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REPORT OF THE OPERATION

FEED YOURSELF AND OPERATION

FEED YOUR INDUSTRIES REVIEW

COMMITTEE



30th November, 1977

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INTRODUCTION

(1) Inauguration of the OFY & OFYI Review Committee

The Commissioner for Agriculture, Brigadier N. A. Odartey-Wellington on 11th February, 1977, inaugurated the Operation Feed Yourself and Operation Feed Your Industries Review Committee at the conference room of the Ministry of Agriculture. This Committee was set up by the Head of State and Chairman of the Supreme Military Council, with the main purpose of undertaking an evaluation of the Operation Feed Yourself and Operation Feed Your Industries Programmes, assessing their impact on the economy, and identifying any bottlenecks so as to make recommendations for the full realisation of the objectives of the two programmes.

(2) Terms of Reference

2. The terms of reference of the Review Committee were originally as follows:-

- (i) to evaluate all government and quasi-government agricultural projects in terms of their overall performance
- (ii) to identify all constraints and to make representations as to how such projects should be executed more efficiently with a view to increasing, substantially, crop and livestock production in the country and
- (iii) to discuss any other matter concerning its work including the question of staffing, operational budget, etc.

3. The Review Committee considered that the above terms of reference were rather restrictive and with the approval of the Commissioner for Agriculture adopted the following broader terms of reference:-

- (i) To evaluate the national agriculture performance by sectors, identify constraints and make recommendations
- (ii) To evaluate by sectors specific projects being undertaken by the public or private initiative, assess performance and identify constraints with a view to making proposals for their full utilisation and
- (iii) To review other areas of the agricultural effort which in view of the Review Committee are relevant to agricultural promotion and submit recommendations.

(3) Composition of the Review Committee

4. The composition of the Review Committee was initially made up as follows:

1. Major-General D.K. Addo (Rtd)M.V. - Chairman
2. Dr. J.L.S. Abbey, Min. of Econ. Planning - Vice Chairman
3. Dr. H. B. Obeng, Soil Research Inst.(CSIR) - Member
4. Mr. J. S. Addo, Managing Director, NIB - "

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|-----|---|---|------------------|
| 5. | Mr. Frank Offei, (Replaced by Mr. Alipui,
Min. of Economic Planning) | - | Member |
| 6. | Mr. A.M. Afful, Managing Director,
(Replaced by Mr. Ben Selormey, Managing
Director, Agricul. Development Bank) | - | " |
| 7. | Mr. A.B. Williams-Baffoe, Director of Agric. | - | " |
| 8. | Mr. T.O. Sunkwa-Mills, Director of Animal
Husbandry | - | " |
| 9. | Mr. J.N.N. Adjetey, Director of Fisheries | - | " |
| 10. | Mr. M. A. Adansi, Oil Palm Research Centre,
(CSIR, Kusi, resigned due to health reasons) | - | " |
| 11. | Mr. D. S. Quarcoopome, Prominent Farmer | - | " |
| 12. | Dr. Esther Ocloo, Prominent Citizen | - | " |
| 13. | Mr. H.K. Quartey-Papafio, Deputy Director
(Operations) | - | Member/Secretary |

5. Later in the course of the deliberations of the Review Committee, it was found advisable to augment the membership by the inclusion of the following:-

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|-----|---|---|--------|
| 14. | Representative from the Office of the SMC | - | Member |
| 15. | Representative from the Bank of Ghana | - | " |
| 16. | Dr. Y.K. Atta-Konadu, Director of Econ. Res.
and Planning Services | - | " |
| 17. | Mr. E. D. Kemevar, Director of Irrigation | - | " |
| 18. | Prof. E.N.N. Oppong, Dean of the Faculty of
Agric., University of Ghana | - | " |
| 19. | Mr. O.K. Gyarteng, Acting Director of Mech.
and Transport | - | " |
| 20. | Dr. S.B.K. Quartey, Director of Veterinary
Services | - | " |
| 21. | Prof. K.A. Haizel, Director of the School
of Agriculture, University of Cape Coast | - | " |
| 22. | Prof. E.O. Asare, Dean of the Faculty of Agric.
University of Science & Technology | - | " |

(4) Procedure

6. In order to draw on the experience and views of a cross-section of the farming community and the institutions actively supporting agriculture, the Review Committee decided to carry out its task in five phases as follows:-

- (i) Phase I - To hear sector reports of the agricultural situation covering the period 1972-76 from the operational and service departments of the Ministry of Agriculture, Boards and Corporations and the financial institutions involved in agriculture.

(ii) Phase II - To organise a series of Symposia with the active co-operation of the University of Science and Technology, University of Cape Coast, University of Ghana and GIMPA, at which selected audience will be invited to focus attention on particular areas of the national agricultural effort and make appropriate recommendations that would assist the Review Committee on its evaluation work.

(iii) Phase III - To collect through the Regional Administration and the OFY and OFYI Review Secretariat, memoranda/evidence from farmers groups, individuals and organisations involved in agriculture, on their views and suggestions regarding the two programmes.

(iv) Phase IV - To collect from Regional Commissioners their views on the performance of the various sector programmes and the effectiveness of the organisation of the Ministry of Agriculture in their respective Regions, including their recommendations.

(v) Phase V - To evaluate all reports received and present the Review Committee's conclusions and recommendations to the Supreme Military Council.

(5) Winding up of Work

7. The Review Committee was however unable to go through the entire programme because it was asked to stop work on 24th June, 1977 vide Ministry of Agriculture letter No. SCR.6156/V.1/54.

II. EVIDENCE RECEIVED ON OFY & OFYI PROGRAMMES

(1) Organisation of the OFY Programme

8. The Operation Feed Yourself Programme was launched on the 17th February, 1972, with the main aim of ensuring that Ghanaians muster all available resources to produce food which will make the country self-reliant and reduce importation of foreign foods to a minimum.

9. The direct control of the programme was under the then Commissioner for Agriculture with the Programmes Control Executive: (Proconex) as its executive and monitoring machinery. The office of Proconex consisted of the finance and administration section, logistics section, information and intelligence section and programmes and planning section, all geared towards ensuring that the necessary farm inputs and logistic support were provided to achieve the targets set for crop, fish and livestock production.

10. The programme was supported actively by television and radio activities, donations from various firms and provision of requisite farm inputs such as fertilizer, improved seeds, farm tools and machinery and equipment. In addition farmers were assured of guaranteed minimum prices subject to periodic review, for some major commodities and effective storage and distribution facilities.

11. At the Regional level, Regional Agricultural Committees, headed by the various Regional Commissioners were responsible for the regional programmes including co-ordination of requests for land and other inputs and ensured that the targets set for each Region were achieved.

(2) Situation Reports (Ministry of Agriculture)

12. The various Departments of the Ministry of Agriculture presented papers to the Review Committee which embodied their views on the performance of the OFY and OFYI programmes in respect of their sectors. These papers are summarised below:-

13. Department of Agriculture: With the launching of the OFY programme in 1972, the major burden of ensuring that the nation became self-reliant in food production fell on the various Departments of the Ministry of Agriculture, particularly the Department of Agriculture. High powered personnel of the Ministry were therefore posted to the Regions as Assistant Directors to co-ordinate activities at the Regional level. A programmes control executive office (Proconex) was established at Head office directly under the Commissioner to monitor the progress of the OFY programme throughout the country. A similar machinery was set up in all the Regions under the Regional Commissioners. Farm inputs such as fertilizer, insecticides, seeds, machetes, farm machinery and credit from the Banking institutions were made available to the farmers, Boards and Corporations to enable them achieve their targets. In the course of the first two years of the programme, targets for the major food items were achieved or exceeded. The programme has however been constrained by inadequate feeder roads and transportation facilities, lack of machinery, insufficient farm inputs, and in the absence of large scale irrigation, the vagaries of the weather. Inadequate import licence allocation and its untimely release have also constituted a hindrance to the successful implementation of the programme. (Please refer to Appendix I)

14. The Review Committee concluded as follows:-

- (a) That there is shortage of extension manpower in the Department and it lacks transportation and imaginative deployment of field staff
- (b) The Department needs periodic assessment and evaluation of its functions
- (c) It requires demonstration stations as focal points for extension activities and dissemination of research results
- (d) To attract the youth into farming as in the case of the "group of 25 project" a maintenance allowance has to be paid during the initial phase of the project
- (e) Irrigation is indispensable to agriculture and consequently the programmes of the Department of Irrigation must be intergrated with the Department of Agriculture and other production agencies.

- (f) The dismantling of Proconex has reduced the effective of the machinery set up to co-ordinate and monitor the activities of the OFY and OFYI programmes
- (g) It is necessary for the Government to encourage commercial seed multiplication and distribution agencies to participate in the seed multiplication programme of the country.

15. Department of Mechanisation & Transport: In support of the OFY programme, the Department rehabilitated all unserviceable tractors and mobilised others from various Government agencies to facilitate land clearing and farm operations. The Department's achievement has however not been up to expectation due to the high rate of breakdowns of the tractors and inadequate spare parts. The distribution of machinery to the Regions to undertake projects without being pooled to operate in teams has also contributed in no small measure to their poor performance. (Please refer to Appendix II)

16. The Review Committee observed that:-

- (i) There was need for a clear policy on training and service support to local farmers and function of the department
- (ii) Machinery and equipment should be pooled into field teams to provide mechanised services to small scale farmers as this concept is more economical than existing arrangement where departments operate their own machinery scattered all over the country and ill-maintained due to lack of spare parts and expertise
- (iii) The establishment of a commercial land clearing and preparation company to ensure efficient operation must be encouraged by Government and given necessary support eg. licences and facilities for letters of credit
- (iv) Adequate import licence for spare parts and new machinery should be made available to the department after thorough review of its functions.

17. Department of Veterinary Services: The Department is charged with the maintenance of a healthy environment for livestock production in the country and in view of this responsibility it has undertaken to expand its veterinary health facilities and material resources so as to cope with the increased incidence of diseases which will result from the intensification of poultry, sheep and goats production as conceived in the OFY programme. At Pong Tamale, the Veterinary College had to be improved to enable the Department train the middle level calibre of staff so urgently needed for the programme. The Department has however performed these activities not without some major problems. Frequent short-supply of drugs, vaccines, equipment and other stores required for the programme has hindered the smooth execution of the Department's activities. Added to this delays in obtaining import licence on schedule have often thrown the field work completely out of gear. (Please refer to Appendix III)

18. The Review Committee concluded that:-

- (i) The Department as a support service organisation must be more integrated with the Animal Husbandry Department's field units at the local level
- (ii) Clear evidence exists that co-operation between the departments of the Ministry of Agriculture is not very effective and spontaneous, hence the structure of the Ministry of Agriculture should be reviewed
- (iii) The Veterinary Services Department should be assessed in terms of the service rendered to private livestock farmers and the Animal Husbandry Department and the budget of the Veterinary Services Department must be based on a forecast of such services.

19. Department of Irrigation Services: During the period 1972-76, the Department placed emphasis on completing certain irrigation projects in the country. The outlines of a master plan have also been prepared for the systematic development of other irrigation facilities in the savannah areas for rice, cotton, sugar cane and vegetable production. None of the projects has been completed so far due to inadequate funds, lack of machinery and construction materials, dearth of adequately qualified technical staff and the Department's inability to obtain the services of suitable construction agencies. (Please refer to Appendix IV)

20. The Review Committee ascribed the ineffectiveness of the Irrigation Department to the following factors:-

- (i) Inability to operate as a support organisation whose programme must be tailored to and integrated with those of the prime user departments like Agriculture, Fisheries and Animal Husbandry.
- (ii) Lack of machinery to undertake approved programmes of the Departments requiring irrigation services and the absence of a machinery to monitor implementation of such integrated programmes
- (iii) The operation of the Department as an independent unit is considered wasteful and inefficient and must be a supporting unit at the local level to service prime users. The formation of an Irrigation Development Authority is therefore not supported in its present context
- (iv) Lack of closer liaison with Water Resources Unit of the CSIR which can augment the Department's investigational work especially in the Accra Plains.

23. Department of Animal Husbandry: The livestock programme has been organised under the Department of Animal Husbandry into three phases, namely short-term programme, involving poultry and pig production, medium-term programme in which emphasis is being placed on sheep and goats production and long-term programme for cattle production. During the period 1972-76 much impact has been made in the area of poultry and pig production. The limitations to a more accelerated programme for the increased production of these animals have been frequent shortages of feed ingredients and maize, and inadequate and expensive veterinary drugs. In addition random breeding and poor management problems have contributed to the general poor performance of livestock improvement in the country. (Please refer to Appendix VI)

24. The Review Committee observed that:-

- (i) Water resources being crucial to animal husbandry, the Department of Irrigation must have a unit attached to the Animal Husbandry Department in all Regions to ensure that the programmes of the two Departments are fully integrated
- (ii) The Department's budgeting must be related to extension services targets in order to enable a meaningful comparison to be made between achievement and targets
- (iii) The Department must concentrate on field services support to assist farmers in the areas of say pasture development, husbandry techniques, health education and water supply advice in conjunction with the proposed units of Veterinary and Irrigation which should be attached to the Department. This would call for demonstrations and periodic field days for farmers at nominal fees or at the expense of the tax payer.
- (iv) Stock improvement programme has not gathered momentum due to lack of funds to import breeder stock. But this too calls for a government strategy and technical assistance agreements with friendly countries
- (v) The livestock industry must be commercialised with very generous credit, marketing facilities and extension support. National Service graduates should be fully involved in the extension programmes. This requires closer co-ordination with the faculties of agriculture at the University of Ghana, University of Cape Coast and the University of Science and Technology. Foreign investors in this area should be given incentives to establish livestock projects in the country.

25. Department of Economic Research & Planning Services: This newly created Department helps in project preparation work and co-ordinates technical assistance programmes within the Ministry of Agriculture. It has set up an efficient system of rendering progress reports, project monitoring and development of efficient financial management and accounting procedures.

In the view of the Department, factors that have militated against the full realisation of the targets set in the OFY and OFYI programmes are lack of available inputs, inefficient management and administration of scarce resources. There is also lack of co-ordination between the various departments of the Ministry of Agriculture. In addition the work of the Ministry has been hampered by extreme shortage of technical staff, having regard to the size of the farming community and the available extension staff. Mobility of staff has decreased considerably due to lack of means of transport and incentives. (Please refer to Appendix VII)

26. The Review Committee observed that:-

- (i) The potential of this department to monitor and evaluate the performance of the functional departments of the Ministry of Agriculture is grossly under-utilized. This is due to the absence of co-ordination and control in the Ministry of Agriculture as presently organised with independent budgeting departments
- (ii) The Commissioner for Agriculture is being ill-served because of the absence of central monitoring control and the abolishment of a professional head of the Ministry of Agriculture. What the Ministry of Agriculture should have is a professional head with proven management ability to co-ordinate all activities of the departments of the Ministry of Agriculture and to whom all departments would be accountable and who would then be answerable to the Commissioner for Agriculture on planning and execution of projects.

(3) SITUATION REPORTS (BOARDS & CORPORATIONS)

27. A brief outline of the situation reports by the Boards and Corporations involved in agriculture is as follows:-

28. Cotton Development Board: The Board was established in 1967 with the objective of producing lint cotton to feed the local textile industries in the country so as to conserve foreign exchange. In order to achieve this objectives, the Board has been organising small scale farmers into effective groups and educating them on improved techniques of cotton production. These farmers are provided with such inputs as cotton seeds, fertilizers, insecticides, sprayers and mechanised services to enable them attain optimum yields. By 1972-73 total yield of seed cotton had increased from 220,240 in 1968-69 to 4,189,843 lbs. This output increased to 19,902,000 lbs in 1975-76, valued at ₦6,050,208. In order to improve on these achievements, the Board will require additional infrastructural and logistic support. Of these, high capacity ginneries, ware houses, vehicles and farm machinery are urgently required. (Please refer to Appendix VIII)

29. Grains & Legumes Development Board: The Board was set up to promote the efficient production of cereals and legumes in the country. Its programme of activities coincided with the launching of the OFY programme in 1972. The first task of the Board was to stabilise maize and rice prices by buying the crop at the guaranteed minimum price and reducing it for sale during the lean supply period when prices tend to rise. This served as a great incentive to farmers to step up production of maize and rice. In July, 1975 the Board's marketing and storage function was transferred to the Ghana Food Distribution Corporation to enable the Board attend fully to the development of cereals and legumes. In order to promote the increased production of these crops, the Board has been conducting demonstrations on rice, maize, groundnuts and soya beans and assisting farmers with land preparation, shelling and carting of maize. These accomplishments of the Board have not been without such constraints as inadequate staff and equipment and lack of storage facilities. The separation of production and marketing function is a draw back in the Board's operations and must be reviewed. (Please refer to Appendix IX)

30. State Farms Corporation: Prior to 1966 the Corporation operated 105 farms throughout the country, but with the change of Government policy following the coup of 1966, the number of farms were reduced to 34. However, with the launching of the OFY programme in 1972, and subsequent granting of loans to the Corporation by the Agricultural Development Bank, it has been possible for the Corporation to participate actively in both food and tree crop production, even though it is only in the area of tree crop plantation, especially oil palm, that substantial progress has been achieved. The main constraint facing the Corporation is inadequate machinery, low productive redundant labour and inadequate allocation of import licence, to support the operations of the Corporation. (Please refer to Appendix X)

31. Best Fibres Development Board: The Board has not been able to achieve its production targets during the period of the OFY and OFYI programmes under review. It presently supplies only 7 to 8% of the raw material requirement of the Fibre Bag Manufacturing Factory which has a capacity of 12,000 tons of fibre. It is however capable of increasing production from this negligible level to about 30 - 40% within the next 4 to 5 year, but this can only be possible with the provision of additional machinery and equipment and retteries. The problem of inadequate staff, insufficient import licence to bring in urgently needed farm requisites constitute major constraints which must be resolved to ensure a rapid development programme, backed by realistic producer prices. In addition, the Board would require financial assistance from the Banking institutions and active support of GIHDC. (Please refer to Appendix XI)

32. Ghana Food Distribution Corporation: During the first two years of the OFY programme, the Corporation engaged itself in purchasing farm produce using its own facilities and that of the Task Force, but since 1974, the Corporation has embarked on a capitalisation programme involving the procurement of vehicles and equipment and the construction of 9 Regional ware houses, 7 food centres, 3 groceries and the extension of the railway line to Head office.

The programme of the Corporation has, however, been inhibited by inadequate transportation facilities, particularly lack of feeder and farm roads, difficulties in obtaining import licence for spare parts and inability to control the purchasing system particularly with regard to rice and maize. The Board would also wish the Government to give priority attention to its storage and processing problems. (Please refer to Appendix XII)

33. Regarding the papers presented by the Boards and Corporations, the Review Committee was of the general view that:-

- (i) In order to fully assess the general performance and viability of the Boards and Corporations certain limitations like overstaffing, excessive labour deployment and inadequate machinery and equipment must be overcome. For instance, the Cotton Development Board which has expanded its activities considerably over the past two years require urgently large capacity ginneries, farm machinery and transport vehicles to support its programme
- (ii) A major problem facing some Boards and Corporations has been inadequate financial support as well as insufficient import licence allocation. The Food Distribution Corporation for instance requires import licence to purchase haulage vehicles to improve its distribution operations. The Corporation's concept of operation must however be reviewed in terms of profitability
- (iii) Despite these limitations some of the Boards and Corporations are not being operated efficiently and efforts must be made to make them operate as viable concerns, through the adoption of proper accounting procedures, enforcement of discipline and redeployment of surplus staff.

(4) SITUATION REPORTS (FINANCIAL INSTITUTIONS)

34. The following financial institutions presented reports on their participation in the OFY and OFYI programmes to the Review Committee.

35. National Investment Bank: The National Investment Bank commenced business in 1963 and between 1972-76 invested over \$30.9 million in the form of loans for agricultural projects to assist in the establishment, expansion and modernization of agricultural enterprises. Guided by its credit policies, the Bank has also encouraged and facilitated the participation of internal and external capital in these enterprises. The Bank is of the opinion that the performance of clients has not been quite satisfactory but some of the principal set-backs are clients own mismanagement, governmental controls and adverse climatic conditions, which have affected farmers production. In the case of livestock production, unavailability of local breeding stock and insufficient import licence to bring in exotic breeds to up grade the few available stock have been one of the main limitations to the rapid expansion of the livestock industry. In order to make agricultural programmes successful, the Bank maintains that there is the need for inter-relating it with marketing, supply of inputs, farm prices and extension.

The need for an attractive government guaranteed price coupled with a sound rural infrastructure such as roads, dams, wells, and storage facilities, cannot be over emphasised. These are preconditions for a sound agricultural production programme. (Please refer to Appendix XIII)

36. Agricultural Development Bank: The Agricultural Development Bank was established in 1965 and before the inauguration of the OFY programme in 1972 it had invested a total of ¢18,900,000 in the agricultural sector of the OFY programme. In furtherance of the OFY programme the Bank granted loans totalling ¢14.57 million to the State Farms Corporation, State Fishing Corporation, Ghana Food Distribution Corporation and Food Production Corporation and increased this to ¢18,820,000 in 1973. Small scale farmers also received a total of ¢5.23 million. From 1972 to December, 1976 the Bank granted a total loan of ¢114.25 million to the agricultural sector. Despite this sizeable lending, the Bank's programme has been impeded by both social and economic problems. Farmers' attitude to credit resulting in misapplication or non-payment of loans is a major constraint. Co-operation among institutions involved in agriculture development has been difficult. Of the economic constraints, pricing policies, inadequate marketing system, problems associated with the registration of farm lands, mobility of labour and land tenure also obstruct the smooth and successful operation of credit. The Bank also feels that lack of agricultural inputs and statistical data make lending a risky business. These constraints are interlocked with rural development. In addition, there is the question of inadequate import licence for the procurement of essential farm requisites. The Bank is of the view that its efforts in granting loans will be thwarted if effective marketing and distribution facilities are not made available. (Please refer to Appendix XIV)

37. Standard Bank (Ghana) Ltd.: At the beginning of the OFY, the Standard Bank had already a considerable numbers of farmers engaged in rice farming and by 1973 this number had doubled due to the impetus generated by the OFY programme. In 1976 the Standard Bank financed farmers to cultivate 18,000 acres of rice compared to 1,600 acres in 1972. United Africa Company in conjunction with Barclays Bank International and some local financial institutions, have also recently invested in the oil palm industry. The Bank considers that on the whole there has not been any shortage of funds for investment in agriculture to support the OFY and OFYI programmes, but rather certain constraints have restricted the flow of finance into this sector of the economy. Notably, shortage of farm machinery and equipment, poor quality and inadequate planting material and lack of breeding stock and feed have slowed down the rate of investment in agriculture. Most of these factors according to the Bank could be traced to either inadequate or delayed issue of import licence. (Please refer to Appendix XV)

38. Barclays Bank Ghana Ltd.: During the period under review, Barclays Bank also gave substantial financial support to rice farmers and adopted a flexible liberal system of lending to its customers. In 1972, there were only 11 farmers cultivating 3,810 acres receiving credit from the Bank and by 1975 the Bank's support had extended to 150 farmers cultivating a total of 25,800 acres. The Bank is of the opinion that the risks associated with lending in agriculture could be reduced considerably if improved technology could be more rapidly transferred to farmers, good quality and high yielding seeds are made available to them and if the input delivery and communication and marketing systems are improved. (Please refer to Appendix XVI)

39. The Review Committee observed generally on the presentations by the Banking institutions as follows:-

- (i) That a lot of money has been channelled into agriculture during the period under consideration and the enthusiasm of private farmers has been evident.
- (ii) That this enthusiasm has been dampened in subsequent years by lack of agricultural logistic support in inputs due to inadequate foreign exchange allocation to the sector.
- (iii) That price controls by government have been a prejudicial factor to expansion of output.
- (iv) That in the main, governmental institutions for guaranteeing ready market for farm produce has not been effective throughout the country.
- (v) That financial institutions have not been deployed sufficiently at country/rural levels widely to bring their services close to the rural farmers.
- (vi) Since agricultural expansion pivots on ready marketing of produce at attractive prices, a government strategy must be worked out to give post harvest forecast, attractive guaranteed prices and organised purchasing of farm products for distribution or storage by agents of Government.
- (vii) That finance being only a portion of the requirement of the farmer, supporting services such as land clearing and preparation, farm labour and inputs must also become available as to make any financial assistance effective.
- (viii) That the desired co-ordination and liaison between the Ministry of Agriculture and the financial institutions supporting agriculture is absent, making it necessary for some financial institutions in their own small way to establish their own agricultural consultancies instead of working hand in hand with the Ministry of Agriculture extension services at farm levels.

(ix) That the fact that the country still continues to import food which can grow here is indicative of our insufficiency, defeatist strategies and control policies which discourages producers. But since such imported foods require hard currency there is an urgent need to liberalise our agricultural economy and allow farm gate prices to find their own level until farmers could flood the market.

(5) SITUATION REPORTS (COUNCIL FOR SCIENTIFIC & INDUSTRIAL RESEARCH)

40. Soil Research Institute: This Institute's direct contribution to the OFY and OFYI programmes is connected with the carrying out of special soil surveys of areas earmarked for immediate agricultural development. Among the organisations which have benefited or are benefiting from such surveys are the Bank of Ghana, Agricultural Development Bank, the National Investment Bank, Tema Food Complex, Ejura Farms Limited, Akosombo Textiles, Juapong Textiles, SODA, OFAO and Uniliver. Also farmers, schools, and colleges, and development corporations have been assisted by the Institute to identify areas suitable for farming. Further investigations on fertilizer requirements of various food crops such as maize, guinea corn, millet, groundnuts, rice and yams have been undertaken on peasant farms as well as on agricultural stations. The Institute has also been called upon to advise on soil conditions in connection with irrigation schemes. Recently, the Agricultural Research Advisory Committee of the Ministry of Agriculture recommended that the short-term cultivation of certain important crops, including cassava and ginger, be shifted to the Western Region where adequate rainfall is assured. The Institute has been actively involved in this particular exercise. (Please refer to Appendix XVII)

41. Crops Research Institute: As the only Research Institute charged with the responsibility for undertaking research into all crops other than cocoa, coffee and cola, the Crops Research Institute realised from the onset of the OFY and OFYI programmes what it would be expected to contribute. A programme for the accelerated production of maize, using high yielding varieties and the most suitable cultural practices is being undertaken in collaboration with the Grains Development Board, the Ministry of Agriculture, and the Agricultural Development Bank. Over 2,000 farmers are participating in the programme in the Ashanti, Brong Ahafo, Central Regions, Volta and Northern Regions. The Institute has also undertaken studies on varieties, fertilizer requirements etc, of rice and sorghum. A major research scheme on rice is to be undertaken in the North with the help of the Government of West Germany. The Institute has collaborated with GIHOC on groundnut production at Atebubu to feed the Atebubu oil mill. It has carried out trials on soya beans for the Grains Development Board. Research is being undertaken on sunflower on behalf of UAC for use in oil extraction. The Oil Palm Research Centre at Kade has so far issued 7 million germinated seeds to farmers. With adequate financial support, the Centre should be able to supply all the country's requirements of oil palm seeds by 1980.

A centre for sugar cane research is being established at Asutsuare. Eight hundred acres of land have already been cleared for this project. Research on tobacco is being carried out in conjunction with the Ghana Tobacco Company. Work on nicotine is being contemplated, as a source of insecticide. (Please refer to Appendix XVIII)

42. Animal Research Institute: The Institute is not engaged in commercial production but only provides research support to farmers. As far as livestock production is concerned, only demonstration farms have been established. In the field of animal nutrition, the Institute has done some useful work with regard to the use of by-products of agro-based industries such as wheat bran, rice bran and copra cake, as feed ingredients in place of such expensive items as maize and cassava. Pasture production is indispensable in any programme of livestock expansion. Propagation by seed is the best method of raising pasture. The Institute has been successful in this area and is raising seeds of various grasses and legumes for supply to farmers to enable them establish their own pastures. The Institute's work with regard to disease has been mainly in the area of parasital diseases of livestock with emphasis on prevention. The Institute has contributed enormously to the control of new castle disease and is actively engaged in trials aimed at producing new castle vaccine from virulent local strains in collaboration with the Veterinary Services Department of the Ministry of Agriculture. (Please refer to Appendix XIX)

43. Food Research Institute: The Institute's efforts are fragmented but significant impact has been made through the execution of such projects as (a) dehydration and canning processes of cereals and tubers as a means of preservation, (b) design and construction of small equipment for rural technology in smoking ovens and dryers. (Please refer to Appendix XX)

44. Institute of Aquatic Biology: The Institute has been engaged in studies in the Volta Lake aimed at giving scientific support to the local fishermen. The aim is to promote optimum catch and to prevent over-exploitation of fish stocks. Studies so far undertaken in this connection include habitat preferences, spawning habits, population migration and selection of fishing gear, in co-operation with the Department of Fisheries. The Institute is also engaged in important studies in the area of fish culture. The policy as far as possible, is to use local fish especially fish from the Volta. In Northern Ghana where irrigation programmes are being undertaken by government and other agencies, the artificial impoundments created for the purpose serve as useful loci for fish culture. Where it is not possible to rely on rain-water, the Water Resources Research Unit assists in exploiting underground water resources for fish culture. The Institute is also engaged in establishing fish hatcheries to enable fish fry to be supplied to fish farmers. The Institute has also made significant progress in shrimp farming which could become a lucrative enterprise for interested individuals and agencies. (Malaysia and other countries of Southeast have done much work in this area).

The Institute has successfully established shrimp farms and could supply juveniles to prospective shrimp farmers. An important aspect of the Institute's programme concerns public health and epidemiology and is being undertaken in co-operation with the Ministry of Health. Studies aimed at the prevention and control of waterborne parasitic diseases, i.e. guinea worm and bilharziasis continue to receive priority attention. Guinea worm and bilharziasis have the effect of incapacitating local farmers and thus lowering their productive capacity. The Institute is also engaged in pollution studies. The programme concerns the monitoring of residues of pesticides and fertilizers in rivers and streams in order to ascertain at what levels they are harmful to fish and other aquatic fauna. (Please refer to Appendix XXI)

45. Water Resources Res. Inst.: The Institute attaches special importance to its groundwater programme. The objective is to ensure the supply of water in areas of scarcity, from subterranean sources for use in irrigation, livestock production and for other purposes. The main area of operation of the Unit is the "Accra Plains" which will be capable of sustaining large-scale mechanised agriculture and livestock production. A pilot project on a 5-acre plot on the Accra Plains area involving the use of underground water for irrigation, the cultivation of vegetables and the breeding of livestock has attracted considerable public interest. The Institute will extend the project to other areas too. So far, over 46 test holes had been drilled on the Accra Plains area, out of which four have been harnessed. The Ministry of Agriculture has requested the Unit to undertake drilling at Adidome and Afienya. The Unit has been working in close co-operation with the Water and Sewerage Corporation and has carried out a water project for the Animal Research Institute at Katamanso and is due to start a joint project with the Soil Research Institute at the Head office site. The Unit is however handicapped often in their research by lack of funds to order drills and pumps to draw water out for agricultural use. (Please refer to Appendix XXII)

46. Forest Products Research Institute: The Institute's contribution to the OFY and OFYI programmes is mainly in the field of agro-silviculture. The Institute also has plans for the experimental study of edible mushrooms and snails. It is establishing plantations of Acacia as shelter-belts in the North to arrest the desiccation of areas bordering the Sahelian zone. In co-operation with the University of Salford, significant work has been done on forest gums. All the Institute's activities would contribute directly to the OFY and OFYI programmes. However, more staff and equipment would be needed if the Institute is to make a real impact on the economy. This is especially the case with research programmes of the Utilization Section of the Institute which has suffered from lack of qualified research personnel. (Please refer to Appendix XXIII)

47. The Review Committee concluded that:-
(i) Though much work has been done by the Research Institutes of the CSIR, the results have not entirely reached the farmer, because there is no scientific co-ordinator in the Ministry of Agriculture, neither is the Ministry fully involved in the programming and financing of research relevant to agriculture.

(ii) The unfortunate situation therefore exists whereby research institutes have been established to promote development but the Ministry is NOT organised to utilize and disseminate their findings through its extension services. This represents a serious drawback to the agricultural effort of the nation.

(6) BUDGETARY AND IMPORT LICENCE ALLOCATION

48. One of the major problems which has militated against the Operation Feed Yourself and Operation Feed Your Industries programmes is the rather limited resources which are made available to the agricultural sector. Despite the top priority which has been given to this sector in the economic reconstruction of the nation, only an annual average of 6.5% of the total national budget has been spent on agriculture proper for the past five years. This unfortunate situation has been complicated by the budgetary system itself which suffers from a number of limitations. Some of these weaknesses are lack of correlation between capital and recurrent budgets, and the fact that more often than not the budgetary provisions do not bear any relationship to the physical targets set in the agricultural development programmes. Further funds are not released on time to coincide with the requirement of the various inputs for successful implementation of agricultural projects. All these factors and the arbitrary allocation of the limited budgetary resources to the OFY and OFYI programmes have constituted a serious draw back to the agricultural effort. But related to this also is the need to view agricultural planning in a long term perspective.

49. The situation with regard to import licence allocation to the agricultural sector has also not been encouraging both in terms of the value allocated to this sector and the timing of releases. For instance the share of import licence for agriculture for the year 1972, 1973, 1974, 1975 and 1976 was 3.3%, 5.6%, 3.3%, 3.0%, and 5.9% respectively. These allocations do not in any way reflect the importance given to agriculture. Timing of releases are in addition not related to the seasonal nature of agriculture, resulting in some licences not being utilised before the expiring dates.

(Please refer to Appendix XXIV)

50. The Review Committee was strongly of the view that:-
- (i) Inadequate funds and import licence allocation for agricultural development have tended to cause serious constraints and delays in the execution of projects.
 - (ii) The budgetary system should be reorganised and streamlined to take account of the seasonal nature of agricultural operations so that funds and import licences are released on time.
 - (iii) Appropriate action should be taken to evolve a monitoring system which will co-ordinate budgetary provisions with achievement of set targets.
 - (iv) There should be an agricultural development plan.

III. AGRICULTURAL EDUCATION (CAPE COAST UNIVERSITY SYMPOSIUM)

51. The salient points that emerged from the OFY and OFYI Review Symposium held at Cape Coast on 10th June, 1977 are as follows:-

- (i) The Ghanaian farmer was getting aged and there was need to adopt measures that will ensure that the youth would take to farming to replace the aged.
- (ii) A sure way of doing this is to ensure that the youth are equipped with the necessary skills in farming, through some form of education and the improvement in agricultural logistics and commodity pricing.
- (iii) Three types of education were identified, tradition, formal and extension education. Formal education may be classified as professional, technical or vocational.
- (iv) Extension education is a life long process and serves to sustain the traditional as well as the formally educated while they are engaged actively in farming, to bring them constantly up to date.
- (v) Traditional education is apparently failing to hold the youth in farming. The future therefore lies in a reorganised formal education.
- (vi) So far only few of the formally trained engage directly and actively in farming on their own. The causes of this may be due to the nature of their training or the conditions of farming in the country.
- (vii) Vocational training by virtue of its strong practical orientation appears to be the answer and must be introduced early in the life of the youth.
- (viii) Vocational training as it is known in this country has a limited intellectual scope. For greater intellectual leadership professional and technical training should be maintained and inspired.
- (ix) Farming in this country has not appealed to the formally educated perhaps because of its itinerant nature.

- (x) The use of advanced technology which may attract the educated in farming necessitates that farming should be stabilized.
- (xi) The need for a deliberate shift from shifting cultivation to settled farming can be done by establishing farm estates.
- (xii) There is also a need to change the policy for the admission of students into agricultural courses. Emphasis should be given to the admission of students with rural background and admission of students from urban areas should be discouraged.
- (xiii) Any education policy should also aim at improving the skills of the traditional farmer, by training him in the use of modern farming technology for, it was observed that for a long time to come this country will have to depend on the efforts of the traditional farmer.
- (xiv) An active policy to pursue commercial large-scale farming has generated a competition for limited resources in which the traditional farmer is put at a great disadvantage. Unless they are effectively organised into co-operatives their lot will worsen and the country will be the loser.
- (xv) It was observed that the main agents for large-scale farms in the country have so far shown some success with the cultivation of tree crops. They have totally failed with regard to arable crops.
- (xvi) Participants expressed disillusionment with the general performance of the State farms and the various government agencies engaged in farming. The verdict as to what should be their fate was not generally agreed upon. Some advocated that they should be dissolved completely others felt that they could be useful and hence should be retained for the cultivation of tree crops where they appear to be doing well.
- (xvii) It was pointed out that there has been no serious studies to assess the scale of investment of the Banks in the State farms as compared with the private sector in relation to their relative performance. This information is vital for any future economic policy in agriculture, whether to pursue state farming or encourage private farms.
- (xviii) It was the fear of most people that if the money that had been spent on State farms had been spent on the small farmer the results would have been better.
- (xix) What Ghana needed was not large-scale farms so much as a good development of available resources, the improvement of the necessary socio-economic structure to help those who are already engaged in farming, that is, the small producers.

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- (xx) In order to intensify the education and assistance to the small farmer many more extension officers were needed. They should not be limited in their travelling by restrictions on their travelling claims.
 - (xxi) The introduction of rural schools was suggested by which farmers could come into residence at schools on holidays. This should be financed by a levy on the specific crops for which the school was organised.
 - (xxii) The need for more practical training in agricultural graduate training programmes was insisted upon. The greatest constraints was lack of resources. The National Service could be used for a planned orientation of agricultural graduates to field conditions. The financial support would be needed to make this possible.
 - (xxiii) If the strength of the extension staff should prove inadequate to reach every farmer, an alternative would be for these officers to work through selected or nominated farmers who act as contact men or intermediaries between the extension officers and farmers in their districts.
 - (xxiv) The Universities should have follow-up programmes by which they could monitor the usefulness of their products in the field.

The Review Committee observed that:-

- (i) In view of the fact that the Ghanaian farmer is getting aged, young persons should be attracted into farming to replace them. One way of doing this is to induce them to adopt improved techniques of farming in order to obtain reasonable returns through vocational training in agriculture and improved rural life.
- (ii) Whilst technical and professional education in agriculture is pursued in the schools, agricultural colleges and universities it is necessary to give preference to students with rural background so that after completion of their training they will find it worthwhile and a pride to go back to the land.
- (iii) The peasant farmers should be educated to organise themselves into groups or Co-operatives in order to operate on large-scale, adopt modern techniques of farming and qualify for credit from the Banking institutions.
- (iv) The training of more extension workers will have to be accelerated in order to strengthen the Ministry of Agriculture programme of extension education for the small-scale farmer.

IV. PUBLIC HEARINGS AND PRIVATE MEMORANDA(1) PUBLIC HEARINGS

53. Public meetings were held in Sekondi and Cape Coast on 22nd and 23rd June, 1977 respectively by the Review Committee to gather views from Chiefs and farmers about the factors that had hindered the full realisation of the objectives of the OFY and OFYI programmes. At Sekondi, the Review Committee also held discussions with the Regional Commissioner. The main issues and suggestions highlighted at the meetings in Sekondi were as follows:-

- (i) The Regional Agricultural Committee has not met for a year due to certain administrative bottlenecks, consequently there has been no effective co-ordination of the agricultural activities and programmes in the Region. A Regional Advisory Council is however to be formed shortly to monitor development programmes right to the village level to be headed by a Chief.
- (ii) This Committee if not chaired by the Regional Commissioner will be a failure right from the start because the success of the control of the OFY and OFYI programmes at the regional level will depend on the Regional Commissioner who has power to make people work. It was felt desirable to have the planning of regional programmes carried out in the Region and for funds voted for such programmes to be controlled by the Regional Administration in accordance with the Government's decentralisation policy. But this has NOT much chance of success until the co-ordination of efforts by a professional head at the Ministry of Agriculture is reflected also at the regional level by the appointment of Regional Agricultural Officers as the sole advisers assisted by a team of agricultural support officers of different disciplines.
- (iii) Lack of feeder roads and adequate transportation pose serious marketing and distribution problems in the Region, especially in the case of perishable foodstuff. On marketing, the farmers claim to be at the mercy of the Ghana Food Distribution Corporation whose officers sometimes have no transport of their own, and if they are in possession of their own transport they invariably dictate their own prices. This is a contrast to the price market system where well established market women used to go up into the rural areas with their own transport on market days to buy from established suppliers at mutually acceptable and attractive prices.

- (iv) Conditions for the granting of loans to farmers are too stringent and should be reviewed. Rural Banks must be integrated with local agricultural extension staff who know the farmers, can recommend them for easy soft loans and assess their performance.
- (v) Oil palm seedlings and agro-chemicals are not in adequate supply to support agricultural programmes in the Region. Commercial seed companies must be encouraged.
- (vi) The Ministry of Agriculture should organise agricultural co-operatives with Regional branches so that most of the problems of farmers group could be resolved at the Regional level and through which inputs can be channelled.
- (vii) Government and other agencies are in the process of acquiring parcels of land for development projects without making appropriate provision for farmers. There is need to involve farmers in these projects as outgrowers.
- (viii) The land tenure question is still a barrier to agricultural development. A site and service scheme even on a pilot scale is now long over due.
- (ix) A special crop development and marketing board is urgently needed along the lines of the Cocoa Marketing Board.

54. At Cape Coast, the meeting with the Chiefs and farmers resulted in the identification of certain problems and suggestions were offered as to their solution. The major issues are as follows:-

- (i) Credit facilities are not being obtained easily from the Agricultural Development Bank by farmers. It was pointed out that with the introduction of Commodity Credit Scheme there should be no need for security but only the extension officer's recommendation.
- (ii) Farmers are facing problems of inadequate supply of seedlings and agro-chemicals.
- (iii) Producer price for maize is regarded as low and should be increased to ₵50 to encourage increased production.
- (iv) Co-operative storage and processing facilities are urgently required in the Region.
- (v) There is scarcity of farm labour in the Region. Surplus labour within Cocoa Marketing Board and Ministry of Agriculture should be deployed to work on indigenous farms and farmers should reimburse the Ministry of Agriculture daily for work carried out.
- (vi) Farmers are unable to obtain farm machinery from the Ministry of Agriculture.

(2) PRIVATE MEMORANDA
55. A number of memoranda was presented to the Review Committee by private persons. Summaries of these papers are as follows:-

- (i) Mr. Afriyie, Managing Director of the Bank for Housing and Construction indicated in his memorandum that enough attention was not being given to food production in the country and that almost all companies with managerial ability and enterpreneurship wish to venture into only large-scale production of such crops as oil palm, rubber, cocconut and sugarcane. He indicated that apart from rice there is no organised production of food in the country except the Food Production Corporation and Ejura Farms Limited. He advocated the enactment of a legislation to compell all companies embarking on large-scale cash crop production to allocate at least 25% of their lands to food farming to feed their workers. He further suggested the use of irrigation as a means of boosting food production. He emphasised the need to set up a Food Board like the Timber Marketing Board to be made responsible for financing of food production, storage, marketing and distribution. Mr. Afriyie advised that Government should acquire and distribute land for food production under the supervision of the Food Board and that land owners should be made to pay tax on all vacant lands that are suitable for agricultural development. The Ministry, he suggested should take charge of land clearing and supply of inputs for areas zoned for the cultivation of selected crops under the programme of the Food Board. (Please refer to Appendix XXV)
- (ii) In a memorandum presented by Major Arkhurst, an attempt had been made to identify the reasons for the scarcity of food in the country and to suggest ways and means of counteracting it. He considers that Ghana's agriculture had relied for too long a time on nature and that a practical and effective approach to increased food production is through irrigation. He also attributed the food problem facing the nation to the land tenure system and the general attitude of the Ghanaian towards farming. He is of the opinion that if the Government acquired lands, napped them out and allotted to interested persons, especially middle-school leavers who cannot further their education, a fresh ground would have been broken in the agricultural scene. Major Arkhurst advised that all schools and colleges should be asked to establish farms to produce part of their food requirements. He called for improvement in the road and transport system in the country to ensure better distribution of food. (Please refer to Appendix XXVI)

- (iii) The Co-operative Pepper Producers and Marketing Society in Brong Ahafo was established to organise pepper farmers effectively to boost up the production of pepper in the Region, for internal consumption as well as for export as its contribution to the Operation Feed Yourself Programme. The activities of the Co-operative are however hindered by lack of funds, processing equipment, sprayers and agro-chemicals. The Co-operative is therefore appealing to the Government to make these facilities available to its members. (Please refer to Appendix XXVII)
- (iv) In his paper entitled Ghana's Agriculture - 'A New Approach', Mr. S. B. Ofori of Ridge Food Limited, Accra put forward two basic proposals; namely the setting up of a national agricultural council composed of mainly practical farmers who will discuss farming policies and practices with Government representatives at the highest level so as to find solutions to agriculture problems facing the nation and secondly, the reorganisation of the Agricultural Development Bank into four major departments - Banking, Agriculture, Marketing and Agro-industrial Departments in order to promote and finance specific agricultural products. (Please refer to Appendix XXVIII)
- (v) A memorandum from Mr. John Kobina Asiedu, a Pupil Teacher at Ayanfuri suggests that about 50% of the labour force of the Ministry of Agriculture should be mobilised to cultivate food crops in an effort to solve the food problem in the country. Mr. Asiedu also proposed that middle school leavers should be employed by Government to produce food crops as was in the case of the Workers Brigade. (Please refer to Appendix XXIX)
- (vi) A paper on the Agricultural Problems in the Greater Accra Region was submitted by Mr. Ocloo, the Chief Farmer of the Region. He pointed out that the Region abounds in many cash crops as in the forest areas and that with the necessary support, farmers could contribute immensely to the OFY and OFYI programmes. In order to achieve this, he stressed that adequate inputs should be made available to farmers and that storage depots and processing plants should be established in the regional capital and districts. He suggested that farmers should be provided with low cost houses and awarded prices to visit agricultural projects overseas. He is of the opinion that inter-regional films on agricultural programmes will help to broaden the farmers' horizon on what is happening in other parts of the country. (Please refer to Appendix XXX)

v. RECOMMENDATIONS

56. In the light of our limited deliberations and having regard to our findings and conclusions, we recommend here under for the consideration of the Supreme Military Council that:-

(1) Department of Agriculture

(i) The Department of Agriculture should accelerate the training of its extension staff in order to strengthen its extension programme both at the district and village levels for the benefit of the small-scale farmer. (P.4 - par. 14)

(ii) It should carry out periodic assessment and evaluation of its activities for which purpose it is vitally necessary to re-establish the Programmes and Control Executive Office (PROCONEX) at Head office and the Regional Capitals. (P.4 - par. 14)

(iii) It should establish demonstration farms at vantage locations for the dissemination of research results and encourage commercial seed growers and distribution agencies to participate in the seed multiplication programme of the Ministry of Agriculture. (P.4 - par. 14)

(2) Department of Mechanization & Transport

(i) There is urgent need for the Department to organise training and service support to local farmers and pool machinery and equipment into field teams to provide mechanised services to small-scale farmers within specified areas. (P. 5 par. 16)

(ii) The Government should encourage the establishment of commercial land clearing and preparation company to provide efficient mechanised services to large and small-scale farmers. (P. 5 - par. 16)

(iii) Adequate import licence should be made available to the Department for the procurement of spare parts and new machinery. (P. 5 par. 16)

(3) Department of Veterinary Services

(i) The Department should liaise more closely with the Department of Animal Husbandry at the village level for the provision of effective extension services to farmers. This lack of co-operation is also evident among other departments, hence the structure of the Ministry of Agriculture should be reviewed. (P. 6 par. 18)

(ii) The Department should be evaluated in terms of its services to private livestock farmers and its budgetary provision should be based on such services. (P. 6 par. 18)

(4) Department of Irrigation Services

(i) The Department is ineffective because of its inability to operate as a support organisation which should provide water to prime user organisations like Agriculture, Fisheries and Animal Husbandry. (P. 6 par. 20)

(ii) Its operation as an independent Department is wasteful and should be made to function as a unit and integrated with the prime user Departments at the local level. The formation of the Irrigation Development Authority must be reconsidered. (P. 6 par. 20)

(5) Department of Fisheries

(i) The present budgetary system does not encourage long-term planning for the procurement of fishing gear and other fishing materials. (P. 7 par. 22)

(ii) Formation of special fishing co-operatives will enhance the extension activities of the Department. (P. 7 par. 22)

(iii) A Government strategy should be evolved to encourage private fishing companies to carry out joint ventures with other West African countries. (P. 7 par. 22)

(iv) The Development of the nation's inland fisheries potential should be encouraged and supported by additional funds from external sources. (P. 7 par. 22)

(6) Department of Animal Husbandry

(i) The Department should have attached to it a unit of the Irrigation Department in all the Regions for the provision of water to livestock. (P. 8 par. 24)

(ii) The budget of the Department should be based largely on its extension activities to livestock farmers, particularly in the area of pasture improvement, health education and improved husbandry practices. (P. 8 par. 24)

(iii) Government should endeavour to provide the Department with funds and import licence for the procurement of adequate breeder stock, and should be able to obtain technical assistance from friendly countries for this purpose. (P. 8 par. 24)

(iv) The livestock industry should be commercialised with generous credit and marketing facilities and extension support. (P. 8. par. 24)

(7) Department of Econ. Research & Planning Services

(i) Due to absence of a co-ordination machinery, the potential of this Department which could monitor and evaluate the performance of the functional departments of the Ministry of Agriculture is not fully utilised. (P. 9 par. 26)

(ii) The Ministry of Agriculture needs a professional head to co-ordinate the activities of all the departments working under it. (P. 9 par. 26)

(8) Boards and Corporations

(i) Certain constraints like overstaffing, excessive labour deployment and inadequate machinery and funds have to be overcome before the general performance and viability of some of the Boards and Corporations could be fully evaluated. (P.11 par.33)

(ii) Despite these limitations some of these organisations are not efficiently managed and all efforts must be made by Government to ensure that they are operated as commercially viable concerns. (P. 11 par. 33)

(9) Financial Institutions

(i) The Banks have channelled sufficient funds into the OFY and OFYI programmes but the enthusiasm of farmers seems to be on the decline for the past two years due to lack of farm inputs and general agricultural logistic support for their projects.

(P. 13 par. 39)

(ii) The machinery for ensuring **guaranteed** ready market for farmers produce has not been effective throughout the country. (P. 13 par. 39)

(iii) In the absence of proper liaison between the Ministry of Agriculture and the financial institutions, some of the Banks have been obliged to establish their own agricultural consultancies instead of relying on the extension staff of the Ministry for the provision of advice and statistical data on agriculture. (P. 13 par. 39)

(iv) There is need to liberalise our economy so that farm gate prices will find their own level and thus encourage farmers to increase production. (P. 13 par. 39)

(10) Council for Scientific & Industrial Research

(i) Despite the valuable work carried out by the Research Institutes of the CSIR, the results of such work have not been disseminated to any great extent to the farmer because of the absence of a scientific co-ordinator in the Ministry of Agriculture and the fact that the Ministry is not fully involved in the programming and financing of the research programmes of the CSIR. (P. 17 par. 47)

(ii) This situation in which research institutes have been established to promote agricultural development in the country and yet the Ministry of Agriculture is not organised to utilise their research findings poses a serious draw back to the national agricultural effort. (P. 17 par. 47)

(11) Budgetary & Import Licence Allocation

(i) Despite the high priority which Government has accorded to agriculture, provision of funds and import licence to this sector have been very inadequate thus causing serious constraints and delays in the implementation of projects. Unless these major bottlenecks are removed, the OFY and OFYI programmes may be jeopardised. (P. 18 par. 50)

(ii) The budgetary system of the Ministry of Finance should be reorganised to take account of the seasonal nature of agricultural operations so that funds are released on time and according to agreed schedules. (P. 18 par. 50)

(iii) Appropriate monitoring system should be evolved to ensure that budgetary provisions are co-ordinated with achievement of set targets. (R. 18 par. 50)

(12) Agricultural Education

(i) Young persons should be attracted into farming to replace the ageing farmers, through formal vocational training which will encourage them to adopt modern improved farming techniques in order to maximise their returns. (R. 20 par. 52)

(ii) Preference should be given to persons with rural background in admitting students for technical and professional education in agriculture in the schools, agricultural colleges and universities so that on completion of their courses, they will find it worthwhile to go back to the land. (P. 20 par. 52)

(iii) Peasant farmers should be encouraged to form co-operatives or farming groups in order to increase their scale of operation and qualify for credit facilities from the Banking institutions. (P. 20 par. 52)

(iv) The training of more extension staff will have to be intensified so as to strengthen the Ministry of Agriculture extension programme for the small-scale farmers. (P. 20 par. 52)

OPERATION FEED YOURSELF PROGRAMME

Ghana's performance in agriculture since independence has not been able to measure up to expectation until 1972 when the NRC Government came into power. From 1963 to 1971 the country's import of food items increased from £57 million to £98 million. The most important factors that contributed to this trend of affairs were lack of adequate machinery and equipment, loan facilities to farmers and inadequate extension support. As a result the productivity of food was very low.

Launching of OFY Programme:

In 1972 when the NRC took over the Government, it immediately addressed itself to the idea of making the country self-reliant in almost all spheres of activity. The government therefore resolved to stir up the national awareness to the situation and urged the whole population to grow more food for themselves. The Government immediately set up a machinery to revitalise the state and private agencies engaged in food production and distribution. The Operation Feed Yourself Programme was therefore launched with the main aim of growing more food crops as a matter of urgency in the 1972 and subsequent planting seasons.

