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PHASES IN SETTLEMENT SCHEMES (1)
SOME PRELIMINARY THOUGHTS

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INTRODUCTION

1. To define the field, settlement schemes are taken as "projects involving the planned and controlled transfer of population from one area to another"⁽²⁾ This includes refugee settlements where Government or an agency exercises some degree of control, but does not include spontaneous settlements where there is no such control.

2. Thinking about settlement schemes in terms of phases has a number of possible uses:

- (i) drawing attention to the time dimension and making it easier to see schemes as the evolving wholes that they are,
- (ii) providing a framework for describing and analysing schemes, with pegs upon which facts and experience can be hung, making comparison and classification easier,
- (iii) providing a frame of reference for evaluating a scheme at any given state of its development,
- (iv) assisting planning and the anticipation of problems and needs,
- (v) in training and helping managers, by making comparative information about schemes available in an easily organised form which could show them that their problems are not unique, and that solutions have been found to them elsewhere.

None of these possible uses is fully worked out here, but by implication or directly all are touched on later in this paper.

3. The use of phases has a suspect origin. It resulted from the need to organise into chapters historical material collected about the Mwea Irrigation Settlement in Kenya,⁽³⁾ and then the need to give titles to the chapters. In this process I found I was trying to identify a theme for a period, and then collecting together for the treatment of that period, evidence of the theme from both earlier and later periods. The effect was an illusion that the phases were neater, more self-contained, and less overlapping than they had been in reality.

4. The next stage was to draw up a chart of phases and their characteristics, based mainly on Mwea. This had additional disadvantages:

- (i) appearing to separate phases even more completely,
- (ii) being based upon controlled irrigation, which has its peculiarities as a scheme type,
- (iii) being derived from a scheme of recent origin,
- (iv) taking little account of the settlers' feelings and behavior, since the evidence on which the phases were based derived almost entirely from management sources.

5. Having produced the original chart (which had only five phases) it began to appear that what defined the characteristics of different periods in schemes were, to borrow from critical path analysis, activities and events: activities such as carrying out a soil survey, selecting settlers, building houses, and growing crops; and events such as the decision to implement the scheme, the arrival of the settlers on site, and the completion of the development works. But this approach presents difficulties. For any scheme, many activities overlap: For instance, development works, settler selection, and cropping experiments may well take place simultaneously. Equally, events are difficult to pin down; decisions sometimes emerge gradually without ever being "taken", and cannot therefore be tied to exact dates without distorting the facts; and the edges of phases are usually blurred. A further problem arises because different parts of a scheme may be at different states. A pilot project may be at an advanced phase when the main scheme is at an earlier one. Similarly, an extension to a scheme may be at an earlier phase than the original scheme. While activities and events are useful guides and landmarks, it emerged that the further dimension of physical area was needed. It might not be possible to identify the phase of a whole scheme, but it might be possible to identify the phases of its different geographical parts. The suggestion is, therefore, that for any given area in a scheme there is a general sequence of phases - ideas, surveys, planning, development, settlement, production, consolidation, withdrawal - although other areas within the same scheme may be at different phases of development.

A PHASE MODEL

6. Thinking in terms of geographical areas has led to looking at schemes in terms of environment, inputs, internal activities and changes, and outputs. Initially there is a physical and human environment. Activities and changes in that environment produce inputs which make the scheme whatever it is at any stage: an idea, reports and maps, a plan, and so on. As a result the scheme acquires a geographical definition, and the history of the scheme becomes the story of what goes into the area, what happens within it, and what comes out. To be comprehensive in an analysis of a scheme it would be necessary to examine all the inputs, including such varied items as social relations, sunlight, credit, machinery, people and know-how; all the multifarious physical and social activities and

changes which take place within the scheme; and all the outputs, including such varied items as social relations, crops, cash, political activity, taxes and communications. This is, of course, impossible, and it is a matter of judgment to assess which elements are the most significant. This approach has limitations, but has been behind the thinking in choosing the vertical categories in Table I. Although it seems to the writer to be the best approach when trying to see a scheme as an intelligible whole, it is not essential to an examination of phases.

