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Chapter 9

Slaves: Inequality and sustainable agriculture in pre-colonial West Africa

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Prel. version, do not quote.

The relation between social and economic inequality and the environment is one of the most central research questions in historical political ecology. This chapter addresses the issue from the perspective of a specific social form (slave societies) and with focus on a specific environmental issue (soil degradation). It discusses the measures that people in the eighteenth and nineteenth centuries took to ensure sustainable yields through investments in landesque capital. The central question is how slavery was related to soil and water conservation in West Africa during the period of the Atlantic slave trade and its aftermath. There are two underlying arguments. First, while we have indisputable examples of how exploitative social and economic systems have led to degraded environments and to environmental load displacement, this relation needs to be examined critically and empirically, rather than taken for granted. Second, in the current urge to highlight ‘traditional’ soil and water conservation practices for development purposes, there is a need for a better understanding of the political economy and social structures in which these practices once developed.

Environment and inequality

Some of the literature on large empires and their environmental impacts helps us to define more closely what caveats there are in studies of inequality and the environment. In an article on the environmental impacts of the Roman economy, Donald Hughes demonstrates some of them (Hughes 2007). As examples of environmental deterioration in the Roman empire Hughes lists extinction of wild animals, deforestation, salinization, erosion, siltation, soil exhaustion, air and water pollution, lead poisoning, vermin and diseases. What all these processes that Hughes refers to essentially have in common is that they belong to what in the late twentieth century was perceived as important environmental problems. Hughes finds them all in the Roman empire. An empirical investigation of the causal relation between the Roman economy and its different effects on forests, agricultural soils
and wildlife, however, needs to be more precise. The ‘environment’ cannot be categorized according to what was on the political environmentalist agenda in the late twentieth century. These different processes, which we classify as environmental problems, follow different kinds of logic and are related to human and natural causes in different ways. Historical political ecology needs to be aware of this. If the analysis of the relation between economy and ecology shall be able to say something new, empirically and analytically, it needs to be precise about what is meant with the environment and to examine different, specific processes in the physical world. The understanding of how specific social formations and organisations of labour in given geographical areas impact on the resource base, and the extent to which they improve or degrade environmental conditions, must be based on empirical investigations, rather than past or present narratives of environmental degradation (cf. the arguments on critical political ecology in Benjaminsen et al. 2010).

Much research in environmental history seems oblivious to the whole debate on environmental degradation narratives. In the past as well as in the present, narratives about the overuse of the environment have served particular interests. Statements referring to environmental degradation can rarely be taken at face value, and the list of environmental problems in the Roman empire that Hughes provides has very much the character of such a narrative. The fact that widely accepted understandings of environmental degradation are not always empirically based, but are produced within a specific social context, was repeatedly highlighted in the 1990s and most clearly expressed in the work of Fairhead and Leach on deforestation in Guinea (Fairhead & Leach 1996). Since then this understanding has become something of a common point of departure among critical political ecologists. It is only recently, however, that such an understanding has been incorporated in the works of environmental historians and historical geographers. Diana Davis, for example, has shown how degradation narratives served the interests of French colonial expansion in North Africa (Davis 2007, 2009). Furthermore, some of the more established narratives in environmental history have been subject to intensive empirical scrutiny. This is not least the case when it comes to the causes and extent of deforestation and land degradation in the Mediterranean area during Greek and Roman times, which is much in focus in Hughes’ work (see Rackham & Moody 1996:6-11; Grove & Rackham 2001:8-23; Butzer 2005; see also the response by Hughes 2010).

The Roman empire was indisputably an extractive economy that drew on a large area to feed consumption at the centre. It exploited both humans and natural resources. But it remains an empirical question to show in what respects, to what degree and where the Roman economy led to environmental degradation, or conversely, how and where it led to investments in landesque capital that improved environmental conditions. This has been clearly shown by Graeme Barker in his
extensive research in two different desert environments on the fringe of the Roman empire. In the Tripolitanian desert (present Libya) Barker and co-researchers “found no significant evidence for humanly induced environmental degradation, and indeed several indicators of attempts by the Romano-Libyan farmers to practice sustainable systems of land management” (Barker 2002: 503). This was in clear contrast to the conditions in Wadi Faynan (Jordan), where there was abundant evidence of degradation caused by mining as well as by farming. Barker here sees a difference between a bottom-up approach, based on local knowledge, as in the case of the successful floodwater farming in the Tripolitan pre-desert and, on the other hand, the imposed, top-down decision-making in the example of Wadi Faynan.