Re-Organisation of the Ministry

The Ministry of Agriculture in accordance with the operations of the OFY was re-organised - under the directive of the Commissioner for Agriculture. The various Divisions of the Ministry of Agriculture came under one director who co-ordinated all the activities of the various sections. High powered personnel of the Ministry of Agriculture were posted to the regions as Assistant Directors to co-ordinate activities at the regional level. A special office was established at the headquarters and was charged with the responsibility of monitoring all agricultural activities throughout the country.

Production Lines

The production agencies which included state controlled organisations like State Farms Corporation, Food Production Corporation, Settlement Division of the Ministry, Food Distribution Corporation, schools and colleges, prisons, Armed Forces, private fishing and farming communities were all encouraged to produce food. Regional targets were set and these were placed under the Regional Agricultural Committees with the Regional Commissioners as chairmen.

Supporting Services

Various support services were given to the production lines. The Ministry of Agriculture provided logistic support through the Regional Agricultural Committees.

- a) Credit: In 1972 credit was provided for the various production agencies and the allocation and utilisation were made as follows:

Organisation	Allocation (₹)	Utilisation (₹)
Food Production Corp.	5,100,000.00	2,188,635.44
Food Distribution Corp.	9,930,000.00	1,250,060.82
State Farms Corp.	1,658,000.00	645,424.50
State Fishing Corp.	1,950,000.00	924,589.50
Grains Dev. Board	390,000.00	670,716.00
Fisheries Department	10,000.00	10,000.00
ADB Small Loans Scheme	5,230.00	5,230.00

These credit allocations were made in addition to the normal operations of the banking institutions.

- b) Seed: The Seed Multiplication Unit of the Ministry of Agriculture distributed 327 tons of maize under the OFY programme as compared with 277 tons in 1971. In rice production, they supplied 670 tons of seeds in 1972 as compared with 252 tons in 1971. The supply of other planting materials to various bodies was also stepped up considerably.

Fertilizer

Fertilizer imports increased during the OFY programme. Approximately 22,660 tons of various types of fertilizer were imported in 1972 as compared with 5,500 tons in 1971. The trend continued as shown in the table below.

Year	Quantity	Cost (₹)
1973	29,780 tons	2,892,499.69
1974	12,470 tons	3,749,146.20
1975	22,540 tons	7,433,909.00
1976	75,009 tons	11,000,000.00
1977	77,900 tons	14,000,000.00

Machinery and Equipment

In 1972 Mechanisation and Transport Department made available to farmers a total of 148 tractors in addition to those owned by various state production units.

Machinery and Equipment Imports

Private Imports	1970	1971	1972	1973	1974	1975	1976	1977
Crawler Tractors	6	35	13	16	-	5	6	-
Crawler Attachments	-	-	-	-	6	5	6	-
Wheel Tractors	228	-	434	291	634	155	380	-
Combine Harvesters	2	-	1	-	19	72	16	-
Ploughs	332	-	129	137	1741	627	199	-

Ministry of Agriculture (Mech. & Transp.)							33
Crawler Tractors	TC.90	-	-	-	-	-	18
"	TC.170	-	-	-	-	-	25
"	BMT.75	-	-	-	18*	-	-
" Universal	1500	-	-	-	22	50	87
Wheel Tractors		-	-	-	51	17	15
Combine Harvesters		-	-	-	-	-	20

* Unserviceable

Donation: The OFY Programme benefitted from cash, materials and equipment donated by various firms and private individuals.

Foreign Support:

Various foreign agencies contributed to the success of the OFY Programme by operating joint projects with Ghana Government.

- a) One of such projects is the Ghanaian-German Agricultural Development Project in the Northern and Upper Regions which has helped to support the growing of various crops in both regions particularly in rice production.
- b) The Chinese project at Afife also has helped the production of rice and vegetables.
- c) There was also the Peace Corps project in the production of tomato in the country particularly around Navrongo Mankessim, Toma and Senchi.
- d) The Increased Farm Production Through Fertilizer Use Project which was a Joint FAO/Ghana Venture also supported the production of cereals and other food items in three principal areas namely, Ho/Kpandu in the Volta Region, Mampong/Ejura and Nkoranza in Ashanti Region and Swedru/Foso in the Central Region.
- e) Extension Service was also supported by the Catholic Relief Service, an international organisation, and the Christian Service Committee which also contributed a great deal in the Northern and Upper Regions.
- f) The joint Ghana/FAO Mechanisation Unit which was established in the Northern Region also assisted tremendously in the training of personnel engaged in tractor operations and other mechanical devices in the Northern and Upper Regions
- g) Support from Multinational Firms & Banks: The OFY Programme also had support from International Banks. The World Bank for instance approved of a loan for the Ghana Oil Palm Development Corporation for the cultivation of 13,000 acre Oil Palm plantation in the Kade District. African Development Bank supported the Cotton Development Company for the cultivation of cotton in Amantin district. U.A.C. of Ghana supported the production of oil palm in Benso. Various textile firms also supported the production of cotton most outstanding

being the Akotex farms in the Eastern Region.

Constraints: The OFY programme being an emergency programme was constrained by a number of factors. First the increase made in food production in the first two to three years did not have an equivalent impact on consumers because of serious weaknesses in the distribution and marketing structures.

- a) The programme is therefore constrained by the distribution system which is influenced especially by infrastructure and transportation. This same situation affected the availability of inputs such as fertilizers to farmers at the right time.
- b) Import licence was also a constraint to the expansion of agriculture which rely mainly on mechanisation in the Savannah zone for acreage increase, various constructional aspects such as irrigation and feeder roads which demanded considerable amount of foreign exchange component in their construction were affected by import licence allocation.
- c) The programme also did not have adequate supply of insecticides, fungicides and weedicides to meet the increasing demand made as a result of awareness of the usefulness of these inputs. Efforts are now being made to procure most of the pesticides and fungicides required.
- d) One factor which also constrained the programme is the land tenure system which in most cases hindered the expansion of the farms of progressive farmers and also made technical + advice to farmers very prohibitive.
- e) Labour which is a major input in agriculture also had a constraint on the OFY programme. The educational programme in the country had for years encouraged the school leavers to migrate to the cities and majority of the youth looked down on farming. A review of our settlement programme should be made in such a way that young school leavers who are actually staying in villages should be encouraged to settle to farming in their village instead of their being drafted to settlement farms.

Number of Extension Staff

The number of extension staff supporting the programme was grossly inadequate and therefore could not meet the demand of farmers who required technical advice.

<u>Rank</u>	<u>Approved Establishment</u>	<u>Strength</u>
	1	1
	6	5
Director	24	4
D. D.	80	8
F. A. O.	300	103
S. A. O.	18	-
A.O. & A.A.O.	72	17
C. T. O.	300	148
F. T. O.	1,500	783
S. T. O.	2,301	1,069
<u>Total</u>		

For the purpose of making use of our existing staff the Ministry has adopted a new approach to Extension Methodology and Philosophy. Under the system farmers are now being grouped into Kneboa and Crop Associations to enable the extension service staff to deal with them in groups so that whatever technical advice that they may be given will have the appropriate impact. As a result of this action, there was a bumper harvest of some crops, especially rice, maize and cotton. (See appendix "A" for statistical data on targets and achievements).

Cotton farming in particular has increased so tremendously that it is feared at present that cotton production is being substituted for food production in certain parts of the country especially the North.

Area and Production of Cotton in Ghana

<u>Year</u>	<u>Area in Hectares</u>	<u>Seed Cotton(K'gs)</u>
68/69	170	99,891
69/70	705	266,002
70/71	894	417,379
71/72	1,945	1,231,089
72/73	3,710	1,900,513
73/74	4,383	1,676,290
74/75	4,461	2,187,314
75/76	13,204	8,879,220

Irrigable Lands:

Irrigation is a very important factor in the two savannah zones which have been plagued with climatic hazards. In order to support the OFY programme, the irrigable potentials identified in the whole country totals about 2,000,000 acres as published in Irrigation Department's action programme. Out of this acreage 45,556 acres are in various stages of developments ranging from design, Dam construction to land clearing. Various areas are already under production. These are Ashiaman, Dawhenya, Asutsuare, Afife, Akumadan, Vea etc. These

areas total about 5,000 acres. There is the need therefore to support the remaining 40,000 acres with machinery to bring these potential areas under production. Tono which is currently under development will also bring 6,000 additional acreage into production when completed. To sustain the production of crops in these areas, it is essential to revolutionise agriculture in these areas with irrigation and improved agronomic practices if the desired food production targets are to be met.

Irrigation Projects

Completion Dates and Estimated Acreages
are as follows

Project	Stage of Development	Estimated Acreage	Date Completion
		250	December, 1977
	Land Development/Cropping	3,500	" "
Achiaman	"	500	June, 1979
Yoa	Design completed		
Asutsuare		4,500	December, 1978
Extension	Design completed		
Asutsuare	Rehabilitation and Installation of	600	December, 1978
High Level	Sprinklers	1,200	June, 1978
Canal	Land Development/Cropping		June, 1978
Komenda	Dam and Canal Construction		
Dandanya	Feasibility Studies and Survey to	2,500	December, 1978
Okyoroko	be conducted		
Afife	Dam Construction	2,500	December, 1979
(Kplikpa)			
Afife		500	June, 1978
(Kplikpa)	Rehabilitation	800	December, 1979
Adidone	Dam and Canal Construction		
Mankessin		1,500	December, 1975
Alumadan/ Afrancho	Land Clearing		
		1,550	December, 1979
Tanoso/ Sabinja	Land Clearing		
		6,500	June, 1980
Tono	Dam Construction		
		4,200	June, 1980
Weija	Preliminary Studies		
Aveyine	Preliminary Studies for Basin	8,500	June, 1979
	Integrated Project		
Bolgatanga	Feasibility Studies completed	1,200	December, 1979
Pasam	Feasibility Studies completed	3,000	December, 1980
Alumadan/ Afrancho	Land Clearing	1,500	December, 1979

Proposals

There are proposals to map out the production areas of the country. This in addition to soil capability classification will give the potential production capacity of crops in the country. When this is linked to the manpower resources in each production area, one would be able to indicate the machinery support that will be necessary for production targets that are set for the various crops. This will enable the Ministry to work out more accurately the support that will be needed in the form of credit, supply of fertilizers, improved seeds and Import Licence that will be required. When these requirements are known before hand, unavailability of any of the resources will indicate what can be produced from the available resources so that remedial action can be taken before any crisis crop up.

This approach relies on two fields in agriculture - area of expansion and increased yield oriented strategy. To achieve the outlined targets from these two fields for crop production there is a major need to strengthen and expand existing programmes that serve crop production apart from merely increasing acreages. There is therefore the need to start from research and experiments where the introduction of new production technology is required for existing crops due to changing climatic conditions. At this point the development of new crops on research for farming systems will need priority attention. Through local trials and demonstrations on how to achieve better results farmers through the strengthened extension services will learn new techniques of farming and thus improve production. The majority of crop producers are the small scale farmers who contribute about ninety per cent of crops produced in the country. In order to extend this increased yield strategy to the numerous producers, the extension methodology to be adopted will be as follows:

- a) Mnoboia Groups: These are farmers who will pull their resources together to help themselves in various ways ranging from agricultural production to community development.
- b) Crop Association: These are farmers growing specific crops who will be grouped together in particular production areas in order to receive extension advice and inputs e.g. credit, fertilizer etc.
- c) Groups of 25 Young Farmers: Young school leavers will be encouraged to be interested in farming and form groups of 25, their parents or chiefs will acquire land for them for farming. Having acquired the land the extension service of the Department of Agriculture will guide them and assist with inputs so as to enable them settle in their own villages. This will prevent the young school leavers from drifting to the urban areas looking for white collar jobs.
- d) The extension service will also continue to support the VRA Resettlement programme in order to improve the living standard of the farmers and fishermen who are resettled.

e) The extension service will also provide technical support to the National Reconstruction Corps. The Department of Agriculture has appointed Regional Officers to the Corps in all the regions and in addition to this, Technical Officers have been attached to particular settlement schemes which have been taken over by the Corps. These officers will also give services to large scale farmers and to institutional farms.

To make crop production a greater success there is the need for stability in the institutions serving agriculture and at the same time permitting flexible adjustments to the changing demands made on them. This programme has to be fully supported with inputs and investments so that the right environmental conditions can be created for the farmers to enable them to perform on the expected level with the new technology that is made available to them.

OPERATION FEED YOURSELF PRODUCTION AND TARGETS IN '000'
LONG TONS

C R O P	FORM OF PRODUCE	1 9 7 2		1 9 7 3		1 9 7 4		1 9 7 5		TAR
		TARGET	PRODUCTION	TARGET	PRODUCTION	TARGET	PRODUCTION	TARGET	PRODUCTION	
<u>Food Crops</u>										
Maize		585	396	933	420	1000	478	476	336	
Rice		112	69	117	61	120	72	65	70	
Guinea Corn			97	409	107	450	152	180	120	
Millet		159	150	272	264	300	174	123	133	
Groundnut		70	88	78	125	100	154	122	109	
Cowpeas			9	138	7	150	11		11	
Plantain		357	1643	7910	2038	8000	1992	2132	1226	
Cassava		2884	2795	4640	2820	5000	3549	3437	2360	
Yam		2381	668	3055	675	3500	836	1248	698	
Jacoyan			930	2283	1304	2500	1486	1888	1082	
Vegetables		91	480	1144	427	1500	525		390	
<u>Industrial Crops</u>										
Coconut			291	-	301	-	302	265	306	
Oil Palm			700	39	770	50	902	983	887	
Citrus			89	27	126	40	148	167	148	
Kenaf							1			
Cotton			1.9		1.7		2.2	9	2.2	
Tobacco			1.8	34	2.1	40	3.3	3	2.3	
Pineapple			23		28		34	49	16	
Sugar cane			143		158		168	308	201	
<u>Special Crops</u>										
Ginger			9.1							
Cashew			9.4		10.1					
Banana							9.7		10.1	
								265		

OPERATION FEED YOURSELF - ESTIMATES OF AREA AND
TARGETS

CROP	FORM OF Produce	1972		1973		1974		1975		1976	
		TARGET	ACHIEVEMENT	TARGET	ACHIEVEMENT	TARGET	ACHIEVEMENT	TARGET	ACHIEVEMENT	TARGET	ACHIEVEMENT
FOOD CROPS	IN '000										
	Area		960	11660	1002	1374	1050	1079	790	1110	
	Dry grain	1279			163	226	165	175	194	185	
Maize	Paddy	201	173	221	475	217	549	557	491		
Rice	Dry grain	502	431	344	546	312	534	562	514		
Millet	Dry grain		495	512							
Guinea corn	Nuts in Shell	232	7226	260	196	227	274	291	251		
Groundnuts	Dry beans		255	307	206	23	313		309		
Cowpeas	Bunches	1553	757	1582	831	1226	847	855	568		
Plantain	Tubers	760	940	1160	721	1049	960	996	703		
Cassava	Tubers	538	331	611	320	591	328	336	290		
Yam	Tubers		6371	761	645	772	701	722	507		
Cocoyam	Fresh	45	320	226	268	237	337		243		
Vegetables											
Industrial Crops											
Cocoyam	Nut in Husk		88	3	91	3	92	94	93		
Oil Palm	Bunches		280	10	308	17.5	361	372	355		
Citrus	Fresh Fruits		34	6	48	7.7	57	61	57		
Kenaf						6.5		3			
Cotton	Seed Cotton		9.2	23	10.8	234.5	11	32	11		
Tobacco	Cured leaves		6.3	6.8	7.8	11.3	10	10	7.6		
Pineapple	F. Fruits		20	11	23	13.7	26	32	12		
Sugar cane	Cane		13	1	11.6		13	21	14.4		
Rubber	Smoked sheet		26		27		27	30	28		
Special Crops											
Ginger				2							
Cashew						2					
Beans						4.6					
								122			

O.F.Y. PRODUCTION AND TARGETS IN 1000 ACRES

16

FORM: YOBMA

C R O P	Form of Prodn.	1972		1973		1974		1975		1976	
		Target	Prodn.	Target	Prodn.	Target	Prodn.	Target	Prodn.	Target	Prodn.
<u>Food Crops</u>											
Milne			139.9	150.0	134.8	165.0	154.4	165.0	85.0		
Rice			18.4	20.0	28.5	25.5	17.7	25.5	10.0		
Millet			12.9	10.0	8.5	1.0	8.2	1.0	-		
Guinea Corn			10	8.0	8.0	16.0	14.0	16.0	6.0		
Groundnuts			-	2.0	-	-	-	-	14.0		
Cow peas			27.0	-	25.0	33.0	21.0	-	-		
Plantain			185.2	180.0	174.0	208.0	182.1	33.0	6.0		
Cassava			36.0	60.0	33.9	60.6	33.0	208.0	99.0		
Yam			28.0	-	27.0	22.3	24.0	60.0	24.0		
Cocoyam			46.0	2.0	28.0	58.0	35.0	22.3	19.0		
Vegetables			-	-	-	-	-	58.0	21.0		
<u>Industrial Crops</u>											
Coconut			-	-	-	-	-	-	-		
Oil Palm			25.2	-	25.6	-	44.6	-	-		
Citrus			2.0	-	3.0	-	3.0	-	44.3		
Konaf			-	-	-	-	-	-	3.0		
Cotton			-	4.0	-	2.0	-	2.0	-		
Tobacco			1.8	1.4	1.2	2.0	1.4	2.0	-		
Pineapple			1.0	-	1.0	-	1.0	2.0	N.A.		
Sugar Cane			1.3	-	0.9	-	-	-	-		
Rubber			-	-	-	-	1.4	-	-	1.1	
<u>Special Crops</u>											
Ginger											
Cashew						2.0					
Banana						-		2.0			

O.F.Y. PRODUCTION AND TARGETS IN 100 ACRES

C R O P	Form of Prodn.	1972		1973		1974		1975		1976	
		Target	Prodn.	Target	Prodn.	Target	Prodn.	Target	Prodn.	Target	Prodn.
Food Crops											
Maize		94.9	150.0	95.8	176.0	114.1	176.0	69.0			
Rice		2.0	0.3	2.0	1.0	6.0	1.0	4.0			
Millet		-	0.1	-	-	-	-	-			
Quinoa Corn		-	-	-	0.1	-	0.1	-			
Groundnuts		1.0	-	1.0	-	2.0	-	2.0			
Cow peas		74.5	125.0	226.3	200.0	113.7	200.0	41.7			
Plantain		90.5	165.0	104.7	60.0	109.3	60.0	70.0			
Cassava		9.0	1.0	8.0	7.0	15.0	7.0	6.0			
Yam		57.0	1.0	54.0	40.0	63.0	40.0	23.0			
Cocoyam		19.0	0.3	15.0	18.3	33.0	18.3	14.0			
Vegetables		-	-	-	-	-	-	-			
Industrial Crops											
Coconut		5.7	0.6	5.7	-	5.1	-	5.7			
Oil Palm		11.2	0.5	11.6	2.0	11.4	2.0	11.1			
Citrus		8.1	0.5	7.1	0.6	2.0	0.6	2.0			
Kenaf		-	-	-	-	-	-	-			
Cotton		-	-	-	1.0	-	1.0	-			
Tobacco		0.8	0.7	0.4	0.7	0.3	0.7	N.A.			
Pineapple		3.0	0.5	4.0	1.0	2.0	1.0	2.0			
Sugar Cane		0.8	-	0.8	-	0.6	-	0.8			
Rubber		-	-	-	0.5	-	0.5	-			
Special Crops											
Ginger		-	-	-	0.1	-	0.1	-			
Cashew		-	-	-	0.1	-	0.1	-			
Banana		-	-	-	0.1	-	0.1	-			

APPENDIX II

OPERATION FEED YOURSELF AND YOUR INDUSTRIES PROGRAMMES
EVALUATION OF THE AGRICULTURAL PRODUCTION FOR THE PERIOD 1972
TO 1976 - MECHANISATION & TRANSPORT DEPARTMENT

INTRODUCTION:

By his Operation Feed Yourself Circular No.1/72 issued under cover of Ministry of Agriculture's letter dated 17th March, 1972, the Commissioner for Agriculture stated in the paragraph (f) headed "Clearing and Ploughing Plant Policy" that, quote - Available Land Clearing and farm machinery are so few that they should be used efficiently and effectively. Regions should establish their priority areas and prepare a programme chart for the equipment available in their regions. The control of the regional fleet of Land Clearing and farm machinery should be under the Regional Agricultural Committee to which the Regional Mechanisation Officer should answer." - unquote.

And as attachment to the Circular as Appendix H was an Inventory Sheet of all serviceable equipment available to start the Operation Feed Yourself Programme reproduced in this report as Appendix I.

A glance at other documents on the Operation Feed Yourself, notably the Executive Council Memorandum submitted by the Commissioner for Agriculture to Council on the Operation Feed Yourself clearly listed farm machinery, transportation and spare parts to run them as some of the important inputs required to push the Operation Feed Your Programme.

From the above therefore, it became obvious to the staff of the Mechanisation and Transport Department that the part they had to play for the success of the Operation Feed Yourself Programme was:-

- (i) To mobilise all serviceable tractors at any particular time and see to their efficient utilization for maximum production in the field of land clearing, cultivation, harvesting, processing and transportation.
- (ii) To utilize effectively all available workshop facilities owned by the Department and in the private sector where necessary, not only to maintain the agricultural equipment and vehicles supporting the programme but try and repair for service some of those broken-down, especially tractors and implements, taken over from the United Ghana Farmers' Co-operative Council (UGFCC).

TARGETS OF PRODUCTION:

As a supporting wing of the programme, the Mechanisation and Transport Department was not directly set any targets as such. But in context of the overall acreage targets set for the programme (which could be provided by the Directorate of Agriculture), all efforts were geared towards reaching, if not exceeding, the targets.

- 2 -

MOBILIZATION OF TRACTORS FROM OTHER GOVERNMENT AGENCIES:

Due to the rather low numbers of tractors and other equipment available to the Mechanisation and Transport Department to start operation with, it became obvious right from the beginning of the programme that no appreciable impact could be made if more tractors were not immediately made available from other sources.

To this end therefore the Commissioner for Agriculture assisted the Department to procure extra wheel tractors temporarily from the Ministry of Labour and Social Welfare, the Volta River Authority Resettlement stations and some Crawler Tractors from the Army in Tamale.

A careful study of Appendix II will show the number of tractors involved at any particular time. For instance at one time, the Volta River Authority loaned 30 tractors to the Department whilst the Ministry of Labour and Social Welfare loaned 7 new tractors and the Army 2 Crawler Tractors.

It must be emphasised however that not all the equipment were in very serviceable condition, especially some of the tractors received from the V.R.A. Thus some time had to be spent putting them right before they could be used.

WORKSHOP PROGRESS REPORTS:

Appendix IIIa - show the achievement of the workshop facilities owned by the Department and located in all regions. A study of the figures provided compared with the annual inventory figures shows the efforts the workshops put in (a) to maintain the already serviceable equipment and (b) the number of machinery that could be repaired and put into service with the already serviceable ones.

It will be observed that the changes in numbers of the machinery on the inventories with respect to the number of years were not substantial due to the following reasons:

- (a) The machinery which were in use for the OFY programme had been brought into the country since 1962/63. It could be imagined therefore that they had infact reached the end of their commercial lives before the programme was launched. Therefore what happened was this as the workshops worked vigorously to repair and put into service some of the unserviceable machinery, more were breaking down at a rate almost equal to the numbers of machinery being commissioned.
- (b) At the time of launching the Operation Feed Yourself, the Department was facing a serious spare parts shortage problem. This was because the amounts approved in the Estimates by the Ministry of Finance for the procurement of spare parts were insufficient. It must be explained here that all necessary spare parts had to be ordered direct from Yugoslavia and Czechoslovakia from where the tractors were originally purchased. In addition to the above was the problem of getting bits and pieces such as top links check chains and implements to

tractors collected from VRA even though in this case money was available from the OFY special account for the purpose.

LAND CLEARING AND CULTIVATION ACHIEVEMENTS:

Appendix IV attached to this report gives figures of land clearing, cultivation and harvesting achievements of the Mechanisation and Transport Department from 1972 to 1975. It was not possible to produce figures for 1976 for as indicated, the regional data are still coming in.

Certain basic conclusion can immediately be drawn by a glance at the figures:-

- (i) The levels of production are found to be extremely low considering the numbers of machinery available. One would obviously have expected higher figures than those available even if the rate of break-downs of the tractors were considerably high. Infact figures which will be anywhere near the correct acreage outputs achieved with the machinery of the Department should be at least two times what is found on Appendix IV. This is because the Department has always found it extremely difficult to achieve efficient supervision of operators on the job due to one-tractor-per machine method which has been operating for sometime now. It has been impossible to team up the machinery in order to concentrate supervision, maintenance staff and facilities and hence recordable impact. For owing to the rather low numbers of machinery available compared to the large number of farmers requesting for machinery services in line with the Operation Food Yourself programme, there was no way out but to spread the machinery to cover as many farmers as possible. This obviously resulted in several shady deals taking place due to the unavoidable poor supervision.
- (ii) It has always been difficult to obtain the requisite weekly, monthly and quarterly reports from the Regional Officers. This it is understood was attributed to the fact that some of the tractor operators taken over from the defunct UGFCC were not educated and hence could neither fill the log books provided nor properly give the required information accurately for a second person to fill the log books for them later. Thus, in the final analysis the district and hence Regional Officers got inaccurate results which they felt very reluctant to despatch, signed by them to the Head office in Accra.

(iii) Finally it must be emphasised that most of the basic tools taken over from the UGFC were not appropriate enough for the job. For instance all crawler tractors taken over for land clearing came with bulldozers already fitted as standard items. Any conversant Agricultural Engineer knew that bulldozers are more suitable for earthwork and not for land clearing. The result of using such an attachment instead of a front-mounted rake say was therefore loss in timeliness and precious top soil.

CONCLUSION:

It appears obvious from figures of production that the contribution of the Mechanisation and Transport Department's machinery was very minimal. However, one must not lose sight of one major fact; the exposure of machinery in a large scale into farming has brought out a certain awareness. An awareness that both the literate and the illiterate can contribute in no small measure in the call for increased food production through the usage of agricultural machinery.

Thank you.

(Sgd.) O. K. GYARTENG
AG. DIRECTOR OF MECH. & TRANS.
DEPARTMENT
1ST APRIL, 1977.

MECHANISATION AND TRANSPORT DEPARTMENT
OPERATION FEED YOURSELF - MACHINERY DISTRIBUTION

REGION	EUCLID/TG.160	TG.90	MF.500	BFT.60	BFT.STD.	WHEELED TRACTORS	
						MF	
1. GREATER ACCRA	1	3	-	6	-	-	-
2. CENTRAL/WESTERN	1	3	1	2	4	2	2
3. EASTERN	-	2	-	12	-	-	-
4. VOLTA	2	2	1	18	17	2	2
5. BRONG AHAFO	-	-	1	15	-	3	3
6. ASHANTI	-	1	1	8	-	-	-
7. NORTHERN	-	9	1	11	1	-	-
8. UPPER	-	10	1	25	2	-	-
TOTAL	4	30	6	97	24	9	9

6 Crawler tractors supplied by Social Welfare, 2 Wheeled tractors supplied by V.R.A.

7 Wheeled tractors expected from Social Welfare so far 3 received.

TRACTOR STATISTICS (AS AT 30/IV/72)

REGION	EUGLID/TG.100	TF. 90	MF. 500	ENT. 60 B/DOZER	ENT. STD	WHEELED TRAC
GREATER ACCRA	1	7		4	6	4
CENTRAL	-	1	1	-	2	2
EASTERN	1	1	-	6	6	-
VOLTA	2	2	1	8	9	10
BONG AHAFU	-	-	1	15	-	2
ASHANTI	-	1	1	8	-	3
NORTHERN	-	2 C ⁴ . +100	1	11	1	-
UPPER	-	8	1	25	2	2
TOTAL	4	24	6	79	24	23

NB. 6 MF 500 - Supplied by Social Welfare

7 " 50 - " " " "

14 " 165 - " " V.R.A.

2 C 100 - " " The Army

MECHANISATION AND TRANSPORT DEPARTMENT
TRACTOR STATISTICS - OPERATION FEED YOURSELF
AS AT 1ST DECEMBER, 1972

REGIONS	EUCLID/TG.160	TG.90	BMT.60 BULLDOZER	BMT.60 STD.	WHELLED TRACTORS	ZETOR	MF.165/135	COMBINE HARVESTERS
1. GREATER ACCRA	-	7	1	5	4		1	-
2. CENTRAL	-	7	-	3	-		-	-
3. EASTERN	1	1	6	6	2		4	-
4. VOLTA	2	3	10	8	24		10	-
5. BRONG AHAFO	-	1	3	6	3		-	-
6. ASHANTI	-	2	3	5	3		-	-
7. NORTHERN	-	3	7	14	1		-	10
8. UPPER	-	3	3	8	13		-	8
TOTAL	3	27	33	55	41		14	18

TRACTOR STATISTICS - OPERATION FEED YOURSELF
AS AT 31ST MAY, 1973

REGION	EUCLID TG.160	TG.90	BMT.60 BULLDOZER	BMT.60 S.T.D.	WHEELED TRACTORS	MF.165/135	COMBINE HARVESTERS
1. GREATER ACCRA	-	4	3	-	5	1	-
2. CENTRAL/WESTERN	-	1	4	-	1	-	-
3. EASTERN	1	2	10	-	3	3	-
4. VOLTA	-	3	8	8	15	12	-
5. ASHANTI	-	2	3	5	2	-	-
6. BRONG AHAFO	-	2	5	-	4	-	1
7. NORTHERN	-	5	9	-	4	-	7
8. UPPER	-	1	7	-	10	-	8
TOTAL	1	20	49	13	44	16	16

TRACTOR STATISTICS - OPERATION FEED YOURSELF
 (AS AT 16TH MAY, 1974)

REGION	EUCLID/ TG.160	TG.90	BNT.60 BULLDOZER	BNT.60 STD.	UTB.1500	WHEEL TRACTORS	MF.165/ 135 D.B	UTB.650/ 651m	COMBINE HARVESTER
1. GREATER ACCRA	-	7	6	-	6	3	1	8	1
2. CENTRAL/WESTERN	-	4	2	2	5	2	1	9	-
3. EASTERN *	-	4	5	-	7	2	5	5	-
4. VOLTA	-	3	6	3	-	12	15	-	-
5. ASHANTI *	-	2	2	-	-	2	-	-	-
6. BRONG AHLFO	-	2	2	-	-	5	-	-	-
7. NORTHERN *	-	2	6	8	-	1	-	-	26
8. UPPER	-	1	6	1	-	10	-	-	10
TOTAL	-	25	35	14	18	37	22	22	37

REMARKS: - 11 Combine Harvesters are with G.C.M.T. at Tema.

*Latest returns from these regions are still not available at the time of compilation.

TRACTOR STATISTICS - (AS AT 15TH OCTOBER, 1974)

APPENDIX IIC

REGION	EUCLID	TC.160	TC.90	UTB 1500	BNT.60	BNT.60 STD	UTB.650 & 651	WHEEL TRACTORS	MF165/ 135	DAVID BROWN	GLORIA C12	MF.400	MF.520	GLORIA C.12 MAIZE COMBINE	ZULU 760
1. GREATER ACCRA	-	-	6	1	-	5	7	3	1	-	-	-	-	-	-
2. CENTRAL	-	-	5	2	1	3	7	-	1	-	-	-	2	-	-
3. EASTERN	-	-	4	3	1	4	5	2	5	-	-	-	-	-	-
4. VOLTA	-	-	3	-	7	5	-	9	13	1	1	-	1	-	-
5. ASHANTI	-	-	8	-	4	3	-	1	-	-	-	-	1	-	-
6. BRONG AHAFO	-	-	4	-	-	2	-	7	-	-	-	-	-	-	-
7. NORTHERN	-	-	2	-	5	6	-	1	-	-	18	1	1	-	1
8. UPPER	-	-	2	-	5	1	-	-	-	-	-	10	-	13	1
TOTAL			34	6	23	29	19	23	20	1	19	11	18	1	5

TRACTOR STATISTICS - 1975

REGION	UNIVERSAL 1500	TG.90	BENT.60 BULLDOZER	BMT.60 STD.	WHEEL TRACTORS	UNIVERSAL 650/651	GLORIA C.12	GLORIA C.12 (MAIZE) COMBINE	MG.400	MF.520	DANIA 900
GREATER ACCRA	4	5	-	3	5	4	-	-	-	-	-
CENTRAL	2	5	1	3	5	1	-	-	-	-	-
EASTERN	2	5	2	6	2	2	-	-	-	-	-
VOLTA	1	2	-	-	-	17	-	-	-	1	-
ASHANTI	-	6	0	7	-	2	-	1	-	-	-
BRONG AHAFO	-	2	2	-	-	7	-	-	-	2	-
NORTHERN	-	2	5	6	-	1	3	-	-	6	15
UPPER	-	2	4	-	-	6	-	-	9	-	-
TOTAL	9	31	20	25	12	40	3	1	9	9	15

TRACTOR STATISTICS

REGION	TG.170	UNIVER- SAL 1500	TG.90C	TG.90	BNT 60 BULL- DOZER	BNT.60 (STD.)	ZETOR 50S	ZETOR 5711	ZETOR 3011	DEUTZ 50	DEUTZ 40	MF165/ 135	FORD 4000	GLORIA C.12	GLORIA C.12 MAIZE COMB.	MF400	MF520	DAHIA
GREATER ACCRA	3	-	2	3	1	1	-	7	2	-	-	-	1	-	-	-	-	-
CENTRAL	-	-	4	2	-	2	-	4	-	-	-	-	-	-	-	-	-	-
EASTERN	3	-	5	4	1	3	1	8	1	-	-	1	-	-	-	-	-	-
VOLTA	3	-	5	1	1	1	-	9	-	3	1	-	-	-	-	-	1	-
ASHANTI	2	-	4	3	4	-	1	6	-	-	-	-	-	-	-	-	-	-
BRONG AHAFO	2	-	5	3	4	-	1	5	1	-	-	-	-	-	-	-	2	-
NORTHERN	2	-	4	2	1	1	-	5	1	-	-	-	-	8	1	-	7	15
UPPER	2	-	4	-	-	2	-	6	-	-	-	-	-	-	-	9	-	-
NATIONAL DETACH AMASMAN	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	18		33	18	12	10	3	50	5	3	1	1	1	8	1	9	10	15

APPENDIX III

WORKSHOP PROGRESS REPORT PERIOD: FROM JANUARY TO DECEMBER, 1972

WORKSHOPS	MAJOR REPAIRS				MINOR REPAIRS				MISCELLANEOUS JOB CARRIED OUT	REMARKS
	NO. OF CRAWLER TRACTORS OVERHAU- LED		NO. OF WHEELED TRACTORS OVERHAULED		NO. OF CRAWLER TRACTORS REPAIRED		NO. OF WHEELED TRACTORS REPAIRED			
	TG. 160 TG. 90 EUGLID	BNT. 60	ZETOR	DEUTZ/MF.	TG. 160 TG. 90 EUGLID	BNT. 60	ZETOR	DEUTZ/MF.		
NSAWAM	-	-	39	-	-	-	21	-	4	Repairs on Vehicles, Tyres, Batta- ries exhaust pipe etc.
TSITO	1	2	-	7	14	30	23	52	54	
KUMASI	7	3	10	-	36	40	120	23	586	
NYANKPALA	5	12	59	-	5	38	222	14	111	
AMASAMAN	15	55	-	-	66	220	-	-	-	
ZUARONGU	1	1	26	2	5	14	112	14	24	
WENCHI	-	15	41	-	4	24	308	-	-	
SOMANYA	5	29	3	-	21	76	77	-	-	
TOTAL	34	117	178	9	151	442	883	103	779	

* 1 Combine Harvester Repaired.

WORKSHOP PROGRESS REPORT PERIOD: FROM JANUARY TO DECEMBER, 1973

WORKSHOPS	MAJOR REPAIRS				MINOR REPAIRS				MISCELLANEOUS JOBS CARRIED OUT	REMARKS
	NO. OF CRAWLER TRACTORS REPAIRED		NO. OF WHEELED TRACTORS REPAIRED		NO. OF CRAWLER TRACTORS REPAIRED		NO. OF WHEELED TRACTORS REPAIRED			
	TG. 160 TG. 90 EUCLID	BNT. 60	ZETOR 50S	DEUTZ/MF.	TG. 160 TG. 90 EUCLID	BNT. 60	ZETOR 50S	DEUTZ/MF.		
NSAWAM	-	-	28	-	-	-	32	3	-	
KUMASI	38	14	32	6	57	31	51	9	549	
AMASAMAN *	52	52	-	-	31	25	-	-	-	
NYANKPALA	-	1	5	-	-	-	2	-	10	
ZUARUNGU	-	-	23	-	1	4	47	-	-	
WENCHI	3	8	13	7	10	13	245	3	-	
SOMANYA	6	11	4	1	18	25	56	35	-	
TSITO	1	4	-	2	5	3	22	25	44	
TOTAL	100	90	105	16	122	101	455	75	603	

WORKSHOP PROGRESS REPORT PERIOD: FROM JANUARY TO DECEMBER, 1976

WORKSHOPS	MAJOR REPAIRS				MINOR REPAIRS				MISCELLANEOUS REPAIRS CARRIED OUT	REMARKS
	NO. OF CRAWLER TRACTORS REPAIRED		NO. OF WHEELED TRACTORS REPAIRED		NO. OF CRAWLER TRACTORS REPAIRED		NO. OF WHEELED TRACTORS REPAIRED			
	TG.160/90 EUCLID	BNT.60	ZETOR	DEUTZ/MF	TG.160/ TG.90 EUCLID	BNT.60	ZETOR	DEUTZ/MF		
NSAWAM	-	-	17	-	-	-	21	-	-	
AMASAMAN *	-	-	-	-	-	-	-	-	-	
TSIFO	-	-	-	-	-	-	-	-	-	
KUMASI	5	4	3	-	111	94	190	-	-	
NYANKPALA *	-	-	-	-	-	-	-	-	-	
ZUARUNGU	8	1	10	1	6	2	55	-	13	
WENCHI	1	-	1	-	4	2	12	-	-	
SOMANYA	-	-	-	-	229	128	330	8	50	
TOTAL	14	5	31	1	340	226	608	8	63	

*Reports from these workshops were not available at the time of compilation.

MECHANISATION STATISTICS : LAND CLEARING AND CULTIVATION

PERIOD	ACREAGE CLEARED	ACREAGE PLOUGHED	ACREAGE HARRO- WED	ACREAGE RIDGED	ACREAGE PLANTED	ACREAGE SLASHED	ACREAGE DRILLED	ACREAGE + HARVESTED	WINDROWING	STUMPING	ROOTING/ RIPPING	OTHER OPERATION (EARTHWORK)
-DEC., 1972	2584.76	5112.78	1674.45	55.50	49.00	73.50	-	-	1966.19	896.98	190.25	-
- DEC., 1973	2655.00	4913.11	1576.00	264.50	4.00	229.00	-	-	985.50	272.25	39.75	-
- DEC., 1974	2780.00	5020.25	1894.60	311.90	41.50	50.50	-	-	1341.65	137.00	26.00	-
- DEC., 1975	2851.75	3798.16	1306.50	235.00	-	65.50	-	-	2857.25	62.50	-	-
1976 *	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	10871.51	18844.30	6451.55	866.90	94.50	418.50			7150.59	1366.73	256.00	-

*Figures for 1976 are yet to be processed, since most regional data are still forth coming.

†Final figures have never been available on rice harvesting figures. It is estimated however from situation reports from officers from Accra that 20,000 and 35,000 acres were harvested from

Northern and Upper Regions in 1974 and 1975 respectively.

THE ROLE OF THE VETERINARY SERVICES DEPARTMENT
IN THE OPERATION FEED YOURSELF AND INDUSTRIES PROGRAMMES

A REVIEW BY DR. S. B. K. QUARTEY, DIRECTOR
DEPARTMENT OF VETERINARY SERVICES

1. OBJECTIVES:

To be able to make the necessary contribution and to play its proper role in the Government Programmes for Operation Feed Yourself and Feed Your Industries which were introduced in 1972, the Department of Veterinary Services attempted to identify the areas in which we could intensify or expand our field and other activities.

This report intends to review these activities in the context of this agricultural programme and to assess the various achievements made by the Department and at the same time to be able to identify the areas where there have been some shortcomings. In this way it would be possible to remove some of the bottle-necks and constraints in order to improve upon the programmes that are planned for future implementation.

The main objectives of the OPY are:

- (i) To produce more food for the general public in order to reduce not only the food cost but also to cut down on importation of these items.
- (ii) To produce the necessary industrial raw materials to feed our local agro-based industries and also
- (iii) To export the surplus foodstuffs and industrial raw materials to increase our earning capacity for foreign exchange.

2. THE ROLE OF THE VETERINARY SERVICES DEPARTMENT:

Looking at the broad policy of this programme, the Department recognised from the onset that its contribution could be realised mainly by intensifying and expanding our services to the livestock and poultry farmers in both the public and private sectors.

The practical ways of achieving this aim on the ground required that we should take the following steps:-

- i) To increase and redeploy the field staff for maximum benefit of our human resources.
- ii) To make very substantial increases in our material resources, mainly vehicles for mobility, drugs, vaccines, equipment and instruments.
- iii) The plan also called for expansion programmes for veterinary health centres in the rural areas.
- iv) It was also necessary to make improvements in our laboratory services by the establishment of regional laboratories to provide for prompt and efficient diagnostic services to support our field activities.
- v) Finally it was essential to make improvements at the Pong Tamale Veterinary College to enable us train the middle sector calibre of staff who form the core of our service.

3- REVIEW OF ACTIVITIES:

These factors which have been outlined were essential ingredients for implementing our field programmes, and for the period under review, these infrastructural programmes were pursued vigorously. Most of these targets have been initiated and have gone a long way in providing us with the facilities to achieve the goals that we set ourselves in 1972.

A/DISEASE INCIDENCE: LIVESTOCK:

- i) Rinderpest: Although there has been no outbreak of Rinderpest in the country for the past 13 years, the Department continued the annual vaccination programme, and from January, 1972 to December, 1976, the vaccination figures had increased by over 200%
- ii) Contagious Bovine Pleuro-Pneumonia (C.B.P.P.):
The table set out below gives the details of the incidence pattern of C.B.P.P. from 1972 - 1976.
C.B.P.P. is one of the obstinate contagious scourges of cattle and the Department has battled with it for some time now. The strategy was to conduct a country wide serological survey of selected herds to determine the national incidence level. Coupled with this exercise, there is also a programme for simultaneous vaccination against C.B.P.P. alongside with Brucellosis.

C.B.P.P. INCIDENCE: 1972 - 1976:

<u>Period</u>	<u>No. of outbreaks</u>	<u>Total No. Affected</u>	<u>Total Losses</u>
1972	27	241	257
1973	34	272	158
1974	57	1,497	741
1975	82	836	642
1976	46	4,442	266

The fact which emerges from this picture is that the efficiency of our reporting system has improved considerably.

iii) ANTHRAX:

In the case of Anthrax the incidence of the disease over the period was sporadic and control measures were always taken promptly.

For the period under review the outbreaks recorded are summarised below:

<u>Period</u>	<u>No. of outbreaks</u>	<u>Total No. Affected</u>	<u>Total Losses</u>
1972	17	265	29
1973	27	91	91
1974	9	232	51
1975	3	3	3
1976	10	930	49

iv) FOOT AND MOUTH DISEASE:

The majority of the outbreaks of Foot and Mouth Disease was detected at the Quarantine Stations in the herds that were entering the country on hoof from the neighbouring countries.

<u>Period</u>	<u>No. of outbreaks</u>	<u>No. affected</u>	<u>Total Losses</u>
1972	1	1	1
1973	36	4,061	4
1974	145	15,399	27
1975	9	469	5
1976	NIL	NIL	NIL

v) HAEMORRHAGIC SEPTICAEMIA:

The improvement in our surveillance service is borne out by another fact that Haemorrhagic Septicaemia which had not been officially recorded in the country for several years was diagnosed and confirmed in 1976. There were altogether 8 outbreaks involving 55 cattle of which 54 died.

vi) BLACKLEG (or BLACKQUARTER):

Blackquarter occurred throughout the country during the period 1972 - 76 and vaccination efforts were intensified to combat the infection.

INCIDENCE:

<u>Period</u>	<u>No. of outbreaks</u>	<u>No. Affected</u>	<u>Total Losses</u>
1972	12	2,261	22
1973	7	41	25
1974	8	15	15
1975	4	29	31
1976	2	18	9

B/ INCIDENCE OF POULTRY DISEASES:

i) NEWCASTLE DISEASE:

The programme of vaccinating all fowls (twice in the case of broilers and thrice in the case of layers) was pursued very vigorously. In fact the programme has been largely responsible for the rapid growth in the poultry industry in Ghana in spite of all the difficulties of frequent feed shortages and other factors which have often plagued the industry.

It is observed that fewer birds seem to succumb in recent outbreaks as compared with the picture some five years ago.

It is also observed that most of the outbreaks occurred on farms which had failed for one reason or the other to get the flocks vaccinated either completely or at the appropriate time.

INCIDENCE:

<u>Year</u>	<u>No. of outbreaks</u>	<u>No. affected</u>	<u>Total Losses</u>
1972	44	24,380	7,834
1973	51	62,134	24,407
1974	41	10,988	6,203
1975	58	11,106	9,906
1976	86	20,632	22,036

FOWL POX:

The tendency on the part of poultry farmers to ignore this disease stems from the fact that it does not appear to have a devastating fatal effect when outbreaks occur. In this connection our extension service was intensified to project the disease to the public to get their interest aroused. Fortunately also we introduced a vaccine (Combivac) which combined the second Newcastle vaccine with Fowl Pox vaccine for use in chicks which had previously had the first newcastle vaccine. This is administered at 6 weeks. This programme has been very well accepted by the farmers and helped to reduce the incidence of Fowl Pox.

INCIDENCE:

<u>Year</u>	<u>No. of outbreaks</u>	<u>No. Affected</u>	<u>Total Losses</u>
1972	67	12,442	377
1973	56	2,810	1,531
1974	48	8,975	569
1975	73	1,180	265
1976	31	1,290	514

4) DISEASE CONTROL:

The bulk of our service is to control disease. One effective method is to get the animal population vaccinated on mass basis against the common diseases that are encountered in the country.

The table below gives an analysis of the vaccinations carried out during 1972 - 1976 against the major epizootics of livestock and Poultry.

i) Livestock:-

<u>Disease</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
1. Rinderpest	187,943	204,572	275,848	265,947	399,325
2. C.B.P.P.	204,707	219,461	89,396	22,548	591,512
3. Anthrax	66,705	78,670	40,850	43,595	31,918
4. Brucellosis	60,933	64,890	110,972	71,848	1,862
5. Blackquarter	46,938	63,539	51,160	30,931	26,647

	1972	1973	1974	1975	1976
1. Newcastle Disease	3,605,038	4,714,208	5,073,371	5,395,880	4,596,553
2. Fowl Pox	1,280,813	1,455,389	1,632,920	889,499	1,094,586

1. RINDERPEST:

Despite the fact that the disease has been virtually eradicated from Ghana, for the period 1972 - 76 the vaccination figures soared up year after year, rising from 187,000 in 1972 to nearly 400,000 in 1976, an increase of over 200% in 5 years.

2. C.B.P.P.

A similar record performance was recorded for C.B.P.P. The figure for 1972 was 204,000 as compared to 591,000 in 1976, again a spectacular increase of nearly 300%.

OTHER DISEASES

In the case of the other diseases like Anthrax, Brucellosis and Blackquarter, the increases were not so high, but these were due to several extenuating circumstances which are discussed elsewhere in this report.

5. CONTROL OF TICK-BORNE DISEASES:

The range of disease which afflict cattle and the small ruminants through ectoparasite vectors include Babesiosis and Heartwater. The policy of controlling these diseases by constant dipping was actively implemented during the period as evidenced by the statistical data given below:

Dipping of Livestock:

Year	Cattle	Sheep	Goats
1972	207,610	61,727	27,845
1973	155,714	45,258	25,427
1974	163,532	74,666	26,631
1975	226,849	133,687	48,160
1976	173,778	103,416	51,960

6) CONTROL OF INTERNAL PARASITES:

There can be no meaningful animal production programme which does not incorporate appropriate veterinary measures to protect the animals against internal parasites (worms). To this end, part of our field activities included a well-planned exercise of deworming cattle, small ruminants, pigs and poultry against roundworms, tapeworms and flukes.

Summary of Deworming:

Year	Cattle	Sheep	Goats
1972	153,454	154,234	84,416
1973	117,435	147,309	83,955
1974	141,415	217,695	116,663
1975	165,368	263,973	134,680

This programme was in keeping with the emphasis which the Departments of Animal Husbandry and Veterinary Services had placed on the production of sheep and goats as a medium term measure to bridge the meat gap in the country. It has long been realised in this country that unless some immediate solution was found to produce meat quickly and cheaply the country would face a catastrophic situation of meat hunger, and our effort to service the farms by this animal health protection programme was a major contribution to the crusade to boost and achieve the production targets in the animal section.

7. REVENUE:

For some years now the Department has embarked on a policy of sale of drugs and vaccines. The rationale behind this policy is two-fold;

1. To make drugs and vaccines readily accessible and available to ordinary livestock and poultry farmer.
2. To inculcate in the farmer some measure of self-reliance to help himself and thereby reduce the heavy budget the Government shoulders for the running and servicing of the private farms. The revenue derived from the sale of drugs and vaccines were as follows:

1974	₦33,226.62
1975	₦33,294.60

8. DISCUSSION OF PROBLEMS:

It would be unrealistic to create the impression in this report to the reader that the activities and achievements of our services have been without problems. The main problems which have hindered the complete realisation of some of our targets fall into two definite categories.

i) Drugs, Stores and Equipment:

By and large, every animal health programme depends primarily on the availability of drugs, vaccines, stores, equipment and instruments. On several occasions these items were found either in short-supply or in the case of some drugs and vaccines the stocks arrived either completely expired, and had to be discarded or used in such a rush that their benefit was debatable.

ii) Import Licences:

The delays experienced in obtaining Import Licences created considerable hardships and difficulties which cannot be over-emphasised in this report. Considering that in several instances the drugs (e.g. antibiotics) and vaccines had a short shelf life, and bearing in mind that the vaccines are ordered with the expectation that they are to arrive to fit in with a specific planned programme, any delays in procuring the necessary import licence completely render the exercise hard to carry out. These two major difficulties and problems pose a real threat to the successful implementation of field programmes, and it is to be hoped earnestly that these constraints would be removed to pave the way for the success of the Operation Feed Yourself and Feed Your Industries Programmes.

EVOLUTION OF AGRICULTURAL PRODUCTION FOR THE
PERIOD 1972-1976 IN THE FIELD OF IRRIGATION DEV.
BY R. P. KELEKOR - DIRECTOR OF IRRIGATION

INTRODUCTION

In the past few years, the world community has experienced a series of severe droughts and food scarcities. This has been the case not only in developing countries, such as India and countries of the Sudan-Sahelian zone, but also in a number of advanced countries. There are clear warnings of an impending crisis of acute food shortage, if measures taken to increase world food production and to ensure its distribution fail to match the needs of the exploding world population and the desirable standards of its diet.

2. Under the uneven distribution of food production, ten per cent of the world population does not get the necessary minimum calories for sustenance. It is ironic that with abundant land, water and demographic resources (according to U.N. estimates) 375 million people in Asia, Africa and in Latin America are on the verge of starvation.

3. Ghana is basically an agricultural country. Although the two agricultural products of the forest i.e. cocoa and timber have provided over 70 per cent of the country's export earnings, the rate of agricultural development has not been significant compared to the population growth of 2.7 per cent per annum. Agriculture has not been able to keep pace with the growing demand for food and industrial crops.

4. Irrigation and drainage are the only ways of coping with the global problem of raising food production, particularly in the arid and semi-arid regions.

5. The role of the Irrigation Department has been spelt out in the guide-lines of the Operation Feed Yourself as follows:

"Irrigation Division has an important role to play in the programme for making full use of facilities under existing structures and providing new facilities at carefully selected points. Labour intensive projects will be emphasised to make better use of the unemployed and under-employed in the uncompleted schemes at Kusumare, Dawhenya, Afife, Vea, Ashiaman Okyereko and Golinja. In addition, the Akumadan Project will be fully developed. The Tono Irrigation Project will be implemented. The purpose of all these schemes is to encourage dry season production of vegetables especially tomatoes to feed the Wenchi and Pwalugu Tomato Factories and increase the income of farmers through additional production of rice under irrigation."

VI. PROGRAMME OF WORK:

6. For crop production planning, one should examine the rainfall availability not only in an average year, but also in drier years, because it is in the years of drought that the farmers suffer most, and the government is put under a great strain. Therefore, the variability of rainfall from year to year is a factor that should be fully taken into account.

7. Crop production in Ghana is almost entirely on rainfed conditions. On examination of the scope of rainfed farming, considering monthly rainfall with 75 per cent probability, the following conclusions can be reached:

- in the Northern savannah, crops with a four month growing period can be grown during the rainy season. No cropping is possible in the dry season without irrigation.
- in the forest belt, crops with such longer growing period can be grown. No irrigation is needed.
- in the coastal savannah, rainfall is adequate only in two months in a year. Therefore, for successful cropping irrigation is necessary.

8. These conclusions do not apply to drought years which may account for 25 per cent of the years over a long period of years and in the drought years, partial or complete crop failure could occur especially in the savannah areas. It is in this context that the necessity for irrigation should be viewed.

