Future Agricultures

Policy Brief

The Struggle over the Commons: Annual Savanna Fires and Transnational Mango Outgrower Schemes in Northern Ghana

Northern Ghana is characterised by rain fed agriculture, poor infrastructure, food crop production and poor export-oriented agriculture. Large-scale agriculture producing export crops has been one of the many suggestions made to reduce poverty in the region. However, annual savanna fires destroy investments in commercial and food crop agriculture due to a misunderstanding of the nature and purpose of these fires. The underlying causes of fires and their control cannot merely be attributed to overt reasons; they result from socio-political causes such as dissatisfaction with processes of disenfranchisement and social exclusion. This raises many questions regarding the plausibility and efficacy of introducing a modern export-oriented organic mango farming project in improving the local economy of northern Ghana. This brief examines the Integrated Tamale Fruit Company (ITFC) outgrower farm model, which fits well into the government's value chain approach to agricultural commercialisation with an export focus. Savanna fires are not necessarily destructive as the current policy formulations prescribe, but an understanding of the varied uses of these fires, the timings and a negotiated management of natural resources including land, is important in regulating the use of fires in ways beneficial to all land users.

Introduction

Forest, woodland and vegetation as a whole have played very important roles in the lives of mankind throughout our history. At the community level, forest and vegetation sustain many of our cultural, spiritual and religious values as well as playing important roles in the socio-economic development of nations (Schade and Faist, 2010). The northern savanna

of Ghana experiences fires annually with both detrimental and beneficial consequences, depending on the cause, extent, timing and spatial unit involved. Since the 1970s through 1983 and 1984, savanna fires have destroyed the livelihoods of many people in northern Ghana. For instance, a Food and Agriculture Organization (FAO) assessment team estimated that about 50 percent of Ghana's vegetal cover and about 35 percent (or 154,000 metric tons) of standing crops and stored cereals were destroyed by the savanna fires of the 1982-83 dry season (Ampadu-Agyei 1988). Evidence of savanna fires in all the country's ecological zones show clearly that the Guinea and Sudan savanna areas suffered the most impact with loss of vegetation, standing crops, farms, wildlife, habitat, human lives and property (Schade and Faist, 2010).

To deal with the menace of savanna fires, the government of Ghana promulgated the 1983 anti-bushfire law (PNDC Law 46) to prohibit the setting of fires except for certain agricultural, forestry or game management purposes. This law was intended to protect land cover, wildlife and habitats. Again, in 1984, a National Anti-Bush Fire Committee was established and was charged with the responsibility of ensuring that government is informed and advised on all matters relating to prevention, control and fighting of savanna fires; setting up guidelines for the establishment and operation of regional, district, town and village Anti-Bushfire committees; providing technical advice to the regional, district, town and village committees; and monitoring their activities and operations (Nsiah-Gyabaah, 1996).

In spite of these punitive laws against savanna fires, there are still reports of widespread savanna fires across northern Ghana. The reality of life in rural savanna Ghana revolves around fire, which government officials recognise but fail to include in their formulation of policy, rather preferring the ideal models of western regions that seek to prevent fires rather than manage and harness their potential.

Savanna fires have long been an effective way of managing the savanna (Laris et al. 2006.), and for that matter, much of the common property resources on which millions of poor people rely for survival in northern Ghana. Experts who believe in conserving the environment view savanna fires negatively. They ascribe mainly destructive qualities to savanna fires without critically segregating savanna fires into type, intensity, timing, purpose, environment or location. Even though such discourses recognise the importance of savanna fires for natural and human purposes, the overwhelming consensus among government officials and conservationist is towards banning such fires.

Savanna fires are common mostly on common property resources, such as those referred to as 'bush lands' in northern Ghana. Bush lands belong to communities, and where they are substantial, they fall under the control of divisional chiefs rather than village elders. The bush lands are very important for sustainable rural livelihoods as they constitute the resource base for non-farm and off-farm livelihood activities and avenues for fallowing farmlands.

The current conversion of bush lands to commercial farms therefore lends them to destruction by the annual savanna fires. This has resulted in the loss of many organic mango trees on outgrower schemes in Dipale and several other villages where the necessary appropriate measures were not taken in anticipation of these fires. A technical approach to preventing fires, mainly through fire-belt technology and conventional fire fighting via water trucks,

failed. The savanna fires effectively destroyed the mango farms, derailing years of investments by both farmers and the company.

There is overwhelming evidence of the important role that fires play in ecosystem maintenance and variance. Policymakers and scientists have neglected the local population's knowledge and role in the maintenance of ecosystems. These policy errors result in the failure to harness local participation in the management and control of fires. Hough (1993) argues from his research on fires in the national parks in northern Benin, West Africa, that local people have very good reasons for setting savanna fires, and that their motives demonstrate an accurate understanding of the effects of fire, corresponding closely to existing scientific knowledge.

