however, been found.

With regard to livelihoods, it is worth making several observations:

- The wide gap that existed in the past between rural and urban areas, in terms of social differentiation, has narrowed. Many rural families have better access to education, medical services and improved dwellings. Also, ownership of bicycles, motor cycles and milling machines is increasing.
- Rural areas are better off in terms of road accessibility (more tarred roads and many more feeder roads). This facilitates access to markets.
- Access to credit has improved, especially for women, with the aid of NGOs and the State Government (which supported over 25,000 women, 1999-2005).
- Several NGOs operating in the State, and international donor agencies, trained a significant number of youth and women in economic empowerment.

On the basis of this brief situation report, one may conclude that the agrarian system of the KCSZ, which has survived change and shocks for many centuries, continues to face major challenges; however its capacity to adapt through continuing intensification and diversification is not exhausted. This human and social capital is the best guarantor of future sustainability.