9. During the period 1972-76, emphasis was placed on completing all major projects. A list of these projects and stage of of lands below existing small dams in the Upper, Northern and Volta Regions.

10. To develop systematically irrigation to support agriculture, the outlines of a Master Plan was prepared to cover the savannah areas of the country. The exercise was carried out by dividing the country into two main sectors, i.e. Southern Sector and Northern Sector and excluding areas not suitable for irrigation. These sectors have been divided into various zones as per the irrigation needs of the country as below:-

A. Southern Sector

1. Accra Plains	Zone
2. Ho	"
3. Aya-Keta	"
4. Winneba Plains	"
5. Afram Plains	"
6. Krachi-Zongo Macheri	"

B. Northern Sector

1. Ejura	Zone
2. Wenchi	"
3. Techiman	"
4. Kintampo	"
5. Atebubu	"
6. Lawra/Mandom	"
7. Tumu	"
8. Wa	"
9. Navrongo/Bolgatanga	"
10. Bawku	"
11. Nasia/Walewale	"

- | | |
|------------------|------|
| 12. Bole/Damongo | Zone |
| 13. Tamale | " |
| 14. Salaga | " |

11. Medium sized projects have been selected from some of the zones identified for study and implementation. The list in Appendix II shows these projects and the priority attached to them.

Policy Measures

12. The main criteria for the selection and implementation of new projects was for the production of food crops such as rice, vegetables of commercial crops such as sugar cane, cotton, etc. During the construction stage of any new project, land development would go hand in hand with the construction of the storage dam. This would ensure early and full utilization of the projects within the shortest possible time.

III. CONSTRAINTS AND PROBLEMS

13. None of the projects listed in Appendix I could be completed on schedule due to a variety of reasons:-

- a) inadequate financial resources;
- b) lack of technical staff;
- c) lack of machinery and construction materials,
- d) lack of suitable constructing agencies to take up irrigation works.

Financial Resources:

14. Irrigation projects are capital intensive, and therefore require large initial investments. Budgetary allocations has not been very encouraging. Table I shows the amounts requested during the budget session and the amount approved for some projects for the 1975/76 and 1976/77 fiscal years:

TABLE I

PROJECT	AMOUNT REQUESTED		AMOUNT APPROVED	
	1975/76	1976/77	1975/76	1976/77
1. Weija	630,000	1,588,000	580,000	700,000
2. Tono	7,184,000	10,377,000	5,474,200	4,100,000
3. Vea	750,000	2,650,000	450,000	700,000
4. Ashiaman	155,000	125,000	60,000	85,000
5. Okyereko	350,000	270,000	245,350	200,000
6. Mankesim	125,000	250,000	125,000	175,000
7. Akumadan	422,300	516,000	422,300	344,000
8. Tanoso	324,000	412,200	324,000	272,000
9. Afife	40,000	320,000	20,000	175,000
10. Bongtanga	498,000	550,000	96,000	570,000

(It could however be stated that, for some projects e.g. the Tono and Dawherya, supplementary allocations were made almost to the level of sums submitted during budget sessions.)

Technical Staff:

15. The technical staff of the Irrigation Department, although of the right calibre, is not adequate to cope with the work. This is even worse at the lower level, in the grade of artisans and technical officers, who are to supervise labour and execute most of the projects under the programme.

Construction Equipment and Lack of Competent Contractors:

16. The Irrigation Department is not equipped to undertake by direct labour all the constructional works involved under the programme. The ideal situation should have been for the projects to be designed by the Irrigation Department and given out on contract for construction. This state of affairs is even made worse by lack of suitable contracting agencies who could undertake the job in lieu of direct labour by the Department. The local contractors are not familiar with irrigation project construction, do not have the technical expertise to interpret detail design drawings and do not have adequate equipment for project implementation. The Department with its trained personnel could have stood the test if enough equipment and machinery was available. The small number of old machinery was spread thinly on most of the projects listed in Appendix I.

Organisation:

17. During the period under review, there has been serious structural changes in the organisation responsible for irrigation development in the country. The Irrigation, Reclamation and Drainage Division was abolished and staff absorbed into the General Agricultural Organisation which emerged after the 1973 restructuring of the Ministry of Agriculture. There was no proper direction for irrigation development. Some of the senior technical staff were forced to resign.

18. A sub-committee of the Agricultural Advisory Committee 1972 revealed the operations of the Irrigation, Reclamation and Drainage Division and recommended the setting up of an autonomous organisation devoid of civil service red-tapeism to be fully charged with irrigation development in the country. The main objective is to ensure that all necessary inputs are obtained in time for project implementation, and that funds could also be obtained from other sources apart from the Government Consolidated Fund. This recommendation is yet to be implemented.

IV. SUMMARY, OBSERVATIONS AND CONCLUSIONS

19. Irrigation development has been identified in the Operation Food Yourself Programme as one of the essential inputs which could ensure abundant all year round food supply.

20. The completion of the projects embarked upon prior or during the programme would have made available a large acreage for the cultivation of such food crops as rice, tomatoes, vegetables, groundnut and industrial crops such as sugar cane, soya beans and cotton.

21. Many factors have contributed to the non-completion of the projects earmarked for completion within the period under review notably.

- a) inadequate financial resources;
- b) lack of technical staff;
- c) lack of machinery and suitable contracting agencies;
- d) lack of a sound organisational structure to support the programme.

22. Government's decision to establish an Irrigation Development Authority to be fully charged with irrigation development and utilization of areas developed is in the right direction. The Authority when established should be staffed with qualified personnel to perform the basic functions with which the Authority is charged. The Authority should also be given enough financial backing, otherwise it would not show the results expected of it.

23. Indigenuous contractors should be encouraged to team with foreign contractors to build expertise for irrigation contracts. If this is not done, the field will always be dominated by foreign contractors.

APPENDIX I

PROJECT	STAGE OF DEVELOPMENT	WORK TO BE DONE	ACREAGE	DATE STARTED	ESTIMATED DATE OF COMPLETION	REVISED DATE OF COMPLETION
1. Ashiaman (For rice and vegetables)	Dam completed, canal and land development completed	Completion of canal construction and land development	500	1965	Dec. 1976	Dec., 1977
2. Vea (for rice, vegetables and other row crops)	Dam completed, canal and land development for about 400 acres completed	Completion of canal construction and land development	3,500	1965	Dec. 1976	June, 1979
3. Asutsuare Extension and High Level Canal (for sugar cane and rice)	Designs Completed	Canal construction and land development for rice and sugar cane	5,000	1963	Dec. 1976	Dec., 1978
4. Komenda (for sugar cane)	Canals etc. completed	Rehabilitation and installation of sprinkler equipment	600	1965	Dec. 1976	Dec., 1976
5. Dawhenya (for rice and vegetables)	Dams completed	Pumping Station, canal construction and land development	1,200	1962	—	June, 1978
6. Okyereko (for rice and vegetables)	Designs in progress	Dam, canal construction and land development	300	1973	Dec. 1976	June, 1978
7. Afiye (for rice)	Small dam completed	Feasibility studies designs and construction of main dam on River Kplikpa	2,500	1964	—	Dec., 1980
8. Mankesim (for vegetables, and other)	Designs completed	Construction of dam canals and land development	800	1974	Dec. 1977	Dec., 1979
9. Akumadan (Afrancho, Tanoso, Subinja) (for vegetable and other crops)	Designs completed	Construction of weirs, dams land development and installation of sprinkler equipment	3,500	1974	Dec., 1978	Dec., 1979

PROJECT	STAGE OF DEVELOPMENT	WORK TO BE DONE	ACREAGE	DATE STARTED	ESTIMATE DATE OF COMPLETION	REVISED DATE OF COMPLETION
10. Afran Plains (for vegetables and cotton)	Designs completed	Land development and installation of sprinkler equipment	500	1973	Dec., 1976	Dec., 1978
11. Adidome (for rice)	Dam completed and some canals constructed	Rehabilitation of canals and land development	500	1964	---	June, 1978
12. Aveyime (for rice)	Pilot farm established	Construction of pumping station canals and land development.	1,000	1967	---	June, 1979

MEDIUM SCALE IRRIGATION PROJECTS

PROJECT	WORK TO BE DONE	ACREAGE	DATE OF COMMENCEMENT	ESTIMATED DATE OF COMPLETION
1. Tono Project (for rice, vegetables and other crops)	Construction of dam canals and land development	6,050	1975	1979
2. Weija (for rice, vegetables and other crops)	Construction of pumping station, canals, a land development and installation of sprinkler equipment	4,200	1974	1979
3. Bongtanga (for rice, cotton, vegetables and other crops)	Construction of a dam, canals and land development	1,200	1975	1979
4. Ayensu (for vegetables, fodder, rice and other crops)	Feasibility studies. Followed by detail designs and construction of weir, canal pumping station and land development	8,700	1975	1982
5. Tamne (for rice, onions, and other vegetables)	Detail designs under way. Construction of dams canals and land development	3,600	1976	1980
6. Passam (rice)	Feasibility studies complete. Detail designs, construction of dam, canal and land development.	3,000	1974	1979

EVALUATION OF OPERATION FEED YOURSELF & OPERATION
FEED YOUR INDUSTRIES PROGRAMMES
BY DIRECTOR OF FISHERIES

INTRODUCTION

1.1 Fishing is still basically a hunting activity. Fish caught from the seas are not cultivated in the same way as for example tomatoes are grown on land. Successful fishing operations therefore depend, to a large extent on the availability of fish to be caught. Every nation of the world is trying to develop her fishing industry and fishing fleet resulting in heavy exploitation of the fishery resources of the world. This development trend has caused many nations to extend their territorial limits or fishing economic zones to 200 miles in a bid to safeguard their fishery resources. Sea fishing has therefore become very competitive and new fishing boats are being developed for the purpose of fishing in more distant waters.

1.2 In our own waters we have for several years enjoyed the bumper catches of herring (*Sardinella aurita*) between July and September of each year. For the past three years however this fishery has been on the decline. This might either be due to over exploitation of the fish or to changes in climatic as well as hydrographic conditions. The oceans are so vast that an approach to increase their productivity would result in very heavy financial commitments. Sea fish cultivation is however practised on a very limited scale by a few countries notably Japan. It is noteworthy that in the field of fisheries as it is in general agriculture and animal husbandry increase in production and yields is very much dependent on environmental factors. This point I think needs to be emphasized when plans are being developed for increasing fish production, as an increase in the number of fishing vessels may not necessarily mean an increase in catch as there is a limit to which a particular fishery can be rationally harvested.

1.3 Although as already stated fishing is still a hunting process, science and technology have been so much advanced that fishing has now become very technical as well as scientific. Fishing vessels are sophisticated and expensive and so are fishing nets, thus making the development of the fishing industry highly capital intensive. It is in this regard that the fishing industry must be adequately supported by finance both local and foreign.

2. State of the Fishing Industry

2.1 I wish in the following paragraphs to inform you of the general status of the fishing industry in Ghana. I will deal with this under the following headings.

- a. the fishing fleet and fish production
- b. cold storage and ice production facilities
- c. fish processing facilities
- d. harbours and anchorages
- e. boat building
- f. training

- 6. maintenance and repair and drydock facilities
- h. research
- i. fish distribution.

2.2 The fishing fleet comprises refrigerated trawlers, carriers, medium size non-refrigerated trawlers locally built inshore fishing boats and the canoes. The details of the fleet as well as catch for 1974/75 are provided in Appendices A & B.

2.3 Cold storage and ice production facilities

State Fishing Corporation	Tema	11,500 tons
" " "	Accra	1,200 "
" " "	Sekondi	1,500 "
" " "	Kumasi	350 "
" " "	Sunyani	250 "
" " "	Cape Coast	250 "
" " "	Tamale	500 "
" " "	Takoradi	12 "
Mankoadze Fisheries Limited	Tema	3,500 "
" " "	Takoradi	10 "
" " "	Winneba	40 "
" " "	Koforidua	20 "
Ocean Fisheries Limited	Tema	1,000 "
" " "	Accra	1,000 "
Kaas Fisheries Limited	Tema	2,000 "
Beyeman Freezing Co. Ltd.	Accra	1,500 "
Tema Cold Stores Limited	Tema	120 "
Attok Fisheries	Tema	800 "
Atlantic Cold Store	Tema	18 "

2.3 Ice Production

State Fishing Corporation	Accra	15 tons/day (block)
" " "	Tema	20 tons/day (")
" " "	Tema	20 tons/day (flake)
" " "	Sekondi	20 tons/day (")
" " "	Kumasi	15 tons/day (block)
" " "	Takoradi	2 tons/day (")
Mankoadze Fisheries Limited	Tema	15 tons/day (")
Kaas Fisheries Limited	Tema	20 tons/day (")
Attok Fisheries	Tema	10 tons/day (")

3. Fish Processing

Fish is a highly perishable commodity which requires immediate attention if we do not want it to go to waste. Over 60% of fish landed is hot smoked by women fish smokers. Some amount of fish is also salted.

3.1 Tema Food Complex Corporation

- a. A fish cannery with a capacity of 20 tons a day
- b. Two fish smoking ovens with a capacity of about 10 tons per day
- c. Fish meal plant with a capacity of 100 tons per day.

3.2 Pioneer Food Cannery Limited
Fish (tuna) canning plant with a capacity of 5 tons per day

4. Harbours and Anchorages

4.1 The only fishing harbour is the one at Tema. All deep sea fishing vessels are therefore based in Tema. This causes a lot of congestion. The locally built inshore fishing vessels operate from Ada, Tema, Winneba, Apam, Mumford, Elmina, Sekondi, Takoradi, Miemia and Axim.

5. Boat Building

5.1 There are two boat building yards being run by the Ghana Industrial Holding Corporation. These are based in Sekondi and Tema respectively. They can produce a maximum of 30 boats per year.

5.2 Yartel Boatyards at Elmina is privately owned. It can produce 10-15 vessels annually.

6. Training

The Fisheries Department trains coxswains and enginemen for the locally built vessels. Training is provided at Takoradi and Elmina in the maintenance and repair of marine engines and outboard motors.

6.2 The Ghana Nautical College provides training for engineers and deck officers for the deep sea fishing vessels.

6.3 Mankoadze Fisheries Limited provides maintenance and apprenticeship training.

7. Maintenance Repair and Dry Dock Facilities

7.1 The Fisheries Department provides maintenance and repair service at Ada, Tema, Accra, Winneba, Apam, Elmina, Takoradi for the inshore fleet and outboard engines.

7.2 The State Fishing Corporation has its own maintenance workshop at Tema.

7.3 Mankoadze Fisheries Limited has a well equipped workshop for major repair and maintenance work.

7.4 The Railway and Ports Authority also provides maintenance and repair service at Tema, Sekondi and Takoradi.

7.5 I.K.Q. Motors provides maintenance service for marine engines.

7.6 The Railway and Ports Administration, Tema Shipyard and Drydock provide dry docking facilities.

8. Research

8.1 The Fisheries Department undertakes both marine and freshwater fisheries research.

8.2 The University of Ghana and CSIR also undertake fisheries research.

9. Fish Distribution

9.1 The bulk of fish landed in Ghana is distributed by women fish mongers throughout the country.

9.2 The State Fishing Corporation which is based in Tema has major distribution centres in Tema, Accra, Kumasi, Tamale, Sunyani, Koforidua, Cape Coast and Ho. It also has 19 retail outlets. Other fishing companies have their own distribution system.

10. Review

10.1 The overall fish landings during the first phase of the OFY were quite substantial. The total catch landed by the various production units in 1972 amounted to 249,078 metric tons as against the fish production target of 190,560 metric tons. This represented an all time record of 130 percent of the annual target. The unprecedented catch was a direct result of exceptionally bumper herring season. At one time during the peak all fishing operations were suspended to prevent further glut and excessive wastage of fish. The cold storage facilities at the time could not absorb the excess fish. With exception of year 1975 when the fish production achieved 98% of the target, overall fish production since 1972 fell below 90% of the annual targets even though the targets remain unchanged over the years. Below are the target achievement for the five years expressed in percentage terms.

Production:	<u>1972</u> 249,078 metric tons	<u>1973</u> 155,314.9 metric tons	<u>1974</u> 182,080.30 metric tons	<u>1975</u> 212,680 metric tons	<u>1976</u> Provisional
% Achievement:	<u>130%</u>	<u>72%</u>	<u>84%</u>	<u>98%</u>	<u>60%</u>

10.2 In terms of production units, the State Fishing Corporation was the largest producing unit. It has constantly produced above 30,000 metric tons of fish during the five year period under review. They were followed by Mankoadze Fisheries Limited, which had been producing between 3,000 and 5,000 metric tons per year during the period. Kaleawo Enterprises, operators of medium size trawlers were producing between 2,000 and 2,900 metric tons annually. The Inshore vessels were producing far below expectation especially after 1972. The purse seiners were particularly hit by the non-appearance of the herrings. See Appendix C.

10.3 In relative terms, however, Mankoadze Fisheries exceeded its production target in 1972 by 16% and for subsequent years achieved between 80 and 88 percent of its annual target during the period. Kaleawo Enterprises produced impressive 75-85 percent of the target for 1st and 2nd years but its production has been declining.

11. Operational Constraints

11.1 The main constraint affecting the operation of the producing units is well known. The fishing industry has not been able to get its full requirements of imported essential materials such as spare parts, fishing gear and other fishing equipment. There was not enough foreign exchange allocated for these items.

11.2 The second and related problem is the imposition of high customs duty and sales tax on gasoil, spare parts and other fishing equipment and inputs. The phenomenal increases in oil prices have had an adverse effect on fishing operation. Consequently the cost of fish production has been soaring.

11.3 Thirdly there is the problem of inadequate local finance to meet the operating costs and import bill. Where funds were available, the interest charged happened to be very high. Interest rate should be reduced from 14 percent to 9 percent.

11.4 Fourthly the extension of territorial waters by almost all the coastal African countries have adversely affected the operation of the distant water fleet. This means that the rich fishing grounds off Mauritania, Senegal and Angola are no longer available for fishing by our vessels. This state of affairs could be solved by careful negotiations between the fishing companies of the various countries rather than by Government intervention!

The Future Planning of the Industry

12. Having listed the constraints which have militated against the success of the programmes I would like to make a few suggestions as to how some of these constraints might be minimised.

12.2 Firstly the present budgetary system must be looked at for the purpose of ascertaining whether the system is meeting the requirements of the fishing industry. The present yearly allocations of import licences needs also to be looked at. The difficulty also in getting funds released by the Ministry of Finance for development projects must also be removed. I would further suggest that basic requirements for the development of the fishing industry e.g. fishing nets, marine spare parts and other fishing equipment must be taken care of in an overall plan so that the regular unavailability of these items is no longer experienced. I feel strongly that it is the lack of proper planning that has resulted in the shortage of items which would have enhanced the regular and proper operation of our fishing fleet.

12.3 We should also focus attention on the development of our inland fishing resources by undertaking intensive aquaculture practices.

12.4 Enough and well equipped maintenance and repair workshops must be provided.

12.5 In the latter part of 1975 an action programme for the whole of the Ministry of Agriculture was developed. The main objective of the Fisheries Sector of this programme was that of ensuring self-sufficiency in fish production. This objective was to be achieved through:-

- a. efficient operation of existing vessels
- b. availability of inputs e.g. fishing materials, equipment and spare parts
- c. efficient maintenance and repair facilities
- d. adequate landing facilities
- e. intensive pond fish culture development.

A seminar of the development of the agricultural sector of Ghana with particular reference to the national economic development plan 1975 - 1980 was also held, in the hope of alleviating some of the constraints in the agricultural sector. Much paper work has been done in recent times on the issue in which we are now engaged and it is my hope that as this year has been declared as the year of action by the Head of State, every effort will be made to put some of these proposals into practice.

12.6 I have mentioned the question of import licence allocation. I had wanted to make available the yearly allocation of import licence to the fishing industry, unfortunately this is not presently available. This year the total value of import licence allocation for the importation of fishing nets is $\text{N}596,000$. The estimated annual consumption of fishing nets however is valued at $\text{N}3,000,000$ and for spare parts $\text{N}2,000,000$. For the year 1977 the total import allocation for the whole of the fishing industry sector is $\text{N}3,500,000$. This is supposed to cover fishing nets, spare parts, refrigeration equipment, marine engines etc. I need not mention that this is woefully inadequate for an industry which requires at least $\text{N}5,000,000$ annually in foreign exchange.

12.7 In conclusion I would like to mention that our priorities on the rational front must be made quite clear and those priority areas given the attention required.

APPENDIX A

MARINE FISH LANDINGS

	1974		1975	
	M/T	¢	M/T	¢
<u>COASTAL FISHERY</u>				
i. Round Sardine	1,408.1	779,362	1,931.1	837,221
ii. Flat Sardine	16,110.9	5,837,793	18,328.5	8,752,847
iii. Chub Mackerel	484.7	203,428	832.7	635,663
iv. Anchovy	33,440.8	3,557,709	32,172.9	3,656,615
v. Frigate Mackerel	4,010.4	2,424,472	5,773.4	3,801,465
vi. Sea Bream	1,145.0	480,207	5,943.7	3,545,732
vii. Burruto	11,425.0	3,021,681	11,107.6	4,150,961
viii. Others	40,860.1	17,317,353	58,305.3	22,136,514
Total	108,885.0	34,122,005	134,395.2	47,517,018
<u>INSHORE VESSELS</u>				
a. Purse Seine	257.4	103,541	128.5	833,182
i. Round Sardine	1,024.6	583,662	916.3	863,776
ii. Flat Sardine	51.9	21,820	9.8	8,058
iii. Chub Mackerel	728.0	230,316	830.7	490,441
iv. Sead Mackerel	1,005.0	475,019	1,019.6	2,828,157
v. Others	3,066.9	1,414,318	2,934.9	2,273,614
Total	3,066.9	1,414,318	2,934.9	2,273,614
b. Trawlers				
i. Sea Breams	891.4	530,428	1,362.4	1,126,447
ii. Cassava	480.4	258,074	463.9	398,024
iii. Burruto	1,017.2	360,350	812.4	405,639
iv. Trigger Fish	7,431.6	796,683	8,508.2	849,312
v. Others	2,859.0	1,429,260	3,009.2	1,899,865
Total	12,679.6	3,374,759	14,156.1	4,679,287
c. Line	52.9	26,455	36.6	40,367
d. Set Net	-	-	99.0	53,017
Total Inshore Vessels	15,799.4	4,815,568	17,226.6	6,952,901
<u>DISTANT WATER VESSELS</u>				
i. Sea Breams	5,603.6	2,024,420	3,276.7	5,539,260
ii. Trachurus Trachurus	21,454.0	7,240,937	29,461.7	21,635,874
iii. Hake	11,596.0	3,887,735	1,185.9	785,579
iv. Herrings	7,949.4	3,972,598	7,595.3	8,322,264
v. Others	8,790.3	3,787,887	7,429.4	3,626,189
Total	55,393.3	20,913,577	48,949.0	39,919,166
<u>TUNA -GHANA FLAG</u>				
i. Yellowfin	341.6	187,169	566.7	311,503
ii. Big Eye	-	-	279.8	169,852
iii. Black Skipjack	66.0	85,273	138.0	48,332
iv. Skipjack	701.4	335,933	1,425.8	618,396
v. Others	895.4	148,837	360.7	62,196
Total	2,004.4	757,212	2,771.0	1,240,279
<u>TUNA-FOREIGN FLAG</u>				
i. Yellowfin	11,905.7	6,727,966	2,879.9	1,831,469
ii. Big Eye	-	-	2,771.9	1,487,833
iii. Black Skipjack	560.3	264,555	375.0	165,004
iv. Skipjack	22,770.0	10,813,078	10,690.9	3,910,173
v. Others	1,164.2	884,255	391.3	177,102
Total	36,407.2	18,689,854	17,107.0	7,571,581
TOTAL TUNA	38,411.6	19,447,066	19,878.0	8,811,860
Total Domestic Catch	182,080.3	50,608,361	203,341.8	95,712,757
Tuna Fish Transhipped	41,266.0	-	21,939.7	-
Tuna Sold Locally	4,881.0	-	2,868.2	-
Fish Imports (Frozen)	887.0	-	872.0	-
Marine Fish Consumption	185,843.9	-	204,311.0	-

APPENDIX B

ORGANISATION	THE FISHING FLEET TYPE OF BOAT	NUMBER OF BOATS	
		1974	1975
<u>State Fishing Corporation</u>	Refrigerated Trawler	12	12
	Carrier	<u>1</u>	<u>2</u>
		<u>13</u>	<u>14</u>
<u>Mankoadze Fisheries Ltd.</u>	Refrigerated Trawler	10	10
	Tuna Bait Boat	4	8
	Purse Seiner	8	8
	Carrier	<u>1</u>	<u>1</u>
		<u>23</u>	<u>27</u>
<u>Ocean Fisheries Limited</u>	Refrigerated Trawler	2	5
	Carrier	<u>1</u>	<u>1</u>
		<u>3</u>	<u>6</u>
<u>Kaleawo Enterprises</u>	Medium Size non-refrigerated Trawler	8	9
	Medium Size non-refrigerated trawler	8	9
<u>Obuorwe & Co.</u>	Medium size non-refrigerated trawler	2	4
	Shrimp Trawler	8	4
<u>Tona Cold Stores Limited</u>	Locally built inshore boats	7	7
	" " " "	339	353
<u>Amevi Fisheries</u>	Non-motorised	1070	1070
	Motorised	7168	7168
Co-operatives			
Individuals			
<u>CANOES</u>			

CATCH IN METRIC TONS

	<u>1974</u>	<u>1975</u>
State Fishing Corporation	32,880	33,766
Mankoadze Fisheries Limited	19,602	21,315
Ocean Fisheries Limited	2,909	3,204
Tuna Vessels (Local)	2,004	2771.
Inshore Fleet	15,799	17,227
Canoes	108,883	134,397

APPENDIX C

	OFY FISH PRODUCTION 1972			OFY FISH PRODUCTION 1973			
	Annual Target	Annual Landing	% Achieved	Annual Target	Annual Landing	% Achieved	
S.F.C.	42,000	34,875.00	83%	46,200	39,509.6	86%	
Makoadze	21,600	25,102.46	116%	25,200	20,629.7	88%	
Ocean Fisheries	14,400	5,328.00	37%	14,400	5,222.3	36%	
Kaleawo Ent.	3,360	2,504.00	75%	3,360	2,920.24	87%	
Soli	1,200	269.41	22%	1,200	153.15	13%	
Inshore	18,000	27,308.03	152%	21,000	13,574.81	65%	
Canoes	90,000	153,691.1	171%	105,000	73,006.9	70%	
Tuna Vessel (Local)	-	-	-	-	298.2	-	
	190,560	249,078.00	130	216,360	155,314.90	72%	
	OFY FISH PRODUCTION 1974			OFY FISH PRODUCTION 1975			
S.F.C.	46,200	32,880.6	71%	46,200	33,766.47	73%	
Makoadze	25,200	19,602.9	78%	25,200	21,315.09	85%	
Ocean Fisheries	14,400	2,909.8	20%	14,400	3,204.14	22%	
Kaleawo	3,360	2,219.5	66%	3,360	1,515.8	45%	
Soli	21,000	13,580.0	65%	21,000	15,710.7	75%	
Inshore	105,000	108,883.1	104%	105,000	134,396.9	128%	
Canoes	-	2,004.4	-	-	2,771.0	-	
Tuna Vessels (Local)	216,360	182,080.30	84%	216,360	212,680.10	98%	
		Provisional Figures for 1976					
S.F.C.	46,200	34,853.32	75.44				
Makoadze	25,200	22,281.00	88.42				
Ocean Fisheries	14,400	3,163.65	21.97				
Kaleawo	3,360	1,086.43	32.33				
Soli	1,200	43.29	3.61				
Inshore	21,000	6,811.99	-				
Canoes	105,000	-	-				
	216,360	69,299.68	60%				

INTRODUCTION

Animal production in Ghana has been the pre-occupation of settlers in three main ecological zones of the Northern, Upper and the Coastal savannah. Sheep, goat and cattle rearing are the main animal production patterns in these zones.

Poultry raising for eggs and broiler meat is carried out on commercial scale in the south. However, some quantities of poultry are kept on peasant basis by these live-stock farmers. Pig raising is carried out mostly on the coast with patches in the Northern and Upper zones.

Organization

In Ghana the livestock industry is organized under three organizations. (1) Department of Veterinary Services charged with the responsibility of taking care of all the health aspects of livestock production as well as Veterinary Public Health. (2) Department of Animal Husbandry which is responsible for production and management problems. (3) Animal Research Institute which undertakes investigations into nutritional and other production problems.

Livestock Census, Importation & Local Slaughter: (See Tables attached)

Importance of Local Livestock Production:

Ruminants - A few years ago Ghana was very heavily dependent on importation of cattle, sheep and goats from our neighbours, Upper Volta, Mali and Niger. But in recent times supplies from these countries have been erratic and rather uncertain. Owing to this unhappy situation there has been a lot of pressure on local sources of supply. Available figures indicate that in 1972 out of 99,400 cattle slaughtered in Ghana, only 37,000 were imported. Comparable figures for 1973 and 1974 are 98,000 and 50,000 respectively. This means that local supplies of cattle formed almost 60% of the total number of cattle slaughtered in 1972, about 50% in 1973 and about 55% in 1974. Recent figures indicate a similar trend towards a heavy dependence on local sources of supply.

The pressure on local sources of supply now is therefore quite high compared with the situation which existed a few years ago, when more than 70% of slaughtered cattle were imported. This pressure on local supplies is giving cause for concern since farmers are persuaded to sell animals that are productive for slaughter. This reduces continually, the number of animals available for multiplication.

In Ghana the livestock development programme is organized into three phases.

- a. Short term programme in which every effort is made in the production of poultry and pigs in adequate numbers and quality.
- b. Medium term programme which emphasises the production of sheep and goats.
- c. Long term programme for cattle production.

Poultry and Pigs

There is enough hatchery capacity to supply our needs for day old chicks, both broilers and pullets. The total capacity is more than 10 million per year although, as the market is not yet ready to absorb such numbers, production levels are lower. Both the husbandry and health situations in the poultry industry are of a high standard. Occasionally shortages of ingredients occur due to the constraints imposed by the availability of foreign exchange. Such shortages have, from time to time, depressed the industry. Nevertheless it is a pleasure to report that Ghana is self sufficient in poultry meat and eggs.

Pigs: A similar situation to the Poultry Industry exists in the Pig Industry but here more so than in Poultry, the feed situation as well as marketing difficulties have made expansion difficult. There is under construction a factory for processing pork and other pig products. When this factory becomes operational it is expected to serve as incentive to pig production.

The Future: Every effort is being made to increase livestock production and in this regard the resources of both the public and private sectors are being harnessed. In so far as cattle are concerned attempts are being made to increase production (a) by improving their nutritional plane through development of improved pasture and grazing facilities. (b) by improving the rate of production through effective disease control and (c) by improving on the quality of the animals by the use of artificial insemination. A cadre of farmers, especially in the Tongu area of the Volta Region, have already accepted the A-1 programme and are having their animals inseminated regularly.

Similar efforts are being made to improve production of the other livestock and poultry.

Dairy: A pilot dairy project has been in existence for some nine years now. The results of this trial have been quite encouraging in so far as the animals appear to have acclimatized to the environment created for them. An increase in dairy production is envisaged and in the middle of July, 1976 an agreement was signed between the Ghana Government and some German and Danish companies to establish a dairy farm costing 18 million Cedis. This project is expected to supply a substantial amount of Ghana's dairy requirements.

PROBLEMS OR CONSTRAINTS LIMITING LIVESTOCK PRODUCTION

Malnutrition (pasture, fodder crops, water resources)

Poor quality of feed for ruminants throughout the year and low availability of even the poor feed during the dry seasons ranging between 3 - 6 months depending on location are among the limiting factors of the ruminant production in Ghana. Ruminants in Ghana (Cattle, sheep, goats etc.) are entirely raised on natural pastures throughout the year with little or no supplementary feed during the dry seasons.

Except few browse leguminous shrubs and trees, the natural grasslands contain no pasture legumes. Hence livestock growth rates are closely related to the growth rhythm of natural pastures. The growth rate of livestock are therefore high during the wet season and then reduce appreciably during the dry season. Pasture growth and quality increase with onset of rains but quality declines considerably 2 - 3 months after. Although quantity of feed remains adequate until natural grassland is traditionally burnt, the nutritive value often declines to below 7% crude protein. With the exception of government and some institutional livestock stations and farms where fodder is conserved as hay or silage, the private livestock farmers who constitute over 90% of the producers depend on stand hay to take the stock over the dry season.

Coupled with low quality of feed and less feed during the dry season is the low water availability in the main ecological zones where these animals are raised. Feed for poultry and Pigs is a very major constraint as mentioned earlier.

2. Breeding: As a rule random mating is practised by most livestock farmers. It is only of late as from 1965 that serious attention has been given to breeding cattle. Sheep, cattle and pig breeding centres have been established all over the country as foci for breeding work. Cross-breeding using local adapted species is being encouraged particularly amongst sheep and cattle at the village level. Pure breeds of Ndama, West African Short-horn Fulani are maintained to prevent total dilution of very well adapted breeds. In-breeding has been a problem. Animals are not weaned at the right age, and few practise selection.
3. Marketing: There are no regularly organized markets and livestock is purchased by itinerant dealers and animals are sold on visual appraisal basis. However, the poultry and pig industries have well organized marketing systems for broilers eggs and pork.
4. Transportation: Livestock transportation is a major problem and most cattle are transported on the hoof to the main quarantine stations in the north. They are subsequently transported by road to the south.
5. Technology: There is not any improved technology at most village levels. What technology is available is only at breeding centres and research stations. A strong livestock extension service has therefore been established to ameliorate most of the problems enumerated.

In conclusion it may be said that livestock production in Ghana, affected by many constraints, is being tackled vigorously with the aim of making the country self sufficient in meat. The present offers many challenges for both the veterinarian and the husbandman. Their cooperative efforts will ensure the monumental task ahead. The future is promisingly hopeful.

LIVESTOCK PROMOTION

Under the Action Programme drawn up to support the five-year development plan, the following targets have been set for both ruminant and non-ruminant production:-

	<u>Ruminants</u>	<u>Present Position</u>	<u>Targets</u>
Cattle		800,000	3,000,000
Sheep		900,000	4,000,000
Goats		750,000	4,000,000

Non-Ruminants

Poultry			
a)	Chicken		30,000,000 per annum
	Broilers	3,000,000	
a)	Layers	2,000,000	6,000,000 " "
b)	Turkeys	not available	1,000,000 " "
c)	Ducks	"	1,000,000 " "
d)	Guinea Fowls	"	1,500,000 " "
e)	Pigs	"	3,000,000 " "

For the purpose of promoting the development of livestock generally and also for achieving the targets set under the action programme, the following infrastructure and conditions must be established:-

a) Infrastructure

- i) Provision of water
- ii) Pasture development
- iii) Fencing
- iv) Equipment, machines and Transport
- v) Housing
- vi) Farm roads
- vii) Electricity
- viii) Communication by telephone or motorola
- ix) Land

b) Conditions

It is very vital to have these conditions after infrastructural development if the programme should make a headway:-

- i) Breeding stocks for cattle, sheep and goats
- ii) Grand-Parent stocks for poultry
- iii) Grand-Parent stocks for pigs
- iv) Adequate feed supply
- v) Veterinary support

Strategy:

To accelerate development by adopting the project concept in the specific areas of production. The projects will be made to produce, support the private sector, act as demonstrations to the benefit of farmers and partially to stabilise prices and consumer costs.

An out growers colony particularly for pigs and poultry will be attached to specific projects in the regions. Communal projects are meant for a large scale production of cattle from the cattle farmers sector; this development will involve the provision of dams, dug outs, fencing, pasture improvement and veterinary support.

Intensive units of production will be part of the total programme. This will enable an appreciable amount of livestock and poultry products to be contributed to the entire national requirement of beef, mutton, chevon, poultry meat, pork and eggs. In this sense, the intensive units imply the setting up of cattle, sheep and goats fattening units, poultry and pigs colonies in selected areas of the country. If the intensive units are to make any effective contribution, it becomes imperative for the crop sector to step up its production of the energy and vegetable protein proteins namely maize, sorghum, groundnuts and soya-bean. Efforts will be made to produce more yellow maize for feeding livestock and poultry specifically. The feed programme involves the use of premixes in combination with the aforementioned ingredients in order to maximise production.

PROJECT BEING NEGOTIATED OR DISCUSSED WITH EXPECTS AGENCIES IN GHANA OR ABROAD

Discussions with expert agencies in Ghana and abroad have almost been completed for projects listed below. Specific projects details will be submitted to Council from time to time.

- i) Grand-Parent Poultry Project
- ii) Take over of Adidome Poultry Farm
- iii) Rehabilitation of Kwakubew Poultry and Pig Project
- iv) Dairy Farm Project - Kwahu Hills
- v) Premixes for feed production
- vi) Drugs and anti-biotics for Veterinary use through GHIHC Pharmaceuticals
- vii) Vaccines production
- viii) Poultry Colonies - Regional
- ix) Pig Project for Dawson, ham sauseges and salani
- x) Regional Feed Mills Projects
- xi) Paper boxes and trays for eggs and dressed bird with GHIHC Paper Conversion Corporation.

Financing:

The basic breeder stocks will have to be financed from Government sources. This will enable Government to have absolute control to ensure that the right type of breeder stocks are brought in and disease introduction kept to a minimum. It is necessary to make more funds available to step up the numbers of imported breeder stocks.

If there are other infrastructural and condition requirements for which specific expertise are required, where necessary, outside participation will be invited. The financial requirement listed under specific projects will be submitted to government from time to time.

- 3 -

A total of about 130 million will be required under the 5 year programme for implementation. Part of this amount will be borne below the line. However, the livestock promotion programme will have to be phased over the plan period.

List of General Projects:

List of existing and on-going projects in the whole country is attached as Appendix I.

LIST OF DEPARTMENT OF ANIMAL HUSBANDRY PROJECTS

GREATER ACCFA:

STARTED

Amrahia Dairy Farm £219,402
 Mungwa Livestock Station -
 £258,576
 Maledjor Sheep Farm - £248,864
 Kwabenya Rabbitry - £1,055,550
 Appolinia Communal Paddock -
 £199,328
 Total: £1,981,720

VOLTA REGION:

Amelorkope Cattle Station -
 £309,576
 Adidome Piggery - £875,000
 Adakpo Communal Paddock
 £429,600
 Adutor Communal Paddock -
 £131,963
 Tevikpo Communal Paddock -
 £157,864
 Vakpo Sheep Project - £318,864
 Nkwanta Sheep Project -
 £573,940
 Total: £5,218,339

EASTERN REGION:

Forifori Sheep Project - £300,800
 Plwenya Cattle Ranch - £443,288
 Nkwakubew Poultry and Figs
 Project - £1,274,766
 Total - £4,656,174

NOT STARTED

Poultry Grand Parent
 Project £2,230,000
 Pig Grand Parent Project
 Feed Mill Project
 Premises Plant

£191,500
£2,421,500

Hohoe/Kpandu Rabbitry
 £2,500
 Ketekrachi Communal
 Paddock - £1,468,668
 Feed Mill Project -
 £1,471,168

CENTRAL REGION:

Winneba Cattle Station £225,788
 Pershie Sheep Project £286,864
 Kasewa Communal Paddock £1,246,380
 Total: £2,688,120

Kwahu Hills Dairy
 Project - £15,220,000
 Feed Mill Project
£15,220,000

WESTERN REGION:

Ainyinase Cattle Project -
 £579,000
 Tumentum Sheep Project
 £300,000
 Total: £879,088

Samanhu Sheep Project
 £300,000
 Feed Mill Project -
£300,000

NOT STARTED

Ghana Govt. Cont. - \$571,000
UNDF Contribution - \$748,500

STARTED

ASHANTI REGION: Ejura Ghana Govt./UNDP
Sheep Project

Drobonso Cattle Ranch -
\$1,798,100

Total: \$2,359,100

BONO AHAFI:

Wenchi Cattle Station - \$397,362 Prang Cattle Ranch - \$1,468,668
Atebubu Cattle Ranch - \$826,000 Feed Mill Project -

Kintampo Sheep Project -
\$318,863
Sunyani Poultry Demonstration - \$19,275
Techiman Rabbitry - \$1,877

Total: \$1,563,436

\$1,468,668

NORTHERN REGION: Pong-Tamale Cattle Station
\$1,528,880

Bimbilla Cattle Station -
\$527,264

Daboya Sheep Project -
\$318,864

Total: \$2,375,008

Damongo Communal Paddock -
\$1,545,504

Bole Communal Paddock -
\$1,545,504

UPPER REGION:

Babile Cattle Station -
\$437,686

Basua Cattle Station -
\$171,340

Wa Pig Project - \$42,125
Doba Pig Project - \$75450

Busa Sheep Project \$318,864

Kulogo-Naga Communal Paddock
\$1,022,792

Total: \$2,068,257

Bawku Communal Paddock -
\$176,453

Tumu/Lawra Communal Paddock
\$1,609,956

Feed Mill Project

\$1,786,409

GRAND TOTAL: \$23,068,242

\$25,758,753

Breeding Stocks for 5 years \$60,000,000

I.B. These totals exclude all projects that have not been costed.

These projects include the following:-

- (a) Pig Grand Peart
- (b) Feed Mills
- (c) Promixes
- (d) Poultry and Pig Colonies
- (e) Pig production for pork, bacon, ham, etc.

LIVESTOCK POPULATION

	1972	1973	1974	1975
CATTLE	661,255	708,210	744,602	800,000
SHEEP	804,469	873,044	902,236	1,500,000
GOAT	667,992	742,212	744,144	1,500,000
PIG	141,417	140,151	124,494	200,000
POULTRY	3,980,596	3,647,432	4,225,249	7,000,000*

*about 4,000,000 are improved European breeds.

LIVESTOCK IMPORTATION

	1972	1973	1974	1975
CATTLE	37,039	50,511	54,013	8,914
SHEEP	5,326	12,367	11,839	14,108
GOAT	7,572	21,173	19,729	6,380
PIG	-	-	3	-
POULTRY	400	22,125	-	400

LOCAL SLAUGHTER OF LIVESTOCK

	1972	1973	1974	1975
CATTLE	99,497	98,252	115,710	98,744
SHEEP	78,417	84,072	81,677	94,314
GOAT	117,163	142,987	149,400	148,763
PIG	27,268	30,256	27,067	34,348

OEY AND OEYI REVIEW COMMITTEE
FOCUS ON ECONOMIC RESEARCH AND PLANNING SERVICE,
MINISTRY OF AGRICULTURE

BY

DR. Y.K. ATTA-KOAHADI

The overall responsibilities of the Economic Research and Planning Service (ERPS) include the co-ordination of the work of other operating departments and parastatal institutions (i.e. Boards and Corporations) as follows:

1. Preparing annual budgets for departments and corporations
2. Setting of standards and criteria for operating departments/parastatals to follow in preparing and carrying out projects.
3. Setting of standards of operating departments in reporting on the progress of projects and on the basis of reports from operating planning units within each department, the preparation of regular, timely and reasonably complete reports and evaluations of overall progress.
4. Co-ordination of technical assistance programmes within the Ministry.
5. Liaison for the Ministry with the Ministries of Finance and Economic Planning.

The Economic Research and Planning Service has recently been elevated to the status of a Department with a director as the substantive head. The director to be assisted by four (4) deputy directors, is responsible through the Senior Principal Secretary for the formulation and implementation of agricultural economic policies for all Ghana. The new name given for the post is DIRECTOR OF AGRICULTURAL ECONOMY.

In order to carry out its responsibilities, the ERPS has the following functional divisions with a deputy director as the head:-

1. Farm Management Research and Extension.
2. Statistics (census, current agricultural statistics, derived statistics)
3. Marketing research, extension and development.
4. Planning, Budgeting and Project Monitoring for the Ministry of Agriculture.

The regional offices are headed by Regional Agricultural Economists. The functional divisions at the headquarters have their counterparts in the regions. Our regional offices are supposed to represent the Ministry through the Principal Secretary's office at the regional level. In other words they are to co-ordinate the activities of all departments and parastatal organisations within the Ministry at the regional level; but so far we have not been given the mandate to implement this programme.

WORK PROGRAMME

FARM MANAGEMENT

During the last crop season the Farm Management Division carried out special farm management research in the Upper and Volta Regions. Two special studies were also initiated and carried out, viz Poultry Industry and Agricultural Mechanisation. The returns are being assembled and analysed to provide inputs into farm programming models we are building up to assist individual farmers.

Other Farm Management study areas being emphasised during this financial year are as follows:-

(Production Studies: There are two projects being undertaken now:-

(1) Under this Project production costs for selected are being estimated. Information being generated include costs of various factors of production items and how they change overtime, and labour costs, purchased inputs etc. The data being generated provide inputs into formulating agricultural price policies for Ghana (eg. Guaranteed Minimum Prices).

(2) Studies are being undertaken to investigate the principal farming systems and the effects of new technology on those farming systems. Studies underway emphasise the following:-

(i) determination of the success or failure of farmers to adopt new technology and the reasons for non-co-operation.

(ii) Preparation of Farm Management Handbook to assist farmers, teachers and students in developing farm plans.

Under the MIDAS Project (the government recently signed the agreement with the U.S. government), the Division will start running a Small Farms Systems Research Station which is being sited near Atobubu, B/A.

STATISTICS DIVISION

This Division has responsibility for carrying out agricultural sample census on annual basis. Basic statistical data generated include a (1) acreages under various crops; (2) yields per acre under various crops; (3) total production (4) Livestock numbers; (5) Farm population.

During the last crop year a start was made to improve upon the estimation of the crop yields. More vigorous mathematical methodologies were introduced to arrive at objective estimation of crop yields using sampling procedures. This year four (4) projects are being undertaken:-

(a) Selection of master samples of farmers:

In order to provide assistance to the Economic Analysis Section (Farm Management Division) the section prepares a master sample of farmers for use in estimating the cost of production and other related factors.

(b) Collection of Current Statistics: This section collects agricultural statistics such as number of holdings, land utilization, acreage, production of various crops, livestock numbers, demographic characteristics of holders.

(c) Enumeration of large-scale holdings.

(d) Establishment of crop outlook programme: The data collection section is actively investigating the parameters involved to make crop forecast well in advance of the harvesting season. The project involves estimating crop areas at planting, as well as periodic field reports on weather and other variables during the growing season and at harvest time.

In order to carry out these responsibilities, enumerators (Field Assistants holding substantive posts) are trained annually.

The 1977 training programme was as follows:-

- | | | | |
|--------------|---|----------------|---|
| 17th January | - | 22nd January:- | Ashanti and Brong-Ahafo Regions at Wenchi. |
| 17th January | - | 22nd January:- | Northern and Upper Regions at Navrongo |
| 31st January | - | 5th February:- | Central, Western and Greater Accra Regions at Busso |
| 7th February | - | 12th " :- | Volta and Eastern Regions at Busso. |

About 600 Field Assistants took part in the course at the various locations.

MARKETING DIVISION: The division collects data on prices and commodity movements. Its activities cover all urban markets, semi-urban markets and rural markets in the country. This year, substantial progress is being made to statistically analyse the data so as to generate needed parameters to be used in planning. The Government has created a Special Marketing Unit headed by Major Seshie of the Ghana Army and assisted by Nana Obonoba Osei Yaw Akoto and Mr. Acheampong of the Grains Development Board, (The Unit is responsible to the CAE). They are under special salaries and allowances. The Major task of the Marketing Unit is to implement the National Agricultural Marketing Programme. The Implementation of this Programme has started with the movement of tractors and trailers to pilot areas in Keto-Krachi, Techiman, Atebubu, Mampong, Bimbila. It is being recommended that maximum support should be given to the ERPS in order to vigorously implement all the provisions within the National Marketing Programme.

SPECIAL PROJECT: Provision was made in the Annual Estimates to carry out a country-wide marketing studies in order to examine the structure, conduct and performance of the marketing of foodstuffs. Preliminary discussions have been held with research fellows in the University of Ghana so as to award the University a contract to carry out the study. This is in line with the Government policy to make use of local expertise in carrying out specific studies.

The marketing of rice is a problem that is receiving an increasing attention. We are under instructions to work out a feasible programme to efficiently distribute rice from government and private sources using GINCO retail outlets. Since this is a complex programme requiring rigorous mathematical transportation models, we are currently holding discussions with officials of the University of Ghana to award a research contract to them to carry out the project jointly with us.

The government has reconstituted the Guaranteed Minimum Prices Committee. A draft terms of reference paper plus the composition of the Committee has been submitted to the Commissioner for Agriculture and work has actually started.

The distribution of rice grown on government land in the Southern zone is another area of concern to this Ministry. Several irregularities were detected and the Commissioner accordingly directed that a full report be provided which will form the basis for overhauling the entire rice distribution system in the

The final report has been submitted since to the Commissioner through the Senior Principal Secretary.

PLANNING, PROJECTS AND BUDGETING DIVISION

This division helps in project preparation work. One major work completed recently is the Upper Region Agricultural Development Project financed by the World Bank. Currently, a similar exercise is being carried out by the Division for the Volta Region. We hosted a World Bank Mission during the latter part of January 1977 to join us to prepare the project document for possible World Bank financing.

The Division has the responsibility for preparing the annual budget estimates for all the other departments boards and corporations within the Ministry. In order to use the Annual Budget as a principal instrument for implementing the provisions within the 5-Year Plan, the Ministry has authorised the ERPS to evolve a phased implementation of Programme Performance Budgeting System. ERPS will provide effective co-ordination in all matters relating to

- a) The preparation of implementation procedures for the 5-Year Plan.
- b) Translating the Plan into meaningful annual operational programmes of work and ensuring that these are adequately reflected in the estimates of the departments and parastatals.
- c) Restructuring the processes of the budget so as to completely harmonise the provisions of the plan and the annual estimates.
- d) Setting up an efficient system of rendering of progress reports and project monitoring.
- e) Development of efficient financial management and accounting procedures.

What is needed to implement this programme is a big push by the government.

Planning:- The term "planning" is used to designate the system of policy choices and administrative procedures to be used by the MOA to examine and define the objectives it is to seek, to determine the different measures or projects that it can undertake in seeking them, to compare the costs and advantages of such projects and combine them into programmes, so as to draw greater advantages from our resources and strike a proper balance between the various objectives.

During this financial year, provision has been made to undertake agricultural sector studies. The purpose of planning studies is to arrive at a representation of the planned system (i.e. the agricultural sector and its relationship with the other economic sectors) which will be of practical use in the decision-making process. A contract is being considered to be given to the University of Ghana to undertake the sector analysis study jointly with us.

The FAO Planning Project GH/72/007 - has being substantially thinned down to emphasise assistance in the area of the collection and analysis of current agricultural statistics. Dr. Warula is the only person left in the team having just finished taking over from Mr. Milliken.

The Division is responsible for co-ordinating all technical aid programmes under the Ministry. It also provides manpower for subsectors. Such as import licensing, special projects such as the KWAE Oil Palm Project, Upper Region, World Bank Project and World Food Programme Project.

EVALUATION OF OPI AND OPII PROGRAMMES FROM THE ECONOMIST'S
VIEWPOINT

OPI AND OPII AT THE FARM LEVEL

The structure of the Agricultural sector shows a great diversity in organisation. This varies from the small scale operator, heavily dependent on traditional inputs-hoe, cutlass and seed which has been saved from the previous seasons's harvest and hardly using any fertilizers - to the sophisticated farmer who has completely mechanised all farm operations. Between the two extremes are farm stratifications based on size, which ever classification criterion is used, and the extent of adoption of technological packages. It is self-evidently true that the bulk of agricultural production in Ghana, about 80%, is accounted for by the small-scale operator referred to above.

2. The primary need, should agricultural production increase as anticipated in the OPI and OPII programmes, is to develop and disseminate a proven, adapted and profitable technological package for small farmers. This package should be based on an improvement of the existing cultural and resource management techniques, ready availability and access to production inputs, credit to purchase these inputs and an acceptable means to market farm produce.

3. The OPI programme, the first of the two programmes to be launched, was introduced in 1972 to arrest a trend - Ghana's heavy dependence on food imports. At the end of the first year, a tremendous enthusiasm had been generated in farming. The enthusiasm could not however be sustained basically because of lack of support-services. Hatchets were not readily available to the farming community. The price of the small numbers found on the market was more than farmers could afford. Government intervention by way of distribution through Regional Agricultural Officers at a belated hour saved an otherwise intolerable situation. To date it has not been possible to make adequate quantities of fertilizer available in any particular year. The Northern and Upper Region consumed about 80% of fertilizer imports in 1975. At that time, fertilizer sold for over ₵8.00 on the black-market as against the official rate of ₵2.80 in the two regions. Moreover the large-scale farmers had better access to fertilizer partly because they were beneficiaries of subsidised credit from financial institutions. The cumbersome processes involved in fertilizer procurement at times resulted in late delivery. The supply of improved seeds to farmers also lagged behind demand. The Ministry of Agriculture was able in 1976 to supply seed to 35% of the rice farmers and 25% to the maize growers in the country. Extension officers' involvement in the distribution of farm inputs has adversely affected their capability to transmit technical information to farmers. The seriousness of the situation becomes clear when the manpower situation of

Extension staff is considered in relation to the size of the farming community requiring extension services. Furthermore, the organisation is illequipped to discharge its functions efficiently. Mobility of the staff is almost non-existent due to lack of incentives: insufficient out-of-station allowances, lack of official vehicles and high cost of operating personal vehicles, when available. There is no gainsaying, the Extension Service is very thinly spread at the field level and is therefore most ineffective.

