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CADAstral Survey and REGISTRATION IN KENYA
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CADASTRAL SURVEY AND LAND REGISTRATION IN KENYA

BY

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In the aide-memoire on the Seminar, section I, Background and Purpose, it is stated that "A number of African countries have neither land registration laws nor national cadastral survey facilities to carry out the survey and registration of ownership of land" and "It is expected that the final report and recommendation of the Seminar will be used as a guide for the establishment of some registration systems by countries which have no national service in this field". The object of this paper is to make available to these countries some of Kenya's long and varied experience in land registration and cadastral survey. Representatives from these countries must decide for themselves, and then convince those at home, whether or not land registration and cadastral survey are necessary and, if so, the methods best suited to their countries. It is hoped that this paper will help them to make their decisions. To this end it can be said at the outset that Kenya is a country thoroughly committed to land registration. Land has been registered in Kenya for close on seventy years and since 1957 there has been a vast Government programme for the accelerated registration of all land in Kenya—a programme which currently aims to register some 1,812,000 hectares of land in the Financial Year July, 1970—June 1971. Apart from the size of its undertakings and its long experience, Kenya is also probably unique in that it operates both of the main systems of land registration—the guaranteed boundaries system, for which Australia is normally considered the model, and the general boundaries, for which England is the model. Kenya therefore provides a fertile field for the study of the subject and, needless to say, should any representative at the Seminar wish to make such a study, he will be made most welcome in Kenya.

General Principles. In order to assess the advantages of land registration and to have an appreciation of the two main systems one must first discuss general principles. This is also necessary for an understanding of the past and present position of land registration and cadastral survey in Kenya and of our plans for the future.

There are many ways of recording rights and interest in land but it is recognised increasingly that land registration offers one of the best, if not the best, method of doing so. The system is essentially simple, it provides for the smooth operation of the day to day transactions, at relatively low cost, and it should adequately safeguard the rights and interests of all parties. It is not the intention to discuss the
advantages of land registration at any length as a separate paper on this subject is being presented at the Seminar, but it is appropriate to repeat here that Kenya, after long experience, is fully committed to land registration and believes that it is the simplest and most effective way of providing a sound system of land tenure, and land administration, which is the pre-requisite to the orderly development of any country.

In any system of land registration not only must the rights and interests in a particular piece of land be recorded, and the extent of the State’s guarantee of those rights and interests be clearly stated, but the particular piece of land to which these rights and interests apply should also be adequately described. The description should be such that no possible doubt or ambiguity can arise in the identification of the land registered. It should also be such as to enable the boundaries to be restored should the need arise. It would seem only logical that it is equally important to guarantee the boundaries (and hence the size, shape and position) of the land to which the rights and interests apply as it is to guarantee the rights and interests themselves. It is obviously unsatisfactory to have the most solemn guarantees of certain rights and interests in land if there is doubt as to where they apply. It would also seem to follow that any system which does not guarantee boundaries is that much less complete than one that does. However, it is obviously difficult and costly to define unambiguously the boundaries of parcels of land. Consequently, it is sometimes felt that the burden and cost of defining the boundaries to such a standard that they can be guaranteed is not justified as, in the opinion of some, very much the same security can be provided by other means – for example physical enclosure of the land, adjudicative provisions in the legislation and, ultimately, by indemnity when any loss results from the shortcomings of the system. This difference in opinion characterises the supporters of the two main systems of land registration – the guaranteed boundaries (sometimes called the Torrens system) and the general boundaries systems. In the former the State feels that the boundaries of the land are defined, within certain tolerances, without any possibility of error and that the boundaries can therefore be guaranteed. In the latter the State either does not consider that the boundary definition is such as to justify a guarantee or, as in England (for other quite different reasons), it is not in favour of overtly providing guarantees.