**Landesque capital and slavery**

It has long been established that locally developed soil and water conservation techniques can play a crucial role for a sustainable agriculture in semi-arid Africa. Numerous examples of communities using terracing, mulching, manuring, rain water harvesting and irrigation have been documented (see e.g., Reij et al. 1996; Brookfield 2001; Brookfield et al. 2003). Broadly speaking all of these agricultural techniques are labour-intensive and result in the creation of landesque capital, be it in the form of anthropogenic soils, agricultural terraces or irrigation furrows. In many parts of semi-arid Africa such investments are not a prerequisite for farming, but serve to increase production, reduce risk and prevent soil exhaustion. Much recent literature on traditional soil and water conservation in Africa has been focused on local knowledge and on the “process of learning, experiment and innovation” among small-holders (Brookfield et al. 2003:1). Less emphasis has been put on questions regarding the social context in which such innovative and sustainable farming practices evolved and how they can be sustained today in a different social context.

The causal factors that connect social inequality and land degradation were explored by Blaikie and Brookfield (1987, especially their discussion in marginality p. 19ff) and along a similar line of argument Franke did show that successful food producing systems in the Sahel that were built on herder-farmer integration and on traditional knowledge were positively linked to the relative absence of exploitative social formations (Franke 1987). In the search for the social contexts of investments in soil and water conservation. Håkansson and Widgren also found partial support for such a view. We argued, based on a comparison of four different farming communities in present day Tanzania, that social stratification was one of several factors that could explain the lack of investments (Håkansson & Widgren 2007).
In my review of several cases of intensive agriculture in West Africa, I found that during the most intensive era of slave-raiding, investments in soil and water conservation took place at both ends of the political scale. The decentralised, stateless farming communities, which were the potential victims of the slave trade, intensified their agricultural production through terracing in the highlands. The predatory, hierarchical states, based mainly on the plains, which took part in the slave-raiding and used slave labour in their own agriculture, also intensified their agriculture, primarily by investing in anthropogenic soils and in wells for irrigation (Widgren 2010).

We must thus consider in more detail the relation between slave labour and investments in landesque capital. Two contrasting standpoints can be drawn from previous literature. Slavery has for example been seen as the most evident example of a labour organisation which combines exploitation of humans with exploitation of the environment. Don Hughes writes that a “slave economy cannot as a rule benefit the environment: slave labour enable exploiters to do more damage, and a slave class whose members were liable to be sold anywhere could not establish a relationship of responsibility with the land” (Hughes 2007:32). On the other hand it has been argued that the landesque capital of early agricultural societies “was generally accumulated by chiefs and monarchs through the appropriation of labour by means of slavery, corvée, kinship, or other obligations” (Hornborg 2008:67). Similarly, Scott (2009) has recently argued that the history of upland Southeast Asia can be seen as a continuous struggle between, on the one hand, hierarchical states, slavery and investments in intensive paddy rice cultivation and, on the other hand, the “culture and agriculture of escape” practiced by groups who wanted to evade the state rather than be ruled. Escape agriculture implies, according to Scott, shifting cultivation of “escape crops” that are difficult to tax and difficult to appropriate in raids (Scott 2009:178ff).

I shall now in more detail explore three different cases of what has been termed traditional soil and water conservation in West Africa, in order to see if their relation to the organisation of labour can shed some light on the more general questions of inequality and the environment.

**Ring cultivation in the semi-arid belt of West Africa**

In the semi-arid zone stretching through present-day Guinea, Senegal, Mali, Burkina Faso, Niger and Nigeria, a specific type of historical farming system has been identified that is usually called the *ring-cultivation system* (Prothero 1957; Pelissier 1966; Ruthenberg 1971:60; Prudencio 1993; Fussel
The central part of the fields consisted of a small area, nearest the village, that is permanently cultivated and intensively manured. In concentric rings around this manured field are different sectors of semi-permanent or shifting cultivation, with the intensity of cropping decreasing with distance from the village. In the history of European farming, similar systems are known by the term *infield-outfield system* (Uhlig 1961; Christiansen 1978). The high productivity of the infield is based on a long history of soil management. The methods of managing the infield varied between different types of systems and could e.g. be based on stubble grazing and folding of cattle during night-time, combined with the direct application of ashes, household waste, soil, manure from small and big livestock as well as other organic material (crop residues, compost and peat). With the exception of peat all of these methods are known from western Africa, but the crop residues and compost are mainly known from smaller, more intensively used gardens, rather than the infield generally.

