CABINET

EAST AFRICAN GROUNDNUT SCHEME

MEMORANDUM BY THE MINISTER OF FOOD

I ATTACH a copy of a draft White Paper on the East African Groundnut Scheme, which I am under obligation to submit to Parliament.

2. It will be seen that it did not prove possible to begin large-scale clearing operations in Tanganyika in time to sow for the 1948 harvest a large enough crop to be an appreciable factor in our 1948 supply of oils and fats. Originally it was hoped to clear 150,000 acres in 1947. In order to do this it was calculated that clearing operations would have to begin in February. In fact it was impossible to obtain the necessary heavy tractors and other equipment to transport them to Central Tanganyika and to get them working on an appreciable scale before July. This delay in starting operations plus the initial difficulties of finding the best technical methods of clearing the bush, and the problems of maintaining the army surplus heavy tractors which have had to be used, has meant that not more than some 10,000 acres will be cleared and planted for this year’s crop. This acreage is quite sufficient to serve as a large-scale experiment, but not sufficient to give us appreciable quantities of oils and fats. Therefore the scheme, as a large-scale commercial producer for the market, will, in fact, only begin its operations in 1948, and will reap its first commercially disposable harvest in the spring of 1949.

3. Nevertheless, the decision taken by the Cabinet just a year ago (C.M. (47) 4th Conclusions, Minute 3) to start operations in 1947, before the Overseas Food Corporation could be set up, and thus involving the employment of the United Africa Company as managing agents, has, I believe, been fully justified. Although only the above comparatively small acreage has been cleared, an immense amount of indispensable preliminary work by way of establishing camps, extending airways, setting-up workshops, recruiting labour, &c., has been done, and invaluable experience gained. If 1947 had not been used for these purposes, this preliminary work would have had to be done in 1948 and the obtaining of a large-scale crop would, in my opinion, have been postponed till the spring of 1950. The managing agents encountered great initial difficulties in securing tractors, in keeping them under repair, in meeting the novel engineering problems of flattening the African bush by mechanical means and of eradicating the roots. It was, of course, always envisaged that such problems, the exact nature of which could only be ascertained by practice, would be encountered. Many of these technical problems are now on the way to solution. And the Government, I am convinced, was a debt of gratitude to the United Africa Company, as managing agents, for the courageous pioneering work which they have carried out on the scheme in 1947. In no other way than by the appointment of a large-scale existing organisation, such as the United African Company, could we have made within the first twelve months of our initial decision to proceed, the substantial start on the scheme which has in fact been made during the past year.

34802
Future Prospects of the Scheme

4. Soon after the Colonial Resources Development Bill which is now going through Parliament has become law, a vesting day will be named and the Overseas Food Corporation will take over the responsibility for the management of the scheme. No doubt the United Africa Company will, for some months, continue to do work on the scheme as one of the Corporation's sub-contractors. Several other well-known firms, such as Messrs. Mowlems, Balfour Beattie and Paulings are already at work on the scheme as contractors.

Financial Prospects of the Scheme

5. I call my colleagues' attention to paragraph 24 of the draft report, which reads in part:

"Until larger acreages with different types of vegetation have been cleared and the first unit installations completed, and a full year's agricultural operations carried out on at least one unit, it will not be possible to make any dependable revision of the estimated costs of production as set out in paragraphs 19-24 of Command 7030. On the one hand the prices of the mechanical equipment and stores of all kinds necessary for the scheme are steadily rising, and in addition a larger expenditure than had been anticipated will be necessary upon, in particular, the transport services and the repair organisation. On the other, the world price of oils and fats is also rising and now seems only too likely to remain at a high level for a much longer period than was envisaged a year ago. These two developments, which are merely what was to be expected in the case of a scheme being carried out in conditions of rising prices on a world-wide scale, will, of course, affect the scheme in opposite directions. The rising costs will adversely affect it, the rising prices of its product will tend to make it more profitable. It would be quite unrealistic to pretend that any balance between these opposite tendencies can at present be struck."

6. I am convinced that any figures that would be published to-day relating either to the probable costs of the scheme in future years or the probable revenue to be derived from it would almost certainly be falsified in the event. This is first because the world prices of both the equipment which the Corporation must purchase and the products which it will sell, are both rapidly rising, and also, of course, because experience of the scheme's workings will certainly lead to revisions in the capital expenditure and operating costs. It would, therefore, be misleading to attempt to revise the original Command Paper estimates until we have experience of at least one year of commercial working and the first crop has been sold commercially in the spring of 1949.