4. Since the introduction of the programmes, the interest rate on agricultural loans has been subsidised. At the same time agricultural credit facilities have expanded both for the private and public sector. In the private sector however, the small-scale operator has been discriminated against since the large-scale operators have been the main beneficiaries of agricultural loans. The major constraint has been the high cost of administering loans to small-scale operators.

5. Support for the livestock sub-sector is neither adequate. The size of the nation's breeding stock has not expanded to cope with a programme to enable the country to be self-sufficient in meat production within the next foreseeable future. Provision of Import licence for the purchase of breeding stock has never fully covered the inadequate budget allocation year after year. Clearing machinery for the establishment of ranches are not available. Extension support for the livestock sub-sector is more critical than that for the crop sub-sector. The major bottlenecks are lack of trained staff, and equipment. The poultry industry is characterised by a diminishing size over the period for a number of reasons: The hatcheries have been unable to produce enough day old chicks due to lack of import licence for the acquisition of parent stock. Feed, particularly maize, has not been available on the market and hence poultry farmers have for sometime faced escalating prices. Essential drugs to combat Newcastle and other poultry diseases are not available on the market.

Objective analysis of the livestock sector using survey data shows that Ghana is likely to remain a deficit producer of livestock products for a decade or more. Presently about $\frac{1}{3}$ of the estimated total meat consumption (43,000 tons excluding bush meat, including offals) comes from external sources. The total value of all the livestock and livestock product imports is probably over \$10 million. Demand for livestock products is increasing at the rate of around 5-7% per annum. The gap between demand and production keeps on widening. In order to achieve self sufficiency in red meat within the foreseeable future, the production of beef and mutton should increase at an average growth path of 10% per annum.

Under the OPY programme, problems/constraints related to livestock marketing could be solved more easily and quickly compared to other developing countries. Marketing can be improved through adequate investment for building up infrastructure, through correct pricing, subsidy and credit policies. But the constraints of a social and institutional nature will take long time to remove.

Constraints to feeds seems, in general ^{are} not very serious as far as the climate, land and grazing resources are concerned. This is an area the activities of the Ministry of Agriculture have not lived up to expectations.

Potentially, Ghana has about 10 million ha. (or 24 million acres) of grazing land which under unimproved conditions could carry at least three times as much as the present stock (in animal units about less than a million). To achieve this would require a system to be developed to utilize the potentially available grazing resources and to overcome dry-season feed shortages. Full utilization involves improved range management, improving grass cover and its quality, provision of year round stock water and solution of seasonal feed deficiency. In total, it requires heavy capital investment and institutional build up, training farmers/stockmen, extension animal health services etc.

Feed grain availability continues to plague the OFY efforts. Particularly important are the by-products both crop residues (roughages) and agro-industrial by-products which are not fully used at present. At present Ghana is facing a shortage of protein feeds, there should be an effective policy for this. When poultry and pig industry is expected to grow fast to meet the OFY targets the problem ^{is} more critical. The major production expansion for maize and ^{becomes} oilseeds could go a long way towards meeting this demand. The most serious constraints for increased production is the low number of ruminants thus a major increase in herd or flock size is absolutely necessary.

The herd/flock productivity is low (except commercial poultry). Increasing herd productivity involves measures both for increasing productivity of individual animals and restructuring the herd. To generate this, genetic capability of animals has to be improved which is a long term issue, plus, improvement of feeds and feeding, better control of disease, parasite, and improvement of management/husbandry methods and environment is necessary.

Intensification of production systems and expansion is another issue. The poultry industry in Ghana has achieved the size and the level of intensification necessary despite certain operational problems and feeds and day-old chicks shortages. The pig industry could also be developed in the same line, if, among others, feed and breed problems are solved. But for the ruminants there is no scope for a large scale industrial systems of production, cattle/sheep feed-lot fattening operations are difficult. Firstly, because of lack of suitable animals in adequate quantity, secondly, shortage of concentrate feed and roughages. Intensive livestock raising and feeder animal production under irrigated conditions are also doubtful. The dairy industry has the same difficulties, requires irrigated fodder, concentrate feed, exotic cattle which under present and foreseeable conditions seem unfeasible.

If we take each sub industry separately: For the cattle industry there is only one main line of production in the future that is beef. As mentioned, industrial dairy cannot be visualized at a large scale since there is no sound base for it. Small scale dairying could be set up near consumption centres based on exotic/cross cattle, quality feed to test the technical, economic

possibility for future development.

One factor that emerges is that the MOA proper is essentially a service organisation. The activities of the various departments should be mainly the provision of service. This being the case, one major constraint which can be removed is the separation of the production and extension service aspect of the Animal Husbandry Department. The production aspect belongs to a private company, a board or a corporation.

A new programme should be evolved to encourage residential or homestead farming. Among other things this type of farm organisation can permit crop and livestock enterprise combination - a type of organisation that accounts for the abundance of meat and meat products including dairy in East African Countries.

PROJECTS AND TARGETS

Introduction

The Operation Feed Yourself Programme (OFY) was launched in 1972 by the NRC Government. The Programme constituted Government Agricultural Policy and was aimed at elevating the country from a major food importer to a self-sufficient country in food production. In order to achieve this objective, production targets are set for all staple food crops each year. Tables I and II show both acreage and production targets since 1972.

Production Achievements

It is apparent in Tables I and II that production and acreage targets have not been achieved. For example, in 1972 the target for maize was 1,279,000 acres but 960,000 acres were cultivated. For comparison, 1,118,000 acres of maize were cultivated in 1971. This is an indication that the target set for maize under the OFY in 1972 was realistic. Likewise, area under plantain in 1971 was 1,421,000 acres while the 1972 target was 1,553,000 i.e., 10 percent increase, but only 757,000 acres were planted.

Problems:

Food production involves both science and art. This fact has frequently been ignored. Increase in agricultural production is sometimes assumed to be achieved through slogans and merely pushing unskilled labour to the land. It has to be realised that without proper planning the wide gap between plan formulation or target and plan implementation or achievements, will continue to exist. The wide gap is due to the following factors:

1. Inputs: available inputs such as seed, insecticides, woodicides machinery, cutlasses, and hoes are not made available/correspondent with the /to targets set.
2. Management: inefficient management and administration of the scarce resources available is an important factor. The obvious example is the fertilizer situation.

3. Organization: adequate cohesion is lacking between the various departments of the MOA. Inter-departmental communication has to improve. In 1972, many chiefs and landowners, voluntarily released land to the Government in appreciation of the OPY programme. But because of poor management and organization in appreciation small percentage of these offers was properly acquired by the Government. It will therefore be erroneous to mention land tenure as a constraint. The actual constraint is the sluggishness of some officials.
4. Technology: when the OPY was launched the emphasis was on hand - powered agricultural technology, i.e. cutlass and hoe. But unfortunately, the Ghanaian farmer had been introduced to engine-powered technology. What is therefore required is a better organized machinery hire service.
5. Commercial: Food distribution was contracted to the GFDC, but again because of inadequate resources and poor management and organization, food has still remained abundant in the rural areas.

Suggestions:

Food production in the country should cease to be an ad hoc activity.

Although OPY was launched in 1972 it still looks as if it is an emergency programme simply because it has not been backed by proper planning. Therefore, the main suggestions are:

1. An agricultural planning body comprising technical personnel should be formed. The task of the body should be all embracing, i.e., planning agricultural production, initiating the plan and sustaining such plan over a decade.
2. A single agricultural research organization should be set up to ensure that research priorities are in line with Government policy and that research results are channelled to farmers. At present agricultural research results are as scattered as the research organizations.
3. The weaknesses identified with the present budget structure should be eliminated. A ^{serious} ~~serious~~ consideration need be given to the introduction of Programme Performance Budgeting System (PPBS) within the MOA. The proposals have been submitted to the Senior Principal Secretary, MOA, with copies to Ministries of Finance and Economic Planning.
4. The Ministry of Agriculture is yet to formally designate the Economic Research and Planning Service as the central budgeting and project monitoring organ for the entire Ministry. The lack of action in this regard is hampering our operations. Consequently, budget control within the Ministry is deficient and OPY and OPYI project monitoring exercises have not been effectively carried out.

C R O P	FORM OF PRODUCE	1 9 7 2		1 9 7 3		1 9 7 4		1 9 7 5	
		TARGET	PRODUCTION	TARGET	PRODUCTION	TARGET	PRODUCTION	TARGET	PRODUCTION
<u>Food Crops</u>									
Maize		585	396	933	420	1000	478	476	338
Rice		112	69	117	61	120	72	65	70
Guinea Corn			97	409	107	450	152	180	120
Millet		159	150	272	164	300	374	123	133
Groundnut		70	88	78	125	100	154	122	109
Cowpeas			9	138	7	150	11		11
Plantain		3569	1643	7910	2038	8000	1992	2132	1226
Cassava		2884	2795	4640	2820	5000	3549	3437	2360
Yam		2381	668	3055	675	3500	836	1248	698
Cocoyam			930	2283	1304	2500	1486	1868	1082
Vegetables		91	480	1144	427	1500	525		390
<u>Industrial Crops</u>									
Coconut			291	-	301	-	302	265	306
Oil Palm			700	39	770	50	902	983	887
Citrus			89	27	126	40	148	167	148
Kenaf									
Cotton									
Tobacco			1.9		1.7			1	
Pineapple			1.8	34	2.1		2.2	9	2.2
Sugar Cane			23		28	40	3.3	3	2.3
<u>Special Crops</u>									
Ginger							34	49	16
Cashew					158		168	308	201
Banana			9.4						
					10.1				
							9.7		
								265	10.1

OPERATION FEED YOURSELF ESTIMATES OF AREA AND TARGETS

- 11 -

C R O P	FORM OF PRODUCE	1 9 7 2		1 9 7 3		1 9 7 4		1 9 7 5	
		TARGET	ACHIEVEMENT	TARGET	ACHIEVEMENT	TARGET	ACHIEVEMENT	TARGET	ACHIEVEMENT
<u>Food Crops</u>	In '000 Acres								
Maize	Dry grain	1279	960	1166	1002	1374	1050	1079	790
Rice	Paddy	201	173	221	163	226	165	175	194
Millet	Dry grain	502	434	344	475	217	549	557	491
Guinea corn	Dry grain		495	512	546	312	534	562	514
Groundnuts	Nuts in Shell	232	7226	260	196	227	274	291	251
Cowpeas	Dry beans		225	307	206	23	313		309
Plantain	Bunches	1553	757	1582	831	1226	847	855	568
Casheva	Tubers	760	940	1160	721	1049	960	996	703
Yam	Tubers	538	331	611	320	591	328	336	290
Cocoyam	Tubers		6371	761	645	591	701	722	243
Vegetables	Fresh	45	320	228	268	237	337		243
<u>Industrial Crops</u>									
Cocunut	Nut in Husk		88	3	91	3	92		
Oil Palm	Bunches		280	10	308	17.5	361	94	93
Citrus	Fresh Fruits		34	6	48	7.7	57	372	355
Konaf				6		7.7		61	57
Cotton	Seed Cotton		9.2	6		6.5		3	
Tobacco	Cured leaves		6.3	23	10.8	234.5	11	32	11
Pineapple	F. Fruits			6.8	7.9	11.3	10	10	7.6
Sugar cane	Cane		20	11	23	13.7	26	32	12
Rubber	Shobed sheet		13	1	11.6		13	21	14.4
			26		27		27	30	28
<u>Special Crops</u>									
Ginger				2		2			
Cashew						4.6			
Banana									

MARKETING

The OFY has aroused the enthusiasm of both the educated and un-educated in farming to such extent that many public offices are now contemplating of retiring into agriculture in future. Unfortunately this enthusiasm has not been fully translated into reality with the result that production has been on the decline giving rise to high prices of foodstuff. (See Table 3)

A cursory glance at Table 3 will show a gradual decline in area of production; volume of production as well as yield in production year 1972-75 using 1970 as base year. This decline in production has led to high prices of most of the staple foods. Other contributory factors of the high prices of foodstuffs have been transportation bottlenecks brought about by lack of spare parts (import controls); in-accessibility of some food production areas; seasonal nature of some foodstuffs, etc. and the bad weather that Ghana has enjoyed in the past two cropping seasons.

Despite the Government's effort to control the price of staple foodstuffs, prices keep on soaring creating the impression that the OFY has not been quite successful.

The building of feeder roads and the provision of haulage trucks and tractors to move foodstuffs from the hinterland into consuming areas are commendable, but since the price of foodstuffs is ranked highest in any decision-making priorities in any investment in Agriculture, it is recommended that the free market principle should be allowed free hand in determining prices of foodstuffs. This will be the greatest incentive to boost up production in agriculture and thereby reduce prices as supply would outstrip demand.

Alternatively, Government should subsidise prices of foodstuffs by buying at high prices and sell to the public through marketing association and identifiable market institutions like the Retailers Association etc.

A converse of this will be Parity Price to be set up by the Government for all foodstuffs because the farmer operates on the same market as the industrialist.

The first recommendation is preferred to the two others because that is easy to operate and does not involve any administrative expenses.

Agricultural Price Policy: The evaluation of national agricultural price policy and its implications for the OFY and OFYI programmes has been exhaustively treated in the Document, "Agricultural Price Policy, Ghana", 1975 produced by the ERPS. The paper among other things discusses the impact of Agricultural Price Policy on Production as well as on the general price level in the country.

INDEX NUMBERS OF THE AREA OF THE PRINCIPAL CROPS
GROWN IN GHANA, 1970 - 1975 (1970 = 100)

CROP		1971	1972	1973	1974	1975**
CEREALS						
	Dry Grain	96	84	89	93	81
	Paddy	110	86	90	94	71
	Dry Grain	92	127	120	121	143
	Dry Grain	96	71	77	89	80
	Dry Grain		83	91	89	86
	Guinea Corn	<u>100</u>	<u>101</u>	<u>103</u>	<u>107</u>	<u>78</u>
STARCH						
	Tubbers	100	109	106	111	81
	Tubers	100	99	101	109	79
	Ware Tubers	100	78	75	77	68
	Bunches	100	107	117	119	80
PULSES & BEANS						
	Nut in Shell	<u>100</u>	<u>92</u>	<u>87</u>	<u>112</u>	<u>108</u>
	Nuts in Husk	100	93	81	113	104
	Bunches	100	98	101	102	103
	Dry Beans	100	102	112	132	130
	Dry Beans	100	85	69	105	103
	Dry Beans	100	66	66	74	69
VEGETABLES						
	Fresh	<u>100</u>	<u>165</u>	<u>138</u>	<u>174</u>	<u>126</u>
	Fresh	100	137	111	122	102
	Fresh	100	180	157	190	142
	Fresh	100	155	123	183	116
	Fresh	100	260	242	242	183
FRUITS						
	Bunches	<u>100</u>	<u>81</u>	<u>92</u>	<u>105</u>	<u>87</u>
	Fresh Fruits	100	100	69	64	52
	Fresh Fruits	100	70	98	117	117
	Fresh Fruits	100	87	100	113	52
INDUS. CROPS						
	Seed	<u>110</u>	<u>133</u>	<u>143</u>	<u>150</u>	<u>150</u>
	Smoked Sheet	238	463	550	563	563
	Cane	100	104	108	108	112
	Cured Leaves	100	133	118	133	145
		138	156	200	250	194

** Provisional

Table 3 Cont.
 Index Numbers of the Yield of the Principal Crops
 Grown in Ghana 1970-1975 (1970 = 100)

CROPS	FORM OF PRODUCE	1971	1972	1973	1974	1975	Av. Yield
						**	1970-75
CEREALS							
	Dry Grain	<u>100</u>	<u>100</u>	<u>100</u>	<u>111</u>	<u>98</u>	<u>102</u>
	Paddy	101	97	99	107	101	101
	Dry Grain	102	113	106	124	102	108
	Dry Grain	100	99	100	123	108	105
	Dry Grain	97	99	98	107	85	98
	Dry Grain	<u>100</u>	<u>98</u>	<u>110</u>	<u>123</u>	<u>116</u>	<u>108</u>
TUBERS							
	Tubers	100	110	135	136	124	114
	Tubers	100	84	116	122	122	107
	Ware Tubers	100	96	100	121	115	105
	Bunches	100	96	108	104	95	101
LEGUMES & PULSES							
	Nuts in Shell	<u>100</u>	<u>100</u>	<u>114</u>	<u>111</u>	<u>102</u>	<u>105</u>
	Nuts in Husk	100	94	155	136	105	114
	Bunches	100	100	100	100	100	100
	Dry Beans	100	101	101	99	99	100
	Dry Beans	100	283	283	282	282	222
VEGETABLES							
	Fresh	<u>100</u>	<u>98</u>	<u>103</u>	<u>100</u>	<u>102</u>	<u>101</u>
	Fresh	100	87	96	93	95	95
	Fresh	100	83	91	83	88	91
	Fresh	100	136	136	136	135	124
	Fresh	100	80	125	116	155	113
FRUITS							
	Bunches	<u>100</u>	<u>99</u>	<u>100</u>	<u>101</u>	<u>100</u>	<u>100</u>
	Fresh Fruits	100	100	106	82	84	95
	Fresh Fruits	100	100	101	100	100	100
	Fresh Fruits	100	94	100	107	109	102
INDUSTRIAL CROPS							
	Seed Cotton	<u>106</u>	<u>105</u>	<u>110</u>	<u>112</u>	<u>110</u>	<u>107</u>
	Smoked Sheet	126	103	77	98	98	100
	Cane	100	103	106	102	102	102
	Cured Leaves	100	98	34	115	126	112
		121	128	144	151	132	128

** Provisional

Index Numbers of the Production of the Principal Crops
Grown in Ghana, 1970 - 1975 (1970 = 100)

C R O P	FORM OF PRODUCE	1971	1972	1973	1974	1975**
<u>CEREALS</u>		<u>96</u>	<u>85</u>	<u>89</u>	<u>104</u>	<u>79</u>
Maize	Dry Grain	97	84	89	101	71
Rice	Faddy	113	144	127	150	146
Millet	Dry Grain	92	70	77	109	86
Guinea Corn	Dry Grain	93	82	90	95	73
<u>STARCHY STAPLE</u>		<u>100</u>	<u>113</u>	<u>117</u>	<u>145</u>	<u>97</u>
Cassava	Tubers	100	119	120	151	100
Cocoyam	Tubers	100	83	117	133	97
Yam	Ware Tubers	100	75	75	93	78
Plantain	Bunches	100	102	126	123	76
<u>PULSES & NUTS</u>		<u>100</u>	<u>94</u>	<u>97</u>	<u>122</u>	<u>112</u>
Groundnuts	Nuts in Shell	100	88	125	154	109
Coconut	Nuts in Husk	100	98	101	102	103
Oil Palm	Bunches	100	102	112	132	130
Beans & Cowpeas	Dry Beans	100	86	60	103	101
Bambara and Other Beans	Dry Beans	100	189	189	211	196
<u>VEGETABLES</u>		<u>100</u>	<u>165</u>	<u>147</u>	<u>180</u>	<u>132</u>
Tomatoes	Fresh	100	120	107	113	98
Pepper	Fresh	100	150	142	157	125
Okro	Fresh	100	211	168	248	157
Garden Eggs	Fresh	100	211	302	282	282
<u>FRUITS</u>		<u>100</u>	<u>75</u>	<u>98</u>	<u>114</u>	<u>99</u>
Banana	Bunches	100	100	73	52	44
Oranges (Citrus)	Fresh Fruits	100	70	99	117	117
Pineapple	Fresh Fruits	100	82	100	121	57
<u>INDUSTRIAL CROPS</u>		<u>117</u>	<u>138</u>	<u>155</u>	<u>168</u>	<u>164</u>
Cotton	Seed Cotton	300	475	425	550	550
Rubber	Smoked Sheet	100	105	113	109	113
Sugar Cane	Cane	100	130	144	153	183
Tobacco	Cured Leaves	167	200	300	378	256

** Provisional

Farm produce is still sold on the farm, along the roadside at local feeder markets and at urban terminal markets. The produce is normally conveyed in handloads; Government's intervention by encouraging the Food Distribution Corporation to provide marketing services to farmers, purchasing produce at guaranteed minimum prices has not been effective. It is estimated that the Food Distribution Corporation handles less than 7% of food produced in the country. The inadequate feeder road network and lack of vehicles to evacuate farm produce result in seasonal shortages and high transportation costs. On-farm storage facilities are non-existing. Farmers are therefore incapable of storing produce at harvest periods for sale during the lean season. Thus in spite of predominant high food prices on urban markets, there is very little incentive for the small-scale farmer to increase production.

An attempt has been made to highlight the adverse conditions at the farm level in this report. Certainly Governmental efforts have attempted to obviate some of the difficulties. It is necessary to remark that the piecemeal approach will not usher in the transformation envisaged under the OY and OYI programmes. There is the need for a co-ordinated programme to be evolved and implemented by a competent, operational team of personnel adequately endowed with authority and the necessary resources.

PROBLEMS ENCOUNTERED BY ERPS

The broad problem areas encountered by ERPS in the execution of its duties fall under three categories, namely, manpower, institutional support and inputs mainly equipment and transportation.

MANPOWER

The shortcomings of agricultural policy in Ghana point to a considerable scope that remains for the application of agricultural economics. It was only coincidence that at the time of the great agriculture activity in Ghana (i.e. OY and OYI era), quite a few of our agricultural economists were abroad under training. But it is regrettable to note that for the past 5 years the ERPS has lost as many as 68 agricultural economists (who have been sponsored by this Ministry at abroad) to the Banks, Boards and Corporations. The incentive system outside the civil service makes it very attractive for even bonded officials to leave for greater financial rewards elsewhere. This trend is to be avoided if we are to succeed in getting enough staff to run our programmes.

Indeed in the overall context of an uncertain balance of payments prospects, rising food prices and a tight domestic resource situation, the need for extending productivity gains in agriculture becomes paramount. Provided realistic exchange and trade policies are followed, there is considerable scope for the expansion of agricultural production and exports and overcoming the market constraint which will become increasingly important.

To improve the basis of major decisions relating to agricultural policy, there is an urgent need to extend our knowledge, in the light of changing

technology, of production functions of various crops and livestock, economic returns of various inputs and combination of inputs and the elasticity of supply of total agricultural output to a package of incentives. It is in the context of changing technological relationships that the need for improving research and extension capabilities becomes important. But basically, both agricultural research and extension remain neglected. Professional positions and projects do not attract talented people, priorities of research and extension are not closely linked with the overall policy objectives. There is a need for a massive mobilization of talent and funds for agricultural research including research on agricultural economics. It follows that the ERFS should have sufficient incentives to enable it not only to attract talented economists, but also to keep those it has spent money training them.

Institutional Support

The ERFS has far not succeeded in executing effectively its functions as the central planning, budgeting and project monitoring unit for the entire Ministry of Agriculture. This has serious implications for budget control and project monitoring efforts. We have been waiting long for a formal declaration of the ERFS as the central planning, budgeting and project monitoring body for the MOA. In the absence of this authority, the staff often encounters even upon hostility from some organisations.

It is very ironical that the UNDP/FAO Planning Project should be phased out. It was a unilateral decision taken by the Ministry of Economic Planning in collaboration with the Ghana UNDP office. This is another example of the observation that the demands made on agriculture and the expectations from it are not in line with the resources made available for the development of the sector.

Supply of Inputs

Inadequacy of the supply of basic inputs such as equipment, vehicles and accommodation in the districts is hampering our operations. In the main, sampling procedures are used to estimate crop yields, etc. To improve the estimates (ie. reduce the incidence of sampling error) we need to increase the sampling size. The inadequate supervisory staff at the regional level makes such a move impossible.

Supervision of field work, especially, project monitoring activities emphasises the importance of mobility. Unfortunately, the ERFS is insufficiently equipped with vehicles and motor-bikes to enable the officers to be mobile. Besides accommodation problems in the districts makes trekking .. not an attractive thing to do, not to mention the meagre night allowances which do not enable them to cover their expenditures.

CDB/AR/DES/24

COTTON DEVELOPMENT BOARD,
P. O. BOX 4344,
ACCRA.

19th April, 1977.

Sir,

A REVIEW OF THE COTTON DEVELOPMENT
BOARD'S ACTIVITIES FROM 1972/1976

This review first looks at the objectives of the Cotton Development Board as established by Government. It secondly looks at the machinery set-up to implement various programmes within the objectives. Comparisons are made of the Board's performances (using relevant data) between 1968/69 to 1971/72 and the period under review in order to identify any differences in Government action (if any) the achievement and failures of the Board within the review period. Finally suggestions are made as to the removal of constraints in order to enable the Board achieve the established objectives in the shortest possible time.

Establishment Objectives:- The Cotton Dev. Board was established with the main objectives being:-

- (1) The production of lint cotton locally to feed the local textile industries thus conserve foreign exchange.
- (2) Provide extra income for the farming population.
- (3) and to some extent provide employment for other sectors of the economy not engaged in farming.

Programmes under the above Objective:- The Cotton Development Board has been engaged in the implementation of the following in order to achieve the above objectives:-

- (1) The organization of the small scale farmer and providing him with the necessary extension education in the production of seed cotton as an economic cash crop.
- (2) The supply to cotton farmers with cotton seeds, fertilizers, insecticides, sprayers and some amount of tractor services for cotton production.

- (3) The provision of a market for cotton farmers produce (through a net-work of extensive marketing services).
- (4) Provision of improved production methods through the Board's Research Section.
- (5) The corporation with the banks to provide monetary Loans to cotton farmers.
- (6) Ginning and Distribution-seed cotton purchased from farmers are transported to the Board's Ginneries and that of Ghana Textile Mfg. Co. Tema for ginning. The products - Lint Cotton is sold to the Textiles and Cotton seed used for planting and the surplus exported.

The Machinery Set-up to implement the above programmes:-

- (1) Administration and Accounting.
- (2) Extension - which also performs the marketing functions.
- (3) The Loans Section
- (4) Research
- (5) Ginning Section.

ACHIEVEMENTS

- (1) Acreage and Yields The attached table (I) shows the achievements by acreage and yield of seed cotton from the small scale farming Section from 1968/69 to 1976/77 seasons. For the period 1968/69 to 1971/72 acreages and yields increased by 104 and 113 percent respectively while for the period 1972/73 to 1976/77 acreages increased by 544 percent and yields between 1972/73-1975/76 increased by 353 percent. Table (I) also shows the satisfaction of Domestic Demand from local supply rose from 2.7% in 1971/72 to 19.9% in 1975/76.
- (2) Government Financing (Ref Table II) As a result of Government's increased attention to the need for an early attainment in self-sufficiency in cotton production there has been an increase in Government Support to the cotton production programme particularly between 1974/75 to the present. The introduction of the producer price as shown in table II is a prominent action. That was also the increase in the infrastructural support as shown on the same table.

The Government has provided monies for the construction of high capacity gins at Wa, Tamale, Kumasi and Ho.

(3) Import Substitution Table III shows the gross savings on foreign exchange on lint cotton imports as a result of local supply.

A careful analysis on the net savings on foreign exchange has been made taking into account the foreign component of the Board's operations (see tables IV and V).

(4) The impact of cotton production on the farmer has been measured by the incomes he derives from cotton production (see table VI). Per capita incomes have risen from \$39.00 to \$120.00.

Conclusion

There have been some achievements comparing the period under review with the period 1968/69 to 1971/72 as shown in the attached tables. However, the rapid expansion in cotton production particularly from 1973/74-1976/77 posed several problems including the following:-

- (1) Infrastructural base of the Board was only 2 warehouses one at Tamale and Wa with a total storage capacity of 1,000,000 lbs of seed cotton. Regarding gins there were only small capacity gins at Tamale and Wa with a total capacity of 2.2 metric tons.
- (2) The Board had only (8) eight five year only trucks to distribute inputs to farmers in the whole country and also for the purchase of farmers produce.

Though Government has provided funds for emergency stores, the construction and installation of high capacity gins there were still the problem of obtaining locally the special type of building materials required for the construction of the gins. The Ministry of Agriculture has been informed about this particular problem and action is being taken.

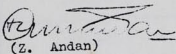
The inadequate supply of farm machinery also slowed down the rate of cotton production.

Future Expansion

To enhance a high rate in cotton production it will be necessary to increase the financing of the following:-

- (1) Construction of Ginneries and Warehouses.
- (2) Farm machinery-mainly tractors and accessories.
- (3) Vehicles for the distribution of inputs and for the purchase of seed cotton.
- (4) Housing for Extension staff mostly.

The necessary technical know-how in cotton production is well developed within the Board, hence given the necessary infrastructural and financial support it will be practicable to attain self-sufficiency in cotton production by 1980.



(Z. Andan)

EXECUTIVE DIRECTOR

(a) Seed Cotton Purchases will increase.

(b) Domestic Demand for seed cotton has been growing with the expansion of the Textile Industries.

T A B L E I

SEASONAL COTTON PRODUCTION PERFORMANCES
OF COTTON DEVELOPMENT BOARD

Season	Area Cultivated		Yield (Lbs)	Percentage Demand Supplied locally with Present Domestic Demand of (100,000,000 lbs Seed Cotton)
	Acres	Hectares		
1968/69	420	170	220,240	0.22
1969/70	1,742	705	586,424	0.586
1970/71	2,207	893	920,861	0.92
1971/72	4,806	1,945	2,713,863	2.713
1972/73	9,168	3,710	4,189,843	4.189
1973/74	10,833	4,384	5,416,500	5.416
1974/75	11,024	4,461	6,614,400	6.614
1975/76	32,100	12,990	19,902,000	19.902
1976/77	59,100	23,917	* 22,045,200 ^(a)	-

* (a) Seed Cotton Purchases still in process.

* (b) Domestic Demand for seed cotton has been growing with the expansion of the Textile Industries.

T A B L E I I

GOVERNMENT SUBVENTION
1971/72 - 1976/77

YEAR	Farm Inputs	Building Ginnery and Parts and Vehicles ₪	Producer Price Support ₪
1971/72	75,400.00	330,920.00	-
1972/73	115,413.00	116,100.00	-
1973/74	250,000.00	428,500.00	-
1974/75	300,000.00	370,300.00	401,000.00
1975/76	1,358,000.00	1,398,000.00	2,300,000.00
1976/77	2,350,000.00	2,834,700.00	7,800,000.00
Totals	4,448,813.00	5,478,520.00	10,501,000.00

See Section Purchases and ... in process.

T A B L E I I I

CONSERVATION OF FOREIGN EXCHANGE RESULTING
FROM THE LOCAL SUPPLY OF LINT COTTON BY
COTTON DEVELOPMENT BOARD

Season	Total Yield of Seed Cotton (Lbs)	Lint Cotton 38% by Weight of Seed Cotton (Lbs)	Price/lb of Lint Cotton (₹)	Total Sales (₹)
1968/69	220,240	83,691	0.32	26,781.12
1969/70	586,424	222,841	0.38	84,679.58
1970/71	920,861	349,927	0.53	185,461.31
1971/72	2,713,863	1,031,267	0.55	567,196.85
1972/73	4,189,843	1,592,140	0.80	1,273,712.00
1973/74	5,416,500	2,058,270	80.80	1,646,616.00
1974/75	6,614,400	2,513,472	0.80	2,010,777.00
1975/76	19,902,000	7,562,760	0.80	6,050,208.00
1976/77	22,045,200	837,717	0.80	* 670,173.60

* Seed Cotton Purchases and ginning still in process.

T A B L E I V

EXPORT OF COTTON SEED 1969/70-
1976/77

Year	Quantity in Tons	Value ¢
1969/70	157,00	7,077.56
1970/71	250,00	15,844.13
1971/72	493.32	42,550.00
1972/73	807,20	80,384.11
1973/74	779.17	89,604.55
1974/75	794,58	106,538.99
1975/76	500.00	51,750.00
1976/77	1,000.00	103,500.00
Totals	4,781,27	497,249.34

* Another consignment of 1,000 tons will be exported by 30th April, 1977.

NB Export for 1977 to date does not include all cotton seed that will be exported under the 1976/77 crop season.

T A B L E V

RETURN ON RECURRENT FOREIGN EXCHANGE COMPONENT
IN THE OPERATION OF THE COTTON DEVELOPMENT
BOARD 1971/72 - 1976/77

Year/Season	Total Value of Items Imported- Mainly Insecticides, Fertilizers & Sprayers (¢)	Incomes Earned Foreign Currency (¢)	Lint Sales Foreign Currency Conserved (¢)	Export of Cotton Seed (¢)	Total Income Foreign Currency (¢)	Margin Total Income Less Imports (¢)
1971/72	75,400.00	567,196.85		42,550.00	609,746.85	534,346.85
1972/73	115,413.00	1,273,712.00		80,384.11	1,354,096.11	1,238,683.11
1973/74	250,000.00	1,646,616.00		189,604.55	1,736,220.55	1,486,220.00
1974/75	300,000.00	2,010,777.00		106,538.99	2,117,315.99	1,817,315.99
1975/76	1,358,000.00	6,050,208.00		51,750.00	6,101,958.00	4,743,958.00
1976/77	2,350,000.00	670,173.60		103,500.00	-	-

TABLE VI

NUMBER OF SMALL SCALE FARMERS ENGAGED IN COTTON
 PRODUCTION AND TOTAL INCOMES EARNED. (AVERAGE
 ACREAGE OF 1.5 ACRES PER FARMER

Year/Season	Total Acreage	No. of Farmers Based on 1.5/Acs. Per Farmer	Total Yield of Seed Cotton (Lbs)	Price/Lb (¢)	Total Value of Seed Cotton (¢)
1968/69	420	280	220,240	0.05	11,012.00
1969/70	1,742	828	586,424	0.07	41,049.68
1970/71	2,207	1,471	920,861	0.08	73,668.88
1971/72	4,806	3,204	2,713,863	0.10	271,386.30
1972/73	9,168	6,112	4,189,843	0.10	418,984.30
1973/74	10,833	7,222	5,416,500	0.10	541,650.00
1974/75	11,024	7,349	6,614,400	0.35	2,315,040.00
1975/76	32,100	21,4009	19,902,000	0.35	6,965,700.00
1976/77	59,100	39,400	22,045,200	0.35	7,715,760.00

* Purchasing still in process.

GRAINS DEVELOPMENT BOARD
REVIEW OF ACTIVITIES
1971/72 - 1975/76

The Grains Development Board was established by an act of Parliament (Act 324) as the main organ of the Government for developing and promoting a viable and efficient cereal and legume industry in the country. The main functions of the Board as outlined in the Act are:-

1. To recommend to the Government policies for the development of cereals and legumes in Ghana including guaranteed minimum prices, subsidy programmes, grains import and export, and other inputs for grain development such as the use of fertilizers, chemicals and good seeds;
2. To liaise with all existing and interested bodies engaged in research, data collection, seed multiplication, marketing and provision of credit facilities;
3. To ensure the availability of research findings, improved seed, credit, grain processing and storage facilities, fertilizer and fungicides;
4. To submit periodic proposals to the Ministry of Agriculture in respect of priorities in research and extension programmes with a view to enhancing the development of cereals and legumes development programmes;
5. To co-ordinate the activities of farmers and the various agencies involved in production of cereals and legumes with a view to forming effective associations or co-operatives which shall provide services at present being provided by government agencies;
6. To submit proposals to the Ministry of Agriculture and financial institutions operating in Ghana for the large scale development of acres suitable for cereal and legumes production;
7. To undertake extension on cereals and legumes production in the areas best suited to their production.

It may be pointed out that the cereals and legumes referred to in the act cover the following crops:-

- | | |
|------------|------------------|
| 1. Maize | 7. Groundnuts |
| 2. Rice | 8. Soyabeans |
| 3. Sorghum | 9. Cowpeas |
| 4. Millet | 10. Bambara nuts |
| 5. Barley | 11. Pigeon peas |
| 6. Wheat | 12. Lima beans |

A quick look at the functions and the array of the many important food crops the Board has to handle should underscore the enormity of the task the Board has to grapple with and therefore the need for the provision of adequate financial support if any appreciable impact can be made on the food production front.

ACTIVITIES:

The launching of the Board's programme of activities in 1972 coincided with the launching of the Operation Feed Yourself programme and so the Board's programmes were adjusted to enable the Board's staff take active part in the campaign. The following three main departments were therefore created to ensure availability of food at reasonable prices:

- i) Development section
- ii) Marketing section
- iii) Storage section

DEVELOPMENT SECTION:

The period July 1971 to June 1972 was a period of exploration and begin with the Board decided to concentrate on maize and rice and accordingly started by identifying problems facing farmers in the cultivation of these crops.

A small loans scheme was also instituted from the Board's own resources, and credit to the tune of \$38,452 in cash and kind was given out to farmers. The scheme however had to be discontinued due to difficulties in loan recovery.

The Development section with its few staff members worked closely with the Department of Co-operatives, Ministry of Agriculture and the Agricultural Development Bank. Maize and rice farmers were organised into primary societies to facilitate farm lending by the Agricultural Development Bank and the following numbers of societies were registered in the various regions:-

Central Region	-	202 societies
Volta Region	-	17 "
Ashanti Region	-	81 "
Brong Ahafo Region	-	106 "
Northern & Upper Regions-		28 "

The Board also engaged in measuring farmers' farms to check acreage to hasten the disbursement of loans. Inputs like seed and fertilizer were acquired for distribution to farmers and the Development staff ensured the necessary technology transfer through extension services.

MAIZE PROGRAMME

Maize Adaptive Trial:

A maize breeding and adaptive trial programme was initiated in the 1973 main crop season in the various ecological zones of the country, to test the adaptability of the test varieties to the different conditions. The varieties of maize used in the trials are La Posta, Composite 4 and Golden Crystal.

The trial was repeated in the 1974/75 seasons and the three varieties of maize have since been introduced to farmers.

Maize Demonstration:-

The Board's policy under this programme is to help farmers obtain higher yields per acre rather than encouraging acreage expansion. A 5-year maize demonstration programme was therefore initiated during the 1974/75 major season in 5 maize growing regions of the country. A total of 183 demonstration plots, each measuring 1/20 acre were distributed as follows:-

	- 3	-	51
Ashanti	-	-	58
Brong Ahafo	-	-	34
Central	-	-	28
Volta	-	-	<u>12</u>
Northern	-	-	<u>183</u>
			===

The objective of the programme is to demonstrate a package of approved maize varieties fertilizer use and improved cultural practices emanating from the adaptive trials. All the demonstration plots were therefore established on farmers' farms.

In the 1975/76 season the number of demonstrations was increased as follows:-

Ashanti	-	96
Brong Ahafo	-	110
Central	-	54
Volta	-	94
Northern	-	<u>10</u>
		361
		===

As may be inferred the main aim of the programme is to convince participating farmers and others in the area to adopt the improved technology and farmers' response in this direction has been very encouraging. For instance all the farmers who participated in 1974/75 season adopted the technology in the 1975/76 season; and yields of between 12 and 14 bags as against a national average of 4 to 5 bags per acre were recorded on their farms. Follow-up studies are conducted each year to determine the number of converted farmers in each region. Farmers reaction to the technology is also monitored and fed back to the maize breeder who is the project leader for the necessary remedial action to be taken.

RICE DEMONSTRATION:

Five one-acre demonstration plots were established in the Northern and Upper regions in the 1973/74 season. The objectives of the demonstration plots were:

- (a) to prepare newly cleared fields in a way that will make them suitable for combine harvesting.
- (b) to introduce and demonstrate a "farming system" embracing weed control by mechanical means, timeliness of operations, and improved seed and fertilizer use.
- (c) to compile cost analyses of all operations covering the production of rice.
- (d) to encourage farmers to increase their yield per acre rather than expand acreages.

Again to forestall the dangers inherent in putting all of the nation's eggs in one basket large scale rice production in the southern sector was encouraged through the establishment of demonstration plots in the Akwanta, Kete-Krachi areas in 1974/75 and new varieties, 617A and KSDa2 were introduced in the area. Results from the demonstration plots were so encouraging and farmers' response so favourable that the number of demonstrations was increased to 20 and extended to Banda in 1975/76. An average yield of 15 bags paddy were recorded while a couple of the demonstration plots yielded 24 bags each.

Sorghum and Groundnut Demonstrations:

The phenomenal increases in rice production achieved in recent years in the Northern and Upper regions have begun to show adverse effect on the production of sorghum, millet and groundnut. To arrest the situation and to rekindle farmers' interest in these crops 20 guinea corn and 20 groundnut plots were established in the Northern and Upper regions in 1974. Farmers' response was so spontaneous and encouraging that the demonstrations were increased to 35 for groundnut and 30 for sorghum in 1975.

In 1976 a total of six hundred and fifteen (615) demonstrations were carried out throughout all the regions except the West and Greater Accra as outlined below:

REGION	MAIZE	RICE	SORGHUM	GROUNDNUT
ASHANTI	94	4	-	18
BONG SHAFU	120	-	-	14
CENTRAL	62	-	-	-
VOLTA	110	25	-	-
NORTHERN	17	-	31	15
UPPER	-	-	44	23
EASTERN	38	-	-	-
TOTAL :	441	29	75	70

GRAND TOTAL: 615

RESEARCH PROGRAMMES:

Since development should necessarily be based on research the Board has had to undertake some research especially in areas where material needed for development cannot be provided by the existing research agencies for one reason or another. The following projects are being supported by the Board.

Sulphur Coated Urea Trial on Rice:

At the instance of the Board, staff of the Crops and Soil Research Institute conducted investigation into the use of Sulphur Coated Urea, a slow release nitrogen fertilizer reputed to be effective under conditions of irregular flooding. The effective use of this product would completely eliminate top dressing and cut down the cost of transporting nitrogen fertilizer to the growing areas in the North.

Soya bean Programme:

Under the auspices of the Board a National Soyabean Committee was formed in 1973 to review the prospects of introducing soya beans into the local cropping systems as a means of discouraging shifting cultivation and providing a rich source of vegetable protein to the animal food industry and also for human consumption.

A research initiated at the instance of and sponsored by the Board, and conducted by the Universities of Legon and U. S. T. and the Crops Research Institute has demonstrated the success of soya bean cultivation in the country. Four varieties have been recommended for the various ecological zones of the country and experimental yields, averaging 2000-3000lbs/acre during the major season, and half the quantity during the minor season have been achieved. The table below shows the varieties which will grow in each ecological zone of the country:

Ecological Zone	Variety
1. Coasted Savannah	CES 407 x 408, Davis, F62-3977
2. Forest Savannah Mosaic	F62-3977
3. Forest	F62-3977
4. Guinea Savannah	F62-3977

Rice:

It is the belief of the Board that rice production especially in the north has for long enjoyed adequate research backing especially in the field of agronomy. Available technology therefore is considered up to date for the time being. However since varietal resistance to such devastating diseases as blast is known to break down with time due to changes in the pathogenicity spectrum of the pathogen there is the need to replace existing varieties with more resistant ones from time to time.

Again it is known that the variety of rice being currently grown in the north is to some extent responsible for the quality of milled rice being produced over there.

The Board has therefore initiated a rice breeding programme at Legon in the Northern region for the production of high yielding and disease-resistant varieties with higher milling recoveries.

A number of advance lines selected from IRR1 hybrids were screened last season and so far two really outstanding lines have been selected for multiplication. A number of new lines will also be tested next season.

To improve the milling recovery particularly of existing varieties the Board has initiated a programme of irradiation breeding with the assistance of the Ghana Atomic Energy Commission.

Here again one serious constraint is staff to undertake these important projects.

Wheat and Barley:

In response to the Government's call for serious research into the local production of wheat and barley the Board has initiated a research project aimed at investigating the possibility of growing the two crops economically in the country.

Varietal Screening of Legumes:

The Grains Board has been carrying out varietal screening of legumes with the hope of coming out with adapted high yielding varieties that can be multiplied and supplied to our farmers.

Seed Farms:

Last year Pilot Seed Farms on maize, rice, Soyabean, groundnut and cowpeas were established in the areas of major production in the country.

200 acres were put under maize and the produce totalled over 2000 bags of seed maize.

Another 200 acres were put under soyabean out of which 600 bags of soyabean seed was produced.

240 bags of unshelled groundnut seed was realised from 20 acres.

Unfortunately the rice seed farms at Atebubu and in the North were completely destroyed by fire as a result of lack of combine harvesters.

MARKETING SECTION

The primary objective of the section was to implement the Guaranteed Minimum Price scheme and assist in stabilizing the price of maize.

This objective was accomplished by buying maize at the production centres at the guaranteed minimum price when the prevailing market prices were lower than the guaranteed minimum and releasing the stocks to the market when the prevailing prices were rising to force down price levels.

In the 1972/73 season a total of 113,811 mini bags of maize were purchased. The guaranteed minimum price of \$8.00 a bag was raised to \$12.00 by the end of the season.

The section purchased a total of 328,784 mini bags of maize at \$14.00 a bag in the 1973/74 season thus exceeding the set target of 240,000 by 88,784 mini bags.

Buffer Stock:

In the 1974/75 season the Ministry directed that the Board should as a matter of urgency build up a buffer stock which the country could fall upon in an emergency. And for the first time in the history of the country the Board was able to store a buffer stock of 20,000 tons of maize in its silos and warehouses.

In July 1975 however, the Board was asked to transfer its marketing function together with all assets including maize stocks, grain storage facilities, ancillary equipment and personnel to the Ghana Food Distribution Corporation to enable the Board give its full attention to its development functions.

ACCOMPLISHMENT:

The Board has played an effective role in the Operation Feed Yourself Programme. The first task under the programme was to stabilize grain prices which it sought to do by buying maize in the producing areas at the guaranteed minimum price when the prevailing market prices were lower than the guaranteed minimum and releasing it for sale during the lean supply period when prices tended to be high.

The establishment of the guaranteed minimum price coupled with the activities of the Board by way of providing carting and shelling services, and ready market for farmers, served as a great incentive for farmers to step up their production of maize and rice as to enable the country for the first time to export maize.

The Rice Mills Unit of the Board also played a very important role in producing milled rice to feed the people under the Operation Feed Yourself programme. In the 1974/75 season the Unit purchased a total of 389,735 bags of paddy rice for milling. The administration of the Unit has since been transferred to the Ministry.

Since the small farmer can hardly afford the acquisition of such machines and equipment which go to enhance his productivity, the Board has since 1974 been providing the following services at nominal fees.

- (1) Basic Agricultural:- The Board has been striving to assist the small farmer by ploughing and harrowing his farms for him with the few tractors available. Where possible mechanical seeding is also done for him.
- (2) Shelling:- Maize shelling service is provided by the Board at \$1.00 per bag. The Board to date has only 10 shellers to cover the whole country.
- (3) Carting:- Shelled maize is carted from the farms to the purchasing depots with the few tractors available at 50p per bag.

NEW PROGRAMMES

Block Farming:

It is now abundantly clear that the country can no longer rely solely on the peasant farmer whose number has been decreasing steadily without any possibility of replacement to produce all its food requirements. To facilitate quick dissemination of research findings for the production of abundant supply of food, the Board has, for the past year, been advocating the establishment of block farms. Areas have been identified and land acquired for the establishment of such large scale farms. The Ghana Commercial Bank is co-operating fully with the Board to ensure the financial backing for this programme which will be spread throughout the Southern section of the country since the North has been adequately taken care of.

Crops to be grown are rice, soyabean, groundnut and maize.

Peasant Swamp Rice Project:

The adverse weather in the past two years has drastically reduced yields of rice in the Northern Region to such low levels that rice production in other areas of the country should be given the necessary push. To this end, the Board, in co-operation with the Ghana Commercial Bank, has initiated programmes with peasant farmers who grow rice in the swampy valleys to enable them expand their farms and also improve yields on such farms.

The programme was launched in January, 1977 and already about 5,000 farmers have been registered in the Central, Ashanti, Eastern Western, Volta and Brong Ahafo regions. The Bank has started disbursement of funds in all the regions. Orders have also been placed for threshers and mills. The Board is ensuring availability of seed, fertilizer and the necessary technology to the farmer.

CONSTRAINTS AND RECOMMENDATIONS

The Board's accomplishment so far, has not been achieved without constraints. These constraints continue to militate against the steady progress that the Board has been making to help farmers increase production of grains and legumes to feed the country's ever increasing population.

apart from the fact that the performance of our demonstration is at the mercy of nature, certain other factors, beyond the control of the Board, should be improved to allow better performance in this and subsequent seasons. Some of the factors are:-

(1) Staff.

As indicated in the report, the Board has seen only three years of active life, two years of which were more or less devoted to the establishment of the marketing wing. This therefore meant channeling our meagre resources into the marketing section at the expense of the development section since the former function involved so much money. The departure of the marketing wing therefore reduced the staff strength by over 60%. The Board has been striving to boost grain production by increasing production per unit area of the grain farmer rather than an increase in total acreage because of our input limitations. As outlined in the programmes this has been done by mounting demonstrations on farmers' farms as a means of ensuring that farmers adopt the necessary improved technology for high yields. Although a measure of success has been achieved in this endeavour especially considering the effect of the programme on the yields of the few farmers we have been able to reach, the desired impact on the total national grain production has been difficult to make since this depends on the number of farmers we are able to reach which in turn depends on the size of our field staff. It is therefore recommended that the embargo on growth imposed on this young Board be removed to enable us reach as many farmers as possible. Although the Board planned to have 250 recruited Technical Officers and Supervisors by 1976, only 95 are currently at post.

(2) Equipment

While the Board continues to assist the peasant farmers increase his yields it is our firm belief that the country cannot continue to rely on the small farmer to feed the ever increasing number of mouths. This is because as a result of our successful literacy drive it has been impossible to get the school leaver to take the place of the ageing and dying peasant farmer who for a long time has been feeding the country using the hoe and cutlass thus exposing himself to the drudgery which has characterised this country's agriculture. To make agriculture or farming for that matter attractive enough to be able to compete with the other jobs this drudgery should as much as possible be eliminated through a properly planned mechanisation programme complete with the necessary supporting spare parts.

To attract the numerous school leavers into agriculture the Board has launched a joint project with the Ghana Commercial Bank for large scale production of rice, soyabeans and groundnuts. Under the scheme the Board has acquired large parcels of land to be cleared for farmer co-operators.

The co-operator is any credit worthy person who can pay a deposit of \$500 to be used in the payment of salaries of one school leaver of his own choice who will be directed and assisted by the Board's field staff to manage the farm.

Seeding, weed control, harvesting and shelling services will be provided by the Board at fees which will be debited against the co-operator's account with the Ghana Commercial Bank which will provide credit facilities for the project. As much as possible all operations on these farms will be mechanised to obviate the drudgery which has been scaring the school leaver from agriculture.

It may be noted that this project could not get off the ground because of lack of clearing machinery to start with. And although monies were paid to various agencies to do the clearing just about a total of 80 acres had been cleared to date. It can therefore be seen that the success of this project will depend on the Board's acquisition of clearing machines.

Further more the Board can currently boast of only 16 tractors, 8 of which have no impliments although we expected to have 55 tractors by this year as outlined in our 5 year development programme.

The Board lost a total of 200 acres under rice foundation seed last year because it has always been refused the authority to own its own harvesters with the excuse that we could always rely on the Mechanisation Department for such services. The position with such important pieces of equipment like planters, shellers and threshers is no better and this has resulted in serious losses in our foundation seed programmes.

Storage Facilities

Another major constraint in our operations is the lack of storage facilities. Soya bean, for example, loses its viability very quickly and so there is an urgent need for its storage immediately after harvest. Also most of the major season maize cannot be properly stored and therefore become weevilled and mouldy.

Finally it may be mentioned that if the Board should handle the development of as many as 12 food crops with an annual budget of £700,000 then very little can be achieved. It is therefore recommended that the Budget Division of the Ministry of Finance be made to study budget proposals closely before approval bearing in mind national priorities and not personalities.

OPERATION FEED YOURSELF AND INDUSTRIES
EVALUATION OF OPERATIONS/PROJECTS AND PROGRAMMES
IMPLEMENTED BY THE STATE FARMS CORPORATION DURING 1972/76

INTRODUCTION:

1.1 Established by Legislative Instrument in 1962, the Corporation started work with 42 farms previously run by the erstwhile Department of Agriculture, the defunct Agricultural Development Corporation and Messrs. S. T. Briscoe Rubber Plantation.

1.2 By 1966, the number of farm projects had been increased to 105 covering the following fields:-

(i) Arable (Food) Crops	..	..	..	21,900 acres
(ii) Permanent Tree Crops	..	..	..	34,490 "
(iii) Semi Permanent (including fibres)	..	..	..	1,400 "
(iv) Tobacco	..	..	..	800 "
(v) Poultry	..	..	..	259,500 birds
(vi) Cattle	..	..	..	2,300 herds
(vii) Sheep & Goats	..	..	..	1,300 "
(viii) Pigs	..	..	..	2,700 "

1.3 Following a change in Government policy on state participation in agricultural production in the same year, the number of farms was reduced to 34. Some of the abandoned farms were taken over by private farmers and the Food Production Corporation.

2. OPERATION FEED YOURSELF:

2.1 The launching of the Operation Feed Yourself Programme in 1972 following the change of Government and the subsequent granting of loans by the Agricultural Development Bank came as sources of inspiration to the Corporation. Not only has it been possible for the Corporation to participate in the programme for food production in designated sectors, but the Corporation has been better enabled to rationalize the use of its available resources.

The attached Appendix I shows the Corporation's performance under the Arable Crops programme.

