Settlement Schemes and Population Absorption

by

Robert Chambers

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One of the most prominent characteristics of the land settlement schemes which have been launched in tropical Africa over the past twenty five years has been the diversity of their objectives. Some, such as refugee resettlements, or the resettlement of the populations displaced by the Kariba, Volta, Kainji and Kossou dams, have been forced upon governments and have had as an initial objective re-establishing a displaced population in a permanent relationship with agricultural land. But both these projects and those which have been undertaken with other purposes have been sensitive to and vehicles for the concerns and ideologies dominant at the time, and have even changed their objectives in the course of their lives. Not surprisingly, in the latter 1940s and early 1950s settlement schemes were seen as a means of relieving population pressure. At that time colonial agriculturalists were still pessimistic about the fertility of tropical soils and alarmed at soil erosion. Schemes such as those at Shendam in Nigeria (Hunt, 1951), in Kigezi District in Uganda (Purseglove, 1951), and in Machakos District in Kenya (Kenya Government, 1962: 16 ff) dating from this period were designed to tackle erosion and over-population by bringing unoccupied land into cultivation. Where African over-population was perceived as a political threat to European settlement, this objective persisted into the mid-1950s, as with the Sabi Irrigation Projects in Rhodesia (Roder, 1965: 196-199) and the Mwea-Tebere Irrigation Scheme in Kenya (Chambers, 1969: 58, 68), the former as a means for resettlement of Africans displaced by the Land Apportionment Act, and the latter partly as a means of settling a growing

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Kikuyu population "within their own land units" (Kenya Govt., 1953:53). Until recently, this concern with over-population and the identification of resettlement as a solution to it has tended to decline, but it is now beginning to receive renewed prominence. In Kenya, for example, one of the major recommendations of a select parliamentary committee on unemployment (Kenya Government 1970) was urgent expansion of irrigation settlement, increasing its labour-intensiveness, and reducing budgeted incomes so that more families could be settled. The proposal for major irrigation in the Lower Tana Basin in Kenya, several times pronounced marginal economically, continues to attract attention with its promise of 250,000 acres under crops and the settlement of a substantial population. Similarly in Burundi, the uncultivated lands of the Cankuzo and Mosso regions have encouraged the development of proposals for settlement to relieve the overpopulation in other parts of the country. Further, the recurrent large-scale problems with refugees in Africa (for a summary, see Hamrell 1967: 14-17) are liable to continue to pose problems of absorption and of organised settlement in many countries. In view of these developments it may be timely to review some aspects of settlement schemes and population absorption with particular reference to planning choices. No serious attempt will be made to review the past record in detail; rather the intention is to point up some key issues and conclude with selective prescriptions.

Population Absorption and Employment Generation

Assessing the likely benefits of a settlement project in terms of population absorption is subject to many imponderables. In the exceptional case of a successful scheme which is expanding as a matter of routine, for example the Mwea Irrigation Settlement in Kenya, it is possible to state the number of families which will be settled. This, however, will be an underestimate of total absorption whenever a scheme generates secondary employment, as a relatively prosperous scheme such as Mwea certainly does. Conversely, with less successful schemes, there may be substantial absenteeism, as occurred on some of the Volta resettlements in Ghana (Chambers, 1970: 242-4). In general, the stability of the settled population and the generation of secondary employment can be expected to be related to economic returns to settlers

more than to other factors, but these are notoriously difficult to predict, subject as they are to water supplies (with irrigation), crop varieties and mixes, pests, managerial policies, fiscal policies, and marketing arrangements. In most cases, therefore, accurate prediction of population absorption in the short or medium term is bound to be difficult.

A complicating twist in the longer term may be a differential fertility of settlers compared with non-settlers. In Kenya, Korte and Muga have found independently on two widely separated rice irrigation schemes, Mwea and Ahero respectively, that on-scheme families express a preference for larger families than off-scheme families (Korte, 1969: 288-9; Muga, 1971: 8A). Possible explanations are that with their higher incomes tenants on the schemes anticipate being able to educate more children, and that they want larger families to meet the higher labour demands of paddy farming. In both cases, however, an off-setting finding was that scheme families were more favourable towards family planning than those off the scheme (Korte, 1969: 288-9; Muga, 1969a:13). One cannot and should not jump to conclusions from these findings with their many possible interpretations, but they do serve to emphasise that the difficulty of making any long-term projection of the population effects of a settlement scheme is liable to be compounded by imponderables.