A superficial look at a population map or a recent land-cover map of cropland distribution will show a concentration in the semi-arid zone of West Africa. This distribution cannot be explained from the climate or soils, as the area is marginal for agriculture. The density of settlement and the intensity of agriculture rather reflect the important political and economic role that this area, close to the Saharan trade network, has had in history. The landesque capital in the form of anthropogenic soils, formed by centuries of intentional soil management, and wells for irrigation is an important prerequisite for this population density.

The historical background of this intensive form of agriculture cannot be understood without looking into the relations of production that dominated the savannah zone in West Africa during the eighteenth and nineteenth centuries. African slavery existed long before the Atlantic slave trade. The Islamic expansion played an important part in the development of slavery in the centuries preceding the Atlantic trade. During the period of the Atlantic slave trade the system of inland trade routes expanded and a series of predatory states emerged that built their wealth on slave-raiding, agriculture and trade. Meanwhile, the internal use of slaves on plantations increased. After abolition and the end of the Atlantic slave trade, the raiding and trading in slaves continued in Africa. The continued supply, not being matched by external demand, contributed to the peaking of internal African slavery (Lovejoy 2000). It has been estimated that at the end of the pre-colonial period slaves might have been in majority in a number of West African states (Lovejoy 1979:1273). Lovejoy (2000:277) argues that, regardless of the share of slaves of the total population, these societies can rightly be characterised by a slave mode of production since “slavery was crucial to the productive process”.
The largest slave society in West Africa in the nineteenth century was the Sokoto Caliphate. It covered large parts of present northern Nigeria and parts of southern Niger and was preceded by the federation of Hausa city states. It is estimated that by around 1900 there were 2.5 million slaves in Sokoto, out of a total population of 10 million (Hill 1976:397). This should be compared with the almost 4 million slaves in the US in 1860. West Africa during the nineteenth century thus housed the world’s second largest slave society (Lovejoy 1989:392).

Farming in the closely settled zones around the Hausa capitals in the Sokoto Caliphate is well described from the mid-nineteenth century. Barth travelled in the 1850s through intensively cultivated fields of millet, sorghum, cotton and indigo (Barth 1859). From later evidence we know that manuring, stubble grazing, intercropping, ridging and irrigation were part of the system (Raynaut 1989; Swindell 1986; Swindell & Iliya 1989). Kenneth Swindell has argued that the “creation of an intensively cultivated area around the town of Sokoto bears a close relationship to the large inputs of labour in the 19th century and its control through a centralized hierarchical political system rooted in the precepts of Islam” (Swindell 1986:88).

Swindell recorded farming practices in the area surrounding the town of Sokoto (Sokoto Rima basin) in the 1970s and argued that most of these farming practices were of considerable age. This can be partly confirmed by the accounts of early travellers in the nineteenth century. The combination of ridging with application of manure and ash is an important technique for the improvement of soils in this region.

The manure for the most intensively cultivated area partly came from the cattle of the Fulani pastoralists, who used the area for dry-season grazing. Through arrangements with the Hausa farmers, Fulani cattle were penned on the harvested fields. Later on in the nineteenth century, more Fulani were settled in some of the areas, so a large number of cattle were kept in towns and villages. The nomadic as well as the local herds were important sources of manure for improvement of the farmland (Swindell 1986:87).

In the historical literature we find evidence of the transportation of manure and household refuse from the towns and villages to the farmland. Polly Hill writes about a slave owner in the village of Dorayi, some kilometres south of Kano city, where farm slavery persisted until the 1920s. One prominent slave owner, controlling about thirty slaves, was remembered as “a cruel master who chained his slave if they refused to fetch manure from the city” (Hill 1976:417-18). Hamza (2004:136) writes (also of Dorayi) that the “transport of manure and household sweepings (daukar taki) from the city was nearly continuous”.