There are many different types of boundary – natural features, such as rivers, coastline etc., hedges, ditches, fences, walls and those demarcated by marks or monuments at the turning points – or, of course, a combination of all of these types. Likewise there are a number of ways of describing or defining these boundaries. In some very rare cases a verbal description alone can be adequate for the proper identification of a parcel of land, for a limited period. Few people now would dispute that the most simple and unambiguous definition of a boundary is by the survey co-ordinates (related to a country’s control system) of the turning points of that boundary – in fact a cadastral survey. Between these
two extremes there are, of course, a variety of other ways and obviously, a cadastral survey can be carried out to any specifications or tolerances. In practice registration is always supported by a map, which is necessary for administrative purposes if for no other, and it is in the quality of this map, and the legal recognition given to it, that the two systems differ. There are other differences of course but they are not important.

The registry aspects of both systems are excellent - that is the "bookkeeping" and procedure for the day to day transactions - and little difficulty will arise in this side of registration provided there is a trained staff, which not only understands the system, but has the application to deal methodically with the routine work. Although it might seem obvious that if this side of registration is allowed to get out of hand the whole system will be endangered, it is always difficult to get it accepted that registration must be run by high calibre staff and that adequate funds must be made available to recruit and train such a staff. It cannot be emphasized too strongly that suitable staff should be available before registration starts.

When the maps which support registration are discussed, such vague terms as "satisfactory", "adequate" or "reasonable" are frequently used to describe these maps. Even the term "accurate" leads to misunderstanding. It is therefore necessary to be concise in this matter. It is the writer's experience that misunderstanding is largely eliminated if the description "accurate survey" or "accurate map" is taken to mean no more than that the survey or map meets the specifications laid down for it, or does not exceed the permissible tolerances - whether they are large or small. If the map or survey meets the specifications laid down it will be consistent throughout and this reliability, to within certain tolerances, is most important in cadastral survey. In either system the maps which support registration are evidence as to the position of boundaries. Obviously if the map is only good in parts it is valueless as evidence since it is not possible to say where it is reliable and its use can lead to considerable injustices because, in our experience, landowners and Registrars place great faith in an official map. The survey, and the plan based upon it, which most closely meets cadastral requirements, within the bounds of human ethics and infallibility, is the "mathematical" ground survey, coordinating boundary turning points and connected to the main survey control of the country. In this survey the boundaries are physically surveyed on the ground, thus eliminating any chance of misidentification, and all survey operations are designed to be self-checking and the checks are demonstrated in the computations. No other survey offers the same measure of certainty. This kind of survey (the so-called Torrens type survey) invariably supports guaranteed boundary registration systems. There are a variety of ground surveys, which may be called "graphical", or a combination of "graphical" and "mathematical", which can be very sound surveys to high specifications, but which, because the checks are not demonstrated throughout by computation, do not provide the same certainty as the "mathematical" ground survey. Air-survey is now, of course, used a great deal for cadastral purposes when the parcels are in existence at
the time of registration and the boundaries are, or can be made, air visible. That is when registration is not proceeded by land consolidation or land distribution schemes requiring ground demarcation. Whilst the maps can be produced by air-survey methods to tolerances acceptable for registration purposes, and at less cost than for ground surveys, they do not provide the same certainty as the rigorous ground survey; it is possible in the office for an air-survey machine operator to misidentify a property boundary on the photograph. Such mistakes have been discovered in Kenya. In one case, for example, the filled-in trench for an underground pipeline was plotted instead of the boundary. The problems which may arise from such an error can be visualised easily enough. Whilst, in theory, the air-survey should be uniformly consistent throughout, careless plotting or draughting can increase the survey errors beyond the tolerances permitted and these will not be brought to light necessarily as it is not possible to check all the plotting. However, it is our experience that misidentification and misplotting are rare - and we have now a great deal of evidence on this point as a comparison between map and ground is made every time a subdivisional survey is carried out.