7. Nevertheless, my Department has carefully studied such evidence as is available of the way in which the costs of the scheme are going, and of its probable revenue earning capacity. As the scheme is being conducted in a period of rapidly rising world prices, the result of this preliminary examination has, of course, been to show that both the anticipated costs and the anticipated revenues of the scheme are likely to be substantially higher than was estimated a year ago. And in addition certain of the costs of development, in particular the amount of money needed to provide adequate transport and administrative services were under-estimated.

8. The present position, according to information furnished by the managing agents, with the concurrence of the members-designate of the Board of the Overseas Food Corporation, is that if no further changes in the prices of the goods and services which the Corporation will have to buy take place, the capital costs of the scheme will have risen by some £5,700,000, and the annual operating costs by some £1,600,000.

9. These increases in costs would be most serious to the scheme were they not offset by at least comparable increases in the prices of the products which the Corporation will have to sell. The main product of the Corporation is, of course, groundnuts. At the inception of the scheme it was originally estimated that the price of groundnuts would be £30 a ton up till August, 1950, and thereafter £20 a ton. My Oils and Fats Division are now convinced that (unfortunately from a wider point of view) groundnut prices are now likely to be considerably higher than this, and they have made the following estimate, which they emphasise is of
most tentative character. of the probable prices which groundnuts may be expected to realise:

<table>
<thead>
<tr>
<th>Year</th>
<th>Per ton</th>
</tr>
</thead>
<tbody>
<tr>
<td>1948</td>
<td>35 0</td>
</tr>
<tr>
<td>1949</td>
<td>35 0</td>
</tr>
<tr>
<td>1950</td>
<td>35 0</td>
</tr>
<tr>
<td>1951</td>
<td>32 10</td>
</tr>
<tr>
<td>1952</td>
<td>30 0</td>
</tr>
<tr>
<td>1953</td>
<td>27 10</td>
</tr>
<tr>
<td>1954</td>
<td>25 0</td>
</tr>
<tr>
<td>1955</td>
<td>22 10</td>
</tr>
<tr>
<td>1956 and thereafter</td>
<td>20 0</td>
</tr>
</tbody>
</table>

An increase of £5 per ton in the price realised for the product would increase the revenue of the Corporation by £2 ½ million per annum, when the full estimated annual production of groundnuts was being realised.

10. It is interesting also to compare the above estimate of probable future groundnut prices with the prices which we are at present forced to give for comparable products. For an exactly similar product from India we are paying 150 a ton and for groundnut oil from the Argentine we pay the equivalent of £70 a ton for the nuts. It will be seen, therefore, that the estimate that groundnut prices will come down to £20 a ton in 8 years’ time is, possibly, an optimistic one on the part of my Ministry—or, to make the same point from the opposite point of view, is a most conservative estimate from the point of view of the prospects of the profitability of the Overseas Food Corporation.

11. It may, of course, be argued that the production of the appreciable though not enormous in relation to total world production) supplies of groundnuts contemplated in East Africa will itself help to bring down the price of groundnuts at any rate towards £20 a ton over the next eight years. From a national point of view, such a result is, of course, devoutly to be hoped for. It would, however, limit the profitability of the Groundnut Scheme. In fact it is possible to show that if the price of groundnuts dropped to £20 a ton and the operating costs of the Corporation did not drop at all—a most unlikely hypothesis—the Corporation would not be able to repay in full the Treasury advance in the 8 years of its present lease of land. However, the Corporation already has an option to extend this period and even on the above assumption that prices of its product will nearly fall to half, but that its costs will not fall at all, the Corporation would still be able slowly to repay its Treasury advance. Moreover, the possible almost halving in the world price of an important primary product, such as oils and fats, would greatly assist us in our balance of payments problems.

12. It will be seen from the above that if the price of groundnuts merely falls more slowly than was estimated over the next decade, which is only too probable, the resultant increase in revenue will fully compensate the Corporation for the increased costs in capital outlay and operations which it will probably have to face.