The employment generation capacity of a settlement scheme is also not easy to assess. There are settlement projects, notably the ujamaa villages in Tanzania, where it is an objective of policy to avoid the employment of casual labour, notwithstanding the probability that this will restrict the profitability of the village enterprises through labour constraints at peak periods. Where, however, as in Kenya, there is a major preoccupation with unemployment, settlement schemes are seen as one means of alleviating it, (MacArthur, 1967; Odingo, 1967: 148; Kenya Government, 1970:19), not merely through settling families but also through creating seasonal employment. There is a contrast here between mixed farming on intermediate acreages where the farm family may be able to adopt patterns of production which lead to comparatively even labour requirements throughout the year, and monocropping as with irrigated rice cultivation on the Mwea and Ahero schemes where there are sharp labour peaks for transplanting and harvesting which markedly exceed the family's

capacity and require the employment of casual labour (MacArthur 1967: 127-9,137). If the crop is known at the planning stage, then these labour peaks can be anticipated and assessed in relation to the agricultural calendar and labour availability in the surrounding areas. Moreover, decisions about holding size and technology on settlement schemes can to some extent be taken in advance with some idea whether a family will be able to handle all operations itself, whether it will be only partially employed for parts of the year, and whether part-time labour will be required.

Estimates of population absorption and employment generation are, of course, much easier ex post with the benefit of empirical evidence than ex ante. Nevertheless, there is no reason why ratios for employment created to the scarce resources of land, investment and skilled staff, similar to those worked out by Sandford for the Mwea Irrigation Settlement, (Sandford, 197[illegible]) should not be calculated in the planning stage of settlement. Indeed, where pupulation absorption and employment generation are important objectives of a project, such ratios should be a standard part of ex ante benefit cost appraisal. The difficulty of making them can be partly reduced by comparison with evidence available from existing schemes.

Population Density, Holding Size and Technology

The population absorption capacity of a scheme can be expected to vary with holding size and technology. It may therefore be possible to state alternative forms of organisation, particularly regarding holding size, with different benefits in terms of population settled and employed, and indeed of income distribution and social relations. In practice the decision on form of organisation is usually pre-empted either ideologically or at a very early stage in the planning process. Where there are family holdings, the tendency is to standardise size (4 acres on Mwea and Ahero in Kenya, 15 feddans on the Managil Extension of Gezira in the Sudan, 6 acres on Nyakashaka in Uganda, etc.), with the variation on some of the settlements of the Kenya Million-Acre Scheme of planning farms of equal income-generating (and hence loan repaying) capacity. There may be considerable argument about the optional size of holding based on the assumption, not necessarily correct, that with smaller holdings more families will be sustained, but it

is usually accepted that initial holding sizes should not vary between families. In practice, this standardisation is modified informally, as on Mwea where the tenants with better records for paddy deliveries are rewarded by being permitted to develop extra fields, and on the Shimba Hills settlement scheme in Kenya where, according to Palmer, some farmers were allowed two or even three plots if they had the capability to cultivate them (1971: 135). Nevertheless, holding size tends to be a very committing decision, difficult to vary later, and may be inefficient both economically and in terms of population absorption because its standardisation does not allow for variations in family resources and managerial competence.

The holding size may also constrain the choice of what crops to grow and what technology may be used. For example, the Kenya Million-Acre settlements near Kipipiri allocated farms too small for the economic mechanisation of wheat with the technology then available, which had previously been grown in the area, ~~effectively~~ excluding this as a crop option. Although the manner in which the population is organised in relation to the land obviously also has a bearing, Esther Boserup's (1965) thesis that technology ~~is~~ used ~~largely dependent~~ is strongly influenced by the density of population pressure on the land ~~does~~ carries some conviction in this connection. (~~Boserup, 1965).~~ For instance, in planning future settlement in the Cankuzo and Mosso regions of Burundi, if ox cultivation is the intended technology, land will be required for grazing and/or fodder crops for the oxen. If holdings are too small, this technology may not be possible, and manual labour may have to be used for all operations. A denser population may be settled, but at a lower level of technology and at a lower level of subsistence and income. Such considerations should be part of good settlement planning.

This in turn implies anticipating changes in technology. The futurologists have so far devoted most of their attention to the industrialised countries. Indeed, there has been a tendency in Kenya and Burundi at least for projections of population-holding capacity to be based upon assumptions of constant technology. But it would be surprising if the next decade did not see the introduction of major, perhaps revolutionary, innovations in ox-drawn equipment and in quicker-maturing and higher-yielding crop varieties. Ten years ago it should have been possible to guess at the effect of the

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quick maturing maize research programme at Katumani in Kenya on the future colonisation of marginal lands; equally, now, it may be possible by assessing the current research programmes in agricultural equipment and seed-breeding, to derive projections which would bear upon decisions about holding sizes in settlement schemes.