Any discussion of the maps required for registration impinges on the question of boundary or demarcation - that is how the property boundaries are physically marked on the ground. Maps and boundary definition are inextricably bound together. It can be appreciated readily that if, to take the best example, boundaries are defined by fine stone walls, there will be no difficulty in locating the property on the ground, little likelihood of the need to re-locate the property, in the sense of replacing the boundaries in the event of their being lost, or of boundary disputes arising between neighbours. Obviously in this case the need for a reliable survey is not great and, as a very general statement, it may be said that the higher the standard of enclosure the less important the survey or map. It is often stated by writers on this subject, when referring to general boundary systems, that if the parcels of land are enclosed, the registry map need be no more than a diagram showing all the parcels registered and their relative positions, for the diagram need only act as a signpost, as it were, to the position of the plots on the ground since the plots are self-defining and plain for all to see. If the pre-condition is fulfilled, the statement is reasonably true but still does not take into consideration the possibility of hedges etc. disappearing. Such a diagram will not enable the plots to be re-established. In Europe a very high standard of enclosure had been achieved before any registration took place and the enclosure was of a fairly permanent nature - stout hedges, ditches and even stone walls. Under those conditions the statement made above has some meaning but in Africa where the achievement of the pre-condition, enclosure of the parcels, is a major undertaking, the statement can only mislead. It would seem to offer a simple solution to the problem without incurring any survey costs for the production of sound maps. It is not difficult to appreciate that this solution will appeal to administrators
and politicians who cannot be expected to have any experience of the
subject but who make the decisions and control the funds. Where we are
registering under the 'general boundaries' system in Kenya, the whole
programme is geared to enclosure and yet it has proved most difficult
to achieve. Also it should not be forgotten that in England, the model
for the 'general boundaries' system, although the enclosure of the properties
is of an extremely high standard they will not register without an excel-
 lent map to support the registration.

One final point on maps and boundaries. As previously stated, the
map should provide the certain, independent, evidence necessary to re-
establish the parcel in the event of the boundaries being destroyed or
lost. The map which supports the guaranteed boundaries system enables
this to be done. However, supporters of the general boundaries system
do not consider that it is necessary for the registry map to be of this
standard. They feel that as the boundaries are not guaranteed the system
depends mainly on enclosure and occupation and it is therefore up to the
landowner to protect his interests; in so far as his boundaries are
concerned. As a last resort they fall back on the argument that the
boundaries could always be re-determined by calling verbal evidence. This
is possible; if the process of adjudication can determine the rights and
boundaries ab initio, it should be no more difficult to carry out the
same process again. But at a cost... In Kenya we have in fact had to do
this. Titles were issued at the Coast, backed by ground surveys (of a
much lower standard than the normal Torrens type) but the property corners
were marked only by wooden pegs and these rotted or were destroyed by
termites. It has taken years to rectify these titles by what is virtually
a re-adjudication process, using trained staff who were needed elsewhere,
and the process has, needless to say, cost the country a vast amount of
money. We have had practical proof of the undesirability of having to
carry out such a re-adjudication - but is it even satisfactory in theory?
Surely the titles should be backed by the certain, independent, evidence
of a sound map so that the security of the titles is not dependent on
controversial verbal evidence? A single case from our experience will
give some idea of the way in which the provisions relating to maps and
boundaries in a general boundaries system can operate in practice. It
also illustrates the uncertainty that can arise and the complexity of
some of the problems which Registrars must solve. Under the Registered
Land Act in Kenya, the Act which controls the general boundaries system,
the main map and boundary provisions are as follows: Unless the boundaries
have been fixed the registry map is "deemed to indicate the approximate
boundaries and the approximate situation only of the parcel" and "where
any uncertainty or dispute arises as to the position of any boundary the
Registrar on the application of any interested party, shall, on such
evidence as the Registrar considers relevant, determine and indicate the
position of the uncertain or disputed boundary". It should be explained
here that when the boundaries have been fixed in accordance with the
provisions of the Act, the precise position of the boundaries is defined
by survey and "thereupon the plan shall be deemed to define accurately
the boundaries of the parcel". In effect the system becomes a guaranteed
boundary system when boundaries are fixed. In our particular case parcel 101 (See figure below) was purchased from the original owner some years after it had been adjudicated, consolidated and registered in the name of the original owner. The boundary between plots 100 and 101 is shown on the registry map as a straight line from the road to the river - as depicted by the solid line below in our diagram. On the ground the boundary bends markedly and is as shown by the broken line in the diagram.