Lovejoy, in his broader discussion of the impact of slavery on the political economy, maintains that there was “relatively little investment in capital or the improvement of land” under slavery (Lovejoy 2000:277). Such a view evidently underestimates the significant changes in soils as a result of the continuous flow of nutrients and organic matter from the settlements to the fields. It is evident that the slave labour is a crucial factor here. Lovejoy in another work shows that only manured land was sellable in the Sokoto Caliphate, a circumstance which underlines the conclusion that the anthropogenic soils were indeed valued as landesque capital at this time (Lovejoy 1979:1282). Still today, in the ring-cultivation systems of the region, the capacity to control labour and transport is a crucial feature for maintaining soil fertility. This is obvious from recent research in Mali, where the efforts to obtain manure and having the means to transport it were of the utmost importance for restoring and maintaining soil fertility. Social inequalities between households, and their capacity to bargain for manure and transport, explain more of the variable pattern soil fertility than the distance from the settlement (Ramisch 2005).

**The tapades in Fouta Djallon**

In the Fouta Djallon highlands in Guinea an intensive garden-like agriculture is practiced. It is described in recent works on agrobiodiversity by Brookfield (2001:97–99) and Boiro et al. (2003). The *tapades* are intensively cultivated infield areas, which are continually improved by manuring and mulching. The farming practices in these gardens are also described by Richard-Molard (1944) and Derman (1973: 122-131). The term *tapade* refers to the living fences that enclose them, but they are also called *sunture*. Brookfield (2001) and Boiro et al. (2003) only vaguely touch upon questions of labour mobilisation, mainly in highlighting the role of women’s labour.

The close integration of cattle and permanent agriculture that the *tapades* represent could hardly have developed before the immigration and sedentarisation of Fulbe cattle herders in a territory that was previously mainly agricultural. This interdependence between the pastoralists and the existing Djallonke farmers developed over the thirteenth and sixteenth centuries until the subsequent takeover by the Fulbe and their establishment of a theocratic state in 1725. The Fouta Djallon state was an active participant in the Atlantic slave trade and its own economy was also based on slave labour, partly drawing on the former inhabitants and partly increased through slave-raiding (Boiro et al. 2003; Rodney 1966). According to Lovejoy, following the establishment of the Fouta Djallon state, “tens of thousands of slaves were settled on plantations to supply the army and facilitate caravan traffic” (Lovejoy 2000:118). The unfree labourers of Fouta Djallon have sometimes been classified as serfs, rather than slaves, because of their partial independence. Lovejoy argues that they should indeed be seen as slaves and that the so called serf villages can be compared to slave plantations.
elsewhere in West Africa (Lovejoy 1979:1273-74). According to European travellers in the early nineteenth century, they lived in separate villages, where they cultivated their masters' fields but also had their own gardens, where they were allowed to work two days a week (Lovejoy 2000:198). From the existing literature the history of the intensively cultivated gardens known as tapades or sunture, cannot be clearly traced, but all evidence point to a close connection to these former slave gardens.

The works of Richard-Molard (1944) and Derman (1973) provide detailed accounts of how the two different types of cultivation areas were managed. On the one hand were fields which were formerly cultivated by slaves with fonio, rice and millet as the main crops and on the other the intensively cultivated women’s gardens with cassava, taro, maize, sweet potatoes, yams, peanut, cotton, hot peppers, and different leaves used for sauces (Derman 1973:124). The gardens were established on all types of soil and their fertility thus totally dependent on human labour. Richard-Molard (1944:205-206) argues that the gardens are the result of a later development, compared to the more extensively used fields. Their strong emphasis on crops introduced by the Columbian exchange clearly suggests that they were coeval with the Atlantic trade. According to Derman (1973), the importance of the intensively cultivated gardens further increased from the time of Richard-Molard’s fieldwork in 1942 to that of his own fieldwork. It is thus possible that the vast areas of tapades indicated by the maps in Boiro et al. (2003) represent a substantial expansion of the intensively cultivated gardens, compared to the figures of 400 m² up to a hectare for each garden that were mentioned by Richard-Molard. Derman’s investigations were in a former slave village, so there may be a connection between the women’s gardens he documented and the individual slave gardens documented in early traveller’s reports. During the twentieth century such gardens existed both in former slave villages and in villages that were formerly free. It is clear, however, that the division into extensively cultivated fields and intensively cultivated gardens was based on a social organisation of labour dominated by slavery.