13. Three other factors have appeared which may also substantially improve the revenue-earning capacity of the Groundnuts Scheme:

(i) The yield per acre of the scheme was estimated at 750 lb. an acre. It is now thought that this estimate may have been a highly conservative one. For example, the trial plots of groundnuts which were sown in Tanganyika over a fairly wide area have shown an average yield of 900 lb. per acre. This would be insufficient evidence to justify a specific revision of the estimated yield per acre, but it is interesting to notice that, if an average yield of even 850 lb. per acre was achieved, this would give an additional annual revenue, at a price of £30 a ton, of £2 million per annum when full production had been reached.
(ii) The trial plots have now been re-sown with various cereal crops which it is now thought can, with advantage, be grown upon the cleared area when, as contemplated in the original scheme, the soil has to be rested from groundnuts. Should it prove possible, as now seems to be the case, to grow regular crops of cereals on these areas, substantial additional revenue would, of course, accrue to the Corporation.

(iii) Estimates have now been made of the value of the timber standing on the areas to be cleared under the scheme. The Department of the Conservators of Forests for Tanganyika have made an estimate that the gross value of the timber, mainly hardwood and mahogany, in one-third of the area to be cleared in the Southern Province is £6 million. If, as is believed, the remaining areas in the Southern Province and the area in the Western Province of Tanganyika to be cleared have similar quantities of hardwood upon them, the majority of which will be cleared in any case, a considerable additional revenue may be available to the Corporation during the five-year period in which it will be conducting clearing operations. Sawmill equipment and other equipment for dealing with the timber are at present being procured. Those will, of course, increase the costs of operation, but there should be a very substantial net balance to the Corporation. This source of revenue was not taken into account in the original estimates.

14. I am convinced that we should deceive ourselves if we attempted to say what the net effect on the prospects of the profitability of the scheme of the above developments is likely to be in terms of its annual balance sheet. But of the new factors which have appeared since the original estimates were made, those which have improved the prospects of the scheme's revenues are at least as important as those which have increased its costs.

Conclusions

15. When the Groundnut Scheme was first proposed to the Cabinet, I stated:

"My colleagues will see that this is a big enterprise; it has to be if it is to meet even a substantial part of our desperate need for fats. My colleagues would not believe me if I tried to pretend to them that such a scheme was free from risk. Of course, serious difficulties and delays, many of them unforeseeable, may arise in the course of a great undertaking of this sort."

I do not consider that the delay which has already been experienced in getting the physical work of the scheme started, and the initial difficulties met with in solving the technical problems of clearing the bush, constitute in themselves serious setbacks, such as I had in mind a year ago. The truth is that the scheme is still at a very early stage. It has probably not yet encountered its major difficulties and problems. But it probably will encounter these serious difficulties and problems, the overcoming of which will need all the skill and resolution of those conducting the scheme, and all the support we can give them. I am equally convinced that the scheme is one of the most significant pioneering public enterprises which the Government has undertaken. It points the way to a new and incomparably more socially desirable method for conducting that development of primary production in Colonial and dependent territories on which their prosperity, and our own, so largely depend. It is the application of Socialist public enterprise in a new and potentially most fruitful field. The scheme has excited world-wide interest and attention, particularly in the United States of America, where it has been taken as encouraging evidence that Great Britain is at length determined to develop her hitherto latent Colonial resources. It is along the lines of this and other public schemes undertaken both by the Overseas Food Corporation and by the larger Colonial Development Corporation that the urgent problems of the people of our Colonial and dependent territories can be solved, and at the same time our need for ample and reasonably priced primary products be met.

J. S.

Ministry of Food, S.W. 1,
14th January, 1948.
EAST AFRICAN GROUNDNUTS SCHEME

Review of Progress to the end of November, 1947

Presented by the Minister of Food to Parliament by Command of His Majesty 1948

LONDON
HIS MAJESTY'S STATIONERY OFFICE
EAST AFRICAN GROUNDNUTS SCHEME
Review of Progress to the end of November, 1947

Introduction
1. The following report records the progress made in the first year since His Majesty’s Government decided, in November, 1946, to start work on the East African Groundnuts Scheme as described in Command 7030. The execution of the initial phases of the plan has been entrusted to the United Africa Company Ltd., acting as Managing Agents for the Minister of Food, on whom His Majesty’s Government decided to place the responsibility for carrying out the programme.