2.2 The performance under the tree crops programme as regards acreage planted and percentage in production since 1962 to 1972 is as follows:-

<u>CROP</u>	<u>TOTAL ACREAGE</u>	<u>% IN BEARING</u>
Oil Palm	7,963	23
Coconut	1,705	28
Rubber	20,380	70
Citrus	860	50
Cola	950	20
Cashew	50	-
Total	<u>31,908</u>	

2.3 At the close of 1976, the figures on tree crops programme stood at:

<u>CROP</u>	<u>TOTAL ACREAGE</u>	<u>% IN BEARING</u>
Oil palm	18,000	650
Coconut	1,705	28
Rubber	380	-

<u>CROP</u>	<u>TOTAL ACREAGE</u>	<u>% IN BEARING</u>
Citrus	360	40
Cola	950	20
Cashew	<u>528</u>	5
Total:	<u>1838</u>	

2.4 It is worth noting here that the Corporation's 20,000 acre rubber plantation at Bonsaso was given away to the Firestone Ghana Limited as the Government's equity in that venture after 1966. The 500 acre citrus attached to the plantation was also taken over by Firestone. The acreage of 360 indicated at 2.3 represents current planting for the 2,000 acre plantation planned for the 5-year period.

2.5 The Corporation's livestock programme has not seen much improvement in terms of stocking and consequently, production of meat and other livestock products, has not shown much increase.

As an example, the stock holdings of poultry at Odorkor, the Corporation's main poultry farm, rose from 25,000 in 1963 to 75,000 in 1968. Since 1968, when the effects of the withdrawal of Government's financial support became manifest, the livestock projects have not been sustained in terms of financing and the renewal of capital equipment.

2.6 Stockings at Odorkor and consequently all the smaller farms have had to be consistently reduced. From a low of 55,000 at the end of 1969, stock holding at Odorkor went further down to 12,000 by the end of 1976. The other livestock projects suffered in similar manner.

3. THE SITUATION AFTER FEBRUARY, 1972:

3.1 With the launching of the Operation Feed Yourself Programme, some of the abandoned farms were reactivated.

Except for the Upper Region, where most of the Corporation's farms had been taken over by or sold to individuals and other Government organisations, the Corporation presently operates in all the regions of Ghana. See map as appendix II attached.

4. ACHIEVEMENTS AND FAILURES:

4.1 As could be seen from the table above, the Corporation has made significant progress in the area of Permanent Tree Crops especially in the field of Oil Palm production. This is mainly due to the sustained attention given to this crop even after the period when subventions were withdrawn i.e. 1966 to 1972. In addition, the production of Oil Palms was given extra impetus through the grant of a loan of \$24 million by the Bank of Ghana in 1976. The loan is for the establishment of 20,000 acres of oil palm.

4.2 It is also pertinent to note that Oil Palms and other Plantation crops are not so exacting in their response to climatic, edaphic and other agronomic demands.

4.3 The same cannot be said of arable food crops such as maize, rice, groundnuts, etc. whose performance is seriously hampered by the above conditions.

4.4 Although the Corporation cannot lay claims to any spectacular achievements in this area especially as regards our performance on yield

per acre basis, the Corporation has managed under considerable stresses and strains not to neglect the cultivation of these crops.

It could be seen from the table that the area put into cultivation for food crops was reduced quite considerably from year to year, due to the lack of machinery mainly and some basic inputs.

4.5 Stocks of poultry and other livestock were also out down over the years due to lack of feed and pasture, and in part to the same problems as encountered with the arable crops. The production of meat and other livestock products suffered as a consequence. For example, with room for a total national stocking of 287,000 birds, the total count of birds on all the farms now stands at 73,500.

5. THE CONSTRAINTS:

5.1 Apart from the havoc of inclement and unreliable weather experienced throughout the project areas, especially from 1974 to date, the most serious constraints to production are the following:-

5.1.1 Finance: Since 1966, the Corporation ceased to depend on Government grants. Instead, it has had to finance its operations with loans from the banking system and its own resources.

(a) Two Agricultural Development Bank loans granted by Government were \$1.8 million for development of tree crops. A total of \$1.9 million was drawn as at December 31, 1972.

(b) An amount of \$1.6 million for Operation Feed Yourself programme was granted by Government at the inception of the programme in 1972, out of this amount \$890,000 was drawn.

5.1.2 Between 1967 and 1973, a total of \$15.6 million drawn from internal resources, i.e. revenue generated from sales of produce, has been used for development and expansion of the Tree Crops, Arable Crops and Livestock projects.

5.1.3 It is significant to note that a good proportion of the above amounts went mainly into the payment of salaries and wages of field staff, the majority of whom could be considered as essentially redundant to the needs of the large-scale projects being operated by the Corporation.

5.1.4 It is normally deemed economical to mechanise such large-scale farms. However, the Corporation had to maintain this expensive labour force in the absence of the requisite machinery and inputs. The attached list of basic machinery (appendix III) as at December, 1976 depicts the deplorable machinery situation on the main arable crop project areas.

5.1.5 Of late, the financial situation of the Corporation has improved due to the grant of \$38 million loan under the Capitalization programme for the development of the existing tree crops, foodcrops and livestock projects. Part of it is to be used for the rehabilitation of the Asraku Oil Palm Mill and the installation of new mills on the existing oil palm plantations.

5.1.6 Due to the erratic release of the funds and the unavailability of Import Licence, the Corporation could not procure Capital equipment and other essential inputs necessary for the efficient utilization of the funds.

5.2 Machinery & Inputs:

5.2.1 As stated earlier, the need for adequate and efficient machinery and equipment cannot be over-emphasized in the operations of the Corporation, especially in the field of large-scale production of food and fibre for domestic consumption and for export.

5.2.2 The Corporation was compelled, for most of the programme period, to depend upon the use of manual labour with its inefficiencies and consequent low productivity. Except in the field of Oil Palm production where reasonable gains were registered, the Corporation continued to register losses in all fields. It is pertinent to note that the Corporation lost as much as \$250,000 for 6 months in 1975 when the Asraku Palm Oil Mill broke down for lack of Import Licence for spare parts.

5.3 Import Licence Allocation & Issue:

5.3.1 As a pre-requisite for the acquisition of Capital Equipment, and other agricultural inputs, it is important that the Corporation is allocated enough Import Licence. This should be issued on time in order to facilitate early orders and receipt of our requirements for the timely execution of projects.

5.3.2 In spite of the national constraints for foreign exchange, it is however felt that our programmes will continue to suffer if the present situation in the allocation of Import Licence for agriculture does not see some change for the better.

6. PROGRAMME FOR 1977:

6.1 Under the Capitalization Programme mentioned earlier the Corporation has been provided with loanable funds out of which the following programme is proposed for 1977:

Food Crops	..	..	5,400 acres
Tree Crops	..	..	5,000 "
<u>Poultry</u>			
Day Old Chickens	..	..	0.5 million singles
Eggs	..	..	7 " "
Table Birds	..	..	0.3 " "
Feed	..	..	4,000 tons

Appendix IV shows the targets for 1977 on farm basis for the arables.

6.2 It is planned to increase the stocking position of all other livestock.

6.3 It should be noted that the Corporation has enough land for putting more than twice the acreage targeted for food crops for 1977. This is not possible mainly because of the constraints which have not been removed in this area.

6.4 The other projects i.e. tree crops and livestock appear to be in a better position to take off during 1977. For example the poultry programme has now been supplied with enough grains and other inputs and enough planting material and other inputs are available for the projected expansion of the tree crops.

7. CONCLUSION:

7.1 The Corporation will continue to implement its policy of participating in the production of food items for direct human consumption, industrial raw materials to feed agricultural based factories and the production of exportable commodities.

7.2 If the turnover of this Corporation is presently on the low side, the explanation may be found in the constraints mentioned above. The rainfall and other climatic conditions have not been altogether satisfactory. It is to be stated, however that even during periods when normal climatic conditions have been registered, the lack of equipment and inputs have, more often than not, been the cause of our failures.

7.3 In the other areas, such as Livestock production, lack of modern equipment, improved breeds, drugs and feed additives, etc. have been the major difficulties hindering bumper outputs.

7.4 The Corporation can boast of a reasonably adequate complement of both technical and managerial manpower capable of attaining any targets. What will make the big difference between the present short-fall and a future of abundance is the removal of the problems and constraints mentioned above.

GHANA STATE FARMS CORPORATION
ACCRA

APPENDIX I

PROJECT	1972		1973		1974		1975		1976	
	ACREAGE	YIELD	ACREAGE	YIELD	ACREAGE	YIELD	ACREAGE	YIELD	ACREAGE	YIELD
MILK	6,633	21,496 bags	4,450	20,025 bags	2,720	9,520 bags	480	2,304 bags	1,155	5,198 bags
RICE	2,570	10,000 "	1,742	5,970 "	1,450	7,830 bags	504	1,768 "	561	1,908 "
GUINEA CORN	-	-	290	1,160 "	-	-	-	-	-	-
PLANTAIN	1,762	3,810 tons	970	2,520 tons	900	1,440 tons	760	1,748 tons	-	900
CASSAVA	2,566	1,283 "	2,030	8,526 "	920	2,760 "	444	1,335 "	130	920
YAMS	20	34 "	172	346 "	60	96 "	28	58 "	50	60
COCUYAMS	10	30 "	450	1,170 "	180	375 "	-	-	-	100
COTTON	-	-	-	-	30	10 "	-	-	161	30
B. BEANS	-	-	-	-	-	-	-	-	30	51 bags
GROUNDNUTS	-	-	180	305 bags	40	98 bags	16	52 bags	-	40
VEGETABLES	35	50 tons	50	60 tons	40	70 tons	20	35 tons	30	72 tons

GHANA STATE FARMS CORPORATION
LIST OF SERVICEABLE ESSENTIAL MACHINERY AND EQUIPMENT
AS AT DECEMBER 31, 1976

F A R M	TRACTORS	PLOUGHS	HARROWS	PLANTERS/ SEED DRILLS	SPRAYERS	HARVESTERS
Kwabanya	2	1 (faulty)	1	-	-	-
Demon	3	3 (1 faulty)	-	2	1	1
Zongo Macheri	2	2	2	2	-	1
Akatsi	1	1	1	1	-	-
Atebubu	1	1	-	1	1	1
Kwane Danso	1	-	1	1	-	-
Branam	2	2	2	1	2 (faulty)	1
Wenchi	1	2	1	1	-	1
Gomoa Ajumako	1	1	-	-	-	-
Total	14	13	8	9	4	5

GHANA STATE FARMS CORPORATION
 CROPPABLE CROPS DEPARTMENT
 TARGETS FOR 1977 CROPPING

FARM	MAIZE		RICE	COTTON	SOY	SORGHUM MINOR	CASSAVA		PLANTAIN		COCOYAM	VEGETABLES	TOTALS
	MAJOR	MINOR					NEW	OLD	NEW	OLD			
AKATSU	100	-	-	-	-	-	50	-	-	-	-	10	160
BRANCO MACHERI	200	100	-	50	20	50	-	-	-	-	-	-	420
DESEM	-	-	1,000	-	-	100	-	-	-	-	-	-	1,100
DESEMUBU	200	100	-	50	20	-	-	-	-	-	-	-	370
ETIANG DANSO	200	100	100	-	20	-	-	-	-	-	-	-	420
KINCHI	200	100	-	-	-	100	-	-	-	-	-	-	400
BRAMM	500	200	-	-	20	100	-	-	-	-	-	-	820
BRAMM	100	-	-	-	-	-	100	-	-	-	-	-	210
BRAMM	-	-	-	-	-	-	200	200	-	-	-	10	400
KOMADA AJULAKO	-	-	-	-	-	-	-	-	100	-	100	-	200
KUMU	-	-	-	-	-	-	-	-	100	-	100	-	200
KUMU	-	-	-	-	-	-	-	-	100	-	100	-	200
KUMU	-	-	-	-	-	-	-	-	100	-	100	-	200
KUMU	-	-	-	-	-	-	-	-	100	-	100	-	200
MESEH FOSU	-	-	-	-	-	-	-	-	50	-	50	-	100
MESEH FOSU	-	-	-	-	-	-	-	-	50	-	50	-	100
MESEH FOSU	-	-	-	-	-	-	-	-	50	-	50	-	100
MESEH FOSU	-	-	-	-	-	-	-	-	50	-	50	-	100
TOTAL:	1,500	600	1,100	100	80	350	350	200	550	-	550	20	5,400

BAST FIBRES DEVELOPMENT BOARD

EVALUATION OF FIBRE PRODUCTION PROGRAMME

The Fibre Bag Manufacturing Division of GIHOC is engaged in the production of bags to meet our national bag requirements. The present operating capacity of the factory requires 12,000 tons of fibre and the substitution of domestic Kenaf for imported jute would represent a foreign exchange saving of about 3 - 4 million cedis annually. In terms of foreign exchange, however, the country is not saving much from this local bag production since there is still a heavy importation of the raw materials - jute. The Bast Fibres Development Board supplies only about 7 - 8 per cent of the factory's requirement. This is a situation which in the opinion of the Management of the Bast Fibres Development Board should not be allowed to continue because of the country's rather precarious balance of payment position.

The climatic conditions and the nature of the soils in many parts of Ghana are considered favourable for growing Kenaf and other allied fibres. The Management of the Board therefore strongly believes that the application of rational production methods and effective extension services as well as the payment of realistic price for the local fibre should make it possible for the Bast Fibres Development Board to raise local fibre production from the present negligible production level to about 30 - 40 per cent of the raw material requirement of the bag factory within the next 4 - 5 years. The recent increase in the producer price of Kenaf has generated enthusiasm in the cultivation of the crop and provided the constraints to production would be removed, there is no doubt that the Board could achieve its production targets. For the Bag Factory, the operations of the Bast Fibres Development Board will ensure regular supply of fibre of an equally good quality as that being imported at present. For the Ghanaian economy as a whole, the main advantage of the project will be the substantial savings in foreign currency every year.

Since the establishment of the Bast Fibres Development Board in 1970, the Board has not had the means to install an adequate and effective infrastructural and logistic foundation from which to pursue a rapid development programme. Production has therefore been very low, even to the dismay of the Management, because of the following major constraints:-

- (i) Total lack of retteries.
- (ii) Very inadequate supply of machinery and equipment.
- (iii) Inadequate technical and accounting staff who have the knowledge as well as the flair and interest to render continuous and dedicated service.
- (iv) Short and unpredictable budgetary allocation which inhibits the implementation of planned programmes and the fulfilment of set targets
- (v) Inadequate provision of import licence to cover even the small yearly allocation of money provided for the importation of the requisite items.

The Management of the Board has never failed in its duty to bring these factors which tend to hamper a more rapid expansion in the cultivation of the crop to the appropriate authorities. It is unfortunate that inspite of Management's repeated requests and demands for the supply of the requisite inputs and services, the Board has not as yet been accorded any worthy support.

In this paper, Management strongly recommends that the above constraints should be eliminated, especially the construction of retting and processing facilities, provision of essential machinery and other inputs, the recruitment and training of technical staff for organisation and distribution of vital inputs and the actual operation of the processing facilities.

Secondly, the Board has drawn a modest and (in view of the foregoing teething troubles) realistic development plan for production, within the next 5 years, of 18,000 tons of fibre for the Bag Factory. This by the end of the plan period, will represent about 35% of the factory's annual requirement, and will result in foreign exchange saving of over £6 million over the plan period. The objective of this plan is to provide the necessary basis upon which the Board will build up a more accelerated plan of development aimed at producing the entire local demand of fibre. However, the proposed development programme could only be practicable if only the afore-mentioned infrastructural constraints are relaxed and the administrative procedures in the approval of funds for inputs are properly adjusted. In this connection, Management recommends the following:-

- (a) The Ministry of Agriculture should be asked to request the Bank of Ghana to make a Capital grant to the Bast Fibres Development Board.
- (b) The Ghana Government should continue to give subvention to cover cost of technical and administrative personnel at Headquarters and district production centres and other overheads. However, such funds should be released in good time, possibly six months earlier.
- (c) The Board should also secure a Development Bank loan under the Bank of Ghana credit guarantee arrangement to meet operating expenses, and
- (d) A further loan facility under the same guarantee arrangement as a revolving fund for ribbon and finished fibre purchases as well as fertilizer supplies.

EVALUATION OF OPERATIONS OF THE BAST FIBRES DEVELOPMENT BOARD

The Government of Ghana established the Bast Fibres Development Board to stimulate the production of Bast Fibres, primarily Kenaf, a substitute of jute, and to supply the fibre to the Fibre Bag Factory in Kumasi.

Functions of the Board:

The functions of the Board include the following:-

- i) The Board is responsible for the development on a commercial scale, of the bast fibres industry in the country.
- ii) It is also empowered to act as the sole authority for the discharge of the following functions:-
 - (a) The cultivation or the arrangement for the cultivation on a commercial scale, of bast fibres.
 - (b) The processing, handling and grading of all bast fibres.
 - (c) The purchase, sale, distribution and exportation of bast fibres.
 - (d) The determination and guarantee from time to time, of the prices at which bast fibres shall be purchased by the Board.
 - (e) The undertaking of research or the arrangement of research in respect of the problems affecting the bast fibres industry and for the improvement and the utilisation of the bast fibre products.
 - (f) The giving of advice on all technical, social and economic matters connected with the general development of the bast fibres industry.

Performance of the Board:

In fulfilling the functions enumerated above, the Bast Fibres Development Board has since its establishment in 1970, through Government subvention and its generated income, been providing the following services to peasant farmers and other Kenaf cultivators:-

- (a) A full range of inputs - Free supply of seeds and fertilizers at subsidized rates.
- (b) Mechanised services - land clearing, tractor ploughing, harrowing, seeding, and Kenaf ribboning or decortication (all at subsidized rates)
- (c) Free Technical advisory services (through a net-work of extension services).
- (d) Ready market for the farmers' produce (through a net-work of extensive marketing services).

The achievements of the Board in the development of best fibres or Kenaf cultivation and hence the supply of fibre in an attempt to meet the local demand for the product has been as follows:-

Year	Acreage cultivated	Produce (in tons)			Demand of long fibre by E.R.F.D.	Remarks
		Seed	Ribbons	Finished Fibre		
1970	40	4.0	20	10	-	Pilot scheme
1971	450	8.0	188.3	73	-	-do-
1972	1,342	16.0	369.5	250.4	4.1	
1973	2,300	24.61	496.2	308.2	5.08	
1974	2,496	20.2	519.3	259.5	4.31	
1975	2,265	25.1	450.14	324.2	5.40	
1976	2,327	22.3	624.12	457.4	7.61*	Retting and washing in progress.
1977	-	-	-	-	-	

It will be observed from the above table that the rate of growth in the production and the resultant supply of finished fibre to meet local demand has been between 1 - 2 per cent per annum, despite the fact that the farmer has been supplied free seeds and mechanised services. However, it may be noted that until the recent increase in the producer price of finished fibre from 12p/lb in 1972 to the present price of 42p/lb the Kenaf farmer was making less than 10 per cent on his investment on the crop. This was lower than possible returns he could make cultivating other crops. Reckoning on the possibility that the farmer is profit motivated then the low return could be one of the main factors that have mitigated against a more rapid expansion in the cultivation of the crop.

Although the prices of ribbon and finished fibre have been appreciably increased and this certainly has generated the enthusiasm of many farmers in the cultivation of the crop, it is even feared that the present high prices of food crops would serve as incentives to their cultivation rather to the disadvantage of a purely commercial crop like Kenaf which a farmer has no significant home-use of the produce. Thus, if the interest of the farmer in the cultivation of Kenaf and/or other allied fibre crops is to be sustained, then the producer price should be constantly reviewed to make it much more attractive than the prices paid for other crops. Apparently, the local fibre might cost higher than the imported Bangladesh and Indian Jute merely because of the relatively low wages prevailing in the areas of Bangladesh and India where the jute fibre is produced but it should be recognised that the Ghanaian farmers' participation in fibre production is of paramount importance.

Kenaf Development Programme:

The Best Fibres Development Board embarked on a pilot scheme in 1970 and planted about 40 acres of the crop. Yield from this first crop was mainly for testing the performance and efficiency of the harvesting and ribboning machines.

In 1971, the Board started with its actual programme for commercial production and made the first attempt to register and involve as many farmers as possible in the growing of Kenaf for fibre production in the Ejura, Atebubu, and also in certain parts of the Northern and Upper Regions. About 600 farmers were encouraged to plant a total of 450 acres. Only about 150 acres out of the year's crop was harvested for fibre and this yielded about 73 tons of fibre. The rest of the crop was reserved for seed production.

In 1972 the Board set itself a graduated target which would have made it possible to meet at least 30% of the total fibre requirement of the factory by the end of 1976 but it was unable to follow its set programme because of the constraints already mentioned. These constraints have been amplified below.

Constraints to Production:

The operation of the Best Fibres Development Board has persistently shown short supplies in capital items, staff and finances generally. Such a situation will naturally tend to create operational difficulties.

(a) Capital items:

During 1972 cropping operation, the Board had 4 harvesters and 12 decorticators or ribboning machines which were taken over from the defunct Kenaf Development Board. Unfortunately, all the four harvesters were unserviceable during the cropping season and they have since not been used. Most of the decorticators were also rendered unserviceable through constant use. There are no spare parts to repair these machines, nor funds for complete replacements. Also the Board did not have sufficient tractors and other machinery and equipments either. For instance, out of the twenty (20) tractors and twenty ploughs required for the 1972 cropping operations only twelve tractors and seven ploughs were available for operations on the Board's own seed farms as well as for extension services for the farmers. It is necessary to mention that the Board took over the tractors as "Secondhand" from the Settlement Division of the Volta River Authority and since then the Board has been able to buy about thirteen tractors in addition.

Because of these inadequacies in supplies of the requisite machinery and equipments the Board has been moving these capital equipments from one operational area to another. The ill-effect of this unsatisfactory situation has been that some project areas have been recording poor harvests as a result of belated field operations.

In addition to the machinery and equipment requirements the Board also faces the problem of accommodation for offices as well as for the staff especially those engaged on the seed farms and the retteries. Since 1972 two staff bungalows have been provided at Damongo and Tamale and three staff quarters at Damon^o, Yapei and Ejura respectively, but these are grossly inadequate. The result of this poor office and staff accommodation is that staff recruitments have to be suspended or, where they are already engaged, some of the staff have been staying long distances away from their operation centres.

Vehicles - trucks and Land Rovers are also inadequate for the Board's operations.

(b) Retting tanks Requirement:

The Board as a policy buys the ribbons from the farmers and processes them for the finished dressed fibre. This makes the provision of retting tanks very necessary and important for the Board's operations. Out of a total of sixty retting tanks required to cope with the planned cropping programme for 1972 only thirty of such tanks were available. To date, the situation has not much improved for only seventy out of two hundred tanks required are in use. The construction of one hundred tanks which was given to the State Construction Corporation on contract about two years ago is not even half-way through. For want of these retting tanks considerable quantity of the ribbons from the previous years' crops, which were bought from the farmers still remains unretted as of date. The result will be that the fibre to be produced from such stock of ribbons stored for so long a time will tend to lose lustre and make weak strands of fibre. It is pertinent to mention that the lack of suitable retting facilities and of water at the time it is required constitutes the single most serious problem as far as the production of fibre in the project areas is concerned.

The process by which fibre is extracted from the bark of the plant called ribbon is technically known as "retting" and it consists of immersing the whole kenaf stalk or ribbon in water and allowing the vegetable matter to decompose. The fibre thus remaining is then washed and air dried.

(c) Staff Requirement:

Unlike the production of other crops, Fibre production and development involve and are dependent upon the Board giving a whole range of technical assistance to its farmers in all fields of operations, from field preparation to seeding, fertilizing, harvesting and ribboning. The need for trained staff, and in adequate numbers, is most important to achieve the desired results. The Board, however, lacks experienced technical staff who have the flair and interest to render continuous and good service in the field. A lot of the field officers have been resigning and taking jobs in other organisations because they are poorly remunerated in relation to their counterparts in other Boards

and Corporations which also operate under the aegis of the Ministry of Agriculture. For instance Production Officers in Cotton Development Board enjoy salary ranges 60 - 62 (£3,192 - £3,868) whereas those of the East Fibres Development Board enjoy ranges 52 - 55 (£2,472 - £3,096). The salaries paid to the staff of the Ghana Food Distribution Corporation are also higher, for comparable grades, than those of the Board. Generally it has been observed that the personnel of the Board lack incentives that are necessary to propel them to work harder and to stay longer with the Board. Since the work of the East Fibres Development Board demands special skills, it is recommended that necessary steps should be taken to provide incentives which would attract able and hard working people to work for the Board and to offer dedicated and diligent service.

(a) Finance:

The Board's biggest constraint has been with finances. The Board has since its inception not been provided with the necessary funds to cover its operating and capital expenditures in relation to the targets set. For example, in the Board's 1972/73 programme it put in a request for £845,709 to meet its operating expenditure and over £713,000 to cover its capital costs. Out of this total request for about £1.5 million the Ministry of Finance approved approximately £694,000. This will be about 44% of the total request. Such a financial scale-down invariably reflects on operational results, especially where requests are based and related to set annual targets. Please find below the figures of financial allocations to the Board from 1972 - 1976

Period	Amount requested for operating and Capital Expenditure	Amount Approved	Percentage of total request	Amount actually released to the Board
1972/73	£1,407,000	£694,000 approx.	44%	£593,225
1973/74	£3,782,000	£1,016,100	27% approx.	£789,791.72
1974/75	£2,157,064	£1,061,190	49%	£991,802.28
1975/76	£4,376,842	£2,458,180	56%	£1,793,955.71
1976/77	£3,930,874	£1,826,900	46%	-

(e) Inadequate Provision of Import Licence:

The Board largely suffers from lack of machinery and equipment because it is not provided with the necessary import licence which will enable it bring into the country the supplies required for its yearly operations. Each year, the Board has to petition to the Ministry of Agriculture and the Ministry of Trade for consideration in the allocation of Import Licence. In many cases, such petitions are not given any deserved attention. This unhappy situation obviously tends to affect the successful implementation of the Board's programmes and Management pleads with the authorities concerned to see to it that such an imbalance in the allocation of funds to the Board is redressed.

Once again, the Board has complained to the Ministry of Agriculture that it has not been considered for Import Licence allocation for the 1977 calendar year. It is hoped that due consideration will be given to the complaint.

.../9

PRODUCTION PROGRAMME OF THE BOARD - 1977/81

In pursuance of its production programme the Best Fibres Development Board has engaged itself in three major fields of operations namely:-

- (a) Ribbon/Fibre production - which is undertaken by all participating cultivators.
- (b) Finished Fibre production - mainly at the Board's retting centres and by certain individuals where retting facilities are available.
- (c) Seed production - on the Board's own farms.

FIBRE DEVELOPMENT PROGRAMME

Working on the operating capacity of 12 million bags a year for the bag factory, the Best Fibres Development Board has set itself a graduated target which will enable it to meet at least 35% of the total fibre requirement of the factory and thus make it possible by 1981, from domestic sources, to reduce the excessive consumption of foreign exchange in jute imports. If the Board is able to follow its set programme, and there is no doubt that it could, judging from farmers' response to kenaf cultivation in recent times, the Board should be in a position, from its 5-year projections (1977 - 1981), to help produce about 18,000 tons of fibre thus saving about £6.8 million in foreign exchange as shown in the following table.

Year	Acreage Planned	Estimated Fibre Production	Value
	4,000 acres (1620 ha.)	1,100 tons	£0.4 million
1977	5,500 " (2227.50 ha)	2,200 "	0.8 "
1978	7,000 " (2835 ha.)	3,500 "	1.3 "
1979	10,000 " (4050 ha.)	5,000 "	1.9 "
1980	12,500 " (5062.50 ha)	6,200 "	2.4 "
1981	<u>39,000</u>	<u>18,000</u>	<u>6.8 "</u>

Mode of Execution:

In line with its objectives and policy, the Board shall continue to involve several farmers (i.e. peasant farmers, Enoboa groups, co-operative farming organisations, large scale commercial farmers and other institutions) in the production of kenaf during the 1977 cropping season. The approach to the execution of this broad based policy shall be as following.

The Board's Production Officers shall be responsible for the achievement of output and quality targets but they will be assisted by service and specialist units within and outside the Board such as Mechanisation & Transport and Research units.

In order to make the Board's extension work much more effective, the extension officer shall be exposed to three main channels through which he is to organise his production.

The Co-operative or Group Farming Method
(i.e. The Mnoboa Idea)

The Extension Officer shall devote most of his time and energy in propagating the idea of getting farmers together into groups which could be developed into co-operatives (or associations) or which could constitute responsible group farms. The individuals of such a body shall be encouraged to put their land resources together. Such land will be developed by the Board for the farmers when they do not have the means to do so. Where individual farmers may not have easy access to suitable lands, the Board may appropriate for the land on their behalf. The land thus acquired would be developed and allocated to the farmers according to their managerial capabilities.

Large Scale Commercial Farmers

The Extension Officer is required to leave his expertise at the disposal of any recognised large scale commercial farmer. Thus, all arrangements in connection with land acquisition, land preparation and possibly supply of inputs such as fertilizers will remain the sole responsibility of the commercial farmer. The Board shall, however, offer free seed and technical advisory service.

Outgrowers (i.e. Individual small scale farmers)

It is hoped that with the establishment of the co-operative and group farms (which shall be the main pre-occupation of the Board's extension staff) several individual farmers in the project areas may still continue to farm on their small holdings. The Board shall provide this group of farmers the necessary inputs and services to support them.

Management believes that the above strategy when effected will greatly help the Board in the following ways:-

- a) To use its rather limited farm machinery much more efficiently and economically;
- b) Reduce the number of supervisory staff required to undertake extension duties.
- c) Facilitate the provision of other services like storage, transportation, retting tank construction and marketing.
- d) Simplify the control over the inputs and services which the Board offers to the farmers.
- e) Make a better impact on the farming community.

FINISHED FIBRE PRODUCTION

The production of finished fibre is the most difficult and also unpleasant operation in the fibre development programme. In very simple language retting could be described as a process of decomposition or rotting away of the non-fibrous material contained in a Kenaf stalk or ribbon.

The process of retting could be undertaken in established water courses, ponds, roadside ditches, rivers, streams, canals, etc., but these facilities are not always available within reasonable distance of the kenaf farms. Almost all areas have retting water problems shortly after the end of the rainy season. The Board shall, however, make every effort to provide many retting facilities in order to increase production. Kenaf surface tanks shall be built for some group farmers while others use the Board's existing rettery centres. Where possible, other farmers should also be encouraged to carry out retting in swamps, ponds, roadside ditches, rivers and streams.

SEED PRODUCTION

Emphasis would be placed on seed production to ensure regular supply of seed to the farmers. Seed production is being undertaken by the Board on its own farms but it is hoped that some farmers would be interested in this aspect of production and take it up under the guidance of the Board's technical personnel in the near future. The yearly seed requirements for planting shall be as follows:-

Year	FIBRE PRODUCTION		SEED PRODUCTION	
	Target Acreage	Seed Required	Target Acreage	Seed Required
1977	4,000	35 tons	450	2 tons
1978	5,500	50 "	600	3 "
1979	7,000	69 "	750	4 "
1980	10,000	96 "	950	5.2 "
1981	12,500	112 "	1,100	6 "

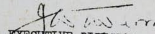
CONCLUSION:

Despite the logistics and infra-structural constraint, the Board has made some progress in the development of Bast Fibres production in the country.

The Board which had not even a grain of Kenaf or any fibre seed to grow at the time it was established, is now self-sufficient in seed production (present production is about 25 tons) and it is even contemplating to produce more seed for export.

On the question of fibre production, the factors which militate against its rapid development have been enumerated and it is hoped that the OFY & OFII Review Committee will take the necessary steps to ensure that the Board's development programme for the next five years becomes a reality and not a mirage.

Undoubtedly, Bast Fibres, for example, Kenaf, Jute, Ramie have serious production outlook for the future. If the Board is given the necessary support, it will certainly make tremendous contribution to the nation's economy, for Kenaf, Jute and Ramie which could be favourably grown in the country are important world crop sources of textile for manufacture of twine, bagging, rope, rugs, suiting, handkerchiefs, napkins, tailors' interlining, canvas, tarpaulins, machine sewing thread, fire hose, suitings, etc.


EXECUTIVE DIRECTOR
(J. W. Twum)

The Chairman,
City & Ofyi Review Committee
c/o Ministry of Agriculture
Post Office Box M.37
A C C R A

GHANA FOOD DISTRIBUTION CORPORATIONINTRODUCTION

Further to your invitation to present a paper on "Evaluation of projects operations and programmes implemented by my organisation during the period 1972-76, I submit the following write-up:

In the period 1972 to July, 1974 the Corporation engaged in purchasing farm produce while using facilities that were already available to either of the merging groups the Task Force and the Food Marketing Corporation or hired.

There had also been a thinking through for a capitalization programme but this had not crystallized when I took over the reins of affairs in July, 1974.

I have therefore only reflected the performance within the period 1972-1973/74 in terms of purchases and sales. The write-up accordingly concentrates on the period July, 1974 to date.

PROGRAMMES AND EVALUATION FROM JULY, 1974 TO DATE

In October, 1974 barely three months after I had joined the Corporation, I submitted a capitalization programme through the Ministry of Agriculture to the Ministry of Finance.

As per attached there were three important elements listed under: Operating capital, overhead capital and Technical Training.

The Ministry of Agriculture revises the programme for Overhead Capital. The Ministry of Agriculture finally submitted a programme of ₵616,000.00 out of (₵3,454,800 - ₵1,800,000) ₵1,654,800 to the Ministry of Finance. The modified programme listed:

9 Regional Warehouses	...	₵270,000.00
10 Buying and storage depots at faragate and organisation of Marketing Co-operatives	...	200,000.00
1 Weighbridge	...	40,000.00
3 Food Supermarkets	...	90,000.00
2 Lister Dryers	...	16,000.00
		<u>₵616,000.00</u>

The amounts originally submitted under operating capital and technical training were not cut down. Action on two important items, Cold Stores (item 6) and Silos has been the prerogative of the Ministry of Agriculture since 1972.

The revised programme submitted by the Ministry of Agriculture to Finance was wholly approved. The modified programme then became our programme of activities.

In December, 1975 and February, 1976, I made further appeals through the Commissioner for Agriculture and the Supreme Military Council (on request) for support to build Food Centres and to import Spare Parts and Distribution Vans. Subsequently ₵400,000 was given to the Corporation for spares and Distribution Vans and an additional ₵161,400 was released to the Corporation for the construction of seven food centre in various parts of Accra and also to get an Extension of rail line to the head office site in view of the presence there of the Drevici silos and Cold Stores. Our Capital programme was thus to implement purchase or construction of the following:

- 9 Regional Warehouses
- A. 10 Buying and Storage depots (Collection points)
- B. 1 Weighbridge
- C. 3 Food Supermarkets (Groceries)
- D. 2 Lister Dryers
- E. \$200,000 worth of spare parts
- F. \$200,000 worth of Distribution Vans
- G. 7 Food Centres
- H. Extension of Railway to Head office
- I.

A related problem was the acquisition of a two acre land adjoining the Corporation offices as car park to support the silos and cold stores.

NEW WORKS
A & B - Warehouses & Groceries

Even though action was initiated in March, 1975 to get the warehouses and groceries on the ground. The A.S.S.C. did not react until June, 1976 before authorising Cowiconsult - consultants to the Ministry of Agriculture on Cold Stores - to be consultants for the construction of the warehouses and groceries.

Towards the end of 1976 all necessary documents were completed and since the beginning of 1977 constructional works for four regional warehouses sited at Accra, Kumasi, Tamale and Takoradi have started, contracts have also been awarded for the construction of two groceries to be sited at Korle Bu and Burma Camp; work on the Korle Bu Grocery has started within the past few weeks.

On our own, the Corporation has modestly invested to obtain five mini groceries, two in Accra and one each sited at Koforidua, Kumasi and Cape Coast. The Cape Coast mini-grocery is not yet operational.

D. Buying Depots - Collection Points

Nine out of ten collection points initially programmed for have been built at Essan near Nyametwa (NR): Akwasiso, Kpasaaso, Offinso, Nsawoa (Ash) Porifori, Donkorokron (Afram Plains). Our experience is that foodstuffs collection at our points have no hitch in times of adequate production; but in the lean season it has been difficult holding even organised groups around the collection points.

C. Weighbridge

The Corporations currently expecting to obtain an allocation of import licence from the Ministry of Trade. Two weighbridges have been provided for and when acquired they would be installed at Accra and Kumasi.

E. Grain Dryers

The import licence referred to above makes provision for five dryers and also \$20,000 worth of spare parts to support three dryers currently in the system.

With the additional dryers and the spares to activate the three already in the system the Corporation should be able to do early purchases and reduce losses through insect damage to maize.

F. Spare Parts

Spares worth about \$200,000 have been acquired since the past few weeks, a special request for import licence has been made to bring in oil rings which were listed but surprisingly not included in the spares, and without which engine repairs cannot be done. Our current operational vehicle haulage capacity is about 25 but this can be increased to at least 50 within two months when the oil rings are received.

G. Distribution Vans

24 three-ton Bedford distribution vans have been received and made operational since early March, 1977.

Food Centres

Initially these were earmarked for Accra, one each to be sited within the six wards of Accra; Osu Klottey, Ablekuma, Ayawaso etc. There have been problems of land acquisition and so far we have been able to obtain three sites - two belonging to State Housing Corporation at Dawson and Teshie/Wungua; and one belonging to Ghana Railway Authority.

Dawson Food Centre has been completed and is operational since early 1976. Railway station food centre is almost completed and would be operational within one month. Teshie/Wungua Food Centre is in the initial stage of construction.

The Food Centres are points from where distribution of foodstuffs would be done within a reasonable radius of Accra City. Attempts are being made to get at least one Food Centre around Achimota area to serve Achimota, Dzorwulu, Ablekpe, Legon, Roman Ridge, Accra New Town and Madina.

Rail-line to serve Silos and Cold Stores at Head Office Grounds

An amount of \$60,050 has been paid to Ghana Railways for rail-line extension about one year ago. Just when the railways intended starting works it was realised that part of the area surveyed had suddenly been walled by a firm. The Railways Authority is exploiting the possibility of having a new route.

A related problem involves the acquisition of land adjoining the Corporation premises to support the activities of the 10,000 ton capacity grain silo and 500-ton capacity cold store. The adjoining land should have been acquired by my predecessors but in view of the importance of the silos and cold stores an appeal has been made for the land to be given to the Corporation.

PURCHASES AND SALES OF FOODSTUFFS FOR THE PERIOD JANUARY, 1972 TO FEBRUARY, 1977

YEAR	PURCHASES		SALES	
	FOODSTUFFS	MAIZE	FOODSTUFFS	MAIZE
Jan.-Dec., 1972	¢ 598,953.88	-	996,919.74	-
Jan.-Dec., 1973	1,608,878.00	606,000.00	2,605,066.45	-
Jan.-Dec., 1974	1,875,359.24	560,000.00	2,934,554.75	-
Jan.-Dec., 1975	1,849,112.97	439,204.93	2,147,455.56	671,812.00
Jan.-Dec., 1976	3,645,650.04	73,193.00	4,897,412.38	225,886.00 (2,500,000)
Jan.-Dec., 1977	558,564.00	-	776,629.00	-

+Sales of old stocks of maize taken over from Grains Development Board of which \$1.05 million advanced by GFDC retrieved and \$1.4 million in Buffer Stock account.

PURCHASING PROGRAMME:

This consisted transferring fairly senior personnel to the farm gate; organising farmers marketing associations; building collection points and appointing purchasing agents and purchasing organisers to cover a wider area to back up our operations. There is also a programme for the purchases of buffer stocks to ensure a continuous flow of foodstuffs in the lean season.

PERFORMANCE:

(a) Farm Gate Operations:

Senior personnel have been posted to the farm gate since February, 1975 and currently new areas of base operations cover Kintampo, Afram Plains, Atebubu, Kwame Danso, Salaga, Ketekrachi, Bimbilla, Yendi and Bawku; then Sefwi Wiawso, Goaso, Akwasiso and Dormaa, Ahenkro.

(b) Organisation of Farmers:

This has proved a difficult area. However, with the establishment of the Ministry's Special Marketing Unit this area will be properly organised as a continuous area of activity. The Unit intends to employ district organisers and the Corporation will strongly liaise with the Unit to achieve its objective.

(c) Collection Points

This has already been mentioned.

(a) Preliminary interviews have been conducted but appointments have been delayed to merge into our truck repair programme. Buffer stocks were built up in the 1974/75 and 1975/76 years of operation. Currently there are buffer stocks worth over ₵7,000 located in Atobubu, Tamale, Bolga mainly.

Sales Programme:

Efforts here have concentrated on building food centres and groceries while maintaining our kiosks and traditional institutions. The food centres and groceries have already been mentioned.

Transport Programme:

(a) River Transport

Since 1975 river transport has been strongly emphasized between Yapei, Kotokrachi to Akosombo and vice versa. Arrangements are under way to get a site at Akosombo for the construction of a permanent depot.

(b) Rail Transport:

Rail transport has also been used whenever it is available. A rail traffic clerk and supporting staff have been assembled at Kumasi for some time now. Land has been acquired at Accra railway station and already a food centre to receive foodstuffs by rail is due for completion soon. Arrangements are under way to obtain a site for the construction of a depot at Kumasi to be used as the centre for our rail transport activities.

(c) Air Transport:

The transport officer has been instructed to liaise with Test German Airship Company that recently had flight demonstrations in Ghana for our long term plan considerations.

(d) Road Transport:

This has been reported on under Spare Parts.

OTHER PROGRAMMES:

Processing:

A modest food processing unit has been set up since March, 1976 at the Head office grounds of the Corporation. The programme involves the setting up of food processing units to process staple foods like yam, plantain, cassava in commercial quantities and thus provide an alternative choice of product to the consumer in the lean season periods well defined in the country.

Silos and Cold Stores at Head Office grounds:

These are being handled by the Ministry of Agriculture since 1972. They are yet to be operational.

Other Silos:

Currently there are about ten butyl silos involved in yellow maize operations at Tema Harbour. It has been pointed out to the Ministry of Agriculture that with the removal of the butyl silos from the production zones there are no silos in the system. The Ministry has already acted for BUTLER silos to be erected in time for the 1976/77 season.

Constraints:

1. Lack of feeder and farm roads
2. Inadequate water transport system
3. Difficulties in obtaining import licence for spare parts
4. Human risks

- 5. In maize and rice, the lack of control in the purchasing system
- 6. Lack of research to produce seasonal varieties of traditional staples, plantain, yam.

PROSPECTS:

Since October, 1974 to July, 1976 the Corporation had borrowed and paid back \$4.7 million to the Bank of Ghana under the latter's Special Credit Facilities for Agricultural Produce. Thus the Corporation has earned confidence and solved the greatest problem that could threaten its activities. With overheads amounting to \$200,000 a month the Corporation needs to build stocks with at least \$5,000,000 and sell at only 2% gross margin to break even for the critical 6 month-lean-season period it faces yearly.

Since the Bank of Ghana is willing to support the Corporation by its previous performance there are good prospects ahead provided there are adequate rains to ensure production success in the first instance.

RECOMMENDATIONS:

- 1. Ministry policy to consider storage and processing as a more priority area and support the Corporation in these directions.
- 2. Ministry to back the Corporation to own its own boat for transportation of foodstuffs or the Volta River Authority should be provided with more boats for foodstuff evacuation.
- 3. Ministry policy should move the country through the GNRC may be towards the construction of fish ponds all over the country and replacement of poultry and eggs with abundant cultured fish. This can be done within 3 years if we are serious and it will remove once and for all the serious competition of the poultry industry for the country's number one staple food commodity, maize. The competition cannot be sustained with current levels of production technology now nor in the next decade and it is the greatest threat facing the nation at the moment.
- 4. Food haulage trucks must be standardized and nationalized as a matter of urgency and special provisions made within each years import licence allocation for programme quantities and spare parts.
- 5. Ministry to give an endowment for research to obtain various varieties of staples that can be grown or preserved to support the population during the lean season.

Submitted by:

S. K. ANUAH; MANAGING DIRECTOR
GHANA FOOD DISTRIBUTION CORPORATION

CAPITALIZATIONOPERATING CAPITAL

1.	Purchase of fast-moving and perishable foodstuffs, e.g. plantain from all regions at ₵100,000 per month for 3 months to serve as revolving capital	₵300,000.00
2.	Purchases of relatively durable foodstuffs, e.g. beans for stock building-up for release in the lean season (initial stock to provide revolving capital) for stock purchases	500,000.00
3.	Spare parts to put broken down vehicles on road (vehicle to be economically used to generate funds for depreciation of vehicle asset)	150,000.00
	Total	<u>₵950,000.00</u>

OVERHEAD CAPITAL

1.	Construction of 9 regional warehouse to preserve relatively durable foodstuffs at ₵30,000.00	₵270,000.00
2.	Construction and installation of 20 50-ton Tanks for preservation of palm oil, groundnut oil and other oils for lean season at ₵6,300 each	126,000.00
3.	Purchase of 3 oil tanker trucks (DAF to be converted at ₵20,000 each)	60,000.00
4.	Purchase of 4 refrigerator trucks to convey fruits and vegetables at ₵25,000 each ..	100,000.00
5.	Setting up initial 10 buying and storage depots at the farm gate and organisation of farmer's Marketing Co-operatives at ₵20,000 each ..	200,000.00
6.	Construction of 8 regional Cold Stores for foodstuffs needing cold storage (contract awarded by Government)	-
7.	Construction and cost of 8 Weighbridges (to be installed near regional cold stores) at ₵40,000 each (Code 5901) (45' x 10') ..	320,000.00
8.	Cost of 10 tractors and trailers for use by 8 Regional Cold Stores at ₵7,000 each ..	70,000.00
9.	Part conversion of 8 Regional Drevici Complexes into Regional Offices at ₵15,000 each ..	120,000.00
10.	Construction of initial 11 food Supermarkets at urban centres at ₵30,000 (3 in Accra, 1 for each region)	330,000.00
11.	Completion and activation of Drevici Silos (Accra, Kumasi, Takoradi) at average of ₵600,000 each. (Government to negotiate and award contract as done for Cold Stores) ..	1,800,000.00

12.	Purchase of 6 Lister Dryers for drying farm produce to appropriate moisture content before storage at warehouses at ₧8,000	- ₧ 48,000.00
13.	Purchase of 6 bag sewing equipment at ₧1,800.00 each	- 10,800.00
14.	Construction of Food Processing Units (submitted for technical aid to Bulgarian Technical Co-operation Team)	- -
		<u>₧3,454,800.00</u>

TECHNICAL TRAINING

Add training of personnel for maintenance of silos, cold stores, processing units dryers and general pest and disease control	<u>₧100,000.00</u>
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TOTAL CAPITALIZATION (TOTALS A, B & C) ₧4,504,800.00

The State of Agricultural Investments during
the period 1972-76

Their performance in specific sectors and Constraints
Presented by National Investment Bank

The rapid development of agriculture in the country is now being realized as the principal catalyst to the development of the country's economy.

The period covering 1972-76 embraces the launching of the Operation Feed Yourself (OFY) and the Operation Feed Your Industries (OFYI) campaigns. The significance of this period is that it brought into focus, the importance of agriculture to the development of the economy of the country.

As far as the National Investment Bank is concerned, the operations of the Bank during the period has been guided by the Bank's credit policies among which are:

- (a) To assist in the establishment, expansion and modernization of agricultural enterprises in all sectors of the national economy, including the public, the co-operative and private sectors;
- (b) To encourage and facilitate the participation of internal and external capital in these enterprises.

The National Investment Bank has since its inception in 1963 approved agricultural projects to the tune of over ₦36.2 million. The Bank's operations in agriculture cover granting long and medium term loans for the development and production of food crops, livestock, agro-based industries, marketing and distribution of agricultural products. The Bank is also in partnership with other financial institutions and companies in the production of rubber, cotton, oil palm, rice and livestock. Between 1972 and 1976 the NIB approved a total of ₦30.9 million for agriculture under the following sectors:

Livestock and poultry	...	₦ 1,018,890
Food crops	...	6,097,220
Agro-based industries	...	5,600,000
Industrial raw materials	...	14,094,700
Fishing	...	2,422,570
Agricultural services	...	<u>1,667,720</u>
Total	...	<u><u>₦30,901,100</u></u>

This constitutes 85% of the total loans granted for agriculture and 24% of the total loans granted by the Bank since 1963.

The performance of clients has not been quite satisfactory. Some of the principal setbacks have been clients' own mismanagement, governmental controls and adverse climatic conditions over the past two years which have drastically affected farmers' production.

The problem of livestock production is unique. Local breeding stock are not available. It has become impossible to obtain licences to import exotic breeds to up-grade the few stocks which are available. The cumulative effect of this is the gradually dwindling stock with the resultant high prices of both white and red meat on our markets. The other problem is the difficulty of obtaining good seeds. The Bank has however made conscientious efforts to develop all the agricultural sectors in the economy.

Agricultural credit as a tool in the development process has an inter-related character. It is closely linked to marketing, supply of inputs, farm prices and extension. Credit must therefore be handled together with these sectors in order to make agricultural credit programmes successful. The functioning of a marketing and supply system relies on a sound rural infrastructure. It is therefore important that roads, dams, wells, storage facilities and other basic preconditions to rural development are firmly established in advance before sound agricultural programmes are commissioned.

In the absence of measures for price stabilization, farm-gate prices of main cash crops can vary considerably and will in general reach the lowest point during harvest time. The uncertainty as to the price he will receive for his product is no incentive to the farmer to cultivate a particular crop, or to adopt new cultivation methods which would result in higher yields.

Some farmers are indebted to money lenders for the supply of inputs, for personal living expenses and some even unfavourably prefinance them on the maintenance of their field crops.

Credit institutions are not likely to provide loans to farmers in this situation because of the farmers' very vulnerable repayment ability during and after harvest. In some areas this might imply that farmers in need of cash would approach money lenders and later on find themselves in perpetual debt.

It should therefore be borne in mind that farmers can only benefit from a proper organization of marketing, input supply and credit when there is some governmental intervention to ensure fair prices and an efficient marketing system.

An important role of marketing in agricultural development is to provide an incentive for production by expanding domestic and export outlets. Unless farmers are convinced that the marketing organization will absorb their outlets and offer stable prices, they will not be motivated to adopt innovations or expand their scale of production. In a well functioning marketing and input supply system, in which the market outlet is known and prices are stable, credit institutions can forecast what farmers can expect for their products.

It is crucial that the farmers should also have easy and timely access to the farm inputs such as seeds, fertiliser and pesticides needed for the cultivation of these crops. Delays or shortages of these have been responsible for greater production losses than generally realized.

A fairly accurate forecast of farmers' expected income greatly facilitates the formulation and execution of loan policies and correct assessment of the repaying capacity of borrowers. Institutional agricultural credit can be expected to function satisfactorily only if the farmer is not seriously indebted to a third party and if the proceeds of sale of produce leave him enough margin to repay his loan and accrued interest.

Extension services has a lot to contribute to agricultural development by disseminating the technical knowledge, without which agricultural credit remains sterile.

Credit in itself cannot bring about a change in traditional methods of production and therefore a close co-ordination between credit and extension work is essential for making agricultural credit instrumental to increasing production.

The provision of credit through public agencies in a developing country involves many difficulties. The risks and uncertainties associated with agricultural production for which credit institutions are called upon to finance are immense. Credit institutions therefore run a great risk in providing credit needs for the agricultural sector. The production uncertainty, price uncertainty, innovation acceptability or rejection, institutional constraints and risks of fire and droughts do constantly affect the balance sheets and profit and loss of most agricultural operations supported by credit banks.

Most of the earlier attempts at institutional credit programmes failed mainly because of anti-social and unreliable attitude of the public towards credit. Credit has been abused whenever it was granted by a public institution. The notion has been that, it is Government money not meant to be paid back. It would therefore appear that the main cause of default has been probably due to dishonesty, insincerity and the absence of integrity among some of the borrowers in the country.

Given time and adequate resources, agricultural credit programmes being implemented by credit institutions in the country presently appear to have a better chance of success.

All the local financing institutions are making efforts to promote, finance and contribute to the development of the country. This is paving the way for the success of the OFY and OFYI programmes.

For an effective implementation of the country's agricultural policy, efforts should be made to sustain the momentum of the OFY and the OFYI campaigns.

The following recommendations are made:

- (1) The Government must intensify its efforts to provide the basic infrastructural development in the rural area as a basis for agricultural development. Feeder roads, clinics, water and rural electrification should be given priority.

(2) It would be appropriate at this stage to mention that livestock development, especially cattle, poses special problems in obtaining breeding stock. A specified number of breeding animals must be imported for the establishment of a commercial livestock breeding farm to build the livestock industry to produce sufficient meat for the population. Without importing suitable breeding stock to support this sector, the country would find it difficult to increase the livestock population to meet the increasing meat requirement of the growing population.

(3) A seed multiplication company should be established as soon as possible for the production of good seeds which would form the foundation of good crop yields.

(4) Price stabilisation policy should be streamlined to embrace all food and industrial crops. This would generate sufficient incentive for farmers to increase productivity in anticipation of some expected income. Such a situation at the same time also enables financial institutions approach project financing in a more realistic manner.

(5) There should be continual efforts to encourage the nucleus and outgrower system of farming on agricultural estates which would be tied on to processing facilities and storage. The advantages to be derived from the system are that supervision of the farm operations becomes easier, inputs can be obtained on time, storage and marketing can also be coordinated with better precision and efficiency. The outgrowers at the same time have the opportunity of learning improved farm management methods from the nucleus plantation. A large number of small farmers can be grouped together and benefit from bulk inputs and services that would be made available by a Company or Body.