Difficulties and Dangers of Settlement Schemes

These reflections should serve to emphasise the difficulty of good planning for settlement schemes. There are, however, many other dangers and problems. The record of settlement schemes in tropical Africa is rather depressing: the objective of settlement has usually been most effectively achieved where there have been low managerial inputs and a high degree of autonomy for settlers. A few exceptions, such as Gezira in the Sudan, Mwea in Kenya, and Nyakashaka in Uganda (for a perceptive account of which see Hutton, 1968 and 73: 192-227) have been unusual in a fortunate combination of favourable economic conditions and outstanding management, conditions which are often not easy to ensure. Moreover, the range of disadvantages and disasters which can afflict settlement schemes is legion: marginal land, available for settlement precisely because it is marginal or infertile; absenteeism of settlers; authoritarian ~~on the part of~~ management; collapse of crop prices; physical disasters, especially with irrigation; excessive attention to welfare, particularly inappropriate housing; the development of dependent, complaining and passive attitudes on the part of settlers; and so forth. These difficulties are compounded the more complex the scheme and become more damaging economically by virtue of the irreversibility of commitment of government to sustaining a scheme once started. The larger and more expensive the scheme, the deeper the commitment of a government to making it appear a success. In this context, the dangers of embarking upon a settlement project in the Lower Tana costing £150 million or more should be apparent; a danger that an unviable or marginal scheme, politically impossible to abandon, would retard or drag down the economy of Kenya as a whole.

This does not mean that settlement projects should not be considered or undertaken. It does mean, however, that they should be very carefully appraised before they are launched. It is useful to think in terms of a continuum (for an elaboration of this model, see Moris, 1968). In general, the

simpler, more spontaneous forms of settlement are to be preferred. They are less committing to governments, and they more readily mobilise the labour of the settlers. They cost less and lead generally to greater production in relation to government investment. Where the aim is to assist the transfer of population, it is better to approach with an open mind, asking what constraints and opportunities there are, and to apply an eclectic solution fitting the particular situation, than to introduce a preconceived form of organisation. Spontaneous settlement can be assisted according to the circumstances by providing water supplies, eradicating tsetse, building roads and providing anti-malarial drugs. Fully developed amenities such as schools and social centres may be lower priorities for settlers than a physical and economic base. Advantages of such a low profile approach to settlement are that it does not lead to a recurrent or managerial commitment and it leaves the settler free to make most of the decisions which affect his life, but at the same time it does encourage population redistribution. There is probably far greater scope for relieving population pressure in the more densely populated areas of tropical Africa through selective supporting inputs of this sort than through formally organised settlement. A partial exception may be where there are sections of the population who are living at or below subsistence. In such cases there may be an argument for introducing a selection mechanism to identify those who are most disadvantaged and, to increase the population transfer effect, those with larger families; but if this is done care has to be exercised to avoid escalating commitments which will reduce the numbers of families transferred and settled because of the higher costs per family. (For this argument, as applied to Burundi, see Report... 1971: vii - viii). Effective low cost settlement, whether described as assisted spontaneous settlement or organised settlement, requires imagination and self-restraint on the part of officials if it is to avoid over-elaboration.

The greatest danger with land settlement as a proposal for alleviating overpopulation, now just as in the late 1940s, is that it will divert attention from more appropriate and more powerful measures, and divert national resources into programmes which are less beneficial than their alternatives. To take the example of the proposed irrigation in the Lower Tana in

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Kenya, a very crude calculation[1] suggests that for a capital cost of equivalent to three years development expenditure for the whole country at current estimates it might provide employment for a population equivalent to only one year's increase at current rates, besides involving the risk of dragging down the economy of Kenya as a whole. Moreover, such large schemes may distract attention from the more crucial issues of family planning and national economic development generally, providing through a temporising palliative an excuse for not facing the basic issue of control of fertility. There is now less land available for organised settlement than there was in the 1940s. There is also considerably more knowledge about the dangers and difficulties of settlement schemes. Moreover, with the exception of Gezira and the Office du Niger, the population absorption of settlement schemes in tropical Africa has been slight compared with national increases. Organised settlement should not be ruled out, and each case should be judged carefully on its merits; but it will be much less through the more dramatic and visible means of settlement schemes than through less spectacular and in some ways much more challenging programmes of development, including family planning, that the long-term solutions must lie.

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1. Taking one family settled for each four acres irrigated, five members to each family, and one family supported indirectly for each two families settled.

$$\frac{200,000}{4} \times 5 \times \frac{3}{2} = 375,000$$ cf. an annual increase at 3.3% of approximately 370,000 (1970). This calculation is extremely crude and somewhat arbitrary, but does serve to give some indication of orders of magnitude.

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