Selection of first site for development
2. The first question to be decided was which of the five main areas recommended for development to choose for the first year’s operations. Despite the fact that a branch railway line and a considerable mileage of roads had to be built, the choice fell upon the Central Province of Tanganyika Territory, primarily because of its relative accessibility—the selected area lying only a few miles to the north of the Central Railway Line and some 240 miles by rail from the port of Dar-es-Salaam—but also because it was expected that most of the land, which in this area is covered with thorn bush, would be easier to clear than the land in the other areas, where the number of sizeable trees per acre is greater.

The target for development in 1947
3. The aim of the first year’s operations was to clear 150,000 acres of bush for planting by the end of 1947, and at the same time to build up the organisation required for the later expansion of the scheme. It had been calculated that in order to achieve this the clearing equipment would have to be on the site in February, and that 200 heavy tractor units would be required. The first task was, therefore, to procure this equipment. The only source of supply for new equipment of this type is the U.S.A., and enquiries soon showed that there was no chance of obtaining more than a few new machines from that source, since the demand already exceeded the supply from new production. It was therefore necessary to look for second-hand equipment, and this had to be picked up almost entirely from surplus military stores in many different countries. The largest single source of supply proved to be U.S. Army surplus machines in the Philippine Islands, but machines were also found in the U.K., the U.S.A., the Middle East and Ceylon. A Valentine tank was converted experimentally for use on clearing work but trials proved this machine to be unsuitable for the work. All this equipment, of course, needed re-conditioning before shipment. Orders also had to be placed for the wide range of agricultural tractors and implements required for delivery in Tanganyika later in the same year. It soon became clear that these could not be obtained in time from the U.K., and a Mission was, therefore, sent to the U.S.A. to examine many different types of machinery in use in the pea-nut growing areas of Georgia and South Carolina. As a result of this Mission’s report, and of the discovery that it would be more than two years before manufacturers in the U.K. would be in a position to meet the requirements of the scheme, a contract was concluded with a Canadian firm, Messrs. Massey, Harris, for the purchase of all the agricultural machinery required for the programme for the first two years. It is hoped that manufacturers in the U.K. will be able to meet at least a large part of the needs of the scheme from then onwards.
First shipments of clearing equipment to East Africa

4. Although it was clear that it would be impossible to overhaul and to ship the clearing equipment in time to arrive in the Central Province of Tanganyika in February, there was reason to hope that by speeding up the purchase and shipment of heavy tractors against the requirements for the later years, it might still prove possible to achieve during 1947 substantial progress towards the year’s target. During January and February, however, the fuel crisis and the general dislocation of the transport system delayed the reconditioning and movement to seaboard of the machines bought in the United Kingdom; furthermore, the first shipment of supplies was held up for over two weeks by fogs and storms. In the event it was not until the 25th February that the first 10 of the 125 heavy tractors allocated to the scheme from the U.K. were shipped. These tractors were unloaded in Dar-es-Salaam at the end of March and (after a journey delayed by the breaching of a railway embankment owing to floods) arrived at Kongwa, the site of the operations in the Central Province, on the 20th April. The subsequent build-up of the tractor force is described in paragraph 12.

Preparatory work in Tanganyika

5. Meanwhile, preliminary negotiations were started with the Tanganyika Government on such problems as those arising from the recruitment of staff, the need for port and railway facilities, and the terms and conditions of leases, and every effort was made to ensure that any temporary dislocation of the general economy of Tanganyika due to the rapidity of the launching of the Groundnuts Scheme should be reduced to a minimum. Trial plots of groundnuts, which have since given satisfactory yields, were planted near Kongwa early in the year.

6. The advance party of the Managing Agents, accompanied by a number of representatives of the contractors who had been engaged for the first year’s clearing operations, arrived in Dar-es-Salaam at the end of January, 1947. Their duties were, among others, to arrange for the reception, transport and servicing of equipment, plant and machinery, the establishment of the first temporary camp, and subsequent permanent camps near Kongwa, the survey of the first of the 30,000 acre units, the recruitment of labour and the starting of preliminary clearing and constructional operations, including the provision of an airstrip near Kongwa and the settlement, in consultation with the Tanganyika Government, of local problems as they arose. By the end of April, the first few tractors and over 1,000 Africans had begun work at Kongwa, and the first tasks of building the organisation and starting the clearing had been accomplished.