National level policy on savanna fires therefore needs to focus local human-ecological conditions and understandings in a broader perspective. A new conceptualisation will redefine strategies for fire management that put local people at the centre and will guide future agri-business investments so as not to repeat the mistakes of ITFC.

Savanna fires in northern Ghana

Northern Ghana's savanna vegetation is characterised by grasslands with scattered fire-resistant tree species. There are patches of woodlots found on bush lands and river valleys, which are said to mimic what would have been the original climate-climax vegetation without anthropogenic interference. Annual rainfall averages 1000 mm with rains falling between April/May and September, followed by a prolonged dry season in which savanna fires predominate. The majority of people in northern Ghana live in rural areas and depend on rainfed agriculture, mostly growing rice, maize, groundnuts, millet, sorghum, beans, yam and cassava.

Northern Ghana experiences the tropical continental air mass during the dry season, bringing drier weather conditions. With these conditions, any unprotected fire such as that caused by farmers, hunters and gatherers of firewood is enough to spark a destructive fire. Most burning occurs in preparation for the farming season, and this has a tendency of assuming uncontrollable dimensions in the latter season due to the dryness of the environment at the time. The situation has been aggravated by the perennial nature of savanna fires as this has reduced most of the primary forest into savanna woodlands, thus making them susceptible to future incidence of savanna fires.

Savanna fires sweep through the savanna on an annual basis, mostly after harvest. However, they sometimes accidentally burn rice, cowpea and late millet fields, with serious implications for farm-dependent families. The intensity and area of coverage of savanna fires is in decline as more bush lands come under cultivation as a result of production pressures and population growth. However, the pure stands of bush lands are still subject to the annual burning ritual.

A few fires are intentionally lit, but the majority are accidental or poorly controlled fires. This poses a major problem for policy and strategies to fight savanna fires. Policies and strategies are ineffective against accidental fires compared to fires set for hunting, land clearance, reptile control, grazing, fire belts, etc. Even these intended fires can sometimes get out of hand, but with the right education can be contained. Compared with these, accidental fires such as from farm stoves for cooking, smoking tobacco,

rubbish burning, tree stump burning and wind dispersed fires are difficult to control. The use of fire by people in the savanna environment is commonly seen as a traditional practice of no benefit to the environment and local livelihoods, and opposed to modern agriculture using mechanisation and intensification strategies. This modernist argument ignores some very cogent reasons for the use of fire, which are scientifically established and remain relevant today.

The uses of savanna fires

Savanna fires play very important roles in the savanna ecosystem. Pastoralists use fire in enhancing both the quality and productivity of grasslands, as it removes coarse grass and enables palatable grasses to flourish. Farmers benefit from abundant nutrient combinations by burning fallows and bush lands before cultivation, which provide ash and black soils. In an extensive farming system, fires help to save precious labour costs and may allow children to attend school instead of working on land preparation. Fire is used to fight invasions of pests and diseases, especially grasshoppers and locusts, ticks and other livestock parasites. The savanna provides cover for deadly reptiles seeking domestic livestock as prey; fire becomes the most important tool for flushing them out or preventing them from colonising villages and threatening lives. Savanna fires are important for vegetation regeneration by increasing diversity and faster growth of shrubs which constitute an important resource base for firewood, wild fruits and habitat for wildlife.

Muver et al. (2003) present evidence that savanna fires break seed dormancy, while ash increases soil nutrients, decreases soil acidity, improves nitrification and favours decomposing microbes. They argue that under the right conditions, the percentage of seed germination was higher on burnt than unburnt plots, although burnt plots had fewer seeds stored than unburnt plots. Fire as a cultural tool preserves the environment, as its timing and location helps prevent catastrophic fires later on. Group hunting, which is not favoured by conservationists or foresters in Ghana, helps save the savanna from complete destruction because it is practised immediately after the harvest period when the ground is wet and the bush cannot be completely burnt. This produces lower heat and lower destructive potential than would happen when accidental fires, which are inevitable, occur later on in the dry season.

The misuses of fires

Fires can be damaging to common property, farms, settlements and other assets needed for achieving sustainable livelihoods if uncontrolled or set indiscriminately. This happens when fires occur at the wrong time, when accelerated by winds, and when engineered through arson. A number of variables define the destructive force of fires. These include the size of bush lands, their purpose, population, wildlife availability and diversity, farming systems and social institutions. Obviously, the end result of any fire speaks for itself – destructive and unwanted, or useful and desired.

However, due to the conflicting interests of diverse livelihood groups, savanna fires can be a blessing for some and a curse for others. Charcoal burners, who are mostly poor women alienated from other forms of access to land-based and non-farm activities, may indiscriminately burn common property to enable a bumper harvest of wooded resources. As local institutions prohibit the cutting of green trees for this activity, a smarter but detrimental strategy is to set fire to bush lands, which inevitably destroys other resources. These fires deprive group hunters of wildlife as these are killed or driven deeper into

the wilderness, and send escaping reptiles into settlements, thereby increasing the vulnerability of communities to snake bites, the high cost of treatment and even death.