The new owner of parcel 101 requests the Registrar to "determine and indicate the position of the disputed boundary". The owner of parcel 100 produces a witness who says that the boundary at the time of first registration was demarcated as it now is on the ground, i.e. as shown by the broken line. The Registrar accepts this evidence and not that of the registry map and rules that the boundary is as on the ground. It is not possible to fault the Registrar's decision. Whilst there is no possible doubt that the original intention was that the boundary should be a straight line as shown on the registry map, it is possible that it was demarcated on the ground as it now exists and that it was the surveyor who made a mistake. The map has no authority at this stage as the boundaries are not fixed. The demarcation survey and map were not even made by the Survey of Kenya and these maps have been shown to contain errors. On the other hand it is known positively that the intention was that the boundary should be a straight line from the road to the river. Also all the other boundaries in the area are straight.

In the event the owner of parcel 101 did not feel less aggrieved when it was pointed out to him that he should have verified his boundaries when he bought the parcel (sometimes, of course, a bend cannot be noticed when the boundary passes over a hill) nor was it unexpected when he suggested that the only course now open to him was to produce two witnesses to swear that at first registration the boundary was a straight line!
The manner in which the two systems evolved was very much influenced by the state of the land when the systems were introduced in Australia and England. In the former country, largely uninhabited, there was no individual ownership of land and consequently no enclosure or property boundaries. Development of the land meant that properties had to be demarcated first and enclosed—fenced, hedged—when, and if, the owner found the time to do so. The obvious way to demarcate was by placing marks or monuments at the turning points of the boundaries and as these marks were easily displaced or lost they were of little value unless their position had been recorded in such a way that they could be replaced if necessary. The best way of doing this was by sound cadastral survey. In England the situation was quite different when registration was introduced. The land was virtually all owned, occupied and enclosed. An attempt was made to introduce a guaranteed boundary system but it was unsuccessful for two main reasons—there were no satisfactory maps and the precise parcel boundaries were subject to doubt. The precise boundary was not necessarily, or generally, the centre of the boundary feature (wall, hedge) but was usually one or other of the faces of the feature. The introduction of a guaranteed boundary system under these circumstances would have meant visiting all the boundaries and determining the precise position. To meet this unusual circumstance a compromise was necessary—the general boundaries system, in which the parcels were registered without attempting to define the precise boundaries. The system solves the problem very neatly. But 'general boundaries' in England does not mean, as it is often thought, that there is doubt as to the position of the main boundary feature. The position of the wall, hedge, ditch, or fence is known very closely because in England they will not register land unless there is a good map to support the registration. This is a topographical map, usually at 1:2,500 scale, or larger, and based on the main geodetic control. Boundaries can be re-established from this map to within the map tolerances. Whilst this map will not provide the same certainty as the Torrens type survey which supports guaranteed boundaries, in England its short-comings in this respect are to a great extent minimised by two other factors: (i) all the boundaries are defined to a very high standard and (ii) a very sensible use is made of the insurance fund to indemnify landowners who suffer loss through the operation of the system. It would also seem to be a fact that in practice in England boundaries are always guaranteed—even when they are not 'fixed'*

Kenya's experience, in the context of the foregoing discussion of the background and principles of land registration, may be summarised as follows:

* Those who are interested can find further information on this point in the paper, Land Tenure Surveys in Kenya, presented to the Cambridge Commonwealth Survey Officers Conference 1967 by the writer.
(a) The two systems were evolved to meet the particular conditions existing in the countries where they originated and it should be expected that they will need modification if they are transplanted.