Progress of the Clearing Work

7. The clearing work has involved several operations, the cutting of traces through the bush, the flattening of the bush, windrowing, the burning of the debris in the windrows, the felling of the larger trees and the extraction of the roots. For each of these operations it has been necessary to develop a technique adapted to the conditions on the spot. The complexity of the clearing work has been due to the particular character of the Kongwa thorn bush. On the basis of experience elsewhere, it had been expected that the heavy rooting machines towed by tractors would rip out the roots of the bush, if not at the first attempt certainly at the second, to a sufficient depth for the planting of groundnuts. In practice, the extensive tough and pliable roots of the Kongwa thorns and the multiplicity of stumps have proved beyond the power of normal rooting machines. After many weeks of experiment with modifications of equipment, a method of de-rooting has been found,
but too late in the season to plant more than some 10,000 to 15,000 acres this year. This particular difficulty is unlikely to be met with in the new areas of Tanganyika to be developed in 1948, and subsequently.

8. Large scale clearing operations may be regarded as having begun on 1st July, by which date 97 clearing tractors had arrived at Kongwa. Until September, almost all the tractors available for clearing work were concentrated on the flattening of the maximum possible area of bush. In October the emphasis was moved to the windrowing of the debris and in November, on the basis of the varied experiments which had by then been carried out, to the removal of the roots, so that as much as possible of the cleared area can be planted with groundnuts. In addition to the clearing work, over 100 miles of traces have been cut through the bush in the Kongwa area in preparation for further clearing, and small areas have been cleared for the ploughing school at Kongwa, and experimentally in the Southern and Western Provinces of Tanganyika.

Difficulties which have delayed the Clearing Operations

9. In Command 7030 attention was drawn to the risks, difficulties and delays inherent in a pioneering scheme of this kind. The delays in the arrival of the equipment early in 1947, which have already been described, caused some setback to the clearing work. The most serious obstacles to the rapid progress of the scheme, however, have been the small proportion of available tractors which it has proved possible to maintain in regular operation during these early months, and the character of the Kongwa bush. Spare parts, tools and mechanical repair facilities have been required on a far more extensive scale than it was possible to provide for at the outset. Indeed, up to the time when operations began, it had been impossible to obtain adequate spares. The Managing Agents have given special attention to the improvement of the repair organisation, and additional workshops, tools and plant are being provided as rapidly as possible. Further supplies of this sort of equipment are, however, needed to overcome the immediate difficulties, and for these, as for many other classes of supplies, the scheme is dependent to a very important extent on surpluses arising from military disposals. The shortage of mechanics and other skilled artisans will be overcome as quickly as possible by the training of a sufficient number of Africans, but, in the meantime, 200 Italians, many of them with a knowledge of Swahili, have been recruited on short term contracts to help to fill the gap.

10. The number of tractors available for clearing operations has also been reduced by the need to use a proportion of the total force for the urgent and important task of training African drivers, for the making of railways and roads, and for work in preparation for the erection of the essential buildings. In no one week, so far have more than 872 tractor hours been devoted to flattening the bush, or more than 2,590 tractor hours to windrowing.

11. It must be recognised that the results so far achieved cover a period of only five months since bush clearing was started on a substantial scale at the beginning of July. During the period the most important task has been to find out, largely by a process of trial and error, the best methods to adopt in order to put on a sound footing the recruitment and training of the staff, and their assimilation into co-ordinated teams for their different jobs, and to develop by continued experiment the most suitable techniques for clearing the type of bush prevalent at Kongwa. There is good reason to expect a rapid speeding up of the bush clearing work when this preparatory phase has been completed, and a sufficient supply of suitable equipment to eradicate
the roots of the Kongwa thorn bush has been obtained. One of the most important changes in technique which has already been decided on is what may be described as "selective clearing". In future any ground on which the vegetation is particularly dense will be left uncleared; the consequent concentration of equipment on the easier ground will, it is expected, greatly accelerate clearing operations.

**Progress in the build-up of the organisation**

(a) **MACHINERY AND EQUIPMENT**

12. The number of heavy tractors in Tanganyika at the end of each month has been as follows:

<table>
<thead>
<tr>
<th>Month</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>May</td>
<td>161</td>
</tr>
<tr>
<td>June</td>
<td>185</td>
</tr>
<tr>
<td>July</td>
<td>258</td>
</tr>
<tr>
<td>August</td>
<td>330</td>
</tr>
<tr>
<td>September</td>
<td>330</td>
</tr>
<tr>
<td>October</td>
<td>367</td>
</tr>
<tr>
<td>November</td>
<td>420</td>
</tr>
</tbody>
</table>

These numbers are actually in excess of what was originally planned for the first year, but they consist of secondhand machines.