**Terraced agriculture in the highlands, rice paddies on the coast**

The many examples of terraced agriculture in the highlands of West Africa have in much previous literature been viewed as the result of a siege-like situation and a response to slave-raiding and the establishment of Islamic states in the medieval period. The intensive farming system can according to such a view be seen as the other side of the coin of slave-raiding and predatory states in West Africa. Contrary to the situation in the two cases referred to above, the farming communities in the highlands which practiced terracing, stall-feeding, mulching and other intensive farming methods were decentralised societies and the potential victims of slave-raiding.
It is, however, a gross simplification to interpret the settlement and farming of these hills as primarily the outcome of a refuge situation. The hills often had higher precipitation than the lowlands and good volcanic soils. Already before the most intensive period of slave-raiding they offered good possibilities for agriculture. It is nevertheless probable that slave-raiding accentuated an already existing division of labour between groups in the hills and groups in the surrounding savannas. I have previously developed these thoughts in a separate paper, on which the following three paragraphs are based (Widgren 2010).

The understanding of the social context of the farming system of such decentralised societies in western Africa has advanced from seeing them as mere victims of slave-raiding into a more dialectical view, recognizing both cooperation and conflict with the slave-raiding states as playing a role in their survival strategies. Scott MacEachern (1993) has argued for such a dialectical view of the emergence of intensive agriculture in the Mandara Mountains. He shows how relations between the Wandala state and the decentralised Mandara hill farmers were based on interdependence, since both groups controlled vital resources. “Each group had to be able to exploit the other in order to exist, but too much exploitation would cause conflict and might end the relationship” (ibid., 258).

The most clear-cut example of this dialectic, however, is illustrated in Walter Hawthorne’s study *Planting Rice and Harvesting Slaves* (2003). The Balanta along the Guinea (Bissau) coast were a decentralised population, who totally changed their settlement pattern and agricultural system in the sixteenth century, when it turned to intensive paddy rice farming. This farming system had existed further north along the Senegambia coast well before the arrival of Europeans. Rice cultivation in mangroves could only be undertaken with iron-edged tools, and the people cultivating rice in Senegambia obtained their iron from the Mandinka further inland. This had not been an option for the Balanta. Only when iron could be obtained from the Portuguese did they turn to paddy rice farming.

According to Hawthorne, in the face of slave-raiding, decentralised societies had three alternative ways of coping. One was to retreat to easily defended areas (such as forests or hills) and to amalgamate and fortify previously scattered settlements. A second coping strategy was to “engage with the broad markets and to gain access to valuable Atlantic imports” (Hawthorne 2003:206). This is the context in which the establishment of labour-intensive rice cultivation among the Balanta should be seen. The Balanta also followed a third alternative by engaging themselves to a certain extent in the slave trade, albeit not as intensively as the slave-trading states.
Slavery and farming practices

I have shown how three different soil management systems, resulting in a build-up of landesque capital, had their background in a time period when slave plantations and slave-raiding were a dominant factor in society. In relation to slavery, the examples differ in an important way. First, in the Islamic slave states of West Africa the build-up of manured infields in the intensively cultivated central parts of the ring-cultivations systems in the savannah were directly related to plantation slavery and to the hierarchical control of labour to secure the flow of nutrients and labour to improve the soils. These anthropogenic soils have been of great importance for present population density in the dry savannahs on the fringe of the Sahara.

Second, in the case of the Fouta Djallon gardens, there seems similarly to be a close connection with the slave plantations. By granting land and time to the slaves to establish their own gardens and assume responsibility for the reproduction of the labour force, the slave system enabled the development of what later became the intensively cultivated women’s gardens. This can be compared with the small but intensively cultivated fields developed by crofters in Scandinavia during the nineteenth century.

Finally, the heavy investments in landesque capital that occurred in the terraced “islands of intensive agriculture” all over West Africa and in the rice paddies along the coast represent a third aspect of labour mobilisation. It was based on age-sets and work parties in basically egalitarian societies, but was closely connected to, and driven by, the broader economic and political development of the Atlantic slave trade and its aftermath.

The conclusions of this overview contrast with those of James Scott for upland South East Asia, which identify a particular “escape type of agriculture” with decentralised groups turning to swidden as a way of escaping states. While it is perhaps possible to delimit “refuge zones” also in West Africa, as Scott (2009:25) proposes, there is an important difference between Scott’s conclusions and the evidence presented here. It is possible that in other parts of Africa, like in upland South East Asia, there were zones of refuge where farmers extensified production as a reaction to slave-raiding, but the zones of refuge in West Africa that Scott refers to all opted for an intensification of agriculture. While there were important differences in the farming practices of hierarchical, slave-raiding states and escaping, decentralised farming communities in West Africa, there seems nevertheless to have been a common direction at both ends of the political spectrum: investments in landesque capital played an important role for raiders and escapers alike.
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