(6) Another critical problem that has come to the notice of financial institutions is management. Most of the Projects sink because the management aspects are sometimes left in the hands of mediocre caretakers. There is little or no planning and the day to day functions of the project are not properly coordinated to suit the perishable and time conscious nature of agricultural operations. Management training in agriculture is therefore pre-requisite to successful investment.

(7) It is suggested that a farm management department be established within the agricultural credit institutions. This will improve the effectiveness of credit lending policies, programmes and planning. A personnel of farm management core would evolve who would be practical people and can assist those in the field more effectively. This would be linked on to credit supervision which does not appear to be very effective now. Training should also be extended to the intermediate, extension and the marketing staff.

The financial institutions are very aware of their role in the development of the economy of Ghana through funding agricultural programmes. They have the responsibility of ensuring the use of sufficient resources and favourable terms for credit to all clients. They have the personnel to carry out appropriate field studies prior to lending and implementation of projects.

Financial institutions are geared to assist in the establishment, expansion and modernisation of agricultural production and also to encourage, facilitate and counsel all interested, to champion the cause of making the country self-sufficient in food and industrial raw materials.

THE STATE OF AGRICULTURAL INVESTMENTS DURING THE
PERIOD 1972-76 - THEIR PERFORMANCE IN SPECIFIC SECTORS
AND CONSTRAINTS INCLUDING RECOMMENDATIONS

BY BEN SELORMEY: MANAGING DIRECTOR, AGRIC. DEV. BANK

INTRODUCTION

By the above topic, I am required to give an account of Agricultural Investments in the Economy as a whole but since some other financial institutions are required to participate in this symposium I would presume that what you in fact want me to do is to give account of my bank's performance in the OFY Programme. To this end, I wish to concentrate only on the operations of the Agricultural Development Bank and say little or nothing at all about agricultural investment programmes of other banks in the country.

ADB's Operations Before 'OFY' - A BRIEF RESUME

Mr. Chairman I am aware that an account of the involvement of the Agricultural Development Bank in the OFY programme should cover the period 1972-76. But in order to give any meaningful assessment of the Bank's performance during the programme period I consider it necessary to take stock rather briefly, of the initial period of the Bank's existence prior to the onset of the 'OFY' programme for the purposes of proper exposition of the situation and comparison of the Bank's performance during the two periods.

The Agricultural Development Bank, as you are aware was established in 1965 with four main objectives namely:-

- (1) The provision of credit facilities for the development and/or modernization of agriculture and allied industries;
- (2) The identification and promotion of agricultural enterprises in Ghana whether singly or jointly with persons or institutions either local or foreign;
- (3) The initiation of or participation in the conduct of research and training designed to promote agriculture in general; and
- (4) The mobilisation of financial and human resources to meet the country's development needs in agriculture.

With these objectives the Bank commenced business in August, 1965. At the beginning as one would rightly expect business was slow, cautious and well-guided. This caution was necessary for a new bank of a special kind - a development bank venturing into the risky enclave of agricultural lending. Loans were made and by the end of the period before the advent of 'OFY' programme in early 1972 the Bank had granted a total loan of ₵18.9 million.

ADB Loans Approved 1966-1971

Sector	1965/66	1967	1968	1969	1970	1971	Total
	₵	₵	₵	₵	₵	₵	₵
Food Crops	90,569	45,624	256,870	813,828	1,871,917	2,874,491	5,953,299
Ind. Crops	434,430	142,556	412,523	1,399,869	1,360,317	4,030,535	7,780,230
Agro-Business	-	-	-	118,200	473,560	703,770	1,295,530
Fishing	339,258	100,969	267,077	140,900	217,700	455,520	1,521,424
Livestock	206,295	102,811	278,621	597,380	606,231	558,125	2,349,463
Total	1070,552	391,960	1215,091	3070,177	4,529,725	8,622,441	18,899,946

For the 6 year period, the Bank's investments in the agricultural sector increased gradually from ₵1.0 million in 1965/66 to ₵8.6 million in 1971. The total loan made during the entire period fell short of ₵20 million and the largest loan amounts went into the industrial crops and food crops sectors. The purpose in giving this brief account of the period

1965/66-71 is to, as it were, lead you out of the woods into the brisk business atmosphere that characterised the period 1972-76 now under review.

The 'OFY' Programme Period 1972-76
Corporation Loans - Phase One

In pursuance of the 'Operation Feed Yourself' programme launched immediately after the Military takeover of Government in Ghana, the then National Redemption Council decided that all State Corporations connected in one way or the other with agricultural production in the country should be adequately financed as a matter of urgency.

Consequently on the 6th of February, 1972, the Government approved a loan of ₵14,57 million for the operations of four State Corporations for the 'OFY' phase one programme. The Agricultural Development Bank administered the loan. The allocations of the loan to the corporations were as follows:-

- (1) State Farms Corporation - ₵1,630,000
 - (2) State Fishing Corporation - 1,950,000
 - (3) Food Production Corporation - 5,100,000
 - (4) Food Distribution Corporation - 5,890,000
- ₵14,570,000

In 1973, the Bank granted additional loans under the 'Operation Feed Yourself' programme for State Farms Corporation and the State Fishing Corporation bringing the total loans administered by the Bank for the Corporations to ₵18,820,000. The breakdown of all the loans is provided in the following table which also gives the loan utilization position as at the end of December, 1973:

Status of 'OFY' Loans To State Corporations
1972 - 1973

<u>Corporations</u>	<u>Year</u>	<u>Amount Approved</u>	<u>Amt. Utilised</u>
Food Distribution Corporation	1972	5,890,000.00	5,026,109.53
Food Production Corporation	1972	5,100,000.00	5,026,442.93
State Farms Corporation	1972	1,630,000.00	1,629,306.12
State Farms Corporation	1973	1,200,000.00	1,200,000.00
State Fishing Corporation	1972	1,950,000.00	1,522,415.39
State Fishing Corporation	1973	3,050,000.00	3,050,000.00*
		<u>18,820,000.00</u>	<u>17,454,273.97</u>

*Amount utilized after December, 1973.

Members would incidentally notice that there are differences between the figures provided by the Director of Agriculture in his presentation on the 5th of April, 1977 (Ref. paper page 2) and my figures. I wish to indicate that the figures I am presenting here are the loans approved and disbursed by my Bank for these Corporations under the 'OFY' programme.

Small Farmer 'OFY' Credit

Mr. Chairman, I shall in due course, discuss the loan repayment and utilization performance of the above-named Corporations under the 'OFY' programme. In the meantime, as indicated in the Director of Agriculture's paper, the Government in 1972 made a special loan to my Bank for on-lending to the small farmers to enable them participate in the 'OFY' programme. To this end the Government made available only ₵5.23 million to the small farmers in this country.

I want members to take note of this small amount and make a comparative assessment of it vis-a-vis the loan amount that was made available to the State Corporations. I must add that in your assessment of the two sets of loan amounts, you must bear in mind the fact that the bulk of agricultural output in this country is produced by the small scale farmers. As regards to the distribution of foodstuffs in the country it is also true that the bulk of farm produce is distributed by private individuals who are normally referred to as the middlemen or women. I must point out that no allocation was made to these individuals under the 'OFY' Special Credit Allocation.

The status of the Special small farmer credit allocation under the 'OFY' as administered by Agricultural Development Bank is hereunder presented:

Status of Small Farmer Credit Allocation Under the 'OFY' Programme		
Scheme	Amt. Approved ¢	Amt. Utilised ¢
Maize	2,978,400.00	2,897,254.00
Yam	1,506,800.00	1,506,700.00
Ginger	354,790.00	354,800.00
Cassava	225,250.00	225,230.00
Shallot	103,350.00	103,300.00
Groundnuts	61,410.00	61,400.00
Total	5,230,000.00	5,148,684.00

ADB's General Credit Operations - 1972-1976

So far, I have only discussed the Corporation loans and the special small farmer credit under the 'OFY' programme up to 1973. The reason for discussing these two types of loans to begin with is because they were the only specific loans approved by the Government as such under the 'OFY' programme.

But this is not to say that the Bank did not approved of loans during the period under review. Having been in existence before the 'OFY' programme was launched, the Bank would have continued to make loans available to the agricultural sector whether or not a special programme of the kind we are now evaluating was launched at any time in the history of this country.

Therefore the Agricultural Development Bank continued its lending operations from the end of 1971, through 1972 to the end of 1976 a period we are now reviewing.

Loan Amounts

During the period under review the operations of the Bank were characterised with an atmosphere of brisk business and a new awareness to meet the challenges of a national call - a call to feed ourselves. The time was also ripe for the Bank to put to test the experience and confidence gained over the first 6 years of operation. By the time the 'OFY' programme was launched the operational machinery of the Bank had been geared towards expansion not only in terms of geographical coverage but also loan volumes.

From January, 1972 to December, 1976, the Bank granted a total loan of ¢114.25 million to the agricultural sector of the economy. The spectacular increase in the loan volume over the programme period may be explained by a combination of a number of factors including the awareness of the Bank to respond to the financial needs of agricultural producers under the 'OFY' programme.

In all, the Bank approved a total loan of ¢46.9 million in the Food Crops sector for the production of staple food items such as maize, rice yam and cassava. As much as ¢11.7 million was also approved over the period for the cultivation of industrial crops such as oil palm, cotton, sugarcane and groundnuts to feed our local agro-based industries. As indicated in the table below, the Bank invested ¢8.5 million in Agro-Business sector, ¢5.0 million in the Fishing sector and nearly ¢4.0 million in the Livestock sector.

Special Projects - Joint Ventures

Members would note from this same table that the Bank invested as much as ¢12.76 million in Special Projects. In describing the objectives of the Bank, I mentioned that the Bank is also expected to identify and promote agricultural enterprises in Ghana whether singly or jointly with persons or institutions either local or foreign!.

In giving practical meaning to this objective the Bank, since 1972, has initiated or collaborated with other financial institutions and private companies in establishing as many as twenty two large scale joint venture projects.

These projects range from industrial crops and livestock production and processing to the production of egg trays, ornamental horticulture for exports and deep sea fishing. The particulars of the projects are attach for your study.

ADB Loans Approved, 1972-1976
(Classified by Sectors ϕ million)

Sector	1972	1973	1974	1975	1976	Total
Food Crops	4.25	6.62	7.43	12.40	16.20	46.90
Industrial Crops	2.00	1.90	2.19	2.06	3.58	11.73
Agro-Business	1.19	1.35	1.27	1.27	3.45	8.53
Fishing	1.04	1.17	0.67	1.08	1.12	5.08
Livestock	0.50	0.58	0.58	0.83	1.49	3.98
Special Projects	4.30	0.77	1.30	1.95	4.44	12.76
'OFY' Corp. Loans	14.57	4.25	0.10	-	-	18.92
Cocoa Rehabilitation	0.61	1.19	1.10	1.47	1.98	6.35
	<u>28.46</u>	<u>17.83</u>	<u>14.64</u>	<u>21.06</u>	<u>32.26</u>	<u>114.25</u>
Projected Loanable Funds	-	21.30	20.00	24.87	25.05	-
% Increase/Decrease on projected funds	-	33.96%	28.20%	16.17%	+30.02%	-

In 1973 the Bank started projecting its loanable funds ahead of time. In projecting loanable funds due consideration is given to potential loan recoveries, possible sources of borrowed funds, or equity subscriptions and physical facilities of the Bank. In addition to these factors, the Bank always takes account of government policy or official indications as to which sector(s) of the agricultural industry needs special attention in terms of expansion in production. Members may notice that the projected funds in the years 1973, 1974 and 1975 could not be achieved. In the course of those years the Bank had to slow down loan approvals due to lack of adequate loanable funds to back its commitments to customers in physical terms. I shall deal with the problems in due course but I wish only to mention poor loan repayment particularly by the State Corporations which obtained loans from the Bank in the previous year.

Members would realize from the table that the Bank virtually stopped granting loans to the State Corporations after the second year of the 'OFY' programme period. The Bank had a number of good reasons for discontinuing granting loans to the Corporations. Prominent among these reasons were their poor repayment performances and their common practice of misapplication of disbursed funds.

Whilst loans were disbursed to these Corporations to purchase operational inputs such as fertilizers, improved seeds, fishing gear, farm implements and equipment, it was a common practice of these corporations to divert such funds to payments of old debts, personal allowances and salaries and acquisition of other capital items not having immediate bearing on production.

The State Fishing Corporation for example utilized as much as ϕ 0.5 million in meeting payment obligations to its previous creditors whereas Food Production Corporation virtually used all the loan in paying salaries and wages of its employees who were known to be completely under-employed on their farms.

As regards loans repayment, the Food Production Corporation and Food Distribution Corporation were unable to pay any part of the principal amounts which were all due at the end of 1973. After repeated demand notices, the Bank resorted to claiming the amounts due plus interest from the Government which guaranteed the loans. The Government completed paying bank the loan in December, 1974 from budgetary sources. Loans for the other two Corporations were rescheduled and they are still being paid.

Operational Funds and Production Performance

I have considered the involvement of the Bank in the 'OFY' programme period only from the point of view of loanable funds. Between 1972 and 1976 the Agricultural Development Bank invested a total amount of ₵114 million in the Agricultural Sector. Mr. Chairman, I must, at this stage, discuss two very important issues arising from this investment.

Sources of Funds

First let me try to relate our achievements in terms of loans granted to our sources of funds and draw a balance that should help members in judging for themselves as to whether or not we have done well.

To begin with I must say, hitherto, the Government and the Bank of Ghana have been our main sources of operational capital. In addition we try on our own to mobilize funds from customer deposits in the form of current, time and savings deposits.

The funds obtained from the Government are mainly in the form of equity subscription whereas those from the Bank of Ghana are both equity and loans. The position of Agricultural Development Bank's operational capital obtained from these sources during the programme period is shown in the table below. During the period the Bank obtained a total loan of ₵54.7 million from the traditional sources for its operations whilst the total deposits amounted to ₵50.8 million for the same period.

Sources & Volumes of ADB's Operational Capital 1972-76

<u>Sources</u>	<u>1972</u> ₵	<u>1973</u> ₵	<u>1974</u> ₵	<u>1975</u> ₵	<u>1976</u> ₵	<u>Total</u> ₵
Government of Ghana -						
Equity	3,209,600	700,000	800,000	-	5,049,000	9,758,600
Loans	-	-	-	1,500,000	-	1,500,000
Total:	<u>3,209,600</u>	<u>700,000</u>	<u>800,000</u>	<u>1,500,000</u>	<u>5,049,000</u>	<u>11,258,600</u>
Bank of Ghana						
Equity	1,987,400	-	-	-	10,000,000	11,987,400
Loans	22,800,000	2200,000	12800,000	4900,000	-	42,700,000
Total:	<u>24,787,400</u>	<u>2200,000</u>	<u>12,800,000</u>	<u>4900,000</u>	<u>10,000,000</u>	<u>54,687,400</u>

Comparing the total funds obtained from our Principals during the OFY Programme period and the total amount invested by the Bank, there is a deficit of ₵59.3 million. We have had to make up this difference by intensifying our recollection of previous loans. This has been a very difficult task which has forced us, in many cases, to resort to unorthodox recovery methods.

Mr. Chairman, two questions arise from this situation.

- (i) Why did the Bank not look out for other sources of funds?, and
- (ii) Why did the Bank not augment its loanable funds with the consolidated deposit liabilities?

I would deal with the two questions in one answer. It was difficult for the Bank to do either of the two because of the prevailing interest rate chargeable on agricultural loans. The mandatory interest rate on agricultural loans has been 8 1/2% since 1974 and before then 6%. Since the cost of money had always been 12 1/2% and above during the programme period the Bank could not have borrowed funds from sources other than the Government and the Bank of Ghana which grant loans to the Agricultural Development Bank at concessionary rates.

In the case of using customers deposits as agricultural loans, it was considered not prudent since there was virtually no spread between the savings rate and rate on loans. In the risky enclave of agricultural lending it would be suicidal to borrow moneys at 7 1/2% (savings rate) and lend the same at 8 1/2%. You would be leading towards bankruptcy if you did this on any large scale. But in the circumstance where the Bank was always short of loanable funds, we were forced from time to time to use some of the customers deposits as agricultural loans.

What I am saying, in other words, is that we did not have enough financial resources to have been able to do any better than we did under these circumstances. It is possible that other Banks may have done better. But if this is the case, then one has to take into account the fact that these commercial banks have accumulated funds over the years and above all they were excluded from charging the low mandatory interest rate of 8 1/2% under the pretext of lending to only large scale commercial farmers.

Mr. Chairman, all that I am saying is that during the programme period the Agricultural Development Bank was not properly financed to play its proper role in the programme by undertaking bold ventures and at the same time expending its funds to farmers. Most of our customers deposits were invested in the commercial and industrial sectors at higher interest rates. If we could charge these high rates in agriculture we would have used these deposits in granting loans to farmers to increase agricultural production.

ADB Savings Time Deposit & Current Account 1968-76

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>Total</u>
	391,616	853,467	1,352,010	3,700,041	6,613,270.77	13,112,404.77
	7,850	121,700	504,420	575,548	801,176.71	2,010,694.71
	<u>2,634,125</u>	<u>3,051,685</u>	<u>5,532,812</u>	<u>9,345,526</u>	<u>11,738,272.95</u>	<u>35,151,121.95</u>
	<u>3,083,591</u>	<u>4,026,853</u>	<u>7,989,242</u>	<u>13,620,115</u>	<u>22,154,720.43</u>	<u>50,874,521.43</u>

Estimated Production

In assessing the involvement of the Agricultural Development Bank in the 'OFY' programme, one would be failing in one's duty if one does not relate the Bank's performance in terms of loan volumes to the performance of the farmers in terms of hectares cropped and produce harvested. In an ideal situation, the Bank should have up-to-date figures on the operations of all its customers so as to be able to measure its impact on the agricultural scene in quantitative terms. Unfortunately, for the very good reason of inadequate personnel to follow up every customer's operation, we have been compiling reasonable estimates by ad hoc surveys. Using this methodology we are able to arrive at estimated hectares and also able to compute further, the estimated production of the various crops in tonnes.

The estimates of hectares financed by the Agricultural Development Bank during the programme period under our Commodity Credit Schemes are provided in the table below (See next page - 16):

I must point out that these figures are being given in respect of the operations of small scale farmers who have benefited from loans under the Bank's Commodity Credit Schemes. It would have been interesting to compare these figures with the national figures of production over the years but unfortunately these are not available to me now. In view of the importance of such figures to the bank it is my intention to strengthen my small research outfit in the Bank with the hope that within the next few years we would be in position to give accurate and up-to-date figures on production.

Constraints

Considering the total loan volume of \$114 million approved by the Bank during the 'OFY' period there are many who may say that much should have been done. There are yet some others who, knowing how difficult it is to administer agricultural credit and the very difficult conditions under which our institution operates, would say that the Bank has done well. I would say the Bank could have done more but for the very difficult conditions and constraints that impeded its operations.

Mr. Chairman, there are several factors which have constrained the operations of the ADB over the years. Some are social whilst others economic. Perhaps I cannot deal with all of them in this paper but during the course of work of this committee I hope to get the opportunity to bring to your notice those I cannot deal with now.

Social Constraints

Let me first deal with these constraints since they are normally difficult to pinpoint or place any specific values on them. Here, Mr. Chairman, I am referring to the general attitude of any average Ghanaian to:

- (a) Credit advanced by formal institution
- (b) Co-operation

It is believed by many that credit is the key factor in overcoming agricultural stagnation in developing economies. This belief has led many planners and agricultural administrators to place so much emphasis on the role of money in their planning processes that many other equally important factors necessary for agricultural development are overlooked. I wish to mention that credit (money) alone cannot bring about the desirable changes in agriculture unless it is made to operate within desirable social medium.

Attitude towards credit provided by formal credit institutions is as undersirable as Ghanaian attitude towards agriculture itself. Some people who have benefited from the bank have always held the wrong view that such loans are not meant to be paid back. The sad experience of the Cocoa Purchasing Company in the early fifties is clear testimony of such bad attitudes.

Mr. Chairman, more often than not the Agricultural Development Bank has been viciously attacked, a few times rightly so but in most cases wrongly though, for operating with cumbersome procedures. I have already said that poor repayment performance has been an important factor that influenced the bank to cut down its projected loan volumes during those three years of the 'OFY' programme. Indeed, we have been forced to use unorthodox methods to recover our loans. We have not been happy about this practice but under the circumstances we do not have any reliable alternatives.

Co-operation among institutional agencies responsible for agricultural development also leaves much to be desired. This co-operation is as important as credit is in promoting agricultural development. In this country, it is a sad fact that agencies and individuals operating in the agricultural sector operate in isolation and jealously guard against any external co-operation whether or not such co-operation would ensure overall desirable performance of the agricultural sector.

Mr. Chairman, in this regard I wish to be assured that within the Ministry of Agriculture itself there is a focal point for an overall technical direction. To what extent does the Ministry involved the credit institutions in the overall planning of agricultural development, if I may ask:

**AGRICULTURAL DEVELOPMENT BANK COMMODITY CREDIT
SCHEME ESTIMATED PRODUCTION FIGURES OF SELECTED CROPS
FINANCED BETWEEN 1972 - 1976**

M A I Z E			Y A M		
Amount Approved ₹	Estimated Hectares	Estimated Production in tonnes	Amount Approved ₹	Estimated Hectares	Estimated Production in tonnes
939,642	25,362	41,340	630,700	1,700	20,995
1,617,084	43,646	96,021	1,332,568	3,595	44,398
3,537,478	81,777	179,909	1,973,443	5,235	64,652
4,683,474	93,669	202,072	2,578,490	6,969	86,067
4,536,614	90,732	199,610	3,909,786	10,567	130,502
15,314,292	335,186	722,952	10,424,987	28,066	364,614

C A S S A V A			R I C E*		
Amount Approved ₹	Estimated Hectares	Estimated Production in tonnes	Amount Approved ₹	Estimated Hectares	Estimated Production in tonnes
47,360	959	7,106	2,058,174	10,274	18,288
135,270	2,738	20,289	2,787,313	16,251	36,077
20,020	405	3,001	4,342,378	21,455	47,630
251,516	2,012	14,909	4,303,417	22,082	49,022
147,625	1,187	8,796	5,612,467	26,811	59,520
601,791	7,301	54,101	19,103,749	96,873	210,537

YEAR	C O T T O N		
	Amount Approved ₹	Estimated Hectares	Estimated Production in tonnes
1972	21,780	442	438
1973	36,672	743	736
1974	85,000	1,708	1,691
1975	570,000	11,450	11,336
1976	1,505,000	28,340	28,057
TOTAL:	2,218,472	42,683	42,258

*For both sector and scheme loans.

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Economic Constraints

Perhaps using the word economic here would not be quite appropriate but since I intend to deal with the subject from the point of view of general economy of the country I wish that you bear with me if I refer to the following as economic constraints:

- (a) The agricultural pricing policies,
- (b) The agricultural marketing system including various marketing facilities,
- (c) Registration of farm lands,
- (d) Labour mobility turning against agriculture and favouring industry and services,
- (e) Availability and timeliness of supply of agricultural inputs and equipment,
- (f) Rural development as it affects agricultural development,
- (g) Land Tenure,
- (h) Reliable statistical data on agriculture.

Mr. Chairman, to comment on each in full would mean taking all your time so I would only make brief comments on each of them in so far as they affect the operations of the ADB and agricultural development as a whole.

Pricing Policies

There is need for systematic and well-conceived agricultural pricing policy in the country. Over the programme period several ad hoc and sporadic commodity price announcements appeared to have been made.

The Food Distribution Corporation occasionally announced its own producer prices. In most cases it is believed that the prices were not directly related to production costs. The end result of a situation like this is the tendency for farmers to shift their efforts from crop to crop depending upon which commodity has a higher price at any particular time. For the purposes of proper planning this situation would not be in the interest of this country particularly where climatic conditions in most parts of the country allow for the cultivation of several of these crops. It is the experience of the Bank that loans granted for the cultivation of specific crops are diverted to the production of other crops. Whilst agreeing that it is desirable to produce all crops the shifting from crop to crop makes it difficult for the Bank to measure its impact on the production of any particular crop.

Marketing System is generally unregulated and unstandardized. Packaging, and standardization are virtually unknown. Transportation and distribution of farm produce are the most critical marketing factors that have the major effect on food prices on both urban and city markets. There are only few trucks carting food from the producing areas to the consuming areas. The scarcity makes it possible for truck owners to exploit the situation. Transport owners in turn blame it all on the unavailability of spare parts and high fuel costs. I believe that there is need for a review of the situation so as to identify clearly the margins of all involved in the marketing of farm produce in the country.

Registration of Farm Lands

It is the sad experience of the Bank that prospective customers of the Bank, particularly, those intending to go into plantation farming often have great difficulties in getting their acquired lands registered by the Lands Department. There are cases where customers claimed to have lodged their papers with the Lands Department for two or three years without getting them registered and stamped. To protect the Bank's interest in such situations we are forced to withhold loans approved or suspend loans altogether. This, in fact, partially accounts for the relatively low investments in the industrial crops sector. It is true that land acquisition is a problem in some parts of the country but it is even more true that land registration is more difficult.

Labour Mobility

The terms of trade between agriculture or for that matter rural areas and industry and service or for the same consideration urban and city areas are continuously against the former. Many reasons may be given for this rural exodus but I am here concerned more with the sad effects on agricultural production. The normal economic situation shows that as agriculture improves it should release labour to other sectors of the economy. But can one safely say that our agriculture has got to the stage where it can release labour to industry and the services? The problem facing our customers is lack of labour and exploitation by the few hands available. The "by-day" system of labour engagement in the producing areas is so exploitative that many of our customers are forced to pay ₵3 to ₵4 per person for only three to four hours work. In addition our customers provide the labour force with reasonable amount of food and also treat them more like masters rather than employees. In the advanced ages of farmers need consideration by the committee. In a situation like this mechanization appears to be a better alternative strategy. But can we solve the question of financial implications which the mechanization policy would bring about?

Availability of Farm Inputs

There have been several instances where unavailability and exorbitant prices of certain farm inputs at the times required have nullified the efforts of the Bank. These inputs are animal feed especially maize and concentrates for livestock, fishing gear, farm machinery, insecticides, seeds and seedlings and fertilizers in some production areas. This situation has, in the past, forced the Bank to either withhold disbursement of approved loans or completely suspend loan making activities.

Rural Development

Lack of social infrastructure in rural Ghana has been one of the major causes of movement of labour from rural to urban and city areas for jobs which do not exist. Though there are no figures to quantitatively show the impact of labour movement from the rural community, we recognize that this has an adverse effect on agricultural production in particular and on the economy in general. To check this exodus, it is important to draw up a comprehensive rural development programme that will ensure that more resources become available to the rural communities specifically for improving both the working and living conditions of the people.

Land Tenure

Although it is foolhardy to attempt to discuss the complex and controversial subject of land tenure in a few paragraphs, the negative effects of our land tenure system on farm investment and hence agricultural production cannot be ignored. In Ghana, the land is to a large extent communally owned. This system, of land ownership is defective in a number of ways. Firstly, it does not ensure that land become easily available for agricultural purposes, generally.

Secondly, it does not ensure security of tenure; thirdly, where there is a rental arrangement, the residual income to the tenant is meagre. Finally, communal system of land ownership does not only fail to ensure that land becomes alienable to some degree, so that it could be used as collateral for mortgage, but also fails in ascertaining the precise character of the existing interest in a particular tract of land.

I am convinced that an effectively implemented land tenure programme that will bring about ownership of land by individuals through an acceptable machinery will not only ensure a greater security of tenure and contribute to the goal of equity and encourage farm investment, but will also tend to facilitate low-cost expansion of...

Import Licence

Mr. Chairman, this topic appears to have received considerable attention of the previous speakers at earlier sittings of this Committee. I need not be labour it any more than to say that to the extent that it is a limiting factor so also should we critically look at the agricultural sector's ability to export produce to earn the much needed foreign exchange. We must also try and thus conserve foreign exchange by import substitution. I am not by this statement trying to down-play the importance of this factor as a very important constraint.

Government Agricultural Policies

Before I conclude, I wish to make short remark about the need for clearly stated government policies on agriculture. It is needless to say that one cannot, effectively, carry out an agricultural development programme like the one we are now evaluating without one knowing clearly the government policies behind such programme. I am here thinking of clearly stated policies pertaining to supply of capital funds to or from the agricultural sector; agricultural labour; selected export or import substitution crops; and raw materials, and general pricing and marketing policies. If the development agencies in the agricultural sector had known about government policies on such matters before or during the early days of the 'OPY' programme, perhaps some of the bottlenecks and problems confronting us to day in the agricultural sector would have been avoided.

Conclusion and Recommendations

In conclusion, I wish to restate that if the banks grant loans without any effective linkage with other factors of production as well as good marketing and distribution facilities, their efforts would be meaningless. Whilst admitting that we could have done more we would, however, like to feel that however meagre our achievements we have made an impact, over the period, on the country's agricultural scene. If I may quote Mr. Afful, my predecessor, I would say that "it will be no idle boast to say that as a result of the bank's pioneering efforts in venturing into the risky enclave of agricultural lending and proving that it can be done, we have now paved the way for commercial banks in the country to find it worth their while to invest some of their accumulated funds in farm enterprises."

Finally, I wish to suggest for the consideration of my colleagues here that we make the following recommendations to the Government:-

1. Preparation of a "blue-print" of agricultural development in the country. This document should be an embodiment of the philosophy, policies, targets, financial arrangements, operational criteria and fall-back positions of the Government on agricultural development. To this end a crack team of experts and practical men in agriculture should be selected and charged with the responsibility of preparing the document as soon as possible.
2. Agriculture being the primary and the most important sector of the economy, should be given the necessary attention and adequate financial resources from the budgetary sources to enable it carry out meaningful development projects.
3. The Agricultural Development Bank being the main source of finance for agricultural development should be given necessary attention and support to enable it carry out the difficult task of financing the entire farming population in the country. In this regard it is suggested that the following measures should be taken immediately:

- (a) All funds allocated to the project implementing agencies in the agricultural sector should be channelled through the Agricultural Development Bank.
 - (b) Adequate loanable funds should be made available to the Bank by the Government and the Bank of Ghana to enable it meet credit needs of farmers in the country.
 - (c) The prevailing interest rate of an agricultural loans should be reviewed and an appropriate rate reflecting the real opportunity cost of capital should be established.
 - (d) Crop Insurance Scheme to be established in the country to protect both the bank and its customers against the occupational hazards in the sector particularly against drought, bush fire and general crop failure.
 - (e) Enactment of special laws against wilful loan defaulters with the view to bringing some amount of discipline into the development banking sector. It is believed that such laws exist in some countries including Philipines.
4. The operations of the Lands Department should be streamlined and decentralized to the regions to ensure efficient and quick registration of farm lands.

The Survey Department should be strengthened to make it possible for the Department provide surveying services to farmers in this country. The present survey charges levied by private surveyors are considered exorbitant. This situation tends to prevent farmers from preparing necessary land documents on their farm lands before they approach the Bank for financing.

5. An effective system of co-ordination should be established to ensure that the activities of all agencies operating in the agricultural sector are properly co-ordinated to ensure efficient and timely implementation of agricultural projects.

THE STATE OF FINANCIAL INVESTMENT IN
AGRICULTURE 1972 - 1976 AND THEIR MAJOR
CONSTRAINTS

Dr. D.O. ANDAH
STANDARD BANK GHANA LIMITED

The involvement of commercial banks in farm financing started earlier than the beginning of the OFY i.e. 1972. Commercial Bank credit to agriculture, forestry and fishing in 1960 was around £3 million. The Standard Bank at the beginning of the OFY had 100% more rice farmers than the previous year and in 1973 the figure increased by 200%. In 1976 the Standard Bank was financing 18,000 acres of rice compared to 1,600 acres in 1972.

The commercial banks, because of the labile nature of the source for bulk of their funds, i.e. deposits, savings and current accounts very reasonably directed their investments in farming mainly into the production of annual crops like maize and rice, and poultry which of course have quicker turnover. Investments in perennial with long gestation periods, like oil palm and coconut, were carried out with extreme caution. The development banks on the other hand expectedly invested quite heavily in such perennials. Credit from the commercial banks to the agricultural sector stood at £5.4 million in December, 1971. The figure rose to £11.5 million in 1973 and in 1975 it was £29 million. The specialised banks in December 1975 had £72 million sunk into agriculture projects.

The severe import control measures reduced volume of financial requests from the commercial and industrial sectors. This led to reduction of lending by the commercial banks a firmer base for medium and long term investment in the perennials.

Subsequent introduction of the OFYI and utterances directed towards possible precarious positions for agrobased industries overdependent on imported raw materials led to almost all of these industries, in one way or another, vertically integrating their operations by investing in farms to produce part of their raw products which otherwise would have been imported. Thus among the textile industries, such companies as Akosombo Textiles Company and West Coast Dye Company are running cotton farms, GIHOC has cattle farm for the Bolgatanga Meat Factory and tomato farm for the Pwalugu Factory. Some commercial establishments such as Ghana Cargo Handling Company also caught the farming bug even though their operations are not dependent on agricultural raw materials. Funds sunk into farming under OFYI came generally from operational accounts which to some extent had loan component from the commercial banks.

The Capital Investment Decree of 1976 induced a number of multinational firms to utilize part of their blocked dividends in farming.

Thus we see the UAC in conjunction with Barclays Bank International and some local financial institutions sinking £..... into the setting up and running of an oil palm plantation and a mill. Firms like Glamour, Danafco, CFAO, SCOA, Japan Motors have as a result of the decree extended their activities to cover various types of farming.

It is quite evident from the foregoing that there has not been any shortage of money for investment in agriculture. The state of financial investment in agriculture has been on the increase.

Among the major constraints restricting the flow of finance into agriculture is the shortage of farm machinery and equipment. The erratic nature of the weather need not be taken for granted. Since we presently do not have any control over the rainfall, farming activities should be geared to maximum employment and supplementation of such rain patterns as may be available in the season. An introduction of crop insurance against failure caused by rains would be very much welcome. This would be a relief to the investors who see the vagaries of the weather as the dominant risk factor. Unfortunately the latter 2 years of the 4-year period under review have badly affected the impact of OFY on the food supply of the country. This being due to the indiment weather condition.

MACHINERY & EQUIPMENT

Because of the strict seasonal nature of the cereals, i.e. maize, rice etc., there is the need for land preparation to be completed before the main rains start. Land preparation is the most important operation which heavily depends upon tractor power. In the northern sector, this operation is limited to only the months of April and May. This makes the operation very time-critical. But new tractors imported into the country, to carry out these operations usually have been arriving in August or even later. What this means is that a lot of new farmers gingered by the impetus of the OFY become disenchanted because they cannot even hire tractors for land preparation. Here also we must add the late delivery of combine harvesters. At times a combine harvester has to sit in a farmers shed for more than six months before it is commissioned. The machine technically would be depreciating whilst no economic benefit had been obtained from it either by the farmer or the country. A valuable foreign exchange locked up. The problem here, most likely lies with the import licensing system and long delivery dates.

The second aspect of limitation linked with machinery is their distribution. Hitherto the financing institutions critically assess the needs of their farmer - customers and their capability to obtain economic and financial gain from tractor or combine ownership. Based on this background, potential tractor owners are selected and provided with loans. A portion of the loan is drawn and deposited with a tractor dealer against the supply of a tractor. But last year for instance the distribution of tractors was taken over by the regional office as soon

As the tractors arrived. With complete disregard of the previous system and the deposits paid, and of course interests charged, a de novo system was implemented. For this system, emphasis was shifted from "she needs it" to "who wants it and has greater influence". For further discussion on this you are referred to an article on Rice Production, authored by Masak El-Alawa in the Daily Graphic of February, 22 1977 page 5.

In passing it is worth considering the makes of tractors imported into the country. This is to regularise the spare parts imported from Argentina cannot be fitted with some MF spares imported from the U.K. It is rather disheartening to read in the papers recently that a new make of tractor, never tried in the country, is going to be made available in the country.

We would suggest that instead of self-propelled combine harvesters which are very expensive, emphasis should be placed on importation of tractor PTO operated harvesters. These small ones apart from being cheaper, can be economically used on smaller acreages and are easily transported from one farm to another.

For farming operations in the southern sector of the country, we have noticed that there is a great shortage of land clearing machines available. We see the need to encourage private agricultural services enterprises which would do land clearing, and possibly ploughing and harrowing on contract for farmers. Something very much in line with the operations of the German teams in the northern sector is very much needed in the southern sector.

SEED

It has been noted that the quality of seeds, rice in particular, is deteriorating on the field. This is because more farmers are keeping their own seeds after harvesting since they have been having difficulties in obtaining certified seeds from the Ministry of Agriculture. The practice has the tendency of encouraging weed growth and reducing yields. We may look out for this effect at this end of the season.

The shortage of oil palm seedlings is well known. On this issue, seedling production is "the failure of the authorities to authorise in time the importation of pollination bags". Every pollination missed through lack of bags is equivalent to 5 acres cleared and unplanted through lack of seeds.

It is perhaps reasonable at this stage for the committee to consider very seriously a public-privately financed National Seed Company to undertake and supervise commercial production of seeds in the country.

LIVESTOCK

Between 1971 and 1975 loan investment in livestock rose by 26% but comparing with the yearly figures, the percentage reduced from 7.3 in

1971 to 5.2 in 1975. With the ruminants, the constraints have been the availability of breeding stock. This problem is even faced by the world-Bank-financed Ghana Livestock Company and the Bank-of-Ghana-financed Cattle Ranch. With money in hand, prospective sheep or goat farmers have to roam around villages collecting their foundation stock with a very disappointingly low rate of success. One would expect that the field officers of the Ministry of Agriculture would hold a dossier of potential sellers but from experience we have found that wanting.

In poultry production, a different range of limitations is encountered. The primary one is the unreliable nature of feed supply. This makes it very difficult, if not impossible, for any production projection to be drawn up. Last year, in particular, saw many small medium scale poultry farmers winding up their businesses because of feed shortage. Whereas poultry farmers could not get wheat bran to purchase, the flour mills were exporting the bran to earn their export bonus and foreign exchange for the country. Of course wheat bran is needed to reduce the over dependence of maize. Related to this is the need to standardise the minimum nutrient content of all feeds. And this should be brought under the control of the Ghana Standards Board.

Shortages of drugs and feed supplements can all be traced to either inadequate or delayed issued of import licences.

During the period under review there were shortages in the supply of day-old chicks and occasionally the chicks supplied were of inferior quality. These problems appeared to have been caused by reduced performance of the breeding stock either through ageing or poor nutrition.

TRANSPORTATION

We notice that the greatest limitation to the agricultural development of the Afram Plains is that of transportation. The main road in the southern sector is most of the time in a poorer state than an ordinary bush track. At this very moment a customer of ours is having difficulty of evacuating the harvest from his 600-acre yam farm from the area because of inadequate ferry service across the lake.

CONCLUSION

Generally, the OFY and OFYI has made people aware of what they can obtain from the soil, and interests in farming have been stimulated. The money available as loan to potential good farmers does not constitute any constraint. The major constraints to the operations as we have spelt out are the erratic nature of the weather, and the availability and at proper time of the inputs for production.

THE BARCLAYS EXPERIENCE

by

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I n t r o d u c t i o n

Mr. Moderator,

This paper is a contribution to the efforts of the Major-General Adde Committee who have been given the national assignment "to undertake an evaluation of the 'Operation Feed Yourself' and 'Operation Feed Your Industries' programme with a view to assessing their impact on the economy, identifying and bottlenecks and making recommendations for the full realization of the objectives of the two programmes".

Evaluation, either as a subject or a human activity, is relatively sensitive. The reason is because people are afraid to be judged. A man feels a sense of guilt everytime he fails in a cause or programme with which he has identified himself. It is this feeling of guilt, this desire to achieve, that cause us often to view evaluation of ourselves or our work with apprehension.

Yet evaluation is a basic part of life which we cannot avoid. It is as impossible to live without judging as it is to live without breathing, because living requires choosing, and choosing involves judging - evaluating.

This introduction may appear far-fatched, but in view of the Committee's national assignment, and in the light of today's domestic prices of food, it is important that we know what evaluation involves so that we may emotionally prepare ourselves for the task and profit by it.

A paper presented on April 15, 1977 at a Symposium organised by the "Operation Feed Yourself" and "Operation Feed Your Industries" Review Committee set up by the SMC to evaluate the two programmes "with a view to assessing their impact on the economy, identifying any bottlenecks, and making recommendations....."

Historical Perspective

Today, the agricultural sector of Ghana consists of about 53 per cent of a total population of about 9.2 million. In the 1970 Sample Census of Agriculture, it was estimated that there were 805,200 land holders in agriculture, of which 81% were full-time holder-operators. The 805,200 house-holds had an average size of 5.6 people

resulting in an estimated farm population of 4,517,000 people or roughly 50% of the total population. Historically, cocoa has been the major product and foreign exchange earner for this country. Production and exports of cocoa expanded at the turn of the century and have been the basis of growth ever since. The crop was adopted by the small farmer in the forest area where it was adapted to the ecology and proved to be profitable.

During the decade of the 1960's, about 20 per cent of the labour force was engaged in cocoa production either as farm operators or hired labourers. Up to the late 1950's, domestic food production kept pace with expanding effective demand. Lffective demand was the latter largely due to the urban construction boom of the mid and late 1950's. On the supply side, increased food production was achieved mainly by way of acreage expansion. However, since about 1958 domestic production has been augmented with increasing quantities of imported food.

To stem increasing foreign exchange requirements for food imports and rising food prices there was an attempt in the 1960's to expand domestic food production by way of government production units, (e.g. State Farms Corporation, Builders Brigade, etc.). The approach required large amounts of domestic capital and foreign exchange but contributed little to domestic food production. The dismal failure of this approach is well known and documented.

During the 1960's the country experienced a massive depletion in foreign exchange reserves and a balance of payments crisis. This led to import controls, and one of the manifestations was the inability of the farmers to obtain essential imported inputs (e.g. cutlasses, insecticides etc.). While the agricultural policies of this period did not lead to large increases in food production from large-scale capital intensive production units as expected, they at the same time, thwarted increased food production in the small-scale private sector since farmers did not have the hand tools to utilize fully existing land and labour resources.

Between 1968 and 1972 import controls were liberalized, food imports further increased, world cocoa prices declined, domestic food prices increased and the country's debt burden swelled. In short, the country was living beyond its means. In December 1971, the government in desperation devalued the cedi by a massive 42%. The purpose and effect was to increase the domestic price of imported goods, a policy move in the right direction, but it is open to debate whether the magnitude in a single action was realistic.

On January 13, 1972, a military coup d'etat took place and the National Redemption Council (NRC), as its first policy action, revalued the currency by 10 per cent and imposed a strict system of import licensing.

Furthermore, "essential imported commodities" were subsidized, thus further reducing the retail prices of these goods (e.g. tinned milk, sardines, sugar and cutlasses). As its second major policy action, the NRC placed agricultural development as the number one priority to give birth to the "Operation Feed Yourself" programme.

Commercial Banks and Agricultural Credit

At the time of the launching of the Operation Feed Yourself programme, the commercial banks had been involved only in a little way in extending credit to agriculture. Examining the allocation of commercial banks loans and advances from 1967 to 1973, (see attached Table 1) one sees that in 1973 agriculture, forestry and fishing received only 6.8 per cent of all loans and advances, up from only 3.34 per cent in 1968. Within these small percentages, forestry, without doubt, received the largest proportion leaving very little for agriculture. Over this period commerce (imports, and manufacturing received the greatest share of attention from the commercial banking system. Even services, which accounts for only a small per cent of the country's Gross Domestic Product, received a larger share than agriculture of commercial bank credit from 1967 to 1973.

A part of the answer lies in the history of commercial banking in this country. Commercial banks were first established to meet the needs of importers, exporters, and traders for short term credit. Given the colonial status of the country's economy at that time they were, without doubt, meeting the most significant needs of the economy with respect to credit.

Another part of the answer lies in the structure of the country's agriculture itself. The vast majority of farmers are small holders who are difficult to provide with credit. For small holders the risks are large and the administrative costs of making loans is high in relation to the value of the loan. Also, the willingness, though not necessarily the ability of small holders to pay interest is low.

The Government has been aware of the need for agricultural credit, and since the launching of the Operation Feed Yourself, particularly, has attempted to encourage the commercial banking system, through a system of guidelines and moral suasion to provide more agricultural credit.

Barclays Bank and the Rice Industry - A Case Study of
Agricultural Investment

The response of Barclays Bank of Ghana Ltd. to the "Operation Feed Yourself" and "Operation Feed Your Industries" programmes could be best described by the performance of the rice industry.

The choice of rice for a case-study is deliberate. This is the one crop in this country which is currently experiencing a remarkable revolution in the technology of its production. The crop has suddenly attracted a wide cross-section of the population who want to acquire land in areas of guinea savannah; previously thinly cropped and sparsely populated, to engage in its large-scale production. The rate of growth in the number of rice farms has not been only rapid, but the actual increase in the size of individual farms is probably without parallel in other parts of West Africa. Operations are highly mechanized from land preparation to harvesting, and it is only in weeding and top-dressing of fertilizers that viable alternatives to labour intensive methods have not yet been found, although some farmers have tried aerial application of both weed-killers and fertilizers.

Rice, after all, is not new to Ghana (the red rices of *O. Glaberrima* type have been grown in the south and west of the country for many decades) and there are a number of reasons for this re-emergence of interest in its production.

1. The establishment, in 1950, of the Nyankpala Agricultural Research Station, west of Tamale, which improved knowledge of the technical possibilities for rice production in that area.
2. The importation of a large number (250) of tractors into northern Ghana between 1962 - 1964 as part of the effort, at that time, to encourage large-scale state farming. Although the State Farms failed, farmers in the area were introduced to the possibilities of tractor cultivation.
3. The existence in the Northern Region of large areas of land, uncultivated at the time but only lightly covered with trees and bush. These are, for the most part, 'fadamas' or valley bottoms which flood during the rainy season and are thus unsuitable for the production of crops other than rice.
4. The introduction of higher yielding varieties. (Thanks to Ford Foundation and USAID). The original exotic variety to be introduced was C4/63 from the Phillipines. In 1962, two tons of C4/63 were imported. It was then multiplied in the south and in 1970 was

5. An agreement between the Government of Ghana and the Federal Republic of Germany for an aid programme which was designed to improve agriculture in the north of Ghana, principally through the use of fertilizers.

6. The activities of the Commercial banks in designing credit schemes for farmers. A very significant part of the development has only been possible as a result of the activities of the Banks whose relationship with their customers now involve the Bank far beyond traditional banking activities.

7. The importation of 15 modern rice mills in 1964. Nine of these were installed in the Northern and Upper Regions, the remainder being cannibalized for use as spare parts.

8. The incentive provided by Government, of a guaranteed minimum price at a level which has proved remunerative to farmers.

These events have led to the increase in production which is recorded in the attached Table II together with the statistics for the import of rice.

In so far as the statistics originate from a number of sources, they may not be, strictly speaking, comparable and the estimates or domestic production may be suspect, particularly for earlier years. However, with the current interest in rice production and the involvement of the Banks in the rice industry, the quality of data has improved.

It has been suggested that a crucial factor in the present expansion of rice production was the willingness of the commercial banks to forsake conventional banking practice and lend money to farmers who had little security to offer, or whose security was a Bank of Ghana Credit Guarantee Scheme (CGS) Cover of sixty-six two-thirds per cent.

In the practical application of the Credit Guarantee Scheme however, Barclays Bank have invariably failed to obtain the CGS cover before lending, and as at now, there are over 80 farm loan applications, some submitted in early 1975, still waiting with the Bank of Ghana for the CGS cover.

I now return to my theme.

Barclays Bank first loan to a rice farmer in the present programme was in 1969 when one farmer was given credit within the Tamale Branch discretion. By 1971, there were 11 farmers cultivating a total of 1970 acres. In 1972 the number of farmers remained the same, but the acreage increased to 3,810; and then in 1973, the number of farmers grew to 36 and the acreage 4,260. In 1974 there were 51 farmers and 9,915 acres, and in 1975, 145 farmers and 22,000 acres.

Despite the disappointing 1975 season, 1976 saw an increase to 150 farmers and 25,800 acres.

TABLE III: BARCLAYS FARM ADVANCES FOR RICE PRODUCTION IN THE NORTHERN REGION 1969 - 1976

Year	Number of Farmers	Total Acreage	Loans/Overdrafts Sanctioned
1969	1	50	43,290
1970	4	300	25,300
1971	11	1,670	61,000
1972	11	3,810	207,527
1973	36	4,260	443,221
1974	51	9,915	1,194,802
1975	145	22,000	3,930,818
1976	150	25,800	4,876,044

General Features of the Barclays Programme

The wide range of the sizes of holdings - from as little as 20 acres to as large as 1,000 acres, has made flexibility a necessary feature of the Barclays farm lending programme. Each farmer earns the support of the Bank on the basis of three criteria: the reputation of the individual within his community, the technical feasibility of the proposed investment in the context of his farm situation, and the expected cash flow that is generated by the investment.

Most new farmers who apply to the Bank for credit are introduced by existing customers to the Bank. This in itself makes a contribution to the success of the arrangement since existing customers would not wish to jeopardize their own standing with the bank by introducing unsatisfactory customers, and the new customer is conscious that if he fails to behave in a responsible manner, then he is damaging not only his own but his 'sponsor's' reputation with the Bank.

The prospective borrower will then be interviewed by the Bank Manager and the Bank's Agricultural Staff who will attempt to identify the applicant's credit worthiness by assessing his farming competence and by identifying the assets he has to offer as a security. The site of the proposed farm will be visited to assess its suitability for the crop and to see whether any special problems may arise.

If the applicant appears satisfactory after these stages, the manager and the Agricultural Staff will then complete a Cash Flow stipulating the sizes and timings of expenditures and income flows, and these are then used to monitor advances and assess the extent to which postulated levels of performance are being attained. (See example). The farmer will then be lent working capital to grow up to 50 acres of rice.

The policy is to restrict applications to cover credit for working capital, and for 50 acres only, in the first year, except in the case of farmers who have already proved their ability by operating large farms in the past. The successful applicant will then be allowed overdraft facilities which will allow him to purchase seed, fertilizer and other inputs for the next season. The Bank's Agricultural Staff have worked up a standard list of allowances with which the working capital needs of each farmer are estimated.

Thus for a farmer with no machinery, and who proposes to grow 50 acres of rice, the working capital requirements for 1977 would be assessed as follows:

	<u>Cedis per Acre</u>	<u>Cedis per 50 acres</u>
Hire of tractor for ploughing	30	1,500
Hire of tractor for harrowing	15	750
Labour for weeding - 10 man days per acre at ₦2.50 per man day	25	1,250
Hire of Combine for Harvesting	50	2,500
Seeds (1/2 bag per acre)	30	1,500
Fertilizer (3 bags/acre)	9	450
Fertilizer top-dressing - 2 man days per acre at ₦2.50 per man day	5	250
Transportation (material to farm)	2	100
Transportation (Produce from farm)	5	250
Permanent Labour (Fetching & Carrying) (6 man days per acre)	<u>15</u>	<u>750</u>
Total	<u>186</u>	<u>9,300</u>

The Bank normally requires new customers to finance their own land clearing operations in the first year (which could cost as much as ₦75 per acre or ₦3,750 for a 50-acre farm). The Bank considers that in the absence of security, the farmer's own investment in land clearing is a necessary proof of his earnestness. After harvest the farmer is required to pay back the whole of his overdraft plus the associated interest charges.

The Bank, at this stage, has some assurance that the farmer will clear his commitments with the bank, as farmers are required to sell their rice to the Government rice mill who are sent a list of the Bank's customers.

A 'gentleman's agreement' exists between the rice mill and the bank, by which the mill pays the farmer with a crossed cheque which the farmer then has to take along to his own bank for cashing. This scheme has worked well in the past. However, it does not pretend to be absolutely fool-proof since the farmer could sell his paddy to the mill under false name and then deposit the crossed cheque under that name at another bank or he could ask another farmer to sell his rice for him. This has not yet proved a problem.

The 1975 and 1976 seasons, however, did pose another threat to the system. The poor harvest and ban on imports meant that the internal free market price of paddy exceeded the purchasing price of the Government rice mill to a considerable extent, and farmers were increasingly tempted to sell on the open market. While the Bank does not wish to be a party to depriving the Government rice mill of the farmers' paddy, it does recognize, as a matter of practicality, that farmers are more likely to remain financially viable in a bad year if they are able to seek the highest price that they can obtain for their rice.

After the first year each individual farmer's case is reviewed. If a farmer from the "nursery" group has paid off his overdraft and in other respects performed satisfactorily, he will be allowed to expand during the next year to a maximum of 200 acres. To operate a farm of this size he will need a tractor plus associated equipment, and may in addition be financed to clear additional land.

The farmer's borrowings will now be divided into two parts. He may be given a loan to cover investment in fixed equipment and to clear land which is repayable over three years, and he again may apply for an overdraft to cover working capital requirements which must be cleared at the end of the year.

The record of farmers in making repayments at this level has been good. The figures indicate that only 15 - 20% of farmers do not progress beyond the "nursery" group at the end of the first year, and then it is often due to ill luck (e.g. not being able to rent a combine at the right time or poor rainfall, or bush fire losses). In these events, farmers would be allowed to remain at the 50-acre size. After farmers have reached the stage where they own a tractor, their further progress is determined by their own efforts and results. After about 300 acres, a second tractor is normally required, and a combine harvester would be considered feasible.