During the early months the rate of railing the tractors from the port of Dar-es-Salaam inland 240 miles to Kongwa was limited to 12 a week owing to shortage of suitable rolling stock. This rate was, however, subsequently doubled by the release of wagon flats, which previously had been used for the transporting of rails and sleepers for the railway extension from Masagali to Kongwa.

13. Despite the failure of the experiments with the Valentine tank, further experiments have been undertaken with other types of surplus tanks with a view to using them for clearing work. It has become clear, however, that tanks can be used for heavy bush clearing work only after very substantial structural and mechanical modifications, and it has proved necessary to design special equipment to use with the tanks. There is now reason to hope that a successful adaptation of the Sherman Mark III tank will be achieved and that it will prove possible to meet from surplus tanks of this type a large proportion of the balance of the requirements of the scheme for heavy tractors.

14. As has already been mentioned, the agricultural machinery required for operations during 1947 and 1948 is being obtained from Canada. Much of this machinery is not of a type which could be used in the U.K., the design of the machines being based on the development of mechanised ground-nut production in the Southern States of the U.S.A.

15. A wide range of other kinds of machinery and equipment has been obtained for the scheme. Landing craft and cranes have been acquired for the landing of equipment, particularly in the Southern Province; for road transport, jeeps and lorries of different types in large numbers have had to be obtained; for running repairs, many kinds of tools, and for base line repairs, fully equipped workshops, including power lathes and grinding machines and electric welding and other equipment; for the supply of water, equipment for bore holes, pumps and piping; for the health services, drugs and surgical equipment; for the land survey work and the scientific unit, many kinds of laboratory supplies and surveying equipment; and for the housing and the meagre comforts of the staff until permanent buildings can be built, large quantities of tents, huts, furniture, household and sanitary...
supplies, building and electrical materials and equipment. These needs are being met, in almost all cases, either by ordinary commercial procurement without the exercise of any priority or from military-surpluses.

(b) LABOUR

16. At the end of November, 400 European staff and 5,500 Africans were employed on the scheme in Kongwa. The total number of Africans employed on the scheme elsewhere in Tanganyika was 1,000, of whom the majority were in the areas to be developed, in 1948, in the Western and Southern Provinces. The recruitment of the African staff has been undertaken in close co-operation with the Government of Tanganyika in order to avoid unnecessary competition with the recruitment of labour for the growing of sisal or for other local industries. At an early stage the scheme was explained to a meeting of the African Chiefs in the Dodoma district of Tanganyika, and the recruitment of labour, largely of the Wagogo Tribe, from this district has proceeded with their support and approval. The scheme is proving attractive to African labour, and there have been instances of men walking 150 miles to join the staff in Kongwa. A strike originating in the port of Dar-es-Salaam and on the central railway line in Tanganyika in September, 1947 developed into a sympathetic strike at Kongwa, but the men returned to duty after four days when they heard that the dockers in Dar-es-Salaam had returned. No complaint was made by the Africans at Kongwa of conditions of employment.

17. The main shortage of labour, which it is believed it will be possible to overcome by the expansion of training facilities, is of skilled African artisans (e.g., carpenters, plumbers, masons, electricians, fitters, lorry and tractor drivers). To meet this temporary shortage, 200 Italian mechanics and other skilled workers have, as mentioned above, been recruited on short-term contracts and the recruitment of limited numbers of skilled workers has been extended to Kenya, Northern Rhodesia, Nyasaland and the Gold Coast. Satisfactory progress is being made with the training of Africans for work on the scheme. The clearing tractor school opened in April, 1947, and the agricultural tractor school in July, 1947. Up to the end of November 456 African drivers have been passed as proficient in the operation of heavy clearing tractors and 240 in the operation of agricultural tractors. The proportion of entrants for the training course failing to qualify as proficient has been only 15 per cent. in the clearing tractor school and 10 per cent. in the agricultural tractor school. One of the encouraging features of the operations has been the aptitude shown by African labourers for semi-skilled work in the repair of mechanical equipment.