(b) Those filled with a missionary zeal to export the principles of the general boundaries system are inclined to make much of the success of the system in England but to gloss over the fact that in England there are unusual circumstances and vast differences between principle and practice; they point out that the system is based on occupation and enclosure and that as the registry map has no legal status, there is no commitment, or even need, to have a sound map. But they omit to mention that it was only because there was full enclosure in England that the system evolved as it did or that, despite this high standard of enclosure, England still will not register land without a reliable map to support the titles. However, since it is the fact that, outside of Europe, enclosure is the exception rather than the rule, it would not be surprising if it was thought that the general boundaries system was unsuitable in other than European countries. It is, therefore, advisable to have a clear understanding of how the English system works, and why it is so successful, before slavishly accepting the basic principles, otherwise the fundamental concepts of registration may be seriously undermined. The difference between the theory and practice is such that the general boundaries system, as operated in England, is closer to a Torrens guaranteed boundary system than it is to the general boundaries system as operated in Kenya, even although the latter was modelled on the English system! Nevertheless, this is not to say that the flexibility and permissiveness of the general boundaries system does not have advantages.

(c) A complete system of registration should guarantee both rights and boundaries and there should be no doubt as to the extent of the guarantees. If boundaries are guaranteed, there must be a sound map to provide certain, independent, evidence of the position of the boundaries. The extent to which the boundaries are guaranteed will depend on the quality of the registry map.

(d) The main quality required in cadastral surveys and maps for land registration purposes is consistency. They must also be connected to the country's main survey control. The specifications and permissible tolerances are a matter of choice. The Torrens type 'mathematical' ground survey most closely approaches the optimum requirement. Air surveys are being increasingly used for cadastral purposes throughout the world but boundaries must first be in existence and air visible. Mistakes can occur in identification. A high standard of monumentation, important in any survey, is essential in cadastral survey.
(e) Physical demarcation of the boundaries by hedges and fences should be more satisfactory than survey marks at the turning points of the boundaries, as, once established, they are less likely to be lost, destroyed or maliciously moved. Kenya's experience has not been conclusive in this field as after great effort the best results achieved still leave much to be desired.

(f) It is only in the quality and legal status of the registry maps that the two systems differ to any extent. The purely registrational aspects of both systems are excellent.

(g) The guaranteed boundaries system, supported by a Torrens type survey, is a very complete system of registration. But the surveys are time consuming and relatively costly and a staff of a fairly high calibre is needed to carry them out. It is said that in practice they are normally carried out to unnecessarily exacting standards and there may be some truth in this assertion. However, there is no need for this and the tolerances should be related to the value of the land. As land is developed and subdivided it appreciates in value and it can be surveyed progressively to more exacting standards. The phrase 'relatively costly' has been used above advisedly as it is necessary to relate survey costs to other costs before they are meaningful. The improved survey equipment which is now available should reduce cadastral ground survey costs considerably and also the time taken to do them. The new, accurate, short range measuring devices (such as the Wild Distomat and those produced by Tellurometer and Geodometer), small table computers, capable of all the normal survey computations, and automated plotting and draughting machines are relatively inexpensive and no longer in the prototype stage. Nevertheless the guaranteed boundaries system, backed by a Torrens type survey, is a fairly rigid system. Once the survey specifications have been laid down they must be adhered to.