Studies undertaken by the Bank's Agricultural Staff have indicated that for the general class of rice farmers, economies of scale end at around 500 acres, and though the largest of the Bank's farmers cultivate 1,000 acres, the Bank will not normally support more than 500 acres for any single farmer.

The activities of Barclays Bank of Ghana Ltd. in the rice industry are by no means limited to sanctioning loans and monitoring repayment performances. There are two Agricultural Officers (each with a Land Rover) stationed at Tamale. They act as extension officers to the over 150 rice farmers who are advised as to cultural practices, assisted in the acquisition of inputs (seed, fertilizer, machinery etc.) and generally advised in the disbursement of the facilities.

Constraints and Suggestions from the Barclays' Experience

In any lending transaction - be it for agriculture, commerce or manufacture - there are three major participants: the borrower, the lender, and the economic milieu, as designed by the public body (government), within which the transaction takes place.

In farm lending transaction, the scenario may be described as follows: the farmer obtains a farming loan to increase his farm production which he will sell to improve his cash income.

Before coming for the loan he must have been aware of technological improvements by which the increase in farm production would be effected. This awareness presupposes two conditions: the technological improvements exist, i.e. government or some public body must have spent money on research; and two, information about the improvements have been spread, i.e. again, government or some public body must have spent money on extension education.

In order to consummate the lending transaction, both the Bank and the farmer-customer must be satisfied that if the technological improvements are implemented, there will be profit.

Profits depend on the relative price levels of inputs and outputs and the relative ease with which the inputs and outputs move within the market as structured by the government. There is thus a close interrelationship among the three: the Bank, the farmer-borrower, and the Government.

The scenario supports the view that credit - that is money - can itself grow no rice. Credit merely puts funds in the farmers' hands that can be used to purchase productive inputs, but whether this will result in increased production or not depends upon, by our experience, technology, input delivery system and information

Technology

Technology in farming is simply the way things are done the way inputs or factors of production - land, labour, seed, implements, fertilizers, etc. are combined and used.

It has been suggested that to consummate a lending transaction both the Bank and the farmer-customer must be satisfied that if the technological improvements are effected, there will be profit. There is sufficient evidence to suggest that profitable technology has not been always available to our farmer-customers. For example: 1) farmers need a more effective method of weed control. At the moment, the build up of weeds becomes so pronounced that farmers have to abandon rice fields and clear new areas every three or so years. 2) Farmers need seeds with high yields but with less variation under different weather conditions. The performance of the rains in these last two years underscores the importance of high-yielding but less variable seed. 3) Farmers need less expensive feeding rations which utilize the bran from maize and rice and other wastes from traditional crops, such as cassava, plantains etc. 4) Farmers need to know how to operate their tractors and combines in order to obtain 5 - 7 years' use from the machinery instead of the present 3 - 4 years' services. 5) The Banks need to know production economics of farm crops: the man days per hectare for operations (weeding, sowing, harvesting, etc.); how much would a farmer need for living expenses; the yield of crops. etc.

The list is by no means exhaustive.

Input delivery system

Not only do our farmers face the uncertainties of the rains but there is also uncertainty as to whether the necessary inputs of seed, fertilizer, machinery, etc. will be available at the proper time and place in sufficient quantities. Fertilizer which arrives after the plants are matured, is as useful to the farmer as Christmas cards to the trader, which arrived in February.

Information (Communication)

The efficiency of any group depends upon the efficiency of its communication system. Or as is sometimes stated, he who controls communication, controls totally.

The Ministry of Agriculture officials must establish an effective communication system with the banks, the farmers, the research workers, and other people and organizations who provide services for the farmer. It is utmost important for the researcher to be informed on what is happening on the farm, for the banker and farmer to be informed on when the fertilizers will be available on the market, for the extension officer to be informed on the difficulties farmers are experiencing in the procurement of seed.

This need for information reminds me of a recent experience. On Friday, April 1, 1977, a news item appeared in a local paper about the new prices of fertilizers. As soon as I read the news at about 7.30 a.m., I sent my Assistant to the Ministry of Agriculture for a list of the new fertilizer prices. He returned two hours later with a list - not of the new prices but of telephone numbers we were to call later for further information.

Apparently even the people at the Ministry who handled the sale and distribution of fertilizer had not known about any change of prices, and to them the news item was news indeed. Some break in communication had occurred. Either the news item was incorrect, or the people who handle the fertilizer were not allowed to know, or a conscious effort was made to withhold the information from us. Be that as it may, we at the Bank obtained the fertilizer price list from the Palaver last Wednesday, April 13, nearly two weeks later. The significance of this incidence lies not in the fact that the Palaver knew what the Ministry of Agriculture officials did not know, but in the timeliness of the information.

This information about the prices of fertilizer should have reached us last December/January, after the rice harvest, when we were reviewing the financial performances of our customers and doing cash flows and budgets for this next season.

As it is, we have to go over 150 cash flows and make the necessary adjustment to the figures for fertilizers. Who is a drag in the "Operation Feed Yourself" and "Operation Feed Your Industries" programmes?

The Ministry should accept the challenge of keeping the institutions and organisations involved in agriculture informed at all times relative to prices, projects, goals, research result, and consequences of agricultural programmes.

Markets

An important determinant of a well-functioning agricultural marketing system is the quantity of agricultural production available for sale in relation to effective demand. If agricultural production exceeds demand at high guaranteed minimum prices, the pressures on the marketing system to clear the surplus are high. If production is below demand the marketing system is usually blamed on grounds of inefficiency and excessive profits.

Marketing rice is not a problem now; if anything, it is a sellers market. But even then, it is well known that the most important agricultural marketing constraints which need to be corrected in this country is feeder roads and transportation.

The deteriorating condition of many roads, the inadequate feeder road network, and an aging vehicle fleet have several adverse effects on agricultural marketing. First, they cause erratic commodity flows and frequent seasonal scarcities. Second, they cause high transport costs. Estimates of per ton mile costs on bad feeder roads range from \$0.20 to \$0.80 compared to estimates of \$0.69 to \$0.095 on primary roads. Third, they give rise to a number of risks and uncertainties which are without doubt reflected in marketing margins.

Conclusion

Mr. Moderator, my contribution to this symposium, as contained in this paper which I shall leave with you, has covered some historical aspects which led to the launching of the "Operation Feed Yourself" and "Operation Feed Your Industries" programmes.

The paper has also described what part the Barclays Bank of Ghana has played in providing credit for farmers who, with little or no security, could not obtain credit under normal banking practices. Arguments have been put forth that important as credit is, it is useless, as far as farm production is concerned, without the appropriate farm technology adopted on the farms, which in its turn can produce little without efficient delivery system of the farm inputs, and to get these three working together, there is a need for agricultural information communicated to people who need it.

Mr. Moderator, when you come to write your recommendation, please do not forget.

Thank you.

TABLE I
ANALYSIS OF COMMERCIAL BANK LOANS AND ADVANCES BY SECTOR (MILLIONS OF Cedis)

	Total Loans & Advances	Agriculture Forestry & Fishing	Mining and Quarrying	Manufacturing	Building and Construction	Electricity Water Gas	Commerce		Transport Storage and Communications	Services	Other
							General Marketing	Other			
1967 Amount	1,181.9	77.0									
% of Total	100.0	6.51	13.4	167.8	143.3	2.3					
1968 Amount	1,194.3	39.9	1.1	14.19	12.12	00.19	169.9	294.7	20.3	168.1	125.3
% of Total	100.0	3.34	20.4*	215.5	158.3	5.1	14.37	24.93	1.71	14.22	10.60
1969 Amount	1,555.6	81.6	1.70	18.04	13.25	00.42	177.0	287.2	19.7	162.6	108.7
% of Total	100.0	5.24	42.2	381.6	191.9	9.9	14.82	24.04	1.65	13.61	9.30
1970 Amount	1,878.3	111.9	2.71	24.53	12.38	00.63	152.8	317.4	227.6	213.3	137.1
% of Total	100.0	5.95	56.5	507.5	184.8	9.9	9.82	20.40	1.77	13.72	8.61
1971 Amount	2,739.3	154.9	3.00	27.08	9.83	14.0	72.3	504.2	62.6	245.4	116.6
% of Total	100.0	5.65	74.5	671.3	227.5	00.74	3.85	26.84	3.33	13.06	6.20
1972 Amount	3,143.8	182.1	2.71	31.80	8.30	18.1	37.8	631.6	67.4	310.4	123.1
% of Total	100.00	5.79	78.4	1,052.3	260.6	00.6	1.38	30.35	3.19	11.33	4.49
1973 Amount	3,187.0	216.6	2.49	33.47	8.29	21.1	22.3	945.8	117.4	371.1	92.7
% of Total	100.0	6.80	31.3	926.0	335.4	00.67	00.71	30.08	3.73	11.80	2.95
			.98	29.06	10.52	16.7	35.3	1,032.4	203.2	311.5	78.1
						.52	1.11	32.39	6.38	9.79	2.45

Sources: Bank of Ghana Report of the Board (Various years)
 Bank of Ghana Quarterly Economic Bulletin July - September 1973
 Bank of Ghana Quarterly Economic Bulletin October - December 1973

TABLE II

IMPORTS AND PRODUCTION OF RICE AND ACRES OF PADDY

	IMPORTS '000 METRIC TONS	PRODUCTION '000 METRIC TONS	AVERAGE YIELD TONNE/ACRE	TOTAL AVAILABLE '000 METRIC TONS	ACRES OF PADDY '000
1960 a)	28.8				
1961	46.3	19.8			
1962	70.7	20.5	0.29	48.6	69.1
1963	26.3	21.8	0.30	66.8	69.1
1964	38.3	28.4	0.31	92.5	70.0
1965	30.1	21.8	0.27	54.7	106.2
1966	47.2	19.8	0.28	60.1	79.0
1967	40.1	34.3	0.31	49.9	64.2
1968	30.6	42.9	0.32	81.5	106.6
1969	28.1	40.3	0.36	83.3	113.6
1970 b)	53.1	32.2	0.33	70.9	121.0
1971	35.1	36.2	0.24	60.3	135.8
1972	25.7	46.3	0.24	89.3	150.0
1973 c)	17.9	30.8	0.25	61.3	171.9
1974	12.0	40.0	0.23	60.5	132.8
1975		50.0	0.31	57.9	128.3
		44.2	0.42	62.0	121.3
			0.257	44.2	171.4

SOURCES:

- a) 1960 - 1969 FAO Production
 b) 1970 - 1973 Economics and Marketing Division, Ministry of Agriculture, Ghana
 c) 1973 - 1975 ICRMA Case Study No. 3 and personal estimates

SOIL RESEARCH INSTITUTE
(COUNCIL FOR SCIENTIFIC & INDUSTRIAL RESEARCH)

CONFERENCE PAPER NO. 47

SOIL RESEARCH - ORGANISATION AND APPLICATION TO
THE DEVELOPMENT OF AGRICULTURE IN GHANA

By

Dr. H.B. Obeng
Director

KWADASO-KUMASI
GHANA

SOIL RESEARCH - ORGANISATION AND APPLICATION TO
THE DEVELOPMENT OF AGRICULTURE IN GHANA

By

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Director

Soil Research Institute, C.S.I.R.
Kwadaso-Kumasi, Ghana

I. INTRODUCTION

The soil is the most valuable asset in any country. If it is well conserved, its productivity cannot only be maintained but also improved considerably. If soil is misused, however, it can be rendered permanently unproductive and in extreme cases irretrievably lost (FAO, 1963).

Agriculture plays a very important role in the economic development of Ghana. It is, therefore, essential to develop a sound programme with a view to ensuring continuous prolific production of arable, pasture and tree crops on existing small, Co-operative and State Farms as well as by the development of virgin lands capable of economic production.

Such a sustained and increased agricultural production cannot be achieved without a nation-wide programme of mapping and classifying the soils of the country as rapidly and as cheaply as possible with a view to supplying needed information on potential arable, irrigable, pasture and forestry lands.

The development of such a soil survey in Ghana began some thirty years ago at the then West African Cocoa Research Institute, now Cocoa Research Institute of Ghana, Tafo, Eastern Region. This was in 1945 when the cocoa industry was first threatened by swollen shoot disease and capsid attack and it became necessary to find out whether or not soil factors were responsible for the development and distribution of such virus and pest infestations. Although no useful conclusions could be made from such soil surveys of cocoa growing areas so far as the infestations were concerned, valuable data were obtained on general soil-crop relationships. The project was, therefore, retained but transferred to the then Department of Agriculture with headquarters at Aburi.

In 1951 a separate department was created to deal with soil, vegetation and land-use surveys throughout the country. New buildings were provided for the department at the Central Agricultural Station, Kwadaso, Ashanti, in 1953.

In December, 1959, the Department was made a branch of a newly formed Scientific Services Division of the Ministry of Agriculture. In 1962, the Scientific Services Division was transferred to the then Ghana Academy of Sciences and reconstituted into an Agricultural Research Institute. The Soil Research Unit which formed part of this new Institute was on October 1, 1964 raised to the status of an Institute. In 1967, the name of the parent body was changed from Ghana Academy of Sciences to Council for Scientific and Industrial Research.

II. OBJECTIVES AND PROJECTS OF THE VARIOUS DIVISIONS OF THE INSTITUTE

The research projects and services being rendered by the Soil Research Institute are indispensable to increased and sustained prolific crop and livestock production in Ghana. The Institute as constituted at present is mainly charged with:

- (i) Taking an inventory of the soil resources of the nation through organised Regional Detailed-Reconnaissance Soil Surveys with a view to delineating on maps of suitable scale broad areas considered suitable for agricultural development.
- (ii) Conduction of ad hoc Detailed and Semi-detailed Soil Surveys of areas earmarked for immediate agricultural development by Government, quasi-government, large agricultural concerns and indigenous small-scale farmers and evaluation of such areas in terms of the suitability of existing soils for the type of agriculture envisaged.
- (iii) Advising on ways and means of improving the fertility status of indigenous soils with a view to increasing, substantially, crop and livestock production in the country and.
- (iv) Finally, recommending effective measures to be undertaken to control erosion and conserve the soil resources of the nation.

In pursuance of the above objectives the Institute has, aside from its administrative division, established six main specialised research divisions (Tables 1 and 2) not only to be able as soon as practicable to compile the necessary soil resources data but also to recommend effective measures necessary for the efficient management of indigenous

Table 1

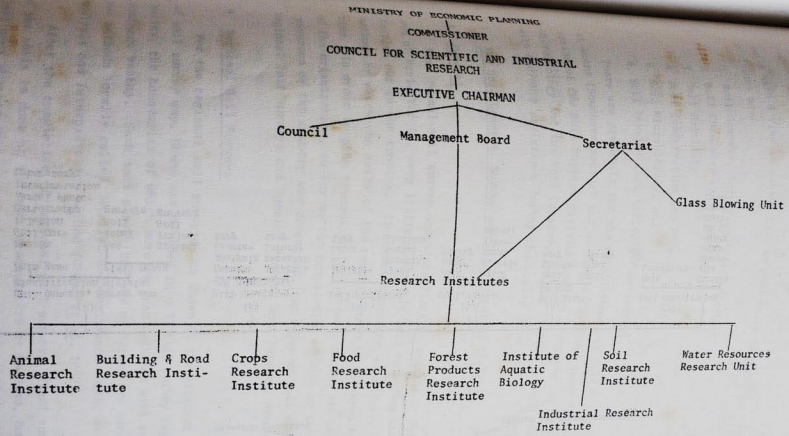


TABLE 2

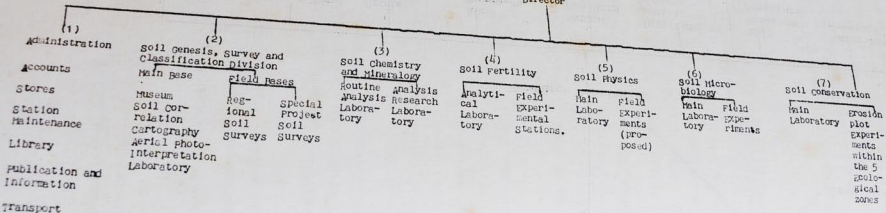
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soils with a view to making them as productive as possible. These Divisions are:

1. Soil Genesis, Survey and Classification
2. Soil Chemistry and Mineralogy
3. Soil Fertility
4. Soil Conservation and Erosion Control
5. Soil Microbiology, and
6. Soil Physics (not actively functioning).

There are proposals for the establishment of Soil Research Centres at Accra (Southern sector) and at Tamale (Northern sector), the re-activation of the Soil Physics Division and the strengthening of the Soil Microbiology and the Soil Conservation and Erosion Control Divisions with FAO/UNDP assistance during the coming three years.

1. The Soil Genesis, Survey and Classification Division

A. General

When formal soil survey and classification started in Ghana at the end of World War II, very little systematic soil surveying had been carried out in the tropics. It became necessary, therefore, to devise methods by which the soils of the country could be surveyed in reasonable time. In order to plan towards the achievement of the aim and objectives of the organisation, so far as the compilation of data on the soil resources of the country was concerned, two types of soil surveys, namely, Regional Soil Surveys and Special Project Soil Surveys, were organised.

B. Regional Soil Surveys

For the regional soil surveys, as shown on the attached progress of soil survey map, Ghana was divided into 37 soil survey regions or basins, the boundaries of which more or less coincide with existing drainage basins. Such soil survey regions or basins are surveyed using two methods locally called Detailed-Reconnaissance method and a Photo-Analysis and Interpretation method (Obeng et al. 1962).

After the completion of regional soil surveys, final correlation of the soils is done at the main headquarters at Kwadaso, Kumasi. Final maps showing soil associations, vegetation, relief and drainage, present land use, geology, miscellaneous information and generalised

land capability are then prepared on a scale of 1:250,000. Five monographs and four other reports by USAID and FAO/UNDP on some of the completed Regional Soil Surveys have been published. Several more reports are in final forms ready for publication. These will be published in the very near future.

To date, as shown on the attached progress of soil survey Map, 12 out of the 37 Regional Soil Survey Areas across the country have been surveyed at the Reconnaissance level. There is, therefore, general information on the soil resources of more than three quarters of the country.

C. Special Project Soil Surveys

For the special project soil surveys, smaller areas earmarked for immediate agricultural development are surveyed in detail with soil series as the unit of mapping on a scale of either 1:7,920 or 1:6,650. So far, more than 400 project areas have been surveyed in detail and the results published in the form of technical reports or miscellaneous papers.

D. Soil Cartography and Classification

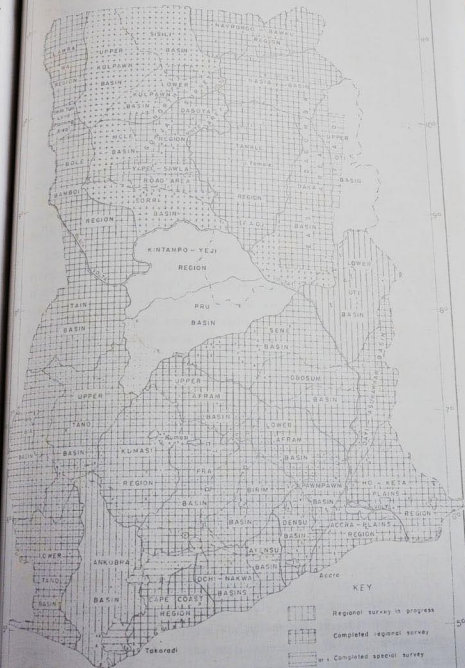
From the enormous data available the Institute has been able to establish a relationship between the ecological zones and the various soil groups occurring in the country. This information has been compiled in the form of an up-to-date soil map of Ghana on a scale of 1:1,500,000. This is the fourth in a series of efforts to draw a generalised soil map of Ghana to serve as basis for planning efficient land-use. Each of the maps in the series is meant to reflect the knowledge gained on soil surveys in the country at the time of its preparation.

The legends accompanying the first two maps in the series were based on a local classification system (Brammer 1962). The legends on the third and fourth maps, however, included in addition, equivalent soil groups in other world classificatory systems. This, it is hoped, will facilitate correlation of indigenous soils with those of similarly-developed soils of other countries so that Ghana can readily draw from experiences elsewhere in the practical utilization of indigenous soils.

In addition to the current Soil Map of Ghana, a soil suitability for mechanised and other cultivation practices Map has been compiled. It indicates broad areas where more than 50 per cent of the soils are considered suitable or unsuitable either for mechanised or hand culti-

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





Progress of Soil Surveys Up to 1/8/75



Scale 1:3,000,000

Miles 20 0 20 40 60 Miles
CENTRAL LONGITUDE 0° 20° 40° 60°

KEY

-  Regional survey in progress
-  Completed regional survey
-  Completed special survey
-  Completed brief inspection or Preliminary survey
-  Savanna zone
-  Forest zone

Kumasi, Aug. 31, 1971

vation of arable and tree crops, or for pasture grazing, or built over land, or for forestry and game reserve purposes (Obeng, 1968).

Other completed soil suitability maps deal with import substitution crops, export crops, food crops, ranching, pasture grazing and game reserve areas and erosion hazards. With such an enormous accumulated soil research data, the Institute is in a position to select suitable areas across the country for large-scale as well as small-scale efficient cultivation of a wide variety of climatically suited arable and tree cash and food crops.

Apart from the compilation of an up-to-date soil Map of Ghana and other soil suitability maps, significant contributions have been made by the Institute to the classification of tropical soils as a whole. For example, a new Soil Order of Petrosols, for the extensively developed, highly-weathered, sesquioxide-rich, humus-poor, and mainly kaolinitic soils of tropical and subtropical regions with superhard, in situ developed ironpan horizon, has been proposed (Obeng, 1970).

The basis for the introduction of the petrosol order was the recognition of the fact that the most important differentiating characteristic of the soils on the highest categorical level of soil classification is the occurrence of a ferricrete* horizon within their profiles. This discrimination stresses a characteristic feature of the soils which can adversely affect root penetration and hence constitutes a hindrance to agricultural development. Hitherto, such soils have been included with lateritic soils without a ferricrete horizon making it very difficult to evaluate accurately large areas of their occurrence in terms of their suitability for agricultural development.

It is the belief that this recognition of a separate Order of Petrosols will help to correct the confusion created in other classificatory systems in which all highly-weathered, sesquioxide-rich, humus-poor, mainly kaolinitic soils of tropical and sub-tropical regions have been grouped together irrespective of the occurrence or non-occurrence of a ferricrete horizon.

2. Soil Chemistry and Mineralogy Division

Field mapping of soils mainly supply data on the morphological characteristics of soils. These are not enough if soils are to be properly classified both on the taxonomic and technical (interpretative) levels. Laboratory analyses of samples collected from the various

*Ferricrete horizon = concrete-like, iron rich horizon (Obeng, 1970).

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soil survey field bases across the country are, therefore, necessary in order to obtain quantitative data which will permit a more reliable evaluation of the soils in terms of their suitability for increased crops and livestock production.

Recent trends in soil classification have stressed the need for basing the criteria on soil properties that can be proved quantitatively. In Ghana, efforts are being made to base the classification of indigenous soils on both external and internal attributes. The Soil Chemistry and Mineralogy Division is playing a very important role in the achievement of this objective.

The Division has been responsible mainly for the routine examination of soil brought in from the various Regional and Special Project Soil Surveys. The determinations carried out include mechanical analysis, moisture equivalent, pH, $\text{CaCO}_3\%$, organic matter, total nitrogen, Cation-exchange capacity, exchangeable bases and total phosphorus.

In addition to routine analysis, the Division has been engaged on a number of research projects. These include, free iron oxide distribution within the profiles of the major soils of the country and their relationships to clay distribution and phosphorus uptake, X-ray identification of clay minerals, phosphorus in Ghana soils, studies concerned with potassium, cation-exchange capacity and sulphur in the major soils of the country as related to the fertility status of such soils.

Most of the research projects are still in progress. However, results obtained so far have shown that phosphorus fixation is mainly a problem where the soils are highly concretinary in the upper horizons or overlie ironpan horizons at shallow depths. There is practically no fixation of phosphorus in non-concretinary soils which are ideal for arable cropping. X-ray diffraction analysis has confirmed that kaolinite is the dominant clay mineral present in most of the soils; however, considerable amounts of 2:1 lattice clays are also present in soils developed over or associated with basic intrusive rocks and in a number of concretinary ironpan soils associated with shales.

Results so far obtained on cation-exchange studies have shown that the amount of the exchange capacity of a soil due to organic matter can be assessed and the consequences of organic matter depletion also determined (de Endredy & Bampoe-Addo, 1962). Depletion of organic matter within the upper few layers of tropical soils can be very serious when systems of cultivation are changed. This is because the top, thin

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organic layers of tropical soils are the main sources of essential nutrients needed for prolific crop production. With increased use of motorised tractors as against hand cultivation such a change is now taking place in Ghana.

Finally, the data collected so far on sulphur studies have shown that most of the soils within the forest-savannah transitional and the savannah zones of Ghana would benefit from sulphur fertilization.

Some of the current research projects in soil chemistry and mineralogy concern fixation of applied phosphorus in some Ghana soils, nitrogen fertilization and water management of rice, saline soils and their physico-chemical management for optimum agricultural production, trace element studies (a joint Ghana/FAO/Finland Co-operative project) and phosphorus sorption characteristics of ironpan soils of the Interior Savannah Zone.

In order to undertake these very important research projects in soil chemistry and mineralogy, quickly and efficiently, and to establish an effective soil testing services for indigenous farmers and all those engaged in agriculture in the country, the Institute has recently acquired an atomic absorption spectrophotometer and an x-ray diffractometer.

3. Soil Physics Division

The nucleus of a Soil Physics Division was started in 1962 with the mounting of a research project to study dry density and porosity status of some major soils of Ghana. The results of the porosity studies were embodied in a paper entitled, "Porosity status of some major soils of Ghana" (Appiagyei-Danka, 1962).

Investigations of soil-water relationships with the pressure-membrane apparatus was started in 1964. In 1967, a series of permeability studies were also conducted, mainly on the vertisols within the coastal savannah zone. Such investigations are very important in planning irrigation and drainage project.

Unfortunately, in the past owing to inadequacy of funds to continue with the projects coupled with shortage of professional staff, the Soil Physics Division has become inactive. The only research project at present under way is concerned with mechanical analysis of profile soil samples collected from the various soil surveys across the country. The results so far, have revealed that in non-eroded soils of Ghana, contrary to previous assertions, a fairly conspicuous textural B horizon

was present indicating the presence of an argillic horizons (Obeng, et al. 1963). Further positive evidence has been obtained by the determination of free and total iron oxides in a series of indigenous soils and correlating their distribution within the profiles of such soils with the observed maximum accumulation of clay within the B horizon (de Enderdy, 1963; Obeng 1970).

With the aid of FAO/UNDP the Soil Physics Division is being reactivated and will soon be in a position to supply badly needed data for efficient establishment of irrigation projects across the savannah zones of the country.

4. Soil Fertility Division

In the initial stages of its formation this Division was mainly concerned with identifying the main nutrients deficient in the soils of the food-cropping areas of Ghana. Results, in this respect, have shown clearly that phosphorus and nitrogen are the main deficient nutrients especially in the savannah soils of the country. Nitrogen deficiency was less serious in the forest zones except areas that had been cropped for a number of season. Potassium deficiency was only occasionally encountered after heavy continuous cropping of soils.

Further investigations on fertilizer requirements of various food crops such as maize, guinea corn, millet, groundnuts, rice and yams were undertaken, both on peasant farms and on agricultural stations. In collaboration with other agencies especially FAO, it has been possible to formulate tentative fertilizer recommendations for various crops.

Until 1965, the Division had been co-operating with the West African Oil Palm Research Institute on fertilizer requirements of oil palm in Ghana. This work has yielded valuable information on the response of this crop to the major nutrients in the main areas of cultivation in the country. Such oil palm - fertilizer studies are now being undertaken by the Oil Palm Research Centre of the Crops Research Institute at Kusi within the Central Semi-deciduous rainforest zone.

Another main area of research in the Division is to work out a soil-testing service employing methods suitable to the soils of Ghana. This work is being pursued in collaboration with FAO/GHA-720 Project on "Increased Food Production Through Fertilizer Use".

Some of the current research projects in soil fertility include estimation of residual effects of various phosphatic fertilizers on some of the major soils; method and time of fertilizer application;

studies on fertilizer requirements of ginger and yams; depth of ploughing and fertilizer application and the effects of organic matter in combination with mineral fertilizers on the yield of crops, cropping sequences; effects of phosphorus and stem storage on cassava growth and yields and evaluation of the efficiency of atmospheric and soil nitrogen supply to groundnuts using N^{15} fertilizers (Joint Ghana/FAO/IAEA research projects).

5. Soil Conservation & Erosion Control Division

With widespread use of mechanical cultivation in an effort to operate extensive farms, soil erosion has been accelerated to such an extent that several acres of good arable land, especially, within the interior savannah zone of Ghana are in danger of being completely ruined. The Institute realising the adverse effects this will have on the overall agricultural output of the nation, has established a new division with a view to mounting research projects aimed at the measurement of soil and nutrient losses and at finding the most effective practices conducive to the control of soil erosion. Pilot projects have been mounted within the semi-deciduous rainforest and Forest-Savannah Transitional zones at Kwadaso and Ejura and others are in a process of being started at Nyankpala and Ohawu agricultural stations within the Interior and Coastal Savannah zones, respectively. It is hoped that in the coming years, similar erosion plot experiments will be established within every ecological zone of the country.

The experiments so far mounted are designed to collect data on soil and nutrient losses under different cultural practices as against a bare soil situation. The experimental fields measuring 90' x 72' were subdivided into six treatment plots of 90' x 12' at each site. The six treatments were:-

- (1) Bare plot (control)
- (2) Zero tillage with continuous maize
- (3) Mulched plot with continuous maize
- (4) Continuous maize with conventional hoeing
- (5) Continuous maize uncultivated, and
- (6) Traditional mixed cropping with conventional hoeing.

Preliminary results show that mulching (3) followed by zero tillage (2) gave the least soil and water losses. The two practices are followed by continuous maize without weeding (5), continuous maize with conventional hoeing (4), traditional mixed cropping with conventional hoeing (6) and lastly the bare plot (1) in that order. From these initial

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results, it would seem that within the semi-deciduous rainforest and the forest-Savannah Transitional zones, mulching and zero tillage could be effective in the control of accelerated soil erosion.

6. Soil Microbiology Division

The importance of soil microbiology to soil physical and fertility studies cannot be over-emphasised. It is a well known fact that soil microbes play beneficial roles not only in the release of nitrogen to plants but also in the building up of ideal soil structure. There are problems associated with widespread burning of the bush prior to cultivation and hunting expeditions. The effects of these on the beneficial microbiological population and on the acceleration of erosion must be studied with a view to finding ready remedies for them. Fortunately, with funds provided by government and with the aid of FAO and UNDP this newly established division will soon be strengthened with experienced staff and equipment. These will enable the Division to tackle more efficiently research projects which will deal with studying the effects of bush burning on soil microbiological population and on the fertility status of indigenous soils, the determination of practical ways of using symbiotic nitrogen fixing materials in legumes and on the break down of organic matter.

III. WAYS AND MEANS OF EFFECTIVE APPLICATION OF SOIL RESEARCH RESULTS TOWARDS EFFICIENT AGRICULTURAL DEVELOPMENT OF GHANA

(a) The ideal system

It is a fact that agricultural research data to be easily understood and effectively applied towards increasing, substantially, crop and livestock production in any country, must necessarily, be translated in very simple terms to all those engaged in any agricultural activity; be they agricultural planners, investors, teachers, large-scale or small-scale indigenous farmers. This is especially true in respect of small-scale indigenous farmers who in developing countries are responsible for producing the bulk of the crops needed for our nourishment, as well as for feeding livestock and local factories and, for export with a view to earning much needed foreign exchange.

Ideally, this certainly calls for a very effective three-day system which will involve a well trained and disciplined cadre of (a) research scientists, (b) subject matter specialists and (c) agricultural extension officers. The research scientists will under such an ideal system devote themselves solely to pure and applied research with useful data being passed on through subject matter specialists and extension officers to

all those engaged in agriculture. In the area of soil research, these subject matter specialists will be those well trained in agronomy especially in the various fields of soil science and will, therefore, be in a position to pass on such useful data in a form to be easily and effectively fed to farmers by agricultural extension officers.

Due to inadequate trained personnel and past unattractive conditions of service, it has not been possible to locally set up such an ideal three-way system which has proved so successful in many developed countries like the United States, Canada and the Netherlands and perhaps some developing countries like Jamaica and, Trinidad and Tobago. As a result, the Ministry of Agriculture has not been effective in extending useful soil research information to all those engaged in agriculture, especially indigenous small scale farmers with a view to easily applying such results towards increased and sustained crop and livestock production in Ghana.

(b) Alternative systems

In the absence of ideal three-way system of seeing to it that soil research data is effectively transmitted to user agencies, the Soil Research Institute has to, in addition to supplying such data to government agencies especially the Ministries of Agriculture, Economic Planning, Industry and Cocoa Affairs, engage in direct project execution and advisory services.

(i) Co-operation with the Ministry of Agriculture

The Institute's Management Board, especially, its Research Committee is constituted in such a way as to allow the Ministry of Agriculture to play an effective role in deciding on the sort of research projects to be mounted. This is to ensure that more applied research projects which are related to government priorities and to the needs of indigenous farmers are undertaken.

The Institute has also encouraged the Ministry of Agriculture in setting up committees involving agricultural scientists from its own divisions, the research institutes, the universities and other related ministries with a view to identifying agricultural problems and finding effective ways of solving them. The most important of the committees are the Agricultural Research Advisory Committee (A.R.A.C.), the National Soil Conservation and Erosion Control Committee and the Irrigation Sub-Committee of A.R.A.C.

The Agricultural Advisory Committee which was set up in 1972 has been very useful in advising the Ministry of Agriculture in the "Operation Feed Yourself" programme especially, in the areas of proper land selection, suitable fertilizer procurement and its efficient application, procurement of improved planting materials, provision of adequate and proper storage and preservation facilities, pests and disease control and eradication and on the effective organisation of its production wings.

The National Soil Conservation and Erosion Control and the Irrigation Committees have advised on the setting up of a Soil Conservation and Erosion Control and Irrigation Development Authorities to cater for soil and water conservation in the country. Government is seriously considering the two proposals for the setting up of two semi-autonomous bodies to cater for Soil Conservation and Erosion Control and Irrigation activities in the country. It is possible that government may decide setting up of a single authority to deal with the two specialised areas. This may be named "Soil and Water Conservation Authority".

Other areas of co-operation with the Ministry of Agriculture involve the conduction of special project soil surveys to select suitable extensive tracts of land for oil palm development within the forest zones and for the cultivation of various other cash and food crops by its semi-autonomous corporations like the State Farms and the Food Production Corporations.

(ii) Co-operation with the Ministry of Economic Planning

There has been very close co-operation between the Institute and the Ministry of Economic Planning. Aside from advisory services, the Institute has been engaged, at the Ministry's request, on direct conduction of soil investigations with a view to delineating large suitable tracts of land across the country for the extensive production of industry based crops, such as cotton, rice, sugarcane, kenaf, urena lobata, soya beans, maize, groundnuts, ginger and tobacco. A special development fund was provided during the 1973/74 financial year for such Agro-Industrial soil surveys and to date, considerable information covering the cultivation of rice, sugarcane and vegetables within the White Volta and the Kulpawn valleys especially the Nasia flats in the Northern and Upper Regions have been made available to the Ministry. Surveys are still in progress within the valleys of the Afram and the Black Volta Rivers situated in the Forest-Savannah Transitional Zone and the Ankobra River Valley within the forest zone to the west of the country.

(iii) Co-operation with the Cocoa Marketing Board, Ministry of Cocoa Affairs

The Institute was responsible for the soil survey of the Suhum Cocoa Rehabilitation Project Areas completed about six years ago. It has also recently carried out a preliminary soil survey of the proposed Ashanti Region Cocoa Rehabilitation areas and delineated 1.2 million acres of land considered suitable for rehabilitation and replanting of cocoa. A more detailed soil survey of the selected areas is underway with a view to locating specific areas for immediate rehabilitation and replanting.

(iv) Co-operation with the Ministry of Industries

Direct soil information has also been supplied to the Ministry of Industries concerning delineation of areas considered suitable for industry based crops, such as wheat, sugarcane, ginger and cotton.

Special Project Soil Surveys and soil chemical analyses have also been conducted for two corporations under the Ministry of Industries. These are the Ghana Industrial Holding Corporation (GIHOC) and the Ghana Sugar Estates Limited (GHASEL). Such projects concerned crops, such as kenaf, groundnuts and sugarcane.

(v) Co-operation with foreign research organisations and universities

The Institute presently has a number of co-operative research projects with International Institute of Tropical Agriculture, FAO/UNDP, International Atomic Energy Commission, Cornell University and the Tennessee Valley Authority. Some of these co-operative research projects have been mentioned in appendices I, II, III and IV.

Aside from undertaking co-operative research projects with agencies outside Ghana, the Institute is actively taking part in the FAO sponsored soil correlation committee yearly meetings within the West African sub-region. These yearly meetings which include organised field study of soils and discussions on their evaluation and management within countries and inter-countries have proved to be very useful. Aside from the opportunity of indigenous West African soil scientists getting together and exchanging ideas with a view to gaining more knowledge and improving upon their research techniques, valuable research data are able to be transferred from one country to the other. This definitely results in considerably reducing research expenditure which would otherwise have been incurred in repeating research projects already completed in other neighbouring countries of the sub-region.

(vi) Direct Advisory Services and Conduction of Special Project Soil Surveys for other quasi-government, large private agricultural concerns and for small and medium scale farmers

The Institute has provided and continue to provide valuable services to quasi-government, non-government agencies and to private farmers. Except for the Regional Development Corporations and the small-scale indigenous farmers, small fees per acre of land surveyed and per soil sample analysed are levelled against large agricultural concerns especially within the private sector.

(a) Special Project Soil Surveys under the "Operation Feed Yourself" programme

Since the 1972/73 financial year, government has provided the Institute with a modest fund under the "Operation Feed Yourself" programme for conducting soil surveys free of charge to medium and small-scale indigenous farmers and to schools, colleges and in special cases to Regional Development Corporations. Farmers from all the regions of the country have benefited from this free service. To date, seventy-one (71) reports on such soil surveys have been issued out with recommendations on the most profitable use that the soils of the respective farms can be put.

(b) Special Project Soil Surveys of large-scale farms for quasi-government and private concerns

Among the organisations which have benefited or are benefiting from such surveys at a fee are Bank of Ghana, the Agricultural Development Bank, the National Investment Bank, Tema Food Complex, Ejura Farms Ltd., Akosombo Textiles, Juapong Textiles, S.C.O.A., C.F.A.O. and Uniliver. Most of such soil surveys involve selection of suitable extensive areas for the large-scale production of export and import substitution crops.

(c) Soil Conservation and Erosion Control Advisory Services

Most of the requests on soil erosion problems so far, have come from Town Development Committees and farmers within the semi-deciduous rainforest zone. One such request which concerned a serious erosion problem emanated from the Bompata Town Development Committee, Bompata, Ashanti.

Bompata is a town located some 42 miles south-west of Kumasi within the central forested area of Ghana. It is sited in-between two ranges which slopes, converge on the town. The Bompata stream and its

tributaries drain the entire area occupied by the town. The main road running north-south has a slope of about 6% which is more than the safe gradient of 4% normally allowed for motorable roads. This road has only one inadequate drain along the eastern edge, and runoff water has eroded both sides of the drain so that very little water runs into it when it rains. Most of the roads in the town are oriented in a north-south direction, up and down the slope so that the speed of the runoff water is augmented to accelerate the erosion process. The speed of the runoff water is such that in the absence of some kind of vegetation to slow it down, had resulted in the almost complete removal of the soil around the foundations of the buildings, which are mostly built of mud, to such an extent that they seem to stand on stilts. In places, as much as 60 inches of soil had been eroded from the bases of houses and in other places, deposits of eroded soil are 30 inches thick. Foot-paths between the houses have created small waterways for runoff water resulting in deep head-cuts and gullies. The Institute's recommendations were as follows; that:

1. The entire town of Bompata should be replanned. Most of their roads should be oriented in an east-west direction. The main road through the town should be provided with two drains of a large volume on both edges, and should be tarred.
2. All drains should run in an east-west direction across the slope in order to impede the speed of the runoff water.
3. The gullied areas should be filled and then grassed in.
4. Broad terraces should be constructed across the slopes in a stairway pattern and then planted to grass so as not only to retard the progress of erosion but also with few amenity trees to improve the aesthetic look of the town.
5. A number of buildings should be demolished because of their unsafe appearance and the owners encouraged to use concrete foundations and sandcrete blocks for building.
6. Lastly, the inhabitants should be encouraged to grow lawns around their houses.

Since the above suggested recommendations would definitely need outside financing if they were to be effectively implemented, the Bompata Town Development Committee was advised to start implementing the recommendations through communal labour in a form of a self-help project and then appeal to the Ashanti Regional Organisation through

the District Administrative Officer for help, possibly, from the Department of Rural Development.

This sad case of the town of Bompatra in Ashanti is certainly a case study which I am sure can be duplicated not only in every region of Ghana but also in many of the developing countries of Africa. It is, therefore, essential not only in Ghana but also elsewhere in Africa for the setting up of effective national organisations not only to work out plans but also to execute projects aimed at the control of erosion and the conservation of the soil resources of the respective countries.

IV. PROBLEMS MILITATING AGAINST EFFICIENT APPLICATION OF SOIL RESEARCH RESULTS AND GENERAL RECOMMENDATIONS FOR THEIR SOLUTION

The problems confronting the Soil Research Institute in its efforts to compile the necessary soil resources data, are those concerned with inadequacy of trained research and technical staff and the non-availability of the required scientific equipment and vehicles, especially land rovers and trucks.

The staff situation on the technical level is being gradually remedied by the recruitment of secondary school leavers with science and geography bias and putting them on accelerated in-service-training programmes both on field operations and in laboratory investigations. On the professional staff level, the situation is not so encouraging, especially so far as the recruitment of indigenous soil physicists is concerned.

Procurement of research equipment and vehicles is tied up with availability of foreign currency. This is a major problem confronting not only Ghana but also almost every country.

Bilateral aid agreements and co-operative research projects with U.N. agencies and other foreign organisations are some of the ways and means of quickly procuring badly needed scientific equipment and specialised experienced staff as well as the long term training of indigenous soil scientists.

V. CONCLUSION

The importance of soil research to the efficient development of agriculture especially in the developing countries can not be over-emphasized. As rightly stated by the American agricultural scientist, Professor Alghren, "The soil comes first, it is the basis, the foundation of farming, without it, nothing: with poor soil, poor farming and living; with good soil good farming and living. An understanding of good farming begins with an understanding of the soil" (USDA). It is essential therefore, for every country in Africa to set up a well organised Soil Research Institute to compile data on its soil resources in such a way as to be readily understood and applied by all those engaged in agriculture towards increased and sustained crop and livestock production.

VI. REFERENCES

1. Appiagyey-Danka, P. 1962. Porosity status of some major soils of Ghana. Ghana Journ. Sci., Vol. 2 No. 2, pp. 225-228. Accra, Ghana.
2. Brauner, H. 1962. Soils of Ghana. In Wills, Brian, Agric. and land-use in Ghana. Ch. 6 pp. 83-126. Oxford university Press. London and New York.
3. de Endredy, A.S. 1963. Estimation of Free iron oxides in soils and clays by a photolytic method. Clay Min. Bull. Vol. 5 No. 20 pp. 209-219.
4. de Endredy, A.S. and Bampoe-Addo, A. 1962. Some aspects of organic matter in Ghana soils. S.R.I., C.S.I.R., Conf. Paper, S.R.I., Kwadaso-Kumasi, Ghana.
5. FAO/UN, 1953. Soil Surveys for Land Development, Agric. Studies No. 20, Rome, Italy.
6. Obeng, H.B.; Ofori, C.S.; Adu, S.V. and Halm, A.T. 1972 - Soil Research in Ghana - Achievements and Problems. Conf. paper No. 42, S.R.I., C.S.I.R., Kwadaso-Kumasi, Ghana.
7. Obeng, H.B.; Adu, S.V. and Asamoah, G.K., 1962. Methods of soil survey for land development in Ghana. Conf. paper No. 33, S.R.I., G.A.S., Kwadaso-Kumasi, Ghana.
8. Obeng, H.B.; de Endredy, A.S.; Smoth, G.K. and Asamoah, G.K. 1963. Classification of the soils of Ghana. Part II. Groundwater Laterites, Red Earths and Yellow Earths. Conf. paper S.R.I., G.A.S., Kwadaso-Kumasi, Ghana.
9. Obeng, H.B. 1968. Land Capability Classification of the soils of Ghana under systems of mechanised and hand cultivation for crop and livestock production. Trans. 9th Intern. Cong. Soil Science Vol. IV. pp. 235-255. Adelaide, Australia.
10. Obeng, H.B. 1970. Characterisation and Classification of some Ironpan soils of Ghana. Ph.D. dissertation. Iowa State University Library. Ames, Iowa, U.S.A. (Unpublished).

RESEARCH PROJECTS AND ADVISORY SERVICES
IN SOIL GENESIS, SURVEY AND
CLASSIFICATION - 1976/77

APPENDIX I

COMPLETED PROJECTS

<u>Project No.</u>	<u>Title</u>	<u>Forms Submitted No.</u>	<u>Project Leader/s</u>
SRI/SGSC/11	O.F.Y. Surveys completed	list attached	Dr. S.V. Adu & various Officers
SRI/SGSC/19	Detailed Soil Survey of a proposed farm owned by C.F.A.O. of Ghana (Ltd.) at Ohiasomawo village, near Bassa, Brong Ahafo Region.	1 & 3	-do-

ON-GOING PROJECTS

SRI/SGSC/1	Detailed Reconnaissance Soil Survey of Cape Coast Region	2	Dr. G.K. Asamoah
SRI/SGSC/2	Detailed Reconnaissance Soil Survey of Upper Afram Basin	2	Dr. S.V. Adu
SRI/SGSC/6	Reconnaissance Soil Survey of Ankobra Basin	2	-do-
SRI/SGSC/7	Reconnaissance Soil Survey of the Lower Oti Basin	2	Mr. T.W. Awadzi
SRI/SGSC/8	Correlation of the Soils of Ghana	2	Dr. H.B. Obeng & Dr. S.V. Adu
SRI/SGSC/9	UNDP/SF GHA-72/022 Fertilizer Use Project (Soil Surveys)	2	Dr. S.V. Adu
SRI/SGSC/13	Agro-Industrial Soil Survey Central and Western Regions (Ankobra Valley).	2	Dr. S.V. Adu
SRI/SGSC/15	Reconnaissance Soil Survey of the Upper Oti Basin	2	Mr. T.W. Awadzi
SRI/SGSC/16	Reconnaissance Soil Survey of the Pra River Basin	2	Mr. Peter Agyili
SRI/SGSC/17	Agro-Industrial Soil Survey, near Jediako, Ashanti Region	2	Dr. S.V. Adu

NEW PROJECTS

SRI/SGSC/18	Detailed Soil Survey of cocoa and coffee plantation at Assin-Nsuta, Central Region.	1 & 2	Mr. J.A. Mensah-Ansah
SRI/SGSC/20	Detailed Soil Survey of the National Fish Pond Culture Centre, Yapei, Northern Region.	1 & 2	Dr. S.V. Adu
SRI/SGSC/21	Semi-detailed soil survey of Tate and Lyle Cane-Sugar Project area at Akatsi, Volta Region.	1 & 2	Dr. S.V. Adu

C. NEW PROJECTS (Contd...)
SRI/SGSC/22

Detailed soil survey of Animal Research Institute's substation near Katamanto, Eastern Region. 1 & 2

Dr. S.V. Adu

SRI/SGSC/23

Detailed soil survey of S.C.O.A. (Ghana) Ltd. Maize and vegetable farm near Papase, Central Region 1 & 2

-do-

SRI/SGSC/24

Preliminary soil survey of a proposed State Farms Corporation Oil Palm Plantation at Nkwanta, near Prestea, Western Region. 1 & 2

-do-

RESEARCH PROJECTS IN SOIL CHEMISTRY AND
MINERALOGY - 1976/77

Project No.	Title	Forms Submitted No.	Project Leader/s
A. COMPLETED PROJECTS			
SRI/SCM/5	Fixation of Applied phosphorus in some Ghana soils.	3	Mr. A.T. Halm
SRI/SCM/10	Phosphorus adsorption characteristics of iron pan soils of the Interior Savannah Zone of Ghana	3	A.T. Halm, Dr. H.B. Obeng, I. Kanabo & C. Adu
B. ON GOING PROJECTS:			
SRI/SCM/6	Nitrogen Fertilization and Water Management of Rice at Veve, Upper Region	2	A.T. Halm & K. Dartey
SRI/SCM/7	The Ada, Muni and Oyibi soil series. Their Physico-Chemistry and Management for Optimum agricultural production	2	Mr. E.A. Dennis 1 Tech. Asst. (Laboratory)
SRI/SCM/8	Adsorption of Fertilizer nutrient by soils of different C.E.C.	2	Mr. A.T. Halm & Mr. E.A. Dennis
SRI/SCM/9	Trace Element Study	2	Mr. A.T. Halm, E.A. Dennis, I. Kanabo & Laboratory Asst.
SRI/SCM/11	Phosphorus correlation experiments on the Adawso series in the Central Region.		E. Boswinkle, E.A. Dennis & F. Valera
SRI/SCM/12	Soil testing for fertilizer recommendation to farmers		E.A. Dennis & A.T. Halm
SRI/SCM/13	Phosphorus uptake by maize from concretionary and non-concretionary soils of the semi-deciduous Forest zone of Ghana.	2	I.A.K. Kanabo & C. Adu

A. COMPLETED PROJECTS		Forms Submitted No.	Project Leader/s
Project No.	Title		
SRI/SF/12	Studies on fertilizer requirements of Ginger	3	C.S. Ofori and H.T. Neu-Addy
B. ON GOING PROJECTS			
SRI/SF/3	Evaluation of the efficiency of atmospheric nitrogen supply to legumes using N ₁₅ (Joint) FAO/IAEA Contract).	2	P.K. Kwakye (Kofi Dartey and Affi-Punguh - Field Tech. Staff)
SRI/SF/4	Depth of ploughing and fertilizer application on the yield of crops (maize and cassava).	2	P.K. Kwakye, (V.A. Potakey, Dr. G.A.A. Paku, & P. Kissiebo)
SRI/SF/5	The effect of planting date on the efficiency of nitrogen and phosphorus fertilizers on the yield of cassava	2	P.K. Kwakye (V.A. Potakey, S. Boadi, J.K. Poku - Field Technical Staff.
SRI/SF/6	Studies on the effect of organic matter in combination with mineral fertilizers on the yield of crops.	2	P.K. Kwakye (V.A. Potakey, Kofi Dartey, G. Affi-Punguh and J.K. Poku - Field Tech. Staff).
SRI/SF/7	Investigations on fertilizer requirements of yams	2	P.K. Kwakye (F. Motte, J.K. Poku and J.N. Anarfi - Field Tech. Staff.
SRI/SF/9	Cropping Sequence	2	P.K. Kwakye, and V.A. Potakey.
SRI/SF/10	Studies on the efficiency of sulphur-coated-urea as nitrogen source on selected crops.	2	P.K. Kwakye (Kofi Dartey, G. Affi-Punguh, F. Motte, V.A. Potakey, S. Boadi and J.K. Poku - Field Tech. Staff).
SRI/SF/14	Crop Rotation	2	C.S. Ofori and A.L. Nyamekye.
SRI/SF/15	Studies on the effects of variety on fertilizer nitrogen efficiency in maize.	2	Dr. H.B. Obeng, P.K. Kwakye and A.L. Nyamekye.
SRI/SF/16	Studies on methods of phosphate application on the yield of maize	2	Dr. H.B. Obeng, P.K. Kwakye and A.L. Nyamekye.
C. NEW PROJECTS			
SRI/SF/17	<u>P & K Nutrition of Voandzeia Subterranea</u>	1	P.K. Kwakye, A.L. Nyamekye.

RESEARCH PROJECTS IN SOIL CONSERVATION AND
EROSION CONTROL - 1976/77

COMPLETED PROJECTS

NIL

ON GOING PROJECTS

Project No.:

SRI/SCEC/1

Title
Erosion and Run-off studies: Kwadaso Project

Forms Submitted No.
2

Project Leader/s

Mensah Bonsu, (Leader)
Nti-Aboagye (T.A. II)
Three Labourers.

SRI/SCEC/2

Erosion and Run-off studies: Ejura Project

2

Mensah Bonsu (Project Leader) Nana Kwasi Agyapong (Technical Assistant) 2 Labourers
1 Night Watchman

SRI/SCEC/3

Erosion and Run-off studies: Nyankpala Project

2

Mensah Bonsu (Project Leader) C.N. Kasei (STO II), Amponsah Sekyere (T.A.) 2 Labourers
1 Night Watchman

SRI/SCEC/4

Erosion and Run-off studies (Ohawo Project)

2

Mensah Bonsu (Leader)
Sydney Dan Cofie (T.A.)
1 Labourer
1 Watchman

SRI/SCEC/7

Soil Management Research and Extension Project

Dr. H.B. Obeng, Director
Mr. E.F.G.R. Lathbridge,
Chief. Tech. Officer and
2 Tech. Assistants.