(c) RESEARCH

18. The strong scientific research and control unit is undertaking a series of experiments in crop rotation, the use of fertilisers, seed selection etc., and has initiated work preparatory to the local production of vegetables and livestock products for consumption by the staff of the scheme. Experimental plots have been laid out with the immediate objective of providing data on such problems as soil fertility, and agronomic experiments on the depth of ploughing, spacing, the time of planting, variety performance, weeding etc. have been started. The Chief Scientific Officer has been actively at work since January, and later appointments to his staff include a chemist, a soil chemist, an agronomist, an entomologist and a geologist. The setting up of a Soil Conservation Service for the scheme is foreshadowed in the appointment of a Chief Soil Conservation Officer. The boundaries of the area for cultivation are being determined on the basis of the soils and vegetation surveys undertaken by the Scientific Staff, which is maintaining close contact
with the East African Agricultural Research Organisation, now being formed at Nairobi, and with Universities in the U.K. and in South Africa.

19. Seven small trial plots in the Kongwa area were planted with groundnuts in January 1947 and on the basis of their varying yields it is estimated that the average yield of decorticated groundnuts this year, assuming the same spacing as is to be adopted in the planting of groundnuts in December 1947 would have been over 900 lb. per acre, even though some of the plots were on soils of low fertility. The yield on the most fertile of the plots was at the rate of 1580 lb. per acre. The estimates of the cost of the scheme in command 7030 are based on a yield of 750 lb. of decorticated groundnuts per acre.

(d) COMMUNICATIONS

20. A new branch line 16 miles long has been built from Masagali on the Central Tanganyika line to Kongwa. The work on this line was seriously delayed in February and March by the breaching of a railway embankment following the flooding of the River Kinyasunewe. There has been serious congestion at the port of Dar-es-Salaam owing to an increase in its normal traffic coinciding with the arrival of large supplies for the scheme. Special arrangements are being made, however, to ensure that the capacity of the port is used to the maximum possible extent. The present limited port facilities and the consequent danger of congestion will, however, remain a serious problem. There are no deep-water berths—vessels must anchor in the harbour and unload into lighters. Storage space at the docks is limited by the site and layout of the dock area, and clearance from the docks inland is limited by shortages of railway rolling stock.

21. A small technical mission visited Tanganyika in February 1947, to investigate and make recommendations on the suitability of sites for the construction of a deep water port to handle the supplies and produce of the main producing area, which is expected eventually to extend to 1,650,000 acres, in Southern Tanganyika. On the recommendation of this mission it has been decided to build a port with deep water berths at Mikindani south of Lindi. This is a fine natural harbour completely landlocked and ships of deep draught can enter and leave at any state of the tide. Work has begun on the building of the port and of the railway line 120 miles long connecting Mikindani with the area to be developed in Southern Tanganyika. It is hoped that the first berth will be completed by the end of 1948. Preparations are being made for the building of a pipe line from Mikindani for the supply of fuel to the Southern Province groundnuts area. Meanwhile, to enable the preliminary opening up for development of the Southern Province areas to proceed in 1948, a temporary lighterage quay 600 feet long is being constructed further North on Lindi Creek. Supplies and equipment will be moved up the Lukuledi Valley, initially by road, and then by rail, when this section of the new railway is completed.

(e) HOUSING

At present, both the European and the African staff are living in tents. Suitable permanent housing will, however, be provided as quickly as possible and designs for the housing and for the lay-out of the first village have been approved. In the development of the large building programme new building methods are being used relying on local materials to the utmost. The principal material for the permanent buildings will be blocks made of local soil compressed with a binding material (cement or local lime). In most areas there will be ample timber for all the building requirements of the scheme. At
Kongwa, however, the total absence of local building materials has made satisfactory progress extremely difficult.

**Preparations for the extension of the Scheme to other areas**

22. Preparations are well advanced to begin clearing in 1948 in the Western and Southern Province of Tanganyika, and to develop the clearing work in the Kongwa area in the Central Province. By extending the work in several areas with different climatic characteristics the risk of a set-back owing to drought will be materially reduced. A complete air contour survey, as well as extensive soil and vegetation surveys, have been undertaken in each of the areas covered by the full programme of development. The results of these surveys have been encouraging except in Kenya where the areas originally selected have been found to be unsuitable. It has, therefore, been decided to exclude these areas from the scheme, but the Government of Kenya has been invited to suggest alternative areas. In any event, there is reason to believe that there are very large additional areas in Southern Tanganyika suitable for inclusion in the scheme if additional land is required. The scheme has aroused considerable interest in Northern Rhodesia, and the problems involved in the extension of operations into that colony are at present under examination.