Group hunters are also known to deplete wildlife populations when the composition of the group is without elderly, experienced hunters who introduce selectivity and prevent the burning of some micro-vegetation. The observance of rules and practices such as putting out the fire before ending the day's hunt; preventing specific spiritually and economically important trees from burning; and postponing hunting when some specific animals are spotted or when a particular scent from tree flowers is detected are becoming unknown to the younger generation.

These are coping mechanisms which in the long term are inimical to both livelihoods and the environment. Local institutions governing the commons are being weakened by commercialisation and state promotion of new individualised tenure systems, which are not up to the task of protecting the commons. As many people are beginning to associate the commons with chiefly ownership in northern Ghana, the attachment and sense of belonging that people had in relation to the commons, which spurred them to protect these environments, is being rapidly lost (Tsikata and Yaro 2011).

Savanna fires frustrate the Mango Out-grower Scheme in Dipale

A modern export-oriented agriculture is argued to be a necessary development for alleviating poverty in northern Ghana (Shepherd et al, 2005). Initiatives that seek to develop modern farms growing export crops such as cowpeas, fruit trees, cotton and sugarcane receive much attention from the Ministry of Agriculture and the World Bank. The focus on value chains, supported by German Technical Cooperation (GIZ), reinforces efforts at integrating small-scale farmers into the market. The Integrated Tamale Fruit Company (ITFC) in the northern region of Ghana has been lauded for establishing an organic mango outgrower scheme with a processing plant in Gushe. The business model consists of a major nucleus farm served by numerous small out-growers cultivating between one and two hectares of exotic mango. However, the frequent fires in northern Ghana appear to be a stumbling block to the realisation of the benefits of commercial export-oriented agriculture under outgrower schemes. In the village of Dipale, all but the chairman of the mango outgrowers' union have lost their investments to savanna fires which destroyed the young plants and flowers. Consequently, the outgrower farms have been abandoned or converted into food crop farms. The dominant conception is perhaps that these savanna fires were caused by irresponsible locals, whose activities are destroying a project set up to address poverty and underdevelopment, frustrating progressive rural entrepreneurs from reaping the fruits of their labour and bringing about social transformation.

Root causes of the failure of the outgrower model in Dipale

To attribute declining biological diversity and land degradation to fires is an exaggeration, as there exist much more important social, economic and political forces explaining these processes. A careful historical, cultural, economic and political analysis is needed to situate the nexus of incentives, constrains and opportunities that define strategies leading to the sustainable or unsustainable use of fires. It is high time the commons in the savanna were considered within an alternative paradigm to help save them from 'modernised fires' and other sources of degradation.

Firstly, mangoes are understood by villagers to be trees, much like those growing on the bush lands, which have adapted over the years to prevailing conditions. This is the biggest weakness of the business model based on scientific close-care farming that the ITFC expected their new local entrepreneurs to give to the trees. Secondly, savanna fires occur during the dry season, which is when local farming populations are away from their farms, escaping the scorching sun or looking for additional income from elsewhere. Outgrowers are reluctant to invest more labour hours in mango farms whose prospects are not proven or known by anyone within their vicinity. The lands on which the mangoes are planted are bush lands whose tenure situation is quite complicated and which do not necessarily command the kind of attention given to land on which food crops are grown. The neglect of the principle of mixed cropping, which allows both mango trees and food crops to be grown together, providing protection by way of removal of combustible material after the harvest, also accounts for the failure of the model.

Beyond these reasons is a crucial factor behind the poor commitment of outgrowers in Dipale to the protection of their farms. The negotiation for the nucleus farm, which is located on the farms of the villagers, was not done with the consent of the local population. Rather, the Yaa Naa, who is the overlord of the Dagbon area, 'sold out' or leased the land and appropriated the rent due to the chieftaincy. Anger and dissatisfaction with this prevented any real commitment to the project and fuelled resistance to the attempts by the state and ITFC to bring the village into the scheme.

Conclusions and policy recommendations

Local participation is crucial in decision-making and management of natural resources. Transnational investments must integrate traditional and scientific knowledge systems, as well as the practices and beliefs of the local context. Research should increasingly aim at disentangling local realities from narratives born out of modernist thought. It is pertinent to note that many local practices, including the misuse of savanna fires, are responses to the evolving political economy. Identifying negative responses and sustainable long-term adaptations with prospects for sustainable livelihoods should be the focus of social and physical scientists. We cannot prevent fires on common property, but we can harness fires for both common property resources and newly introduced livelihood-enhancing activities, by analysing critically the environment, the cultural dynamics of land management, and newly created production rationales in local places. Development agencies, governments and agribusinesses need a reappraisal of savanna fires and practices on African common property in order to incorporate these realities into the design of business models for land deals. There is the need to review the anti-bushfire laws to take into consideration local perceptions and uses of savanna fires. A national policy outlining a framework for negotiating land deals is needed in order to reduce the dissatisfaction of local usufruct land users and involve them in the processes that change their live circumstances.

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