NEW PROJECT

SRI/SCEC/8

Mulching and Soil Temperature Studies

Mensah Bonsu (Leader)
S. Osei-Yeboah (R.A.)
2 Tech. Assts.
6 Labourers.

APPENDIX V

RESEARCH PROJECTS IN SOIL MICROBIOLOGY
1976/77

A. COMPLETED PROJECTS: Nil

B. ON-GOING PROJECTS

<u>Project No.</u>	<u>Title</u>	<u>Forms Submitted</u> <u>No.</u>	<u>Project Leader/s</u>
SRI/SM/1	Nitrification in some soils of Ghana.	2	Mrs. Mary Baffoe-Arthur
SRI/SM/2	Preliminary Study of the Nodulation of Annual Leguminous plants in Ghana	2	-do-
SRI/SM/3	Breakdown of Organic Matter in Soil by Microorganisms	2	Dr. J.K. Adu.

Director

H.B. Obeng, B.Sc., M.Sc., Ph.D. (Iowa State)

Administration

S. Ansah, Principal Administrative Assistant
 Acquah-Attrams, Senior Administrative Assistant
 D.K.B. Anaman, Principal Accounting Assistant
 S.N. Banibensu, Dip. Printing Management (London, Senior
 Technical Officer Grade I.
 M.K. Buamah, M. Inst. P.S. (London), Stores Superintendent
 K.A. Odei, Assistant Stores Superintendent

Soil Genesis, Survey and Classification Division

S.V. Adu, B.Sc., Cert. of Air Photo Interpretation (Delft)
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 J.A. Mensah-Ansah, B.Sc. (South Dakota State) Research Officer
 T.W. Awadzi, B.A., M.A., (Legon), Research Officer.
 Kwame Asumadu, B.A. (Legon) Assistant Research Officer
 P.K. Titriku, B.Sc. (Sierra Leone) Assistant Research Officer
 R.D. Asiamah, Assistant Research Officer
 S. Osei-Yeboah, B.Sc. (Legon), Research Assistant.
 E.F.G.R. Lathbridge, Chief Technical Officer
 K.A. Asiedu, Chief Technical Officer
 A.K. Akutor, Chief Technical Officer
 D.O. Tenadu, Senior Technical Officer Grade I
 G.W. Acquah, Senior Technical Officer Grade I
 I.M. Tei, Senior Technical Officer Grade I
 J.O. Ansah, Senior Technical Officer Grade II
 M.O. Fordwuo, Senior Technical Officer Grade II
 E.A. Addo, Senior Technical Officer Grade II
 G.E. Badoe, Senior Technical Officer Grade II
 A.K. Galley, Senior Technical Officer Grade II
 M.O. Amoah, Senior Technical Officer Grade II
 G.F.K. Yevu, Senior Technical Officer Grade II
 J.K. Darku, Chief Draughtsman
 P.A. Adams, Asst. Chief Draughtsman
 D.A. Aryee, Supervising Draughtsman.

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- A.T. Halm, B.Sc. (Wales), M.Sc. (Illinois), Chief Research Officer (Head)
- E.A. Dennis, B.Sc., M.Sc. (Legon) Research Officer
- I.A.K. Kanabo, B.Sc. (Legon), M.Sc. (Netherlands), Research Officer
- A. Bampoe-Addo, Chief Technical Officer
- J.A. Thompson, -do-
- E.B. Swanzy, -do-
- J.O. Afriyie, Senior Technical Officer Grade I.

Soil Fertility Division

- C.S. Ofori, Diplomalandwirt (Hohenheing) Dr. Sc. (Geottingen), Chief Research Officer (Head)
- P.K. Kwakye, Preparatory Cert. Kiev State Univ. 1st Degree (Agric. Academy Moscow), Research Officer
- H.T. Nee-Addy, B.Sc. (Legon) Assistant Research Officer
- A.L. Nyamekye, B.Sc. (Legon) Assistant Research Officer
- V.A. Potakey, Chief Technical Officer
- Kofi Dartey, Senior Technical Officer Grade II
- Stephen Boadi, -do-
- F.K. Mottee, -do-
- Edna L. Appea (Miss), -do-

Soil Conservation and Erosion Control Division

- H.B. Obeng, B.Sc., M.Sc., Ph.D. (Iowa State), (Head)
- A.A. Gyampoh, B.Sc. (Iowa State Univ.) Research Officer
- Mensah-Bonsu, B.Sc. (Legon) Assistant Research Officer

Soil Microbiology Division

- C.S. Ofori, Diplomalandwirt (Hohenheing), Dr. Sc. Agr. (Geottingen), Chief Research Officer (Ag. Head)
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- Mary B. Arthur (Mrs), B.Sc., M.Sc. (UST.), Research Officer.
- R.O. Koranteng, Senior Technical Officer Gd. II.

Soil Physics Division

- A.T. Halm, B.Sc. (Wales, M.Sc. (Illinois), Chief Research Officer (Ag. Head)
- B.K. Borkor, Chief Technical Officer

Farm Management

- S. Sowa-Radoo, Senior Technical Officer Grade I (Farm Manager).

CROPS RESEARCH INSTITUTE
(COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH)

THE ROLE OF THE CROPS RESEARCH INSTITUTE
IN SUPPORT OF THE OPERATION FEED YOUR PEOPLE
AND THE OPERATION FEED YOUR BUSINESS
PROGRAMMES

MAY 1977

The OFY and OFYI programmes were initiated to make Ghana (i) self sufficient in the production of food crops, (ii) to provide enough raw materials to meet the requirements of existing agro-based industries and (iii) to diversify agricultural production for export to lessen the dependence of the country on cocoa. This Institute being the main organisation concerned with agricultural research on all crops other than cocoa, coffee and kola is expected to develop new technologies to increase and sustain the production of food and cash crops in the country. The Institute has in this regard been concerned with activities such as the introduction of new plant cultivars and their evaluation in various ecological zones for adaptability, breeding of varieties having high yield, disease and pest resistance and the investigations of optimum cultural practices for different crops.

The Crops Research Institute has in all cases co-operated with the Ministry of Agriculture, Commodity Boards, State Farms Corporation and other interested organisations for the transfer of improved technologies or innovations, to ensure full utilisation of research results.

Subsequent paragraphs will attempt to summarise major contributions of the Institute to the OFY and OFYI programmes.

Cereals Development

Maize

A programme was developed for an accelerated production of maize in the country. The specific goals of the accelerated programme were:

1. To determine optimum populations at which elite maize varieties developed at the Institute produce maximum yields.
2. To determine the most economic combinations of fertilizer, varieties and population at which each variety will produce maximum yields.
3. To define broad areas of adaptation and stability characteristics of these varieties and
4. To develop in the process appropriate technologies from the emerging information for transmission to farmers.

Demonstration plots were initiated on farmers fields in collaboration with Grains Board, Ministry of Agriculture, and Agricultural Development Bank and covered over 2,000 farmers.

The following varieties of maize have been released to the Ministry of Agriculture, and have been multiplied and supplied to farmers: Composite 4, La Posta, and Golden Crystal. In all cases the elite varieties outyielded the local by over 150%. Composite W is almost ready for release.

Yields in Kg/ha on Farmers Fields

Variety	Ashanti Region	Brong Ahafo Region	Central Region	Volta Region	Northern Region
Composite W	2537	2537	4098	3785	1602
La Posta	3470	3960	4009	3082	
Composite 4	4000	3512	-	3312	
Local	1585	1314	1614	1262	

The Institute provided instructions and participated in numerous lectures and symposia on maize production.

Sorghum

The Institute developed and recommended the following varieties of sorghum for the Northern and Upper Regions. The varieties were given to the seed multiplication unit of the Ministry of Agriculture for multiplication and distribution to farmers.

<u>Northern Region</u>	<u>Upper Region</u>
Mankaraga	LA 246/3R
SK - MDW	-
Naga White	Naga White

The Grains Development Board were assisted in designing the plan for the demonstration of these varieties on farms.

Rice

The rapid expansion of rice cultivation in Northern Ghana depended almost entirely on the results of research carried out in the Crops Research Institute. This involved the testing of varieties not only on the research stations but also on numerous farms. Out of these tests were recommended the following varieties IR5 and IR20 in 1971, and IR 442 in 1975, all of which are being grown by the farmer. Results of investigations on fertilisation of rice, weed control and other agronomic practices have been made available.

Starch Staples

Cocoyam and Plantain

Introductions of various varieties and cultivars of cocoyam and plantain have been done at our Plant Introduction and Exploration section at Bunso. Due to unavailability of research staff, it has not been possible to undertake intensive research on these crops. It has therefore not been possible to recommend suitable varieties for distribution.

Cassava

The Institute has recommended the planting of Ankra and Katawia varieties of cassava. In southern Ghana it has been recommended that for optimum yields planting should be done in March/April, and harvesting done after 15 months.

Yam

In the North planting from early April to the first week of May gave higher yields of good quality yam than later planting. Optimum dosage rate of nitrogen has been determined at 67 kg/ha. It has also been shown that ridges compare favourably with mounds. Ridging with tractors will facilitate large scale cultivation of yam.

Oil Seeds

Groundnuts

The plant breeder at the end of 1972 confirmed that Hani Pinter as the highest yielding variety in the Northern Region. MK 383 and Florispan Runner were recommended as the best varieties for the Upper Region. In the semi-deciduous Rain Forest Zone, Natal Common and Shi Tao Chi have been shown to be the highest yielding varieties.

Following a close association that has existed between the grain legume work at the Crops Research Institute and the Grains Development Board since 1973, these improved groundnut varieties, together with information on optimum cultural practices, have been widely promoted amongst farmers through demonstrations on farms. To help industry produce its raw materials, experiments were begun on CIHOC's groundnut farm at Atebubu in 1974. The aim was to find a suitable groundnut variety which could be grown in the area to feed the Oil Mill at Atebubu. Florispan Runner has been recommended provisionally for the area.

Soya bean

Starting in 1975, work on soya bean was intensified and emphasis was on testing for adaptability to the Ghanaian environment. This endeavour has resulted in the recommendation of two varieties namely, 762-3977 for the major season, in all areas, and Davis for the minor season. These varieties have been made available to the Grains Development Board and are being multiplied by the latter for distribution to farmers.

Sunflower

The Institute in 1975 recommenced research work on sunflower with a view to identifying varieties suitable for the main agro-ecological zones in the country. Initial results indicate that sunflowers can grow successfully around Ejura and Logon. Trials will be initiated this year at Danongo, Nyankpala and Ohawu. Oil content is high (around 41%) and of good quality (49% linoleic acid content). The following cultivars are being tested: Krasnodaratz, Issanka, Sputnik, HS52, VNIIMK 8931, Peredovik. The work is done in conjunction with U.A.C., through Unilever Research, Holland, who intend to start large scale cultivation of the crop to feed local Oil Mills and for export.

Oil Palm

The Oil Palm Research Centre of the Crops Research Institute has up to date issued 7,000,000 germinated seeds worth /\$5,5000,000. The Centre is capable of supplying all the country's requirements of oil palm seednuts which is estimated at 35 million germinated seednuts over 6-7 years. Projected seednut production is as follows:-

1977	1978	1979	1980
3,740,416	4,291,000	4,780,000	6,733,500

Optimum agronomic practices for the establishment of oil palm plantations have been determined. The Centre provides training to the staff of the Ministry of Agriculture, State Farms and other organisations in oil palm plantation establishment. The farmers' hostel being built at the station will be completed this year and can accommodate 12 farmers at a time.

Coconut

The Institute continued to supply farmers with coconut seedlings for planting. Various dwarf varieties have been introduced for the production of seed. Investigations into the Cape St. Paul Wilt have been intensified. The Pathologist has determined that all the supposedly resistant dwarf varieties of coconuts are unfortunately susceptible to the disease under Ghanaian conditions.

Fruits
Mangoes, Citrus, Avocado Pear

To meet the increase in demand for fruit tree crops in the country the Institute, in 1975, initiated a fruit tree crop planting material programme to produce improved and disease resistant planting materials (seedlings, budlings) of citrus, mangoes and avocado pear with good eating qualities, to feed existing factories and for export. The interim production targets for planting material are as follows:

Citrus	30,000 in two years
Mango	16,000 in two years
Avocado Pear	6,000 in two years

Requests received so far are in excess of capacities at the nursery. With the provision of funds it will be possible to increase the production of planting materials considerably.

Pineapples

The Institute has been involved in the GHI programme with the GIHOC Cannery Division at Hoaman since 1972. Through the Institute's experiments, demonstrations, encouragement, and the involvement of various farmers, the Cannery Division has embarked on the production of part of its fresh pineapple requirements. To date, 246 ha of land have been acquired and the initial 17.4 ha have been planted and harvested. The community (moboa) system has been adopted on the plantation. The Institute has been the sole consultant for this project and has made available to GIHOC and other farmers agronomic recommendations on such topics as plant population, fertilizer rates and flower initiation using calcium carbide.

Raw Materials

Sugarcane

To provide effective research support for the industry in the country the Institute has acquired 800 acres of land at Autsuare to establish a National Sugarcane Research Centre. Initial soil survey has been undertaken; clearing and farm establishment will be started next financial year. The National Sugarcane Research Centre will also produce improved planting materials for sale to farmers.

The Institute has representation on the Sugar Industry Board and assists the Board in developing a viable sugar industry in the country.

Research results on varieties, fertilizer use, pest and disease control and other agronomic practices have been made available by the Institute, and have been compiled in a booklet "Sugarcane in Ghana".

Current research projects on sugarcane are geared towards providing early solutions to problems specific to the large scale cultivation of the crop.

Cotton

The research results available at the Institute are meant to provide basic information on varieties, agronomic practices and control of pests and diseases for the cotton production programme of the Cotton Development Board. The Institute has recommended four cotton varieties for planting namely, Allen 333, Allen 265, BJA 592 and Har 44. Optimum fertilizer rates are 50kg/ha N, 20kg/ha P₂O₅ and 20kg/ha K₂O. Planting in June is optimum for northern Ghana. Recommended optimum spacings are 45 x 45cm and 90 x 45cm.

Fibres

The Bast Fibres section of this Institute has been collaborating with the Bast Fibre Development Board and the Fibre Bag Manufacturing Division of CIHOC in the production of fibres to feed the Fibre Factory at Kumasi. The Institute has released a variety of Kenaf A-63-440 and Jute BZ-1 and BZ-1-3 to the East Fibres Developing Board, for multiplication and distribution to farmers. Optimum cultural practices have been recommended for all the ecological zones of the country except the high forest.

Ginger

In aid of the drive to develop non-traditional agricultural crops for export, the Institute in 1974 initiated projects on ginger in relation to variety, fertilizer requirements, chemical weed control, and other agronomic practices. Major achievements have not yet been obtained, but it has been shown that shading ginger with cocoyam - an accepted farmers' practice - reduces yields. Exotic varieties are being tried and multiplied for future use by farmers.

Tobacco

Research in tobacco is carried out in conjunction with the Ghana Tobacco Company who are the main users of the results obtained. Nine good quality high yielding varieties giving financial returns have been recommended.

Flue-cured varieties - Virginia Gold, NC 95, Rhodesian Hicks, White Gold - Delcrest. Air-cured varieties - Virginia Hybrid, Marvel de Baezo, Garcia, Burley and Maryland. Fertilizer requirements and other agronomic practices have been recommended.

Rubber

Due to the shortage of research staff, it has not been possible to recommend or evaluate results of the various trials on rubber to support the OFYI programme effectively. The results obtained will be evaluated in due course to enable the various organisations concerned with rubber development to benefit from our research projects. 21 rubber clones are available and being maintained in the museum.

Plant Protection

Entomology

The entomology section of this Institute is concerned with the integrated control of insect pests on economic crops in the country covering cotton, leafy - and fruit vegetables, yams, cereals, kenaf, oil palm and legumes. Important results achieved which are in support of the OFY and OFYI programmes are detailed below:

Cotton

Four species of bollworms have been identified and chemical control measures: with Toxaphene/DDT, Endrin/DDT, Muvacon and Sevin/DDT recommended.

Vegetables

(Garden eggs, tomatoes, okro, cabbage and cauliflower) Major insect pests of crops have been identified and crop losses due to their injury assessed. Pesticides for control have been tested and suitable recommendations made.

Cereals

Lepidopterous stem borers which account for great losses in cereal crops during the second season, have been intensely studied. Chemical control with organochlorine insecticides supplemented by cultural control have been recommended.

Bast Fibres

A survey of insect pests of the bast fibres has been completed and studies on control measure initiated.

Sugarcane

A survey of major insect pests on sugarcane, an assessment of the damage they cause and some work on their biology and bionomics has been completed. Use of pesticides and cultural measures have been tentatively recommended.

Oil Palm

The biology of the oil palm leaf miner, has been studied. Use of pesticides has not been significantly effective. Work of biological control of the leaf miner has been initiated.

Grain Legumes

Insect pests of cowpeas and soyabbeans have been collected, identified and work on their biology and seasonal populations studied. Insecticide formulations have been recommended.

The Entomology section has honoured numerous requests from the State Farms, the Ministry of Agriculture and other farmers to assess crop losses due to pests and to recommend suitable insecticides for their control.

Plant Pathology

The Plant Pathology Section of the Institute has carried out many important investigations with the object of reducing crop losses caused by viruses, bacteria, fungi and nematodes. The section also carries out post entry quarantine of all imported planting materials and continual surveys of status of diseases of major crop plants in the country and then advises on out-breaks. Some important recommendations are:-

Fungicidal seed dressing Dieldrex A, Mercurin and Thiram for cereals and legumes.

Tomato

Fungal diseases of tomato have been isolated. Dithane M45 and Duter have been recommended. Dithane M45 as recommended is applied on a large scale on tomato farms around Akumadan and Sunyani.

Garden egg

The important diseases of egg plant have been identified. Sclerotium may be controlled by formaldehyde.

Rice

A survey of rice fields was made in 1972. Rice blast was recognised as the most serious disease. Variety C4 - 63 has since been phased out of production since it was found to be highly susceptible to blast infection.

Maize

In 1973 a serious disease (Rhizoctonia) of maize was observed in the country. Without the early detection of the disease and quick action to control it the disease would have spread to all parts of the country and the results would have been disastrous.

Sugarcane

In 1974 a serious disease of sugarcane, the smut was observed in the Asutsuare area. Recommendations made and applied have limited the disease to the Asutsuare area.

Coconut

Research results have shown that the dwarf coconut varieties are not suitable for rehabilitating the Keta area because they have been found to be highly susceptible to Cape St. Paul Wilt. But for this findings much money and effort would have been wasted in an unsuccessful attempt at rehabilitating the area.

Nematodes associated with various food and cash crops have been identified. Nematicide recommendations in conjunction with other cultural practices for the control of nematode problems in sugarcane, tomato, okro, egg plant, pepper, onions, cocoyam, groundnuts, tobacco, beans and cowpeas have been made.

Food Storage

The research programmes of the food storage section are geared towards finding solutions of post harvest bio-deterioration caused by insects and micro-organisms. The greatest damage occurs on maturing crops in the field, and during storage. Studies have been done on the traditional methods of storage of maize and legumes. Pesticides such as pyrethrum, fenetrothion, sevin and malathion have been recommended.

Extensive research carried out in the storage of maize on the cob in farmers' cribs indicate that the application of fenetrothion at 4ppm and 4% sevin and 2% malathion and 2% pyrethrum protects cobs for about 10 weeks. Fenetrothion was best and was recommended.

The safe storage moisture content of food items has been determined:- gari 13.2%, tapioca 13.5, maize 12.9%, roasted corn meal 11.3%, ladypeas 10.3%.

The Institute was a consultant to Tema Food Complex Corporation in 1974 when they had to store large quantities of grains in their silos.

In 1976 when the Grains Ware-housing Co. Ltd. imported large quantities of yellow corn, the Institute served as a consultant to advise on the bulk storage of the maize.

Plant Introduction and Exploration

The Plant Introduction and Exploration section of this Institute has introduced into the country, economic crops which would serve as a basis for future research work. Prospecting for economic crops is also carried out and it has now been possible to initiate agronomic research on the sweetening plants. The plants are Syncepalum dulcificum (miraculous berry, Discoreophyllum dulcificum (magic berry) and Thaumatococcus daniellii, (agidi leaf plant). Initiative has also been taken in the introduction of Tea, wheat, barley (for malting) safflower, sunflower, and arrow root for starch and a programme for research work on these drawn up.

Weed Control

Weed competition is an important factor limiting high yields in crops. With the present large scale cultivation of various crops manual weed control is impracticable. The Institute has initiated two research programmes in weed science to cater for the northern and southern zones of Ghana.

Various recommendations for chemical weed control for rice, sorghum, legumes and cotton have been passed on to farmers in the north of Ghana.

Publications

In support of the OFY and OFYI programmes, the Crops Research Institute in 1974 published two bulletins namely, 1. "Guide to the Production of Some Crops in Ghana", 56 pages and covers 14 crops and 2. "Oil Palm", 36 pages. The bulletins are meant for the farmer or extension officer and gives recommendations on varieties, fertilizer requirements, disease and pest control and other cultural practices for the most of the crops grown in the country.

CONTRIBUTION OF THE A.R.I. IN SUPPORT OF O.F.Y.
AND O.F.Y.I. PROGRAMMES IN 1972 - 1976

INTRODUCTION

The enthusiasm which greeted the launching of the O.F.Y. was felt at the Institute when a number of requests were received from livestock farmers regarding provision of seeds and planting materials for pasture establishment, advise on the setting up of animal farms, and on matters relating to farm management, animal nutrition and husbandry.

The Institute responded as follows:-

I. PASTURE DEVELOPMENT

Seeds of various grasses namely Andropogon (Gamba grass), Panicum maximum (Guinea grass) and vegetative parts of Digitaria (Pangola grass) Cynodon plectostachyus (Giant star grass) were supplied for pasture development. Fodder legumes of Centrosema and Stylosanthes were also supplied to ranchers and institutionalised livestock producers. The Animal Husbandry Division, State Farms and some individual farmers like the Q-Farms, have been some of the principal users of our findings. The demand for planting materials is still coming in to this day, and judging from this year's requests, the pasture seed programme needs to be expanded.

II. ANIMAL NUTRITION

Another demand on the Institute was in the field of nutrition. Agro-based industries have been supplying products which could be used as supplementary feed for animals. As a result of our investigation of wheat bran, this item was recommended to farmers as well as Feed Mills for use in compounding animal feed. We also recommended the use of groundnut cake and copra cake as supplement for both grazing animals and other livestock and poultry. All these items and others currently under study at the Institute provide needed nutrition for animals when the traditional sources such as grains become too expensive or scarce. These by-products also provide additional source of feed for ruminants during the dry season.

III. ANIMAL HEALTH AND DISEASE PREVENTION

Control measures against New Castle disease, recommended through research findings at the Institute, have been adopted by many poultry farmers. The Veterinary Services Division of the Ministry of Agriculture uses the new vaccination regime worked out at this Institute.

The Institute also extended its veterinary services to backyard farmers in and around Achimota, by inspecting and treating sick animals such as poultry, sheep and goats. For the control of ticks on livestock, we have recommended regular dipping or spraying once weekly during the wet season and once fortnightly during the dry season, as the most effective method of controlling these pests.

IV. FARM MANAGEMENT

Visits by our research staff to livestock farms, especially, poultry and pig farms were intensified during the O.F.Y. period. Through these visits, farmers were instructed on the proper methods of keeping records and on elementary costing of farm operations.

V. FARMER EDUCATION AND INFORMATION

One significant contribution made by this Institute during the period was to provide direct information and advise to farmers and farming organizations. During the period of the O.F.Y. and O.F.Y.I., two major contributions were made by the Institute in this direction as follows:

1. Animal Science Symposium (1973)

This symposium was organised by the Animal Research Institute and the procedure was completely different from what it had been before. Emphasis was shifted from the mere reading of scientific papers, to simple discussion of animal rearing problems that farmers actually encountered. Farmers were invited to discuss their problems in English or their native language and necessary advice provided by our research scientists. In addition, we mounted exhibitions on animal production which the invited farmers greatly appreciated.

2. "Farmers Guide Series"

Since 1975 we have begun writing simple pamphlets to guide farmers and others wishing to start animal farming. To date, the following have been completed and issued to interested farmers and farming organisations on request:

The three titles so far completed are:

1. Guidelines for pasture establishment
2. Guidelines for the small poultry farmer
3. Guidelines on Cattle Farming.

Others are in preparation.

(Dr. Evans D. Offori)
ACTING DIRECTOR.

OFY AND OFYI REVIEW - THE ROLE OF THE
FOOD RESEARCH INSTITUTE IN SUPPORT OF
THE OFY AND OFYI PROGRAMMES

REVIEW 1971 TO 1976

In the past, individual research staff members tackled various relevant projects with bearings on the OFY and/or OFYI programmes in isolation. Most of these research projects although completed were not implemented because of their narrow basis and thus did not make much impact or make much contribution to the OFY or OFYI programmes. Examples of such projects are as follows:-

1. Completion of dehydration and canning processes as a means of preservation. Crops worked on were:
 - cereals - composite flours
 - Tubers - dehydration of cassava and plantain
 - Others - dehydration of vegetables and canning of fruits and vegetables.
2. Designing and construction of small equipment for rural technology.
 - (a) Smoking Ovens
 - (b) Dryers
3. Consultancy Work
 - (a) Help was given to various food industries in the form of solving problems in both processing methods and technology.
 - (b) Training was given to some technical staff from the Food Industries.
 - (c) Various food industries and agencies sought advice from the FRI.
 - (d) Quality control analyses were done for various food industries.

II. PRESENT PROGRAMME

Since then the projects of the Food Research Institute have been evaluated and programmes have been drawn up with the aim of tackling national problems within our jurisdiction by multi-disciplinary approach. Multi-disciplinary teams have been formed and clearly defined responsibilities have been assigned to these to tackle the following Institute Programmes.

A. The Storage Programme

This programme aims at looking at the storage facilities existing at the rural areas:-

- a. at the farm levels
- b. at the village levels
- c. at the market levels

for the storage of cereals, starchy roots and tubers and fruits and vegetables. It is hoped that the existing storage facilities would be evaluated with respect to design, construction, materials used, capacities, where situated, efficiency etc. Proper storage facilities and methods can then be introduced in these areas to help minimize food wastage and food spoilage, so that more food would be made available not only to the public but also to the food industries for processing.

B. The Processing and Preservation Programme

The Processing and Preservation Programme is divided into two parts.

Part one aims at evaluating and assessing certain traditional methods utilized in the processing and preservation of cereals, tubers, fruits and vegetables, oil bearing crops, fish and meat. Methods and products found to be of particular interest may be further studied with the aim of either adapting them to small scale traditional industries, or put through a pilot programme to assess the possibilities of up-scaling them to industrial scales. The Food Research Institute's Pilot Plant, is therefore, an integral part of this programme.

Part two of the programme aims at investigating the application of traditional, conventional as well as new methods in the processing of cereals, starchy roots and tubers, fruits and vegetables, fish and meat into the following categories of foods:-

- a. convenient or labour saving foods e.g. quick cooking breakfast cereals palm pulppoweder.
- b. Import substitution or exportable foods e.g. high quality cassava chips, cassava flour, meat products.
- c. Processed foods for preservation of perishable seasonal foods.

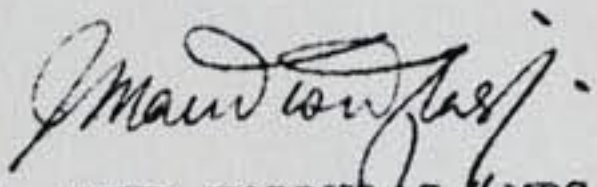
Any of these processes or products developed, found promising, may be put through pilot stages for feasibility assessment for industrial processors who may be interested in taking them over.

C. Labour Saving and Rural Technology Programme

This programme is planned as a support to the Processing and Preservation Programme and it aims at contributing towards the development of small scale food industries. In that the programme hopes to design and construct small scale labour-saving devices or equipment that could be utilized at the farm or village level in small scale traditional processes.

- a. Surveys are underway to identify workshops in Ghana with respect to the types of machines available to them and the parts of machines that can be manufactured by them;
- b. Parts of designs can then be ordered from these workshops for assembling at our workshops for trial testing and introduction to the appropriate processors;
- c. Production of designed machines through the same channels for other prospective users can then be undertaken.

With these three programmes now being tackled at the Food Research Institute through co-ordinated effort, the Food Research Institute hopes to contribute fully to both OFY and OFYI programmes.


J. MAUD KORDYLAS (MRS.)
OFFICER-IN-CHARGE

Feb/18/5/77.

INTERIM REPORT

AD HOC COMMITTEE ON THE NUTRITION REQUIREMENTS FOR
THE AGRICULTURAL PLAN - 1975-1980

INTRODUCTION

In accordance with the terms of reference given to us, we have attempted to estimate the nutrient needs of the Ghanaian population and estimated how this could be achieved through food production.

In order to arrive at the figures, we had to estimate:

- (a) The Ghanaian population up to 1980
- (b) The dietary allowances per "equivalent adult"

Those were then projected to the required period.

POPULATION PROJECTION

Using the present figures available from the 1970 population census and a population growth rate of 3% per year the following figures, broken down by sex and age groups, were obtained:-

Table 1

	1970	1975	1980
Children under 10	3,013,295	3,493,734	4,049,616
Females above 10	2,804,554	3,251,246	3,769,086
Male above 10	2,741,464	3,178,108	3,684,298
Total	8,559,313	9,922,588	11,503,000
Equivalent Adults		7,850,846	9,101,283

DIETARY ALLOWANCE

In order to calculate the population in terms of "equivalent adults" for the benefit of proposing a dietary allowance per an "equivalent adult" per day, Children under 10 were counted as 0.5 each, and women of 10 and over as 0.9 each. Taking into consideration the current dietary practices, we aimed at formulating a diet which would provide the essential nutrients in adequate measures to ensure maintenance of good health, etc. The net caloric available from the suggested diet would be 2700, which can be considered adequate for an average adult of moderate activity.

Table 2

PROPOSED DIETARY ALLOWANCE PER "EQUIVALENT ADULT"
PER DAY

Food Items	Gms.
Cereals	220.0
Tubers	400.0
Legumes	151.4
Vegetables & Fruits	371.4
Sugar	57.1
Vegetable Oil	57.1
Milk & Milk Products	180.0
Fish & Meat	100.7
Egg	1 egg

3.2 Annual Estimates

Knowing the figure for "equivalent adult", the gross annual requirements for crops weights for the population of "equivalent adults" were calculated from the net weights by adding 20% for wastage to the net figures given for cereals, legumes, fruit and vegetables. Using estimated animal census figures (mainly poultry), an allowance of 20% of the gross weight was estimated for cereals, 7% for fish and 2.0% for vegetable oil seeds as animal food crops. The figures as projected to the required period were as follows:-

Table 3

DIETARY REQUIREMENTS IN MILLIONS OF METRIC TONS
GROSS WEIGHT FOR POPULATION OF "EQUIVALENT ADULTS" FOR 1975

EQUIVALENT ADULTS - 8 MILLION

Food Item	Gross Weight and 20% wastage all.	Estimate for Animal feed	Final Estimate
Cereals	757,000	151,000	908,000
Tubers	1,375,000		1,375,000
Vegetables & Fruits	1,300,000		1,300,000
Sugar (no estimate for wastage)	164,000		164,000
Legumes	521,000		521,000
Vegetable Oils "	164,000	12,000	176,000
Milk & Milk products	520,000		520,000
Fish and Meat "	300,000	6,000	306,000
Egg	2.8 billion	-	2.8 billion

DIETARY REQUIREMENTS IN MILLIONS OF METRIC TONS GROSS WEIGHT FOR POPULATION OF 9.1 MILLION EQUIVALENT ADULTS-1980

Item	Gross weight and 20% wastage All.	Estimate for Animal feed	Final Estimate
Cereal	877,000		
Tubers	1,600,000	175,000	1,052,000
Legumes	604,000	320,000	1,920,000
Vegetables & Fruits		-	604,000
Sugar (no allowance for wastage)	1,500,000	-	1,500,000
Vegetable Oils "	190,000	-	190,000
Milk & Milk products (no wastage)	190,000	1,300	191,300
Fish & Meat (no wastage)	600,000	-	600,000
Eggs (no wastage)	335,000	6,700	341,700
	3 billion singles	-	3 billion

It became necessary then to estimate our current food supplies, in order to evaluate our percentage of achievement in relation to the estimated target requirements. The following Local Production and Import figures for 1973 were obtained. Estimated percentage of achievement and rates of increase in production needed annually to achieve the required targets at the given period are set below:

Table 5

1973 LOCAL FOOD SUPPLIES IN METRIC TONS, PERCENTAGES ACHIEVED AND ESTIMATED ANNUAL RATES OF INCREASE IN PRODUCTION

Food Items	Local Food Supply	Final Estimate for 1980	% Achieved of 1980 Target	Annual Rate of increase 1973-80
Cereals	733,081	1,052,000	70%	5%
Tubers	6,884,646	1,920,000	359	-20
Legumes	128,972	604,000	21	25
Vegetables & Fruits	462,431	1,500,000	31	18
Milk & Milk	7,720	600,000	1	86
Sugar	8,047	190,000	4.2	56
Vegetable Oil	175,998	191,300	92	1
Fish & Meat	156,983	341,700	46	11
Eggs	24-30 mil. singles	3 billion	1	95

It can be seen from the percentages achieved figures that most of the crops that we need, to contribute to the highly needed nutrients for good health are highly under produced, whereas, tubers which contribute mainly carbohydrate and next to nothing of the highly needed nutrients are produced in quantities exceeding three times the estimated requirements. It is the feeling of the group that this observation spells an unhealthy trend of production which if not curtailed, would be detrimental to the nutritional status of the population as a whole.

It is our recommendation, therefore, that land being utilised for growing tubers must be gradually decreased. The acquired land must be utilized for increased production of cereals and oil seeds such as soya beans, groundnuts, legumishie and winged bean, at the recommended annual rate of increase. If possible with surpluses, since these seeds do not only provide protein for human and animal consumption but the oilseeds could be exported as a cash crop.

The Committee wishes to submit this as an interim report. The final report which follows soon would contain an outline of our recommendations for storage, processing and marketing of our agricultural produce.

Our evaluation of existing nutrition programme and our recommendations as to how these can be effectively utilized would also be included.

Ad Hoc Committee Members

Signature

1. Mrs. J.M. Kordylas,
Food Research Institute,
P. O. Box M.20,
Accra.
2. Mr. V.O. Newman,
Planning Unit,
Ministry of Agriculture,
Accra.
3. Mr. E.K. Comney
Ministry of Health,
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4. Dr. S. Ofosu-Amaah
Ghana Medical School,
Korle Bu Hospital,
Accra.
5. Mr. K.S. Manu (Secretary)
Ministry of Economic Planning,
P. O. Box M.76,
Accra.

ANNUAL CAPACITY

(TONS)

ANNUAL CAPACITY

1) CEREAL FACTORIES

- a. T.F.C.C.
- b. Agricare
- c. Ghana Poultry Feed Mills
- d. Pomadze
- e. Odorkor
- f. Nungua Farms

2) FRUIT & VEGETABLES

- a. Nsawam _____ 16,500
- b. Paralugu _____ 9,000
- c. Wenchi _____ 4,500
- d. Nkulenu
- e. Fanab Trad. Co.
- f. Paradise Food Co.
- g. Economic Industries

3) VEGETABLE OIL MILLS

- a. F.F.C.C.
- b. Crystal Oil Mills
- c. Oils & Fats
- d. Pioneer Biscuit Co.
- e. GIHOC _____

(Groundnut) _____	5300
f. (Coconut) _____	12000
Groundnut _____	1080
Palm Kernel _____	1128

4) SUGAR

Komenda _____	} 36000
Asutsuare _____	

5) FISH CANNERIES

T.F.C.C. _____	2800
Mankodze	

The Institute of Aquatic Biology has been involved in research which aims at increasing the economy of the country and particularly on aspects that will ensure the maximum utilization of the enormous resources of our inland waters.

- The trend of research during the 1972 - 76 period included:-
- (i) the development and improvement of aquacultural techniques and practices for the maximum production of fish and shell fish in controlled environment.
 - (ii) the monitoring of pollutants and contaminants and their effects on selected fish species and other aquatic organisms on which fish feed and
 - (iii) studies of the biology of the vectors of water borne diseases with a view to finding preventive measures for newly developed water schemes and control measures for those that already exist and plague our rural folk.

Pre-impoundment studies have been undertaken at Dawhenya, Weiija and Lower Volta (Kpong) and similar studies are going on at Okyereko. The studies cover the fishery potential, the possible health problems and ways of preventing water borne diseases and the control of weeds that proliferate under impounded conditions.

For convenience the contribution of the Institute of Aquatic Biology to the OFY and OFYI programmes will be discussed under five headings namely (1) Fisheries, (2) Chemistry, (3) Parasitology and Vector Studies, (4) Weeds and (5) Microbiology.

Fisheries:

This section has been studying to develop techniques for fish culture in backyard ponds, small field ponds and dams. Studies on the adaptation of selected commercially important fish species from the Volta Lake in small field ponds and impounded water bodies have been undertaken. Under this section the acceptability to fish of artificial feed prepared from relatively cheap local food materials is being tested. An inventory of fish species in rivers in Northern and Upper Regions have been produced. It is envisaged that this study will help in selecting and combining particular species for culture in the Northern part of Ghana.

Further work is being done on fish behaviour, breeding habits and the population dynamics of the various fish species in relation to the dry and wet seasons.

The fishery potential of the rivers Densu (at Weiija) and the Lower Volta (at Kpong) due to be dammed is being assessed and it is planned to set up fish culture farms in these places. The studies will tell us whether we need to stock these dams with fish from other water bodies or not.

The production of freshwater shrimps is an area we have been exploring. Some species of freshwater shrimps have been found that are already adapted to pond conditions and one specie considered most suitable for aquacultural practice has been selected on account of maximum size attainable, fecundity and adaptability. It is intended to produce juveniles for shrimp farmers to stock their ponds and to provide technical advice on shrimp raising.

2. Chemistry

The chemistry section has been undertaking limnochemical studies of our waters to find the various fish food requirements especially in new impoundments and to institute improvements to boost up the fishing industry. It has been monitoring the levels of nutrients in our waters to be able to warn of excessive nutrient enrichment levels which lead to nuisance growth of algae with damaging results. This section is currently investigating the effect of "abate" (the larvicide being used in the control of Simulium fly, the carrier of the river blindness parasite, in Northern Ghana) on the growth and reproductive performance of freshwater fish. Results so far obtained indicate that even low levels of abate (1.9ppm) can kill such hardy fish as Guppies and hence its effects on such sensitive fish as Tilapia species may be alarming.

Again this section has been studying the estuaries of rivers Densu, Ayensu, Ankobra and Pra with the view of finding out the suitability of conditions for the transplantation of the Egeria shell fish (Adode) from Lower Volta.

3. Parasitology and Vector Studies:

Studies by this section has been to provide information for the control of the vectors of water borne diseases such as Schistosomiasis, guineaworm disease and river blindness. Water conservation and utilization programmes such as irrigation schemes are generally known to increase the incidence of such waterborne diseases as Schistosomiasis in man and fascioliasis (liver rot) in cattle by providing suitable conditions for the establishment and proliferation of the snail vectors of the parasites. A lot of man hours for weeding, planting and harvesting are lost as a result of the incapacitation by the guineaworm and debilitation resulting from schistosome infections. This section undertakes ad hoc investigations and gives advice on how to control these diseases in varied local conditions. Fish farmers with whom the Institute comes into contact are warned not to turn their fish ponds into transmission sites for schistosomiasis in the rural areas by avoiding contamination of the water with urine and faeces.

4. Weeds:

This section undertakes research on aquatic weeds which invade our waters and grow into nuisance proportions. The studies are to help determine which of the three means of control - mechanical, biological and chemical - is most appropriate for each situation. Weeds can choke a wide expanse of water making water transport impossible, drastically reducing the amount of water present by uncontrolled evapotranspiration and frustrating fishing effort. Besides, the weeds may harbour snails and mosquito vectors of water borne diseases.

5. Microbiology:

This section studies the aquatic fungi and bacteria some of which are pathogenic to man and fish. Studies on the pattern of pollution in streams in and around Accra indicate faecal contamination of vegetables watered with water from streams.

Within this period the Institute participated in the Agricultural and Trade Fairs showing the public aspects of fish farming in small ponds and dams. We have actually helped certain individuals to set up fish farms with very encouraging returns. We have also undertaken ad hoc investigations and given advice to rural folks on how to control and also prevent some waterborne diseases which reduce their agricultural efforts.

It is hoped that the main constraints in our researches in the various sections will be removed in order to maximise the benefits that come with judicious application of scientific knowledge.

THE ROLE PLAYED BY THE WATER RESOURCES RESEARCH UNIT

IN THE

OPERATION FEED YOURSELF AND
OPERATION FEED YOUR INDUSTRIES PROGRAMMES
1972-1976

By

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INTRODUCTION:

1: Ghana is endowed with sufficient water resources which with proper planning, exploitation and management could enhance Operation Feed Yourself and Operation Feed Your Industries Programmes in the country.

1.1 The Water Resources Research Unit was not officially invited to participate in the OFY and OFYI programmes when they were launched. However, in keeping with its terms of establishment, the Unit's research activities particularly, those in groundwater were geared towards ensuring continuous supply of water in areas of scarcity from subterranean sources to promote amongst other things, food production in the country.

AREA OF OPERATION:

2: Of particular interest to the Unit is the Accra Plains, an area of about 10,000 square km. (4,000 sq. miles) capable of sustaining mechanized agriculture and large-scale livestock production.

Geologically, the area is underlain by the Dahomeyan gneisses and the Togo quartzites and schists. These formations are not porous except where weathered, fractured or sheared. Thus, water has been one of the greatest impediment to the production of agricultural products not only for human consumption but also to feed agro-based industries for a country which spends a substantial amount of its scarce foreign exchange in the importation of agricultural goods.

There is the need therefore to turn a once thought-of barren land of the Accra Plains to a productive land. This is what the Water Resources Research Unit embarked upon with its groundwater exploration and development activities on the Accra Plains during the OFY and OFYI programmes. The work accomplished during the period is reviewed here as follows:

2.1

Groundwater Supply for Operation Feed Yourself Farm

It was realised soon after the Ministry of Agriculture had started the first Operation Feed Yourself Farm in the Michel Camp area on the Accra Plains that groundwater would be necessary for the farm. The Water Resources Research Unit conducted a joint geophysical survey with the Groundwater Section of the Ghana Water and Sewerage Corporation to site an aquifer which later was drilled to supply water for the farm.

2.2

Location of Potential Aquifers for Livestock and Small Scale Irrigation Purposes:

The Unit independently investigated and drilled for groundwater at various localities on the Accra Plains. These are briefly described as follows:

<u>Locality:</u>	<u>No. of Wells Drilled:</u>	<u>No. of Unsuccessful Wells Drilled</u>
Ashalebotwe area	4	1
Santeo area	2	
Ashiaman area	5	
Aveyime area	2	
Katamanso area	7	1
Ayikuma area	4	1
Danfa area	1	
Amrahia area	8	
Amasaman area	3	2
Asofa	1	
Kponkpo area	2	
Boi area	1	
Saduasi area	1	
Kpone-Bawaleshie area	3	
Roman Ridge area	7	

Figure 1 also shows the location of the boreholes.

3:

BOREHOLE YIELDS, QUALITY AND DEPTHS:

3.1. From above therefore, 46 successful boreholes were drilled in the Accra Plains between the years 1972 and 1976. The yield from these bores range between 22 litres (5 gallons) and 180 litres (40 gallons) per minute with the quality varying from brackish near the coast to fresh inland. The bore depths also lie between 40 metres (120 feet) and 100 metres (300 feet).

4:

BOREHOLE DEVELOPMENT:

- 4.1 During the period under review, only four of the above boreholes were fitted with pumps to harvest the water for agricultural and domestic usage. The reasons are as follows:
- 4.2. Firstly, the Unit did not have the funds/foreign exchange to buy locally or import the pumps necessary for the extraction of the water.
- 4.3. Secondly, most farmers on whose farms the boreholes are sited were not interested in spending money on pumps.
- 4.4 Thirdly, the required pumps were not readily obtainable on the market.

5:

BOREHOLE USAGE:

- 5.1. The boreholes harnessed include those at Saduase, Ashalebotwe, Kpone-Bawaleshie and Ashiaman. Until the end of 1974, the Saduase Borehole was used for piggery, poultry and domestic purposes. The Ashalebotwe Borehole was used mainly to raise 400 sheep, 45 goats, 45 pigs and 100 cattle from April, 1974 to December, 1975 when the project was abandoned by the farmer due to thieving. The Kpone-Bawaleshie Borehole serves the domestic needs of the villagers in the area.
- 5.2. A pilot scheme on the use of groundwater for small-scale irrigation was demonstrated with the Ashiaman Borehole. Here, groundwater was used to irrigate a 5-acre plot of vegetables. The project is still in progress and will be continued in other areas.

6:

SUMMARY:

- 6.1. It can be said that the contribution of the Water Resources Research Unit to the Operation Feed Yourself Campaign has been to break the myth that the Accra Plains are devoid of any subterranean water. The Unit has demonstrated by its research work that the Plains abound in groundwater which could be utilised at least for stock watering and small-scale irrigation.

7:

SUGGESTIONS:

- 7.1. Since the plains stretch over vast areas, the acquisition of another drilling rig to complete the groundwater exploration work within the next O.P. period becomes imperative.

The cost of the new rig is estimated at $\text{C}\text{d}\text{500,000.00}$. The new rig will also enable the exploration programme to be continued in other areas including the Afram Plains and the Trans-Volta Lowlands.

7.2. For effective utilisation of the groundwater discovered beneath the Accra Plains, it would be necessary to instal pumps on the existing boreholes to draw the water out. It is estimated that 40 pumps would be required in this exercise.

COPY

19th May, 1977.

MEMORANDUM"THE ROLE THE F.P.R.I. HAS PLAYED IN SUPPORT OF THE OFY AND OFYI PROGRAMMES DURING THE PERIOD 1972-1976 AND THE EFFECTIVENESS IF ANY OF ITS FUNCTIONS"A. OFY

The F.P.R.I. is essentially concerned with research in Forestry and Forest Products. In other words, we deal more with wood rather than food and the OFY programme is strictly speaking outside our area of operations. However, the F.P.R.I. has undertaken a few projects which have some relevance to the OFY Programme, namely,

(i) The Gum Project

For more than 4 years now the Institute has been investigating the possibility of developing a Gum Industry in Ghana. The Institute started by working firstly on the Gum of Albizia. It has later on included the Gum of Acacia (Gum Arabic). Gum Arabic is known all the world over for its industrial application in the manufacture of food items such as cakes, pastries and beer besides its use in the manufacture of soaps, tooth pastes etc. In this connection, we have tested the various Acacia Gum in Ghana and have identified about three species which are acceptable on the world market and for export. We have already shipped small consignments of about 1 ton each year to France and the United Kingdom since 1972 and we have also started establishing trial plots of Acacia spp in the north.

(ii) Agric-Silviculture

Agric-Silviculture is a method of growing food crops and forest trees on the same land for the benefit of the farmer. This method has been proposed and is to be tested during the coming rainy season. The IDRC of Canada has made available to the Institute the sum of about \$220,000.00 over a period of 3 years for this project.

(iii) Mushrooms

In addition to the above, the Institute has plans to cultivate mushrooms and snails firstly, on an experimental basis.

(iv) Annual Fires

Lastly, the Institute is investigating the effect of annual fires on forests in Northern Ghana and is also looking into the establishment of shade trees and shelter-belts to protect farms during the dry season. It has plans to contribute more to re-forestation. It is too early yet to show positive results but the Institute is actively participating in the north-east Ghana Savannah Project in the north to check the southward movement of the Sahel.

(v) Feeder Roads

The Institute also has plans to team up with the B.R.R.I. to construct wooden bridges with treated wood along feeder roads to facilitate the transportation of food and other items to the cities.

5. OPYI
As indicated in the first paragraph, the F.P.R.I. is concerned mainly with the development of wood as a raw material and the utilization of wood for various applications. The Institute also concerns itself with the development of minor forest projects.

Forest Resources

The Institute has engaged itself in the development and improvement of the forest resource. All our operations in the field of forestry are geared to this end. These include the trial of species from different parts of the world introduced into Ghana for various enduses. We have also been experimenting on various ways of regenerating the natural forest to improve its stocking, and of late we have actively been testing an enrichment planting technique and it is hoped that this method will be more effective than natural regeneration and less expensive than artificial regeneration but equally productive.

Mycorrhiza and Pines

The need to have long fiber wood species for the manufacture of Pulp and Paper has been identified. We have accordingly introduced a number of pines into the country for the purpose. The successful establishment of the pines have been found to be closely linked with the incorporation of Mycorrhiza into the root system. Appropriate Mycorrhizae have been identified and incorporated and we can now plant pines in any part of Ghana provided the soil is deep enough.

Pulp and Paper

Apart from testing a number of Ghanaian wood species for Pulp and Paper manufacturing, we have also worked on agricultural wastes such as the stem of the plantain and corn husks. The former has been very satisfactory and further work is in progress both in this Laboratory as well as in a Laboratory in the U.S.

Charcoal

The increasing rise of the cost of oil makes it necessary to develop local sources of energy. Active work on charcoal production is in progress.

Activation of charcoal for the refining of sugar and other products is also being seriously considered.

Other areas where the Institute has made some contributions are (i) the development of Tannins from local sources for a future leather industry (ii) The development of adhesives from local sources for the wood industry and (iii) the extraction of essential oils for various applications.

Work in all these areas is in progress and the Institute can always make recommendations to anyone who is interested to develop any of these projects on a commercial scale.

(Signed)

(F. W. Addo-Ashong)
DIRECTOR

It appears that the problems facing the Operation Feed Yourself and the Operation Feed Your Industries Programmes may best be summarised by saying that the demands made on agriculture and the expectations from it are not in line with the resources which are made available for the development of the sector. This short brief will explore the implications of this observation for the OFY and the OFYI programmes.

1. Budgetary allocation

In line with the expectations from the OFY and the OFYI programmes, clear priorities are being given by the Government to agriculture recognising that both the production of food, the earning of foreign exchange and the provision of employment and income for rural people are crucial for the rapid development of the country. Nevertheless, for the past five years, the public budget spends an annual average of 6.5% of it on agriculture proper. See Tables 1-3. Is it then a wonder that the agricultural sector is not growing at a rate to match population growth?

The problem associated with the size of the public budget to agriculture proper is compounded by the budgetary process itself. It is familiar judgement that the budget structure in use suffers from a number of weaknesses which render it ineffective as a tool of implementing the OFY and the OFYI programmes.

First; there is complete lack of integration between the capital and the recurrent budgets. As a result, even if adequate provision exists under the capital budget, (a rare phenomenon indeed), inadequate provision for items grouped under the recurrent budget, in particular, funds for travelling expenses, whose allocation is determined by some rigid ceiling, militates against efficient implementation of development projects.

Second, whereas the OFY and the OFYI programmes are essentially oriented towards achieving certain quantitative targets, the budgetary provisions often do not bear any relationship to the physical targets which the OFY and the OFYI programmes are supposed to achieve.

Third, the time phasing of the requirement for funds for project implementation is seldom reflected in the budget. Because of the seasonal nature of agricultural operations, not only is a rational presentation of the simultaneous components of the budget absolutely essential for proper scrutiny of the proposals, it represents a necessary precondition for the development of meaningful performance indicators to be used for project monitoring.

The simultaneous components are represented by the various inputs needed for achieving the project targets, and hence by implication the OFY and OFYI programme objectives. Broadly, the various inputs needed for successful implementation of agricultural development projects can be grouped into five categories, namely:

- (1) Physical inputs e.g. seeds/seedlings/parent stock, fertilizers, chemicals, equipment, buildings.
- (2) Infrastructure e.g. facilities for transportation, marketing, storage and processing.
- (3) Manpower: various categories of staff
- (4) Administrative Inputs e.g. Stationery, postage, telephones, office materials, and
- (5) Financial being the cost of (1) to (5) above.

The sequential components should be specified by the time phasing of the need of different inputs, including the required timing of the release of funds, but this is not done under the present budgetary system. Further, the requirement of funds for inputs needed for different agricultural operations (i.e. land clearing, seeding, cultivation, harvesting, processing as in the case of seed cotton ginning and rice milling) has to be broken down by quarters, depending upon the timing of the operations. Since this procedure is not followed, it is no wonder that funds are not released on time to finance vital farm operations. The ordering of materials and the taking deliveries of these materials to coincide timely with specific agricultural operation are not properly taken care of in the present budgetary system. This constitutes a very serious limitation:

Fourth, decisions to allocate limited budgetary resources among projects are generally taken on an ad-hoc basis, rather than based on well conceived guidelines developed in line with the overall development objectives defined for the OFY and the OFYI programmes.

Fifth; even the role of the budget as an instrument of creating a sound policy frame for implementing the OFY and the OFYI programmes is seldom fulfilled due to the divergence in the policy of those responsible for approving the budget on the one hand and the programmes represented by those responsible for preparing the budget on the other hand. It is very sad indeed to be present at budget hearing to observe how the officials from the Finance and Economic Planning Ministries arbitrarily cut back funds requested to meet OFY and OFYI programme targets.

The above analysis clearly implies that the existing budget structure and budget process constitute a severe hindrance to the achievement of the OFY and the OFYI programme objectives.

For the past twenty months, the Economic Research and Planning Service has been pioneering a move to introduce a budget reform that will