**Health, Welfare and Education**

23. The full programme of health, social and educational development which is part of the scheme cannot be introduced until the agricultural stage of the work has been reached and settled village communities established. Preparations are, however, well advanced and an efficient medical service with temporary hospital accommodation already exists.

Thirty-four appointments have so far been made in the Medical Department, including doctors, nursing sisters, health visitors, hospital stewards, a radiographer, etc. In addition 200 Africans have been chosen for training as medical auxiliaries and nursing staff and the training of some of these has been completed. The health of the African staff generally may be expected to improve as a result of the better diet they are already receiving and the medical services to which they have access. Since the opening of the temporary hospital there have been 20,572 attendances by the African staff. The health of the European staff has, on the whole, been good. To overcome the difficulties of language in the technical training of the Africans employed on the scheme, and ultimately in the general education both of the African employees and of their families, it has been decided to make use of the valuable experience which was gained in the great expansion of the Indian Army during the war, when hundreds of thousands of recruits were rapidly and successfully equipped with a basic knowledge of English and the ability to use it on their jobs. It will be necessary to make considerable use of modern educational techniques including films, film strips, models, gramophones, etc. The preparations for the development of the educational work are being made with the co-operation of the Education Adviser to the Colonial Secretary, the Education Department of the Government of Tanganyika and with UNESCO which has agreed to send a consultant to help with the development of education policy. An Education and Welfare Advisory Committee is being set up, and the Chief Education Officer, who has recently been appointed takes up his duties in January, 1948.

**Finance**

24. The total net expenditure on the scheme up to 30th November, 1947, was £4,250,000. This expenditure has been almost entirely of a capital nature, a large part representing the cost of mechanical equipment required for
clearing and agricultural purposes. Until larger acreages with different types of vegetation have been cleared and the first unit installations completed, and a full year's agricultural operations carried out on at least one unit, it will not be possible to make any dependable revision of the estimated costs of production as set out in paragraphs 19-24 of Command 7030. All that can be said at this stage is that it is already clear that both the previously estimated costs and the previously estimated revenues of the scheme are likely to be considerably higher than those given in Command 7030. On the one hand the prices of the mechanical equipment and stores of all kinds necessary for the scheme are steadily rising, and in addition a larger expenditure than had been anticipated will be necessary upon, in particular, the transport services and the repair organisation. On the other, the world price of oils and fats is also rising and now seems only too likely to remain at a high level for a much longer period than was envisaged a year ago.

These two developments, which are merely what was to be expected in the case of a scheme being carried out in conditions of rising prices on a world-wide scale, will of course affect the scheme in opposite directions. The rising costs will adversely affect it, the rising prices of its product will tend to make it more profitable. It would be quite unrealistic to pretend that any balance between these opposite tendencies can at present be struck. No useful purpose would therefore be served in attempting a revision of the figures given in Command 7030.

Two further indications of the general prospects of the scheme may however be mentioned. As already stated in paragraph 19 above, there is some evidence that the yield of groundnuts was most conservatively estimated at 750 lb. per acre in Command 7030. Second, there is now a prospect of a substantial new source of revenue to be devised from timber resources of the areas to be developed in the Southern and Eastern provinces of Tanganyika.

Summary

25. Reference was made in Command 7030 to the analogy, between the carrying out of this scheme and certain military operations of the last war. In reviewing the progress made in the past year, it becomes clear that the criteria to be applied are those by which the success of the initial phases of a modern military operation is judged, rather than those which are usually applied to a commercial enterprise. The two most important factors are supplies and transport, for the building up and deployment of the vast quantities of operational and maintenance stores and equipment. The East African Groundnut Scheme is still in the phase of building up the bridgehead and consolidating the organisation required to direct and control the first major advance. Over the critical field of procurement of supplies and equipment as a whole progress is well up to schedule, and in some sectors of this front ahead of schedule. On the other hand, the acreage of land cleared is far behind schedule. This is a healthier situation than the reverse would be.

26. The experience of the first six months of bush clearing in the Central Province of Tanganyika has not brought to light any unforeseen factors to cast doubt on the validity of the basic principles on which the scheme is founded. There will clearly be many technical problems to be solved; their solution will require a high degree of skill and flexibility in management. There is, however, no more reason now than there was a year ago to doubt that the whole scheme—modified here and there as to its details in the light of the experience continually being gained—can be carried out on the broad lines and within the time schedule set out in Command 7030.
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