(h) The general boundaries system is permissive and flexible compared to the guaranteed boundaries system and this can be an advantage. Whenever registration is introduced into a country it is nearly always overdue and therefore urgently required. Probably there will not be the time, funds or staff for the introduction of a complete registration system but a compromise registration system might well be infinitely better than the system it will replace. Certainly without such a compromise little progress would have been made in Kenya towards registering the land formerly dealt with under customary law. If the boundaries are physically demarcated, the system allows for registration to be backed by a mere diagram and yet at the same time allows for the status and security of the system to be raised to that of a guaranteed boundaries system if landowners ask for their boundaries to be fixed and are prepared to pay for a fixing survey. If the precondition of physical boundaries is met the system will offer
reasonable security but, of course, property boundaries cannot
be re-established, in the survey sense, although they can be re-
determined by using other evidence, mainly verbal. It is not
difficult to appreciate that the flexibility of the system can
be seriously abused; it may soon be forgotten that the acceptance
of a diagram for the registry map was conditional on physical
definition of the boundaries and then there may be neither map
nor physical boundaries.

Kenya Practice

Cadastral Survey and Land Registration Under a Guaranteed Boundaries
System. Where the Colonial Government first alienated land in Kenya the
conditions were much the same as they had been in Australia, for instance,
and a system based on monumentation of boundary corners and sound survey
was introduced. This was developed into a Torrens type guaranteed boundaries
registration system. Few boundary disputes arise under this system and those
that do are settled conclusively by survey without any effort on the part
of the Registrar. Difficulties have only occurred where the full Torrens
system was not in operation and where survey or monumentation (or both) was
not up to the required standard; for example the Coast titles which were
mentioned previously. In other rare cases re-establishment has posed some
problems because it had not been possible to connect the original survey
to the main survey control. The properties dealt with under this system
were usually either large farms or urban plots and fencing and hedging
followed after survey, thus slowly building up a pattern of enclosure.
Most of the resources of the Survey of Kenya were directed to these cadastral
surveys until the immediate post World War II years when a small part of
the Department's efforts was diverted to topographical mapping. The
guaranteed boundaries system has served Kenya well although the survey
costs have been comparatively high — but then the security offered to the
titleholders has also been high.

Topographical Mapping. It is correct chronologically to mention at
this stage the Department's topographical mapping programme but it is also
appropriate to do so for other reasons; when the huge programme of land
consolidation and registration started in about 1957, in those areas where
land tenure was governed by customary law, the topographical maps produced
between 1948 and 1957 were of inestimable value for planning purposes and
without them progress would have been much slower. Most of the work was
carried out by the Directorate of Overseas Surveys who did the field work,
the plotting (by air survey) and the printing of the first editions. The
Survey of Kenya did mainly field revision and checks and the drawing and
printing of the subsequent editions. The Directorate of Overseas Surveys
also re-observed and computed the Kenya major geodetic control which
assisted in the provision of survey control for the land consolidation and
registration programme. Kenya is now completely covered by the 1: million
International Series and by a 1:50,000 Series, or 1:100,000, where terrain
and development do not warrant 1:50,000 coverage.
Land Consolidation and Registration under a General Boundaries System

(i) The land tenure system under customary law was not primogenital but this was of no consequence whilst there was no shortage of land and shifting cultivation was usual. However, when population pressure increased and land was divided up equally amongst the heirs, customary law could not cope with the problems which arose. The land also became fragmented. Litigation over land assumed enormous proportions and agricultural production was adversely affected by the fragmentation. It was decided that where fragmentation existed land consolidation was an agricultural priority and that after consolidation the land should be registered, thus providing the necessary security of tenure to encourage land owners to invest in and develop their land. The programme was first extended to the registration of all land of high potential, whether or not consolidation was a pre-requisite to registration, and finally to range land suitable only for ranching. The Kenya programme has been well documented by papers presented by Mr. D.E. Warren and the writer to the Commonwealth Survey Officers Conferences in 1959, 1963 and 1967. This paper will, therefore, only mention the present position and procedure, without going into the manner in which the latter evolved over the last fourteen to fifteen years.