7. Table I is an expanded and modified version of the original chart. It is based partly on Mwea, partly on information about other schemes, and partly on a priori considerations. The intention is to provoke comment, correction and discussion, not to present some sort of Divine Revelation. The chart sets out to describe some aspects of what happens, or may happen; it does not set out to state what ought to happen. Nevertheless, there is a certain logical necessity about the order of inputs for any given type of scheme, and it is these inputs which appear to define the starts of phases and which are mainly responsible for transforming the scheme into something new. Thus, for a medium-capital scheme we have:

PHASE	TYPICAL MAJOR NEW INPUT	WHAT ADDITIONAL THING THE SCHEME COMES TO RESEMBLE PARTLY AS A RESULT OF THE INPUT
I	Thought	A Proposal
II	Surveys	Reports and Maps
III	Planning	A Plan
IV	Development Work	An unoccupied farm
V	Settlers	A labour camp/housing estate
VI	Cultivation	A farm in production
VII	Management Rational- isation	A commercial organisation
VIII	Withdrawal	A community

Strictly "management" and "withdrawal", could be regarded as outputs from the scheme. Many other qualifications should be made about the contents of the chart, but only the most important will be outlined here.

QUALIFICATIONS

8. First, it is arguable that there should be two extra phases: one before phase I, including the crisis, problem or policy responsible for initiating the thought, and another after phase VIII, covering change and development in the community after withdrawal is complete.

9. Second, there is a danger that a chart of this sort will be regarded as the norm, and "deviations" will be pointed out. It is quite possible, however, that such deviations will prove to be more normal than the supposed norm. The schemes described in the chart are meant to be mainly medium-capital schemes. With very high capital schemes, there tends to be close supervision of settlers to ensure an output that will justify and repay the heavy investment, and phase VIII, withdrawal, may be either delayed or never intended to take place. In low capital schemes, such as the Sukuma settlement of Geita District, where only simple surveys, minor services and advice are provided for the settlers, phases II and III, survey and planning, may be run together, and phase IV,

development, may take place mainly after phase V, settlement, as a result of the work of the settlers. In addition, in such schemes, the management may be virtually non-existent after phase V, settlement. Again, in the controlled grazing schemes in Kenya in Samburu and West Pokot Districts, the "settlers" were on the land before the schemes started, and although their movement became planned and controlled, they were not usually settled in the normal sense of the word, but rather subject to organised nomadism. Phase V settlement was, therefore, more or less antecedent to phase I, a fact which had considerable implications for management style. Again, in refugee settlements, the initial movement of the would-be settlers (equivalent to selection) is usually the crisis and stimulation for phase I, ideas. Doubtless, there are many other exceptions of this sort. But while they weaken this chart as a generalisation, these variations and exceptions can be used to compose other charts, as a result of which, mainly by means of the introduction of the time dimension, fresh light may be thrown on the nature and problems of different schemes, and indeed on what characteristics can most usefully be taken to define types of schemes.

10. Third, in any scheme there is likely to be a great deal of overlapping of the inputs and activities which are typical of phases. In any given phase, some of the characteristics of earlier phases are likely to continue. This may be true not only for a scheme as a whole, but also, to a lesser extent, for any particular geographical area within the scheme. Table II shows this overlapping for a hypothetical medium-capital scheme. Associated with this overlapping is the blurring at the edges of phases that has already been mentioned. Even when a precise date is set by management for the end of a recognised phase, this may not in practice mark the end of the activities characteristic of the phase. A clear, financially determined deadline for a completion of development work on Mwea was set for 30th June 1960. The deadline was met, and the Ministry of Works machines and men who had been involved left the scheme. But in fact for some time Prison labour was employed on "tidying up", work similar to that characteristic of development. In this case, as in almost all cases, the phase was not the watertight compartment it appeared on paper. To say, therefore, that a scheme is at a particular phase is to make not a precise statement about the characteristics that will be found in it but rather a general statement about the range of characteristics that may be found in it.

PRACTICAL APPLICATIONS

11. Phase analysis could have a number of practical applications for those working on settlement schemes. It could help in planning, anticipation, evaluation, and the training of managers. These uses will not be dealt with separately, since the discussion which follows often applies to several or all of these uses. Of the many aspects which might be discussed here, I shall confine myself to what can be called the planning of overlaps, the viability crisis, departmentalism, the changing roles of management, the problems of withdrawal, and pegs for experience.

THE PLANNING OF OVERLAPS

12. At first sight, overlapping of inputs and activities from phase to phase might appear undesirable. However, taking a broad cost-benefit approach, including social and political as well as economic costs and benefits, it can be seen that many overlaps are beneficial. In the first place, costs may be reduced and benefits increased through feedback from later activities to earlier: the

information being collected in the surveys may be modified in view of the practical experiences of the planners; the form of farm development may be altered in the light of settler reactions and performance; selection procedures may be varied as a result of the experience with settlers already selected. These examples underline the value of a pilot project approach, which is all too often limited to the technical aspects of the scheme. The greatest unknown in most schemes is, however, not what crops will grow, or what fertiliser to apply, or any other agro-economic factor, but how the settlers will react; ironically, this is usually the least carefully assessed of all the factors making for a viable scheme, though there are signs, particularly in Tanzania (4), that this shortcoming is being tackled more resolutely and imaginatively than used to be the case. Secondly, overlapping and a certain degree of apparent confusion may save money, though there are likely to be social and political costs that could be avoided with more careful scheduling and coordination. In situations of confusion there is of course always a danger of poor financial control and reckless expenditure. But against this must be set the relative speed of negotiations and adjustments, and the pressure of demand for decisions and decisive action - These combine to get action taken quickly, reducing overheads. There is also often a high degree of feedback, as already mentioned. Above all, in such situations, one man tends to emerge as the operational commander. He can hold committee meetings of one with himself, and these may be held in bed at night or while shaving in the morning. This constitutes an efficient use of scarce trained manpower which, in East Africa at present, has a very high opportunity cost, particularly when the training is in agricultural extension or management.

13. On the other hand, many overlaps are clearly undesirable. This is particularly so when there is excessive pressure for speed leading to omission of activities, or premature introduction of inputs, or when there are excessive delays. Omitting full survey and planning phases in the Groundnut Scheme exacted a price which needs no elaboration. Telescoping phases in the early days of Mwea, when development sometimes preceded survey and planning left the scheme with some works whose value now is only archeological. When the production phase is delayed, as with the Volta River Resettlement, settlers may be demoralised and develop attitudes of dependence which in time will saddle a scheme with economic as well as social and political costs.

14. A dilemma of any settlement agency is, therefore, to judge the socially, politically and economically optimum degree of compression and overlapping of activities. The argument for "confusion" is really an argument for pressure for action after phase III, for freedom from over-planning and over-centralisation, and for using the full potential of scarce staff through placing them in situations of near crisis. It may well be that the balance of speed commonly emerging from the tug-of-war between political impatience and technical caution is near this optimum. The best combination may be close financial control, particularly during phases IV and V, with a minimum of other forms of control. Unfortunately financial control and accounting tend to be the weakest elements in rapidly implemented schemes, and the analysis of the time spent by managers on different activities at different stages of development is rarely carried out. If the results of such an analysis were known it would be less difficult to assess the optimum speed of implementation.

THE VIABILITY CRISIS

15. Thinking in terms of phases may be useful for certain aspects of evaluation. Comparison of the performance of one scheme with another may be most effectively carried out in relation to the phase reached. Further, having identified the phase of a scheme, it is a simple matter to look for the problems and characteristics that have been found in other schemes at that phase. One example is what may be called the viability crisis. In very successful schemes this may never occur. In disastrous schemes it may prove fatal. In many schemes somewhere between the two classes, the crisis occurs and the scheme manages to weather the storm. Table III illustrates the crisis from Mwea. The initial targets and costs were optimistic. After the scheme had been started on the ground there was a period of grace (phases II-V) during which the Treasury was tolerant of the scheme. In the latter part of 1957, in phase VI, total costs were very high in relation to acres developed and tenants settled. There was increasing stringency followed by a Treasury cut of 40% in the 1958/59 estimates. But an additional £250,000 for development was eventually obtained, and spent largely in 1959/60. A similar crisis occurred in Kenya with the Perkerra Irrigation Scheme, again at about Phase VI, in 1959, as a result of which the scheme was put on a care and maintenance basis for three years, followed by a further crisis in 1962, as a result of which moderate expansion took place. Yet another similar crisis occurred in the Groundnut Scheme in 1948 and 1949 and led to closing down (5). The point of interest is that those crises tend to occur in phase VI, at the time when teething troubles - with settlers, with production routines, with various unknowns in the environment - are at their highest, and coincide with continuing heavy development expenditure much of which may not have yet become productive. For managers, it may be useful to anticipate and recognise this crisis when it comes; and those who try to evaluate schemes might do well to make their assessment of viability not on actual production in relation to investment at phase VI, but on estimated performance in phase VII when handling, processing and marketing, as well as production, will have received more managerial attention. None of this should, however, be taken as a defence of settlement schemes as against other forms of development which may have lower costs and greater benefits, nor as in any way advocating the very strange accounting and costing devices (concealing costs in another ministry's votes, writing off capital expenditure as grant, seconding officers who are not shown against the schemes books) which can be used to make settlement schemes appear more viable forms of development than they are.

DEPARTMENTALISM

16. Where several departments are involved in implementing a scheme, it is useful for purposes of anticipation to recognise that there may be certain problems and areas of conflict or negotiation that are typical of the different phases. Some of those, which emerge from a study of Mwea are: in the planning phase, between the planners whose main concerns are technical requirements and those who are to manage the scheme who are interested in ease of management; in the development phase between those responsible for the physical work and the managers, the former having an interest in low capital costs, and the latter in low operating costs; in the settlement phase, between the settlers' representatives or those who consider themselves to represent the settlers (the Provincial Administration in the case of Mwea), and the agricultural management, who will be involved in supervising and advising ..

the settlers in their agricultural activities. It is as well to recognise, too, that with vigorous and ambitious officers there is a tendency for control over an activity in one phase to be followed through into control in the next: The planners tend to become the developers; in irrigation, the hydraulic engineers tend to take an interest in controlling water distribution after they have constructed the channels; the organisation that selects the settlers may tend to continue to have an interest in influencing and controlling them after they have arrived on the scheme. In most cases these various problems can be anticipated and overcome either by giving the conflicting functions to the same person or organisation (e.g. settler selection to the manager), or by providing for negotiation and coordination well before the problems arise.

THE CHANGING ROLES OF MANAGEMENT

17. Through the phases there are radical changes in the roles of the management which require major adjustment and considerable adaptability. (There are also, of course, major, but possibly less difficult, changes in the roles of settlers). A scheme manager may start his scheme career as the god who has a large part in deciding whether a settler will be accepted or not. He may then become the commander of the settlement operation, with junior staff and, effectively, settlers under his orders. He may enforce discipline (that word that so often crops up in management literature about the early days of schemes) in cultivation activities, hygiene, house-building and communal labour. He may exercise the supreme sanction of eviction, albeit visually through a parajudicial process. But with time, there are pressures for his role to change. Gradually his area of command shifts from cultivation to crop-handling, from crop-handling to processing, from processing to marketing, and control of the earlier areas of command and decision is taken over by junior staff and settlers. He has to learn to abdicate much of his authority and accept negotiation with the settlers in place of orders, becoming something like the temporary coordinator of a cooperative factory, combined with sales manager, who acts as bargainer and broker on behalf of the settlers with the outside commercial world. Finally, he may have to content himself with merely advising, and easing himself out of his job. These changes are a great deal to ask of any man. It is not surprising that there is a common syndrome of jealousy for the scheme's initiation with the settlers, impatience with other departments, apoplexy with the head office, and a strong urge to put in writing views which fall short of the balance and tolerance required by his post. Given these difficulties inherent in the manager's situation, there is a strong case for regular meetings of managers to exchange experience, air their problems, and visit other schemes, and for training courses or seminars to enable them to see the importance of the changes of role required of them and to understand the stresses these changes will bring about. The writer believes that the costs of such measures would be many times covered by the benefits resulting.

WITHDRAWAL

18. Withdrawal and the devolution of activities is in some respects the most challenging and difficult phase, and is also usually the least anticipated. From a planner's point of view, however, one of the most important dividing lines should be between schemes which can eventually be devolved, and those which will of their nature always have to be a continuing commitment to the agency. Those which it may never be possible to devolve include

large scale irrigation schemes, some technically and organisationally complex schemes, and schemes that are centred on a processing factory. It is important, however, not to be too dogmatic: even these schemes may be devolved in the very long term. Those schemes which can be withdrawn from are typically those which reproduce an agrarian system already in uncontrolled use elsewhere; most of the million acre settlement schemes in Kenya; the Geita District settlements in Tanzania; some of the refugee and tsetse barrier settlements in Uganda. But what is at first sight remarkable is the difficulty experienced by agencies in withdrawing. There are perhaps four main reasons for this difficulty:-

- (i) concern for the welfare of the settlers,
- (ii) the psychological problems of voluntary abandonment of power,
- (iii) the need to ensure the repayment of loans and capital by the settlers,
- (iv) the difficulties of persuading other bodies (local government, central government, the settlers' own organisations) to take over and perform efficiently the functions formerly carried out by the settlement agency.

19. This problem of persuasion has several facets. It is in the nature of settlement agencies to be identified with their creations and to be regarded by other organisations already operating in an area as intruders and rivals with special prestige and privileges, able to bestow on the settlers a higher standard of services than is common in the surrounding area. The settlers may be politically weak locally, either because they are alien, or because they are regarded as a rural elite, the favoured sons of Government who have already received more than their fair share of the national cake. Further, the bargaining position of the settlement agency with the local authority (which might maintain the new access road, provide recurrent expenditure for the dispensary, maintain the water supply etc. so on) is often weak since it is common for local authority taxes and cesses to be paid by the settlers before this sort of bargaining takes place. Persuasion is made even more difficult by the desire of the agency to ensure that high standards are maintained and that the agency will not be discredited as a result of lack of interest and assistance from other bodies after withdrawal. As a result, withdrawal seems always to take longer than the stated target. This may be partly because in order to achieve any withdrawal at all, the agency has to set impossible targets. It is also because it is profoundly difficult for any state (and some agencies are pseudo-states) voluntarily to wither away.

PEGS FOR EXPERIENCE

20. A final aspect of phase analysis is that it can be used to provide pegs on which comparable experience can be hung. Information about schemes that is classified according to its phase is immediately easier to handle and to compare with other information. This means that quite large numbers of examples of a particular problem might, without much difficulty, be collected. Some examples of sorts of problems are given over:

<u>PHASE</u>	<u>COMMON PROBLEM OR MISTAKE</u>	<u>EXAMPLES</u>
I	Over-enthusiasm, leading to excessive speed and mis-judgment	Mokwa, Nigeria, Samburu Low Country Grazing Schemes, Kenya.
II, III and IV	Telescoped through haste, leading to mistakes in development work	Mwoa.
III	Inadequate budgetting of farmer returns in relation to expectations and returns immediately outside the scheme	Mokwa
IV	Development slower and more expensive than estimated	Mwea Perkerra, Kenya
V	Settlers not employed immediately on arrival, resulting in dependence and demoralisation	Refugee Settlements, Ugand. Volta River Re-settlement, Ghana.
VI	"Treasury" pressure for economy in development and increased returns to financial agency (the viability crisis)	Mwoa Perkerra
VII	Management-settler crisis of confidence over proportion of gross returns to be paid to settler	Perkerra
VIII	No prior planning for devolution of services provided initially by agency	Volta.

21. In the interests of further understanding of the nature and phases of settlement schemes, it is most desirable that more comparable information should be obtained about different schemes. If this were done, it might be possible to provide for those involved in the day to day work of settlement with a book or handbook of collected experience, perhaps strung together on some realistic theory. Judging from the frequency with which the same mistakes are made and the same problems arise in settlement, this might be a very valuable service to perform. The sort of phase analysis outlined here may not be that theory; but if it stimulates someone else into working out a more realistic one, so that such a handbook can be compiled, it will have served its purpose.

PHASE	A TYPICAL MAJOR NEW INPUTS OR ACTIVITIES EXCEPT FINANCIAL	B MAIN STAFF ACTIVITIES	C TYPES OF FINANCIAL INPUTS
I IDEAS	<u>THOUGHT</u> Inspection	Thought Inspection	Indirect recurrent
II SURVEY	<u>SURVEYS</u> (topo, water, soil, rainfall, etc.) Crop experiments	Gathering information	Direct ad hoc for survey (capital) or indirect recurrent
III PLANNING	<u>PLANNING</u>	Consultation Estimating Planning	Direct ad hoc for planning (capital) or indirect recurrent
IV DEVELOPMENT	<u>DEVELOPMENT WORK</u> Management staff, Machinery, Labour	Clearing, moving and constructing things e.g. fields, roads, buildings.	Development Capital + small recurrent
V SETTLEMENT	Selection of Settlers. <u>SETTLERS</u> Credit, Working capital	Selection Explan- ation Training	Development capital More recurrent Settler capital Settler loans
VI PRODUCTION	<u>CULTIVATION</u> by settler labour imported labour machinery	Supervision Crop-handling accountancy operational research	Less capital and more recurrent
VII CONSOLIDATION	<u>MANAGEMENT</u> Activities of rationalisation concentrating on	maintenance marketing processing	Mainly recurrent (difficulty obtain- ing further capital)
VIII WITHDRAWAL	" (Management withdrawal)	devolution to settlers Negotiation with outside organisations Advice to settlers Withdrawal	Withdrawal of special financial inputs.

TABLE I
A TENTATIVE OUTLINE OF PHASES AND SOME OF THEIR
CHARACTERISTICS FOR MEDIUM-CAPITAL SETTLEMENT
SCHEMES

D DOMINANT DEPARTMENT OR ORGANISATION	E STAFF PROBLEMS	F WHO APPLIES PRESSURE ON WHOM
Depends on the causes of the idea. Often a "political" organisation or agricultural department	Acceptance of ideas Finance for surveys and planning	Ideas men on responsible men
The "political" organisation, or the surveyors	Land negotiation Finance for scheme.	Ideas men plus responsible men on surveyors. Also surveyors (e.g. soil) chase other surveyors (e.g. topo)
Technical planners	To be or not to be Finance Speed	Planners on surveyors. Managers on planners. (= convenience vs. beauty and technical excellence)
The Developers MOW, PWD, etc.	Delays, Costs Labour problems Machinery break-downs.	Developers on planners Users on Developers (agriculturists vs. engineers = low recurrent vs. low capital)
Selectors of Settlers and management	Who runs the scheme? And how? Settler teething troubles	Settler representatives on managers
Management	Treasury alarm (Viability crisis) Payments to and debt collection from the settlers	Managers on settlers
Management and settler organisations	Scheme and other organisations esp. marketing	Management + settlers on outside organisations
Settler organisations	Obtaining adequate take over of activities/services previously carried out by management	Settlers on settlers Settlers on other organisations

G
STAFF CRITERIA
OF SUCCESS

H
FOCUS OF SETTLER
ATTENTION

I
NEW FINANCIAL OUTPUTS
AND THEIR DESTINATIONS

Related to larger problem or policy	-	Nil
Accuracy Speed	-	Trial crops sold for general revenue
Practicability Cost and benefits anticipated	-	-
Speed and quality of development	Inspection and assessment of scheme	crops from direct labour cultivation
Settler satisfaction (presence - absence), etc.	Food, Housing Food production Credit Cash crop production	Settler fees if any
Productivity	High production in relation to labour inputs and other sacrifices. Share of gross returns	From settler production to: loan repayments, payments for services, "scheme" revenue, returns to settlers and later taxes
Returns	Consumption Security Land tenure	cesses End of loan repayments
Efficiency/ stability in relation to degree of autonomy of scheme	Stability of returns Standards of services	Payments for costs of settlers' organisations

NOTES:

1. For some qualifications, please see paragraphs 8 - 10 of the main text.

J
NEW OUTPUTS OR
STRUCTURAL CHANGES

K
WHAT ADDITIONAL THING
THE SCHEME COMES TO
RESEMBLE

IDEAS	PROPOSAL
NEW INFORMATION	REPORTS AND MAPS
PLANS AND ESTIMATES	PLAN
PHYSICAL CHANGE AND CONSTRUCTION	AN UNOCCUPIED FARM
HOUSING SETTLER ORGANISATIONS TRAINED SETTLERS	A LABOUR CAMP/ HOUSING ESTATE
CROPS	A FARM IN PRODUCTION
RELATIONSHIPS WITH ENVIRONMENT	A COMMERCIAL ORGANISATION
"SELF-GOVERNMENT" AND ASSIMILATION INTO ENVIRONMENT	A COMMUNITY

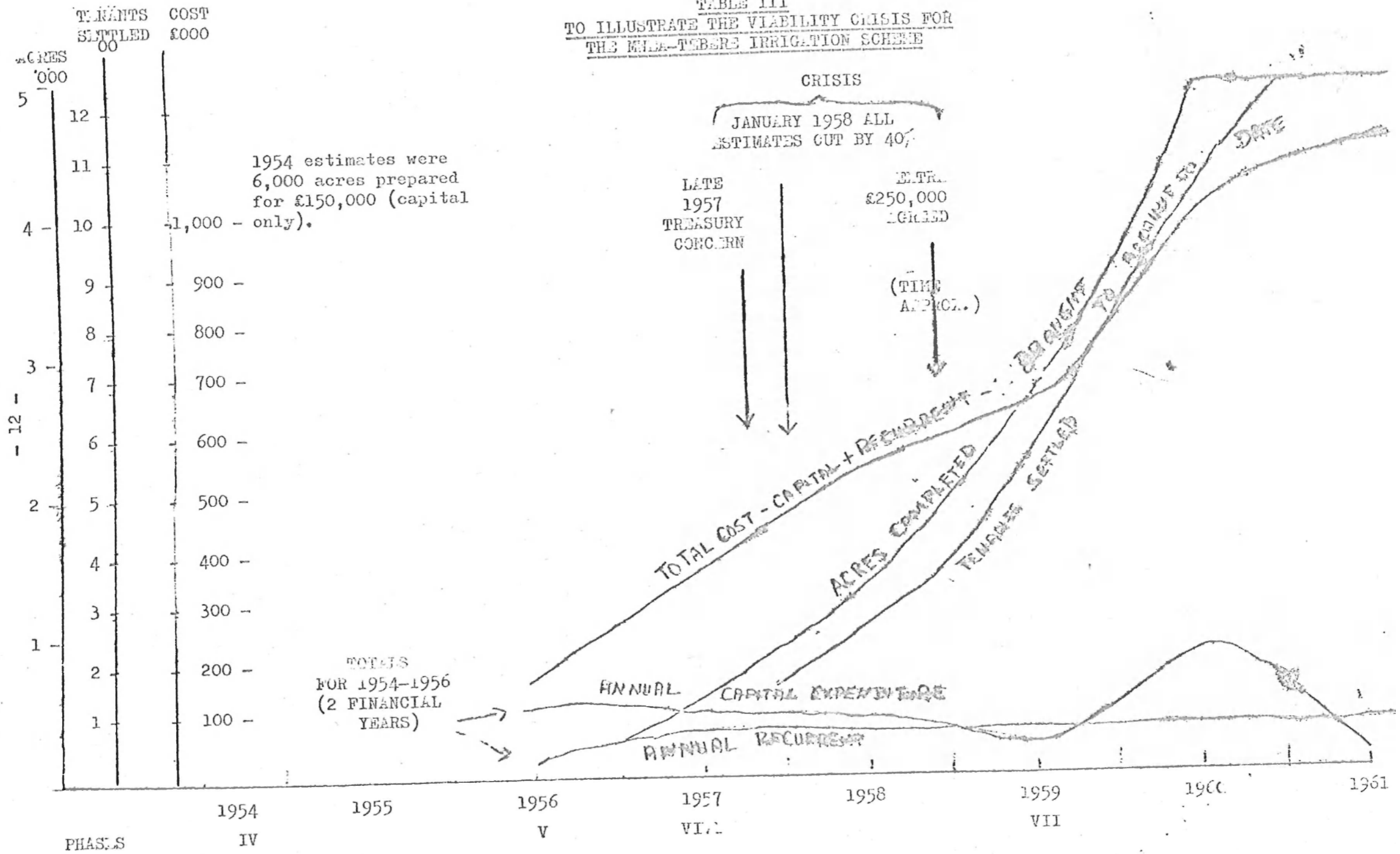
2. Horizontal lines have been drawn between phases for the sake of clarity, but should not be taken as implying sharp breaks. Where horizontal lines are omitted there is particularly marked merging between phase characteristics as outlined.

TABLE II
OVERLAPPING OF THE ACTIVITIES TYPICAL OF PHASES FOR A
HYPOTHETICAL MEDIUM-CAPITAL SCHEME

PHASES	Pre I	I	II	III	IV	V	VI	VII	VIII	→ POST VIII	
I IDEAS	THOUGHT _____										
II SURVEY	SURVEYING		CROP EXPERIMENTS _____								
III PLANNING	PLANNING										
IV DEVELOPMENT					DEVELOPMENT BY AN AGENCY		DEVELOPMENT BY SETTLERS				
V SETTLEMENT					FIRST SETTLERS	SECOND SETTLERS					
VI PRODUCTION	: CULTIVATION _____										
VII CONSOLIDATION	MANAGEMENT RATIONALISATION _____										
VIII WITHDRAWAL									WITHDRAWAL	→	Sometimes never
TIME	_____→										

- NOTES:
1. If there is a pilot project, its phases I to VI or VII may precede or coincide with phase II and onwards for the main scheme.
 2. The starts and ends of activities are often blurred, although usually shown sharply here.
 3. Please also see remarks in paragraphs 10, 12, 13 and 14.

TABLE III
 TO ILLUSTRATE THE VIABILITY CRISIS FOR
 THE MILA-TIBERS IRRIGATION SCHEME



1954 estimates were 6,000 acres prepared for £150,000 (capital only).

CRISIS
 JANUARY 1958 ALL ESTIMATES CUT BY 40%

LATE 1957 TREASURY CONCERN

ENTR. £250,000 GRIBD

(TIME APPLIC.)

TOTALS FOR 1954-1956 (2 FINANCIAL YEARS)

ANNUAL

CAPITAL EXPENDITURE

ANNUAL RECURRENT

TOTAL COST - CAPITAL + RECURRENT

ACRES COMPLETED

TENANTS SETTLED

CRISIS

TO ACCOMPLISH DME

PHASES

1954 IV

1955

1956 V

1957 VI

1958

1959 VII

1960

1961