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Transformations of traditional landuse systems

and their effects on development opportunities and people's livelihoods in Northern Ghana

The International Center for Development and Decent Work

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Inhalt

Abstract

Agricultural land in Northern Ghana was under the traditional arrangements till recent times. Small-scale farmers and their families could collect water, firewood, fodder and seasonal fruits or carried out hunting on communal lands, owned by local chiefs and fetish priests, under the provisions made by customary laws.

Recent developments in this area include up-scaling of the mining industry, large scale commercial agriculture projects and cultivation of biofuel crops. All these development schemes are affecting access to natural resources by the local people as they affect water, land and even vegetation in the project areas.

This paper discusses some recent projects in Northern Ghana and their positive and negative effects as well as impacts on the local population and their livelihood. Role of government as well as civil society in these transformations is also considered.

1 Introduction

This paper is discussing various recent and on-going land acquisitions in Northern Ghana, for purposes of mining, biofuel and commercial large-scale crops farming. Most of these changes are taking place on traditional lands, owned by chiefs but promoted by the government. Various examples presented below show that these changes affect traditional small-scale farmers mostly negatively, reducing their livelihood options. Similar process is affecting other African countries and findings can be relevant in their own environment.

Land and population resources in Northern Ghana

Northern Ghana comprises about 41 % of the total land area of the country, with about 20% of the country's population living within its three regions – Upper East, Upper West and Northern Region (Yaro, 2010, **Figure 1**). The population is unevenly distributed within this area, with the highest rural density in the Upper East, and moderate to low in Upper West and Northern Regions, respectively (**Table 1**). The uneven distribution of population results from various historical reasons such as the slave trade, the prevalence of the tsetse fly *(Glossina spp.)* and other factors (Benning, 1995, Gyasi, 1995, Mahama et al., 2003), as well as current economic disparity (Jatoe et al., 2012), which make migration to southern Ghana, with its large urban centers, attractive.

Table 1: Land area and population density, Northern Ghana.

Region	Land area as percentage of Ghana total land area (%)	Land area (km^2)	Population (x 1000 persons)	Population density (persons km^{-2})
Northern	29.5	70,390	2,479	35
Upper East	3.7	8,842	1,047	118
Upper West	7.7	18,318	702	38
Total for three regions	**40.9**	**97,550**	**4,228**	

(Source: Yaro, 2010; GSS, 2012)

Figure 1. Political map of Ghana. Source: Nations Online Project

Source: UN Cartographic Section (downloaded 08.11.2014)

Land ownership arrangements

There are two major land ownership types in Ghana: customary and public land tenure.

Customary land holdings in Ghana involve allodial titles given to traditional rulers, such as chiefs. The holders of the title are trustees, holding the land on behalf of the whole community. Land is sacred, hence there is the obligation, as well as responsibility, to use it judiciously and hand on to the future generations; customary trustees fully recognize communal property rights enjoyed by the community (Paaga, 2013). It is estimated that 80 percent of Ghana's lands are held under customary land tenure systems (Sarpong, 2006).

However, the state has power to acquire and hold land in the public interest or for public purposes, through legislation. The 1992 Constitution of Ghana puts all public lands under presidential rule in trust for the people of Ghana (Article 257). A non-citizen cannot be granted leasehold longer than 50 years. Disposition of the stool/skin lands has to approved, both by the Land commission and the Office of the Administrator of Stool Land (Sarpong, 2006).

Despite these provisions, especially in urban and peri-urban areas of Ghana, traditional arrangements are rapidly eroding in the face of increased demand for land as a result of urbanization and population growth (Yaro, 2010, Kumbun-Naa Yiri II, 2006), as well as commercial developments. Increasingly, land has become a commodity to be bought and sold in response to a high demand, leading to break down of traditional norms and arrangements exercised by land holding authorities (Kasanga & Kotey, 2001).

Bio-physical characteristics of Northern Ghana and traditional small holder agriculture

Northern Ghana lies almost entirely within the Guinea Savannah Agro-ecological Zone, with a small area in the north-east corner within the Sudan Savannah. This region is characterised by a unimodal rainy season, starting in April/May and ending in October, with annual rainfall between 900–1100 mm. Seasonal and perennial streams are numerous, mainly within the Volta River Catchment, crossing the region and make it an ideal area for agricultural expansion. The Savannah zone of Northern Ghana contributes significantly to the total runoff volume for the country, since two most prominent tributaries of the Volta River (White and Black Volta) are running through this area, alongside other, smaller streams (**Table 2**).

Table 2: Water resources availability within the Volta Basin of Northern Ghana

Volta Basin system	Basin area within Ghana (km^2)	% of Total	Mean annual runoff within Ghana ($x\ 10^6\ m^3$)	% of Total
Black Volta	35,107	23.6	4,401	57.4
White Volta	45,804	43.7	6,703	63.5

(Source: Andah et al., 2004)

Soils are shallow and washed out in the upland areas, with some clay deposits within the valley bottoms, and with large areas subjected to annual flooding regime of the Volta River. Vegetation comprises mostly tall savannah grasses (*Pannicum maximum, Pennisetum purpureum, Oryza spp*, and others) and trees (*Vitellaria paradoxa, Parkia biglobosa, Adansonia digitata, Tamarindus indica*, etc.).

Traditional farming systems in the Northern Ghana are often quite sophisticated and finely tuned due to external factors, as shown by diverse soil and water management practices widely used in the region, such as construction of mounds of different sizes for cultivation of yam (*Discorea* spp.) or cambered bed, used for millet (*Pennisetum glaucum*) and sorghum (*Sorghum bicolor*) cultivation.

Two main farm types in use are compound and bush farms. The crops cultivated within the compound farms include cereals (maize, *Zea mays* L. and *sorghum, Sorgum bicolor* MOENCH.), tobacco (*Nicotiana tabacum*), yams (*Discorea* spp. L.) and vegetables, whereas those cultivated in bush farms include cowpea (*Vigna unguiculata* (L.) Walp.), groundnut (*Arachis hypogaea* L.), bambara groundnuts (*Vigna subterranea* (L.) Verdc.), maize, sorghum, millet, yam and cassava (*Manihot esculenta CRANTZ*). Compound farms are fertilised using household animal manure and crop residue. Bush farms are based on the bush fallow system, in which cropping and fallow periods are alternated and have been drastically reduced in recent years, thus depleting the soil fertility (Kranjac-Berisavljevic et al., 2002).

Northern Ghana is traditionally the poorer part of the country, compared with the more developed southern part. Many of the people from the north, both men and women, migrate to southern urban centers in search of menial jobs, working on cocoa farms, in harbors, or carrying loads on the markets. Most of the migrants are young and able, leaving behind an aging population to carry on agricultural tasks and to produce food, with the resulting situation of dwindling food production output, abandoned lands and low level of modern practices applied in production.

2 New developments

The easiest way to acquire land for cultivation in the past was to ask relevant traditional leaders, household heads, chiefs or 'tendana' (fetish priests) and to pay a symbolic price, sometimes in bottles of gin, cola nuts, or very little money and to start using the land. This situation has changed in recent times. This paper discusses some of land acquisitions for cultivation of the energy crops, as well as these for commercial crop farming, alongside mining concessions and their expected effect on the traditional farming systems and livelihoods. The role of government, NGOs, and traditional leaders is also presented, in positive and negative examples.

Energy crops

Jatropha (*Jatropha curcas* L.) (**Plate 1**) has recently be widely promoted as an energy crop in Ghana, despite reports from elsewhere which show mixed results (Afif, 2014, Maltitz et al., 2014, Datta and Mandal, 2014). There are up to twenty different companies growing energy crops in Ghana, mostly foreign in origin and sometimes with Ghanaian counterparts. Almost all of them cultivate Jatropha, a crop without much value for traditional farmers, apart from its use as a live fence. Schoneveld et al. (2011) estimated that by 2009, these companies collectively had access to 1.184 million ha of land, equivalent to approximately 4.6 % of the total land area and 8.8 % of the area suitable for agriculture.

Plate. 1 Jatropha plant (*Jatropha curcas*)

(photo credit: A. Buerkert, 2014)

In Northern Ghana, Jatropha plantations were established on about 27,000 ha near the Kpachaa River on the main Tamale-Yendi road. The institutional arrangement involved agreements between the local paramount chief and the Norway-based Biofuel Africa Company, which currently operates under the name Solar Harvest Company.

A detailed study by Achempong and Campion (2014) on Jatropha cultivation sites in Ghana shows many problems associated with the Biofuel Africa Project, principally in eroding food security and land availability for the poorest section of the farmers, particularly women. Subsistence famers do not have any ownership rights to the lands they cultivate, but rather depend on traditional arrangements under which land is given to them by local land-holders. These arrangements can be changed unilaterally at any time. The project has also impacted on women's ability to collect firewood, which is their principal energy resource, as well as collection of shea nut for processing into butter, a main source of smallholders' off-season income. Local opinion leaders and assemblymen were not consulted at the initiation of the project, even though the land acquired for the project covers about six different communities in the Kpachaa area.

With the establishment of the project, about 300 jobs were created locally. However, this did not necessarily translate into better living conditions, as people in this rural area are of the view that they do not have time for food production, since they now work for the company. Also, their salaries are perceived as low in many cases, which is coming from the fact that the majority of the work force are illiterate peasant farmers, and therefore not qualified for skilled and better paid work (Achempong and Campion, 2014).

There are plans for expansion of the Jatropha plantations: land use in the catchment of the Bontansi River is also undergoing change: Solar Harvest Company has acquired 3000 ha of land under lease for 50 years downstream of the Bontanga irrigation scheme and plans to acquire an additional 7200 ha within and around the Bontanga irrigation scheme for future expansion (Williams et al., 2012).

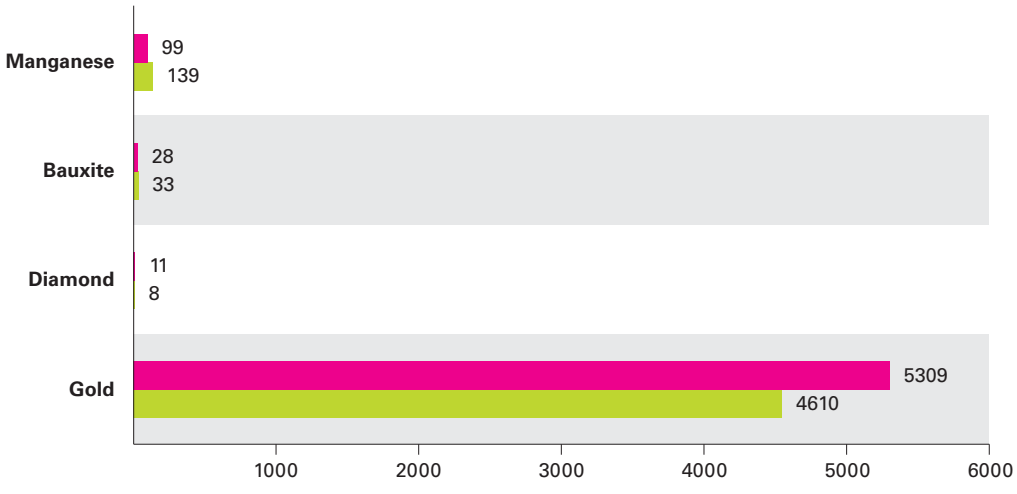
Impacts of such projects in terms of environmental and livelihood changes are yet to be fully assessed. What is certain is that, with development of the project, water availability will change within the affected area, along with other natural resources which are accessible to the poor from the wild, such as collection of food and firewood, seasonal hunting, grazing, harvesting of thatch grass for roofing of compound houses and other relevant traditional resources and ecosystem services.

The absence of a biofuel policy in Ghana to guide the acquisition of land for large-scale biofuel and other similar plantation projects and to protect the particularly vulnerable, poor sectors of the society from land alienation is obviously one of the crucial problems in biofuel cultivation, allowing developments to emerge without proper control (Achempong and Campion, 2014).

Mining developments

In Ghana mining has a long tradition whereby both small (often artisanal) and large-scale mining renders significant revenues (Figure 2). Ghana is, after the Republic of South Africa, the second largest gold producer on the African continent and also extracts significant quantities of bauxite and manganese ore (Coakley, 1999, in: Amponsah-Tawiah and Dartey-Baah, 2011). Recent discoveries also show rich iron ore deposits in the northern part of the country, which are still under investigation in order to ascertain their full potential. Emerging trends in mining are discussed by Amponsah-Tawiah and Dartey-Baah (2011), in some detail, advocating greater economic equality for all actors involved, especially at the local level.

Figure 2. Ghana Mineral Revenue in 2013 ($ Million)



	Gold	Diamond	Bauxite	Manganese
2012	5,309,042,207	11,163,107	28,495,592	98,605,517
2013	4,610,284,057	8,030,808	32,923,689	135,475,951

Source: Ghana Chamber of Mines (2013)

By the end of 2009, the Government of Ghana had granted over 200 prospecting/reconnaissance licenses to 128 local and 51 foreign mining companies and about 37 companies had mining leases (Mining Journal, 2010). These comprise both major international (Gold Fields – South Africa, Newmont, USA, AngloGoldAshanti, South Africa) and junior international (from Australia, South Africa and Canada), as well as local companies, which due to lack of exploration and financial capacity usually partner with foreign companies. While most of the mining is concentrated in the southern Ghana, there are also several recent developments in the North, briefly described below.

Abzu Gold Company operates the Nangodi (142 km^2) and Yameriga (74 km^2) concessions, in the Bole-Nangodi Belt, near Bolgatanga, the capital of the Upper East Region of the country.

In 2004, an Australian mining company, Azumah Resources Ltd., was granted permission by the Ghanaian government to prospect for gold in the Upper West Region. Three main deposits have been discovered and extensively drilled at Kunche and Bepkong, adjacent to the Black Volta River and Ghana's border with Burkina Faso, and at Julie, which is 80 km to the east. Several satellite deposits, including Aduane and Collette, have also been earmarked for future use (Azumah Resources Ltd., 2014). Merah Resources Ltd, reports that they have acquired a prospecting license for the Kong Gold Project, located over an area of 1200 km^2 within the municipalities of Bole, Sawla and Tuna, in the western part of the Northern Region.

The Sheini Hills are near a cluster of villages with a population of about 25,000, located at the eastern flank of the Tatale District of the Northern Region, which shares border with the western part of Togo. The Sheini Hills iron deposit contains a total mineral resource of 1.312 billion tonnes iron ore, within a cumulative licence area of 523 km^2, according to the exploiting mining company Cardero Ghana Ltd., a subsidiary of the Canadian Cardero Resources Corp.), which is holding prospecting license for this site.

There are several studies into the effects of mining on rural communities in Northern Ghana, most of them concentrating on artisanal small-scale (ASM) mining, popularly called 'galamsey' in Ghana. Paruchuri et al. (2010), studied health impacts of small-scale mining in the Upper East Region observing livelihood effects of residents and miners in the affected communities of the Talensi-Nabdam District. They found elevated levels of mercury in hair and urine samples, with an effect on peripheral nervous system causing tremors and disorders. Respondents were largely unaware of the causes of their problems and possible protection measures.

Ofosu-Mensah and Ababio (2011) looked at traditional and modern gold mining in Ghana. Their extensive overview ends with the recommendation that the Ministry of Local Government and Rural Development in collaboration with the National Commission for Civic Education (NCCE) should engage into ASM by educating miners in proper mining methods, as well as safety measures necessary for handling of highly toxic products such as cyanide and mercury. This training would need to be conducted in local language and participants should at the end receive certificates to enable them practise small-scale mining legally, as registered miners/small-scale enterpreneurs.

Hoedaofia et al. (2014) studied the effects of small-scale gold mining on living conditions in the West Gonja District of the Northern Region. The authors have recognised positive effects of mining on livelihoods as it leads to higher income of the rural poor and helps to meet the basic needs of health, education and other family requirements. However, their research also acknowledges many negative social and environmental effects of ASM suggesting that the local District Administration should assist miners to form groups and help them with training and equipment.

Agyemang and Okoto (2013) agree with the above-presented views and point to the typically rising food prices in mining communities where many young people abandon farming in favour of mining. They also report an increase of indirectly mining-caused diseases, such as Acute Respiratory Infections and Malaria, coupled with high school dropout rates and deterioration of academic performance of pupils who stay in school. All of these negative consequences of ASM used examples from the Wa East District of the Upper West Region.

Guri et al. (2012), reported how a community in the Upper West Region (Tanchara) dealt with larger scale mining of Azumah Resources Ltd, which was given exploratory rights to prospect for gold. Their work describes in detail the development of 'community protocol' and participatory process with led to broad community involvement in decision-making. Through a process that respects tradition and customs, the local community took ownership over the protocol's outcome. This process was assisted by an NGO that had been working within the community for a number of years before the protocol was drafted. Through the use of a participatory 'community protocol' process, the community was able to formalize and articulate its governance structures to external actors, such as the mining company, as well as illegal individual miners and gave these structures legitimacy to represent the community. The community protocol was then presented to the Government of Ghana and local authorities for official recognition.

The above mentioned examples indicate that without governmental structures to adequately accompany and advise mining communities and local people on possible coping mechanisms and their legal rights, risks are high and after the onset of mining operations, communities are left alone with negative consequences of mining affecting their physical environment and social structures. Entirely positive examples of mining effects on livelihoods are rather the exception, than the rule. Exploitation of new iron ore and gold mines in Northern Ghana require urgent development of practical mechanisms to assist, protect and benefit local inhabitants.

On-going agricultural initiatives and Public-Private Partnerships (PPP) in Northern Ghana

One of the most frequently mentioned 'success stories' in the portfolio of PPP initiatives of Northern Ghana is the Integrated Tamale Fruit Company (ITFC), established in 1999 as a joint Dutch-Ghanaian venture for production of export quality mango. The largest shareholder is Wienco Ghana Ltd., a Ghanaian-Dutch fertilizer company, which holds 50 % of the shares.

Export mango production in Ghana is on the increase, with fresh export volumes increasing from 230 tonnes in 2004 to an estimated 2,000 tonnes in 2008 (FAO 2009). IFTC contributes significantly and directly to this trend. Land acquisition for this farm was done through traditional authorities and with full knowledge of all actors involved under a 99year lease arrangement, for which the company pays an annual rent to the Land Commission. While the typical procedures of land acquisition were all observed, a recent FAO report (2013) indicates certain local conflicts in the project area, resulting from displacement of original land users who formerly farmed the project area, as well as problems with women who have to walk much longer distance now in order to obtain firewood and other inputs that were formerly collected from common lands. However, these conflicts are not of a magnitude that would significantly affect the operation of the scheme.

ITFC has a central farm unit of about 180 ha, a packhouse, a nursery and a processing unit and employs about 468 workers of which 195 are female and 273 male. In addition to the nucleus farm, there are about 1200 outgrowers, out of which 149 are women. The total number of women is small (12.4 %), but substantial, compared to similar schemes in Ghana, and especially in the Northern Region. Outgrowers cultivate on their own land and plant about 0.4 ha of their farms with mango under an agreement with ITFC for which they receive start-up input loans.

ITFC has also supported the construction of a dam in Bagurogo, Gushe and Nabogo communities, and the extension of irrigation facilities to outgrowers, who use drip irrigation, needed in the establishment phase of mango cultivation.

ITFC exports 80–90 % of its produce as fresh and dried fruit to the Netherlands, UK and South Africa, the rest is sold on local markets.

Community perceptions of the IFTC seem to be generally positive. The food security risks created by this scheme appear to be minimal and the company has not undertaken large-scale land acquisition for its operations. However, the FAO study (2013) also highlighted concerns that the contractual arrangements between the company and the outgrowers favour ITFC, especially in terms of price determination and marketing of produce. A study by Daadi et al. (2014) shows that family outgrower farms operate better and with higher technical efficiency than individual farms of IFTC, and that periodical training organized by the company is beneficial to outgrowers.

Overall, IFTC seems to have substantially improved work opportunities for women in the traditionally male dominated farming area. This is largely due to the choice of mango as a tree crop and by the fact that many of women work in the fruit packaging and processing plant and are able to earn wages (41.7 % of the working force there are women).

The Northern Rural Growth Programme (NGRP 2008–16) jointly funded by the International Fund for Agricultural Development (IFAD) and the African Development Bank (AfDB), with $ 103.6 million is being implemented by the Ministry of Food and Agriculture to contribute to agricultural and rural growth and poverty reduction in northern Ghana. This programme works with poor rural people to develop income-generating agricultural activities for farmer-based organisations. It also supports the PPP arrangements to give participants better access to market and financial institutions. It is a commodity-based programme, which is concentrating on large-scale crops, such as maize, soybean and sorghum, typical 'women crops' such as shea nut and irrigated vegetables. It is also developing 41 small-scale irrigation schemes across the three northern regions, totaling close to 3000 ha of land. Project activities focus on how to most effectively improve the livelihoods of the rural poor (NGRP, 2014).

New agricultural developments

In recent years, Ghana has witnessed increased interest from private companies of Europe and USA, in developing agricultural investment opportunities. This has led to a surge in land acquisitions and also in agribusiness ventures that source produce from local farmers. Northern Region features prominently in these transactions, together with Brong Ahafo Region, reflecting the land availability and suitable bio-physical conditions of these large regions. Interest in agricultural ventures has particularly risen since the global food crisis of 2007–2008 and earlier biofuel plantation investment is now increasingly replaced by large-scale food crop schemes. The Northern Region has attracted growing and significant interest from foreign investors. According to data supplied by the government-led, donor-supported Land Administration Project, the Northern Region accounts for 64 % (204,999 ha) of the overall land deemed 'available' for investment purposes at the national level (320,126 ha; Land Administration Project, 2000). Government of Ghana has been actively involved in 14 of the 28 land acquisition processes involved, but most of the land has been leased by the traditional authorities (Cotula et al., 2014, Cotula and Teinhaara, 2013). The Lands Commission has produced a set of guidelines for 'Large-Scale Land Transactions for Agricultural and other Purposes' to bring practices in line with international procedures. These initiatives and guidelines are yet to fully assess the level of change brought into the livelihood of small-scale farmers, especially the very poor and marginalized ones who make of the majority in northern Ghana.

Savanna Agricultural Development Authority (SADA) and commercial agricultural schemes in Northern Ghana

The Savannah Accelerated Development Authority (SADA) is an independent agency established by the Government of Ghana for the development of the northern savannah ecological zone. It is a comprehensive government strategy, backed by a policy and law enacted in 2010 (Act 805).

The ambitious agenda of SADA focuses on sustainable development, using the vision of a forested, green North to counteract climate change and improve the livelihoods of the most vulnerable citizens in the area, particularly women and very poor residents. Pressured for tangible results, SADA has, up to date, supported the implementation of a number of projects in the area of tree planting, guinea fowl rearing, and agriculture.

One of such initiatives is the Ghana Commercial Agriculture Project (GCAP), which seeks to facilitate access to land, and improve Ghana's investments in infrastructure to attract agri-business investors, as well as to promote Public Private Partnerships (PPP) and foster small-holder linkages in the Accra Plains (southern Ghana) and the SADA Zone. Principal funding for this initiative comes from the World Bank ($ 100 million) and USAID ($ 45 million). Emphasis of this project is on the cultivation of maize, rice and soybean with a particular focus on the establishment of outgrower farms, especially for maize. A study carried out for USAID (Gage et al., 2012) indicates that many outgrower schemes were relatively successful in Ghana and thus priority is given to project following such schemes. These projects do not seem to be oriented pro-poor, as it was the case with IFTC, described above and may thus lead to a further increase of the social gap in an already polarised society.

Developments in the Sissili Kulpawn Basin

The Kulpawn River originates from the Burkina Faso-Ghana border and drains 11,737 km^2, while the Sissili River takes it source from Mali, draining catchment including some parts of Burkina Faso, Togo, Benin and Ghana, and covering about 12,663 km^2 (Job et. al., 2012). Both rivers, after confluence in Ghana, drain further 625 km^2 into White Volta River, in an area called 'overseas' in the Mampurugu-Moadugu District of the Northern Region. This district has a low level of development and poor infrastructure and it lacks access roads, even though it is comparatively rich in land and water.

The two rivers provide enough water for the potential irrigation of 150,000 ha of land.

Starting from 2013, over the period of 5 years, Wienco Ghana Ltd., under the general SADA drive for intensification of agriculture in the North, focuses on the development of commercial agricultural practices in the Kulpawn area through the promotion and implementation of a more rational water use. In partnerships with Government of Ghana and development partners from the private sector, universities and knowledge centres, Wienco targets 45,000 ha of land for the development of commercial agriculture. This will in the first phase include 400 ha of irrigated land (150 ha under central pivot systems for a nucleus farm and 150 ha for smallholder outgrower farmers). Up to 6000 ha will be developed for rainfed crops. The development of a long-term public-private partnership will be the target of a second project phase.

Funding for this project with a total volume of 11.6 million Euro for the first phase (2013–2017) has been secured from the Sustainable Water Fund (FDW) the Dutch PPP Water Facility (60 %), while the remaining 40 % will be covered by the Wienco Ghana Ltd. (27.6 %), SADA, (6.9 %), Alterra – Wageningen University (5.2 %) and Rebel International 0.3 % (IWAD, 2014).

Other irrigation developments

Further irrigation developments in Northern Ghana include the Pwalugu Multipurpose Dam (PMD) along the White Volta River in the Upper East and Northern Regions, about 15 km east of the Pwalugu bridge on the main Tamale-Bolgatanga road. The three main objectives of the PMD are to provide hydropower generation, contribute to the development of irrigation, and to prevent flooding in the project area, which has been a recurrent problem in the past. With irrigation as a priority, the maximum irrigated area possible is around 95,000 ha and with energy production as a priority, the maximum irrigated area is around 47,000 ha. Both options are still under consideration (VRA Scoping Report, 2014), but any chosen option will definitely affect the flow regime of the White Volta considerably and so far, little is known about social implications of any such development. At present, the Indian Arima Group is also establishing a large irrigated rice outgrowers scheme around Yapei in the Northern Region, with a nucleus farm of about 3000 ha.

Plate. 2 Spillway section of Kpalbusi small-scale dam, dry season, Northern Ghana

(© Gordana Kranjac-Berisavljevic)

3 Conclusions

The examples above show an increased interest and drive to develop Northern Ghana regions, implemented both by government agencies and foreign, as well as local, donors and investors. Various projects cover mining explorations, energy and food crops production on the large scale.

It is evident that all of these activities will impact significantly the regions which were, until very recently, relatively cut off modernization. Many of the large projects will alter the water regime of many parts of the Volta River Catchment and thus have major environmental impact (both in case of mining industry and intensive agriculture) downstream, while possibly offering opportunities for employment of the youth, both male and female, who increasingly migrate to southern Ghana in search for work. Overall food production in Ghana should increase, if the expected impact is achieved and this is important in the country where large food imports make up much of the government's budget, even though it may not necessarily improve food security of the low-income segment of the population, as the food may be available at a price which is outside their reach. Many poor people in Northern Ghana still largely depend on self-sufficient food production and if the planned projects are all put in place, their ability to continue doing so may be jeopardized, as the examples from Jatropha cultivation as well as mining industry indicate.

An important question to be addressed is if the people and communities affected are prepared for the change that is occurring simultaneously in many parts of the study area. As shown by many examples presented here it is clear that it is often not the case.

It is also evident from the study that traditional commons under the custody of local chiefs, under which many poorer people obtain resources for food and energy are gradually changing their function and are transformed into privately owned large farms. Employment there is available as paid farm labour, mostly unskilled, and also mostly for men, with few notable exceptions. It is not clear at this time if local people want this kind of change and which mechanism would be in charge to monitor and mitigate possible negative effects in an increasingly uneven distribution of wealth at the expense of securing livelihoods of many.

The role of the Government of Ghana in this process is crucial: apart from providing investment opportunities and recently developing new guidelines ensuring that land deals are fair and transparent, there is much to be done on the education of the people on their rights and opportunities created, while the ‘old life’ is disappearing. The role of the civic society is also very vital so as to provide new opportunities for dialogue and consultation among all concerned.

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5 References

- **Abzu Gold Projects (undated):** (www.abzugold.com/s/Bole-Nangodi.asp) downloaded 7.11.2014.
- **Acheampong, E., Campion, B.B., 2014:** The Effects of Biofuel Feedstock Production on Farmers' Livelihoods in Ghana: The Case of Jatropha curcas.
- **Sustainability 2014, 6:** ISSN 2071-1050
- **Afif, S., Engineering the Jatropha Hype in Indonesia, 2014:** Sustainability 2014, 6, 1686–1704.
- **Agyemang, I., Okoto, H., 2014:** Small-scale mining activity in Mengwe Community,
- **Northern Ghana: Advantages amidst the disadvantaged socio-economic effects:** International Journal of Educational Research and Development Vol. 3(2), p. 23–29, February 2014. ISSN 2327-316X .
- **Amponsah-Tawiah, K., Dartey-Baah, K., 2011:** The Mining Industry in Ghana: A Blessing or a Curse. International Journal of Business and Social Science, Vol. 2 No. 12; p. 62-69.
- **Azumah Resources Limited, 2014:** Addendum to Annual Report. p. 5. 24 October 2014, www.azumahresources.com.au/documents/1377448.pdf, downloaded 10.11.2014.
- **Bening, R. B., 1995:** Land policy and administration in Northern Ghana. Transactions of the Historical Society of Ghana vol. 16, no. 2 (new series no. 1). p. 227–66.
- **Cardero Resources Corp. (undated):** Sheini Hills Iron Deposit, Ghana, West Africa www.cardero.com/i/pdf/Sheini_Factsheet.pdf, downloaded 11.11.2014.
- **Coakley, G.J., 1999:** The mineral industry of Ghana. Minerals Yearbook, Vol. III, United States of the Interior, Geological Survey.
- **Constitution of Ghana, 1992:** www.ghanaweb.com/GhanaHomePage/republic/constitution.php?id=Garticles.html, downloaded 09.11.2014
- **Cotula, L., Oya, C., Codjoe, E.A., Eid, A., Kakraba-Ampeh, M., Keeley, J., Kidewa, A.L., Data, A., Mandal, B.K., 2014:** Use of Jatropha Biodiesel as a Future Sustainable Fuel. Energy Technology & Policy (2014) 1, 8–14 ISSN: 2331-7000
- **Cotula, L., Tienhaara, K., 2013:** Reconfiguring Investment Contracts to Promote Sustainable Development, p. 281–310, Chapter 6 in: Sauvant, K.P., (ed.) Yearbook on Investment and Law Policy, 2011–12, Oxford University Press, UK.
- **Daadi, B.E., Gazali, I., Amikuzuno, J., 2014:** Technical efficiency analysis of organic mango out-grower farm management types: The case of Integrated Tamale Fruit Company (ITFC) in Northern Region. African Journal of Agricultural Economics and Rural Development ISSN: 2141-5091 Vol. 2 (3), pp. 129–137,
- **FAO, 2013:** The Gender and Equity Implications of Land-related Investments on Land Access, Labour, and Income-Generating Opportunities in Northern Ghana: Case Study of Integrated Tamale Fruit Company. Rome, Italy.

- **FAO, 2009:** Increasing incomes and food security of small farmers in West and Central Africa through exports of organic and fair-trade tropical products GCP/RAF/404/GER. Project impact study in Ghana; Mango. Rome, Italy.
- **Gage, D., Bangnikon, J., Abeka-Afari, H., Hanif, C., Addaquay, J., Antwi, V., Hale, A., 2012:** The Market for Rice, Soy and Warehousing in Northern Ghana. p. 58, USAID-EAT Assessment, Ghana.
- **Ghana Chamber of Mines, 2014:** Performance of the Mining Industry in 2013. p. 10. http://ghanachamberofmines.org/media/publications/Performance_of_the_Mining_Industry_in_2013.pdf, downloaded 11.11.2014.
- **Ghana Statistical Service (GSS). 2012:** 2010 Population and Housing Census. Final Results, Accra, Ghana.
- **Guri, B. Y., Banuoku, D. F., Derbile, E. K., Hiemstra, W., Verschuuren, B., 2012:** Sacred Groves Versus Gold Mines: Biocultural Community Protocols in Ghana. p. 121–130, in: Participatory Learning and Action 65, (ed. Swiderska, K.) IIED, London, UK.
- **Gyasi, E.A. 1995:** Farming in northern Ghana. ILEIA Newsletter 11 (4): 23.
- **Hoediafia, M.A., Cheabu, B.S.N., Korang, V., 2014:** The Effects od Small Scale Gold Mining on Living Conditions: A Case Study of the West Gonja District of Ghana. p. 151–164, International Journal of Social Science Research, Vol 2, No 1. ISSN 2327-5510.
- **IWAD, 2014:** www.iwadghana.com/index.html, downloaded 14.11.2014.
- **Jatoe, J-B. D., Al-Hassan, R., Adekunle, B., 2012:** Why northern Ghana lags behind in Ghana's growth and poverty reduction success? p. 3. Draft policy brief submitted to the African Economic Research Consortium (AERC) for the AERC Collaborative Research Project on Understanding the Links between Growth and Poverty in Africa.
- **Job, U., Versteeg, R., Termes, P., Maxwell, B-G., Alfa, B., 2012:** Report on Hydrological and Hydraulic Assessment of the Sisili-Kulpawn Basin.
- **Kasanga, K. and Kotey, N. A., 2001:** Land Management in Ghana: Building on Tradition and Modernity. International Institute for Environment and Development (IIED), London, UK.
- **Kranjac-Berisavljevic', G., Bayorbor, T.B., and Obeng, T.B., 2002:** Soil and Water Conservation in Ghana – review, in: Slaymaker, T., Blench, R., (eds.) Rethinking Natural Resource Degradation in Sub-Saharan Africa – joint ODI-UDS publication on Policies to Support Sustainable Soil Fertility Management, and Soil and Water Conservation among the resource poor farmers in semi arid areas, Ghana Chapter (II), Volume I. p 50 ISBN 9988-611-05-6
- **Kumbun-Naa Yiri II, 2006:** Customary Lands Administration and Good Governance –The State and the Traditional Rulers Interface. p. 17, Paper prepared for the 5th FIG Regional Conference – Promoting Land Administration and Good Governance, Accra, Ghana, March 8–11, 2006. Published by International Federation of Surveyors-Article of the Month, May 2006.
- **Mahama C.I., Mohammed H.A., Abavana M.A., Sidibé I.B., Koné A., Geerts S.C., 2003:** Tsetse and Trypanosomoses in Ghana in the Twentieth Century: a Review. Revue Elev. Med. Vet. Pays trop., 2003. 56 (1-2): 27–32.
- **Makwarimba, M., Seide, W.M., Ole Nasha, W., Owusu Asare, R., Rizzo, M., 2014:** Testing Claims about Large Land Deals in Africa: Findings from a Multi-Country Study, The Journal of Development Studies, 50:7, 903-925.

- **Merah Resources Ltd, 2014:** Merah acquires option on gold projects in Ghana www.merahresources.com.au/FCKuploads/file/1209658%20MEH-Ghana.pdf, downloaded 10.11, 2014.
- **Mining Journal Special Publication-Ghana. 2010:** p. 11, Aspermont, London, UK.
- **Ofosu-Mensah, Ababio, E., 2011:** Historical overview of traditional and modern gold mining in Ghana. International Research Journal of Library, Information and Archival Studies Vol. 1(1) pp. 006–022, August 2011.
- **Paaga, D.T., 2013:** Customary Land Tenure and Its Implications for Land Disputes in Ghana: Cases from Wa, Wechau And Lambussie. p. 263–270. International Journal of Humanities and Social Science Vol. 3 No. 18; October 2013
- **Paruchuri, Y., Siuniak, A., Johnson, N., Levin, E., Mitchell, K., Goodrich, J.M., Renne, E.P., Basu, N., 2010:** Occupational and environmental mercury exposure among small-scale gold miners in the Talensi-Nabdam District of Ghana's Upper East region. Sci Total Environ. Nov 15, 2010; 408(24): 6079–6085.
- **Republic of Ghana, Northern Rural Growth Programme, 2014:** Supervision report. Main report and appendices. p. 51. IFAD, Rome, Italy.
- **Sarpong, G.A., 2006:** Improving Tenure Security for the Rural Poor. Ghana- Country Case Study. p. 28. Paper prepared under contract with the Food and Agriculture Organization of the United Nations (FAO), Rome, Italy.
- **Schoneveld , G. C., L. A. German, and E. Nutakor, 2011:** Land-based investments for rural development? A grounded analysis of the local impacts of biofuel feedstock plantations in Ghana. Ecology and Society 16 (4): 10.
- **The Land Commission, Ghana (undated):** Guidelines for considering large-scale land transactions for agricultural and other purposes.
- **The Land Commission, Ghana 2000:** Land Administration Project (LAP).
- **von Maltitz, G., Gasparatos, A., Fabricius, C., 2014:** The Rise, Fall and Potential Resilience Benefits of Jatropha in Southern Africa. Sustainability 2014, 6, 3615–3643.
- **Williams, T.O.; Gyampoh, B.; Kizito, F. and Namara, R. 2012:** Water implications of large-scale land acquisitions in Ghana. Water Alternatives 5(2): 243–265
- **Yaro, J.A., 2010:** Customary tenure systems under siege: contemporary access to land in Northern Ghana, p.199–215, GeoJournal Vol. 75, No. 2, 2010.
- **Bulmer-Thomas, V. (1982):** Input-Output Analysis in Developing Countries, Sources, Methods and Applications, John Wiley and& Sons Ltd., New York.

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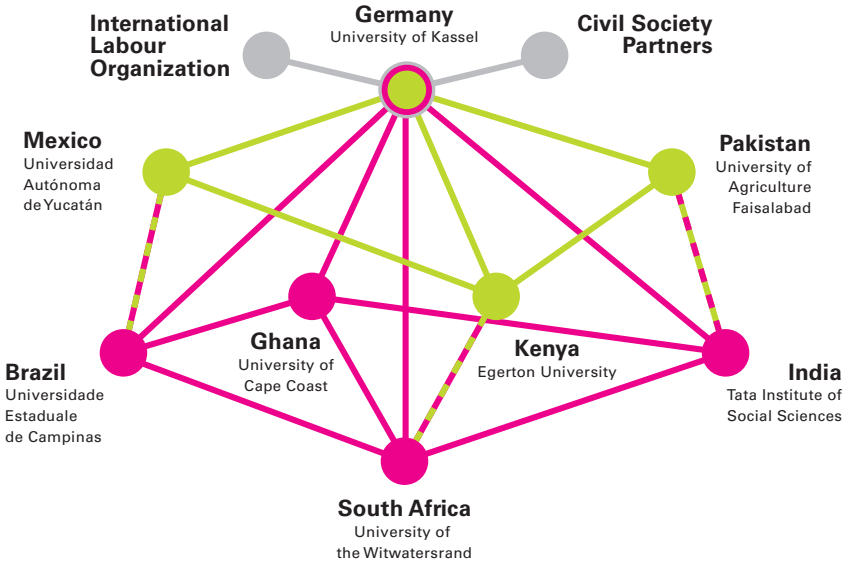

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