(ii) When land consolidation and registration started, the Survey of Kenya pointed out that it would not be possible to carry out the surveys by ground methods or to the standards required by the guaranteed boundaries system if the scheme was to progress as fast as it was planned to do. They advised, to put it as simply as possible, that the system should be based on physical demarcation of boundaries and on air survey. This was accepted and put into operation. Later a committee studied the problem and accepted what was being done in practice. It drafted what has since become the Registered Land Act - the Act which governs our general boundaries system.

(iii) The land dealt with in the programme can be divided in the manner shown below. Each category of land needs to be treated differently during the process of adjudication and survey. These categories will probably cover all the different types of land in any developing country.

A. Agricultural Land of High Potential

(1) Fragmented and requiring consolidation before registration

The fragments are measured by simple ground survey methods and a topographical map, usually at 1:2,500 scale, is produced. The map is used to reconcile the area of the fragments with the total area of the registration section and for the planning of the consolidated parcels. The parcels must, of course, be demarcated on the ground by ground survey methods.

(2) Land which does not require consolidation. Once ownership has been adjudicated the parcels can be surveyed by any methods.

The success of air survey will depend on how air-visible the boundaries are or can be made. This category of land forms a very large percentage of the agricultural land remaining to be registered. Registration of most of the land in this category is only supported by a diagram prepared from enlarged photographs - on the assumption that the properties are physically demarcated on the ground. Where physical demarcation of the boundaries is of a high standard, it is the policy to photograph and map the area if there is time to do so before adjudication begins. The boundaries which do not appear on the photographs (some only come into existence during the adjudication process) are surveyed later by ground methods. In this way a sound map is produced at the first attempt. However, there are very few areas in Kenya where this can be done, bearing in mind, particularly, that if there are a large number of boundaries to be surveyed by ground methods, the process becomes much more costly. A few schemes, where the parcels were large, were mapped by air survey by pre-marking all the turning points to make them air-visible.

(3) Land available for distribution. So-described to avoid confusion with land available for settlement, see (4) below. There are no rights-holders in these areas and the land can be distributed without resorting to an adjudication process. It can be planned on sound agricultural lines, providing economically viable parcels. The survey process is similar to that in category (1) above except that there is no measurement of fragments. The parcels, the roads and the soil conservation works are planned on the topographical map and then laid out by ground survey.

(4) Land available for Settlement. After Independence many of the big farms were subdivided and the land allocated to the landless. The farms so divided were registered already under the guaranteed boundaries system and therefore these schemes do not, properly, fit into this section. The survey process is the same as for distribution schemes and the new parcels will be registered under the general boundaries system. Over a million acres of land has already been subdivided and reallocated in this scheme.

B. Range Land. Obviously this land is best used for large ranching schemes. It has its own adjudication, registration and survey problems: a large number of people have rights in every ranch and they all wish to have their rights recognised in the register. Consequently a commercial company or co-operative society will not meet their wishes and a special scheme has had to be devised, and special legislation - the Group Representatives Act - enacted, to meet the situation. The rights-holders, grouped in clans, are encouraged to divide the land into ranches whose boundaries follow,
as far as possible, along natural features - rivers, roads, railway etc. - as these can be accepted from the 1:50,000 topographical map series. Where there are rectilinear boundaries the turning points are monumented and surveyed by ground methods.

(iv) The Consolidation, Adjudication and Registration Programme in Retrospect

(1) From its inception there has been a frantic urgency about this programme. Three years ago it was accelerated! Consequently, from the survey point of view particularly, compromise has been the essence of the scheme and compromise has been possible because we have adopted relaxed survey methods and a general boundaries system of registration. The scheme moved so fast that, for many years, the Survey of Kenya was unable, itself, to carry out all the surveys - even to the relaxed standards which it had recommended; most of the ground demarcation surveys were undertaken by low calibre, poorly trained and unsupervised surveyors on the staff of other Government Departments. As the standard of ground survey dropped, physical demarcation of boundaries became increasingly important and yet the standard of enclosure is far from satisfactory. This has been the most disappointing aspect of the programme. It is the writer's opinion that it should be possible to achieve almost complete enclosure in any area with high agricultural potential and, in support of this opinion, there is one area of Kenya, where, for agricultural reasons alone and without the incentive of getting title, enclosure was virtually completed before the registration programme started. And even in the consolidation areas between 60-70 per cent enclosure was achieved despite the fact that many hedges had to be planted in the dry season as it was not possible for the programme to be geared to the rains. Undoubtedly success will mean strenuous and unremitting effort but, given undivided responsibility and a sound organization, it can be realised. In any case the alternative to physical boundaries is monumentation, which is not without its own problems; the greatest of these is probably the necessity to pre-mark all the monuments if air-survey is required.

