land-use smallholder agriculture in the Volta basin

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ABSTRACT

The creation of the Volta Lake for power production opened up new possibilities of land use and improved practices for smallholder farming, namely machanization, irrigation and « drawdown » (shore-line) agriculture. Some 80,000 people, mostly subsistence farmers were displaced; most of them were resettled under a public programme. This paper reviews the record of the resettlement programme, and discusses the problems, progress and issues of exploiting the new opportunities of improved agricultural practices in the river basin.

RÉSUMÉ

L'aménagement du lac Volta pour produire de l'énergie a offert des possibilités nouvelles pour l'utilisation des terres et amélioré les systèmes de production des petits fermiers en apportant la mécanisation, l'irrigation et l'agriculture « draw-down » (de bord de lac). Environ 80.000 habitants ont été déplacés, principalement des agriculteurs d'auto-subsistance; la plupart d'entre eux ont été réinstallés à l'occasion d'une opération nationale d'aménagement. La communication a pour objet de faire le point de cette opération, de discuter des problèmes rencontrés ainsi que des progrès et des résultats obtenus pendant l'exploitation de ces nouvelles possibilités pour l'amélioration de la production agricole dans le bassin.

INTRODUCTION

The creation of the Volta Lake for power production opened up some new possibilities of land use and improved practices for smallholder farming, namely, mechanization, irrigation, and « drawdown » (or shore-line) agriculture. The exploitation of these opportunities have so far lagged behind expectation. This paper discusses some of the problems and issues that have confronted the full realization of these new opportunities.

To provide a background for the discussion, a brief description of the Basin itself and the settlement pattern before impounment will be given; this is followed by an account of the resettlement, and the major agricultural opportunities open to the affected community.

THE VOLTA BASIN BEFORE THE LAKE

The Volta Lake drains most of the riverine system of Ghana from the north-west of the country to the south-east. It covers an estimated area of 8,482 sq. km. (3275 sq. miles), or 3.6 % of the surface area of the country. It is 400 km. (3000 miles). It is said to be the largest man-made lake in the world.

Archaeological and other studies conducted before the formation of the lake recorded the following findings about settlements and economic activity in the area (1) : (a) the basin had been settled for at least half a million years; (b) simple pre-capitalist economic activities, including agriculture, craft and commerce had been practised there for over 3000 years; (c) disturbances in the area (eg. riverine disease, inter-tribal wars and slave-raiding) and development outside it (eg. the emergence of cocoa and mincing industries in the forest belt) had caused relative depopulation of the area.

Prior to the lake, there were 80,000 people (or 1 % of the population in 1964) living in some 740 villages in the area. Their basic occupation was subsistence agriculture. A few farmers in the south and east were cocoa farmers. Livestock production was inhibited by the tsetse-fly; and only a small proportion (2 %) of the people were riverine fishermen.

THE LAKE AND RESETTLEMENT

The people affected by the lake formation were given the option of either accepting compensation for lest property and making their own arrangements for ressettlement, or accepting official resettlement. About 85 % opted for official resettlement. They were resettled in 52 new settlement townships of between 2000 and 5000, in contrast with the original 740 small villages. This, of course, was expected to facilitate the organization of viable communities and communication. But it also raised conflicts and social tensions : the scheme involved people from eight ethnic groups, and their regrouping was bound to affect traditional political jurisdiction (especially where people were being moved from their traditional homelands to new areas) and precedence of chiefs (even in cases where people were being moved within their own areas).

A second source of discontant and frustration was the provision of housing which was found unsuitable in design and

PRODUCTION ORGANIZATION : MECHANIZATION AND COOPERATION

The types of farming envisaged for the settlers were as follows arable, tree crops, intensive livestock, and pastoral. Land was to be distributed in accordance with this scheme. For arable farming, a minimum of 4.9 ha. (12 acres) was to be allocated; for tree crops, and area of between 2 ha. and 6 ha. (5 and 15 acres) was to be provided; for intensive livestock, particularly for poultry and pigs, 1.2 ha. (3 acres); and for pastoral farming 12.1 ha. (30 acres). The assumption was that this scheme would enable the farmer to generate a minimum income of C700 per year (C1.00 = S0.98; 1971), provided that he followed recommended practices.

One such practice — and a very important one — was mechanization. It was proposed to introduce mechanization as a modern technology that would enable settlers to enlarge their farms rapidly and to apply other modern practices as well, such as fertilizer and improved planting material.

The national agricultural policy at the time emphasized large-scale mechanized farming using state-supported cooperatives, state farms, youth settlement farms, and so forth. Accordingly, some effort was devoted to the formation of farming cooperatives. In fact, the regrouping of the displaced population previously spread over 740 villages into only 52 townships of larger size was seen as a facilitating factory, if not an original rationale.

It quickly became evident that this programme was over-ambitions in relation to the planning experience, organizational resources and administrative capacity available for its implementation. KALITSI aptly assesses it in these words : Naturally, this was an ambitions programme that was to encounter practical difficulties in implementation. For the entire programme to succeed, systematic planning, marketing organization, and other things were required. But the manpower resources, the skills, and the experience needed were not available in adequate quantities. The result was that

have had an unhappy record in Ghana. This approach appears have poor prospects (9).

The effect of these failures and other problems cited in the last section was a substantial emigration of settlers. TAYLOR (10) has recorded that by 1968, 60 % of the original settlers had moved out. This process was reversed by a chance in the census-system, whereby land acquisition became easier

downstream of the Dam then it is not lost to electric power generation, and both objectives are happily realised at the same time.

It is thus very important to try to determine beforehand the use of water in the headpond of the lake for irrigation and electric power generation purposes, respectively, in the overall National interests and it is with this

and tenure more secure, and by the introduction of the World Food Programme 356, by which food was provided the farmers as an incentive to stay and clear their land.

A very important aspect of the agricultural policy pursued was that it involved only the settler communities. This naturally evoked considerable hostility and envy among the host communities, who saw the settlers (strangers) not only as intruders on their land, but also as a privileged group on whom new, income-increasing opportunities were being concentrated. Acordingly, the scope of the programme was modified to include the host communities, to reduce this hostility, and to avert disparities of income and employment opportunities between the two different communities (11). However, it is necessary to note that hostility has not been completely eliminated (12).

We now turn to the other opportunities for farm develop-

aim that studies have gone on, not only to ascertain the amount of water which may be drawn from the lake for irrigation without jeopardising electric power production but also to find out those areas which are best suited to benefit from irrigation. Results so far indicate that eventually, at least, 50,000 acres of land, mostly in the Afram Plains, could be irrigated with water mostly taken from the Afram wing of the headpond of the lake without detracting from the generation of power even in dryest years ».

Studies are being conducted into the consumptive use and diversion requirement for irrigation against power production over the cropping seasons. Fragmentary rainfall data seem to suggest that the shores around the lakes are drier than before the formation of the lake. This would seem to urge irrigation practice. At the same time, the water level has remained rather low in recent years, so that the prospects for irrigation

ment created by the lake, namely irrigation and drawdown agriculture.

IRRIGATION AGRICULTURE

The Volta Lake contains 148,000 million cubic metres (120 million acre-ft.) of water. It is natural to presume, and

for the settler zone are not too bright.

Meanwhile, agronomic studies are being conducted on experimental stations to determine the cropping patterns, fertilizer use, the appropriate types of pumps, plant protection and crop disease control, the costs and returns of smallholder irrigation in the basin, and so forth (15) (16). These studies already indicate that crop responses to trials are encouraging.

crops maturing in 40 to 60 days. For crops needing a longer period eg. rice, supplementary irrigation is needed.

Preliminary estimates (in process, unpublished) indicate relatively high returns from crops grown in the drawdown. But the full realization of the benefits is impeded by a number of problems, among them the following land tenure, poor extension support, difficulties of transport and marketing, and pests (18).

The demand for drawdown land exceeds the supply, leading to exploitative tenurial practices. For example, host community « landlords », including chiefs, rent areas at high rates to settlers (19). And it is not uncommon to find the same piece of land leased or sold to different tenants.

Extremely weak extension support accounts for lack of knowledge of recommended practices, dates of planting, etc., for selected crops. Extension is undertaken by agronomists of the V.R.A., of whom there are now only two; and they have absolutely no support from the Ministry of Agriculture.

The road and transport system connecting the townships is poor, and affects the marketing of perishable crops. Market days are once or twice in the week, and storage facilities are non-existent.

Finally, production is affected by pests — birds, monkeys (especially on maize farms in the forest zones of the basin), and domestic animals (sheep and goats). Tomato rot and nematodes are known, but not on a large scale.

CONCLUSION

In this rather short sketch, an attempt has been made to high light some of the problems that have confronted a major exercise in social engineering associated with a relative simple multi-purpose river basin programme, with particular emphasis on the new agricultural land use improved techniques opened up by the programme. First, the initial resettlement programme was not a complete success for a variety of reasons, among them inadequate housing provision, failure to work out a system of tenure conductive to undisturbed economic activity by the displaced peoples, and land shortages. Second, the prospect of irrigation in the basin appears distant on account of the competing requirements for power production, although the technical and economic feasibility for smallholder farming has been established. And third, the relatively new and promising drawdown agriculture is hampered by a number of factors, some of them avoidable through administrative sensitivity and action.

The smallholder, in the circumstances, is adjusting to the new opportunities without really significant public support. This is not intended to be an ending note of pessimism. It is perhaps almost a definition of our underdevelopment — that we are unable to organize effectively to exploit the opportunities we create for our social development. And it constitutes the challenge and essence of our development effort.

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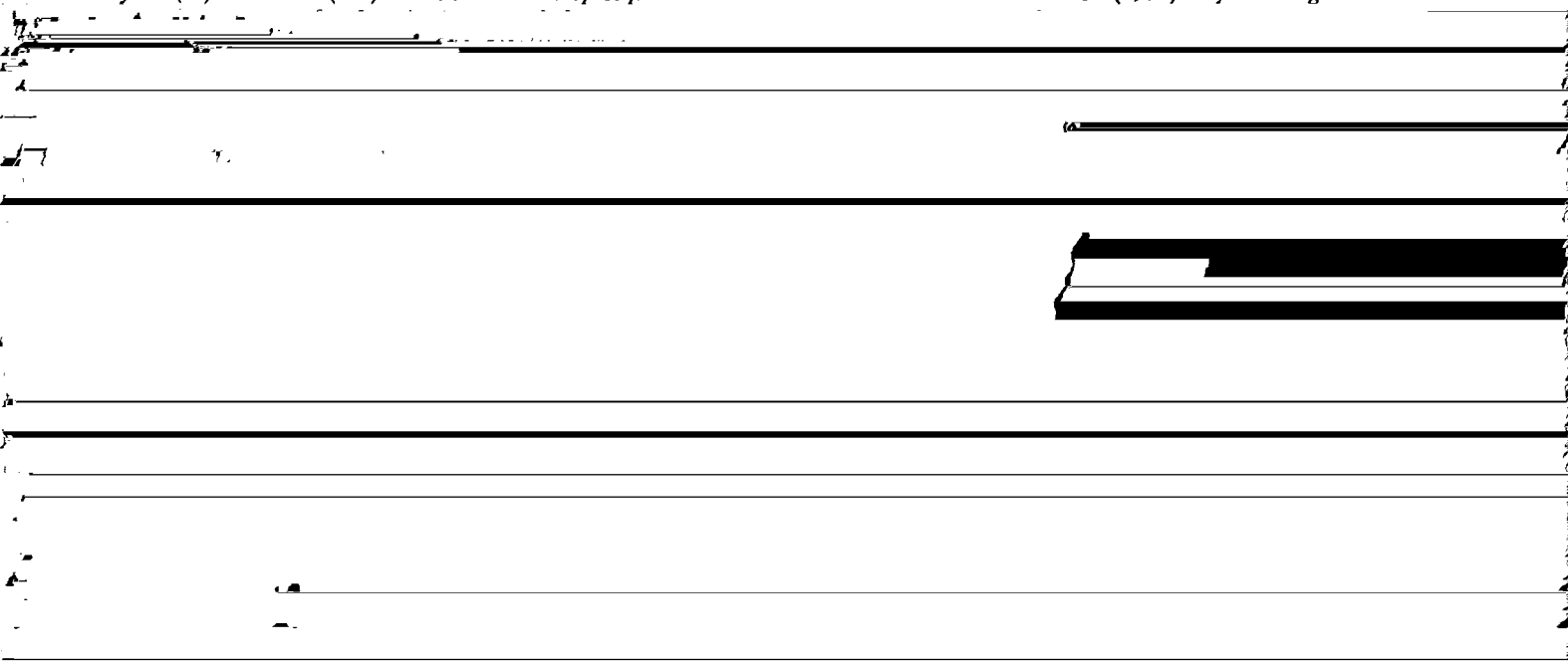

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