SIERRA LEONE

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General

Sierra Leone - officially the Republic of Sierra Leone - is located in West Africa. It is bordered by Guinea in the North-east, Liberia in the South-east and the Atlantic Ocean in the South-west. The country has a land area of 7.17 Mha (million hectares) with in 2020 a population of 8.0 million, or 1.1 persons per ha (Wikipedia and United Nations, 2019).

Climate and geography

The climate in Sierra Leone is tropical, with two seasons determining the agricultural cycle: the rainy season from May to November, and a dry season from December to May, which includes *harmattan*, when cool, dry winds blow in off the Sahara Desert and the night-time temperature can be as low as 16 °C. The average temperature is 26 °C and varies from around 26 to 36 °C during the year.

The centre of the country is a region of lowland plains, containing forests, bush and farmland that occupies about 43% of the land area. The coast has areas of low-lying Guinean mangrove swamps. Sylla (1994) describes that mangrove rice growing started in the middle of the 18th century in Sierra Leone and Guinea. Traditional systems are still the most widespread and they are applied, for example in Sierra Leone, Gambia, Guinea, Guinea-Bissau (bolanha system) and Senegal (diola system). The tidal rice cultivation system practiced in Sierra Leone, Gambia and Guinea consists of flooded rice during the seasonal period of fresh water flows of the major rivers. The traditional systems of rice cultivation have functioned well until the persisting droughts started in 1969.

In a report of the International Bank for Reconstruction and Development - International Development Association (1972) it is mentioned that farmers developing swamp rice would receive development credits for swamp clearance and drainage. However the word polder is not specifically mentioned. The project area is located in the southern part of Sierra Leone along the Moa River.

In a report of the World Bank (1983) the Northern and Eastern Area Projects have been evaluated. The swamp development related projects are located in the Eastern Area (Figure 1). Under the item Swamp development it is mentioned that the main thrust was of the technological innovation objective of the project. Internationally recruited engineers were employed in both project areas to introduce better drainage and water-control systems for inland valley swamps. While the design of the water-control system was basically sound, the implementation was partially successful. A major problem has been a too short development period. The practice was to build the drains and permanent bunds simultaneously in the first year. However, experience showed that the introduction of drainage caused shrinkage of the peat soils, which could change the water course and distort the alignment of the canals and bunds, which would then have to be rebuilt. In some of the virgin swamps the drainage process may have taken 3-5 years, while in the previously cultivated swamps the problem was not as serious and the systems have worked more efficiently. In the Northern Area Project there have also been problems with flooding and the consequent destruction of the works. In the cases (between 25-40%) where the systems have worked efficiently, some farmers have been able to achieve cropping intensities of between 130-150%. There has also been considerable spillover effects of swamp development, with non-project farmers attempting to build water-control works on their own. The success of their efforts have depended on the particular characteristics of their respective swamps, since without the benefit of technical surveying the main drain was sometimes poorly aligned with the water course. But on the whole their efforts have contributed to increased production. The adoption of improved cultural practices in swamp-rice cultivation was widespread, with farmers recognizing the potential value of improved seed and fertilizer as well as the recommendations on spacing, transplanting, etc. However, the use of fertilizer has been declining and a number of farmers have abandoned their swamps and returned to the uplands. There was no consensus on the reasons for this observed abandonment. One major explanatory factor was the problem of distortion of the bunds, since no provision was made in the package for financial assistance in consolidating swamps after shrinkage, though in the Northern Area Project consolidation assistance was introduced in 1981. The incidence of abandonment also appeared to have

been higher in the Eastern than in the Northern, which could be explained by the shrinkage factor and/or more preferred alternatives. In the Eastern Area most of the swamps developed were virgin, hence greater shrinkage occurred than in the Northern Area, where traditional swamp cultivation has been more widespread. Also, in the Eastern Area there were more competing opportunities for non-farm employment (in the diamond-mining, etc.) and tree crop cultivation. Other explanatory factors that have emerged include conflicting labour demands with tree-crop activities, land-tenure issues, and the association of schistosomiases with swamp cultivation.