(2) The survey problems are all due to haste and administrative difficulties - there are few purely technical ones. It will be appreciated that if there is insufficient time (often aggravated by a lack of early consultation) there is no opportunity to plan ahead, to train surveyors or to carry out control surveys and basic topographical mapping. As a result the survey work is always in arrears instead of ahead of the rest of the programme, as it, rightly, should be. It has also been the policy that the rate of progress of the whole programme would be determined by the speed at which the adjudication can take place and not, as it should be, by the rate at which surveys and maps of an
acceptable standard can be produced. Consequently the standard of the maps has fallen and now most of the registration is supported by little more than a diagram, produced from enlarged air photographs. Kenya has decided that these priorities and compromises are in the best interests of the country.

(3) The land consolidation and adjudication processes have been most successful and this is due mainly to the principles adopted: Rights in the land are determined by a Committee which is, in fact, comprised mostly of the elders who previously administered the customary law dealing with land. There are also adequate safeguards in the process to ensure a just determination of the rights. The processes are controlled in Kenya by two pieces of legislation, the Land Consolidation Act and the Land Adjudication Act. The former is applied where consolidation and adjudication is necessary before registration and the latter where the rights only need to be adjudicated. A special Department, the Land Adjudication Department, carries out this work.

(4) Most of the registration difficulties have been due to the failure to appreciate early enough that a high calibre, well trained registration staff is needed. Despite this a vast number of titles have been registered and administered successfully. Registration is the responsibility of the Chief Land Registrar who administers two Registration Acts, the guaranteed boundaries Registration of Titles Act and the general boundaries Registered Land Act. The Commissioner of Lands has overall control of all land administration and registration.

(v) Future Policy

(1) All land titles will in due course be registered under the Registered Land Act. Titles now registered under the Registration of Titles Act will be brought over progressively to the Registered Land Act and the boundaries will be treated under this Act as having been fixed, thus in no way diminishing the security and status held under the Registration of Titles Act.

(2) The Government will continue to adjudicate and register land at the greatest possible speed, even if a compromise must be made on the standard of enclosure and the quality of the registry map. It is, however, the policy that all titles will be supported by a sound survey and map as soon as funds and staff are available to produce them.

(3) It is hoped that all land of high agricultural potential and most of the range land suitable for ranching will be registered before the end of 1974.
Conclusion. It will be obvious that there is no single, text-book solution to the problems of land registration and cadastral survey. In every country circumstances and conditions are different and methods and systems must be modified to meet these variations. All the criteria must be considered and the best balance possible achieved; these include the attitude of the people to registration, the urgency of the scheme, the availability of funds and trained staff, the system wanted (guaranteed or general boundaries), how boundaries are to be defined (physical demarcation or monumentation) and the kind of surveys and maps to be produced. A great variety of successful combinations are possible. If, from Kenya's experience, there are three things which more than any other will help to ensure the success of a registration scheme they are:

(a) that registration should not be attempted unless the co-operation and full support of the people is assured;

(b) that titles should be supported by cadastral maps whose evidence is consistent and reliable, although acceptable tolerances need not be exacting. It is dangerous to place too much reliance on physical demarcation of boundaries as this is most difficult to achieve;

(c) that Registries must be run by well trained, competent staff and that registration should not start until such staff is available.