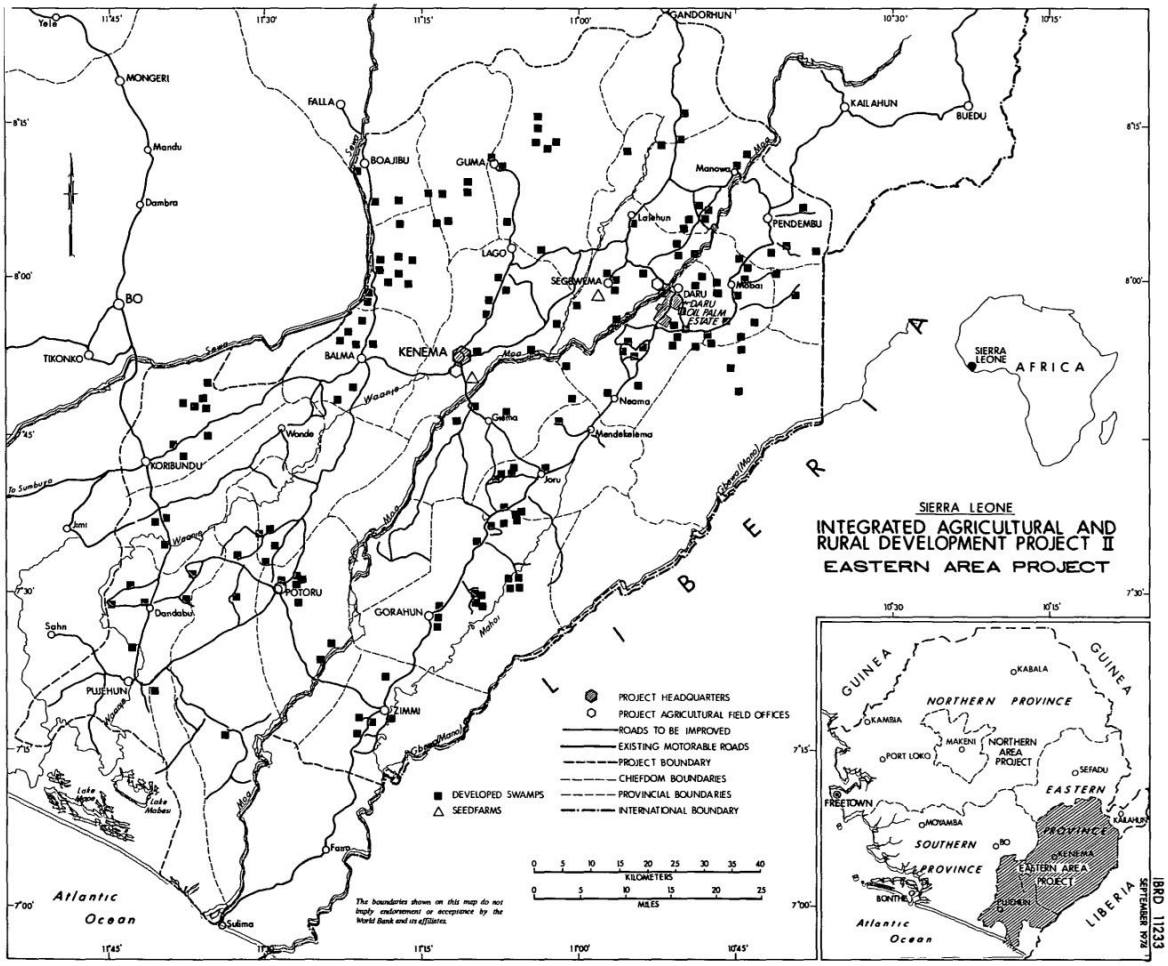

Figure 1. Location of the Eastern Area Projects (World Bank, 1983)

In the report it was further stated that the approach to swamp development continued to be another area of concern. Given the problems of water control and labour requirements for maintenance, a feasible approach might have been the development of entire swamps using light mechanical ditch diggers to build the main structures (that is, the main drains and peripherals) larger than at present, and reinforced where necessary. Farmers would be responsible for the construction of the field divisions. The costs of construction could be recovered through annual land taxes on the owners/occupiers. The proposals under the follow-up projects were limited to consolidating the swamps developed in the earlier phases in the Eastern Area Project and some reinforcing with stones and cement in selected cases in the Northern Area Project to reduce the flooding problems; these measures alone were sufficient for making the program viable over the long-term.

Although in this report the word polder is not specifically mentioned, the types of drainage works as described implied that it would have to concern a primitive shallow type of polders.

General characteristics of existing and proposed polders are shown in Table I.

Existing polders

At internet reference is made to the Wellington Polder. However, although the location of this polder could be located no specific data of it could be found.

Proposed polders

The Group Polder Development (1982) mentions that for the Forma-Bum Banana Plantation the protection by a dike along the Sewa River was under study. This would create a polder of 4,150 ha (Figure 2). However, it could not yet been identified whether this polder indeed has been made.

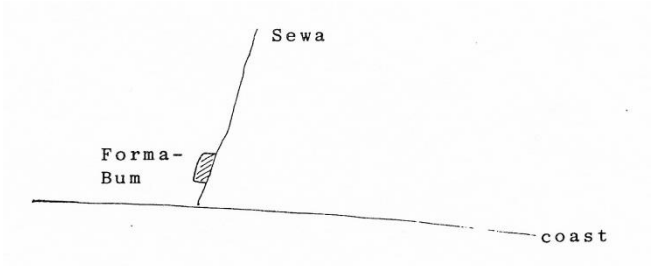

Figure 2. Location of the proposed polder for the Forma-Bum Banana Plantation (Group Polder Development, 1982)

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Lelystad, January 2021

Table I. General characteristics of existing and proposed polders in Sierra Leone

Name	Reclamation	Area in ha	Type *)	Latitudes	Longitudes	Elevation in m+MSL	Land use
Existing polders							
Wellington Polder			LGS	8º 27' N	13º 10' W	2	
Polders in the Eastern Area Projects			RLL	7º 27' N	11º 14' W		
Sub-total							
Proposed polder							
Forma-Bum Banana Plantation		4,150					
Sub-total		4,150					
Total		4,150					

*) RLL = reclaimed low-lying land; LGS = land gained on the sea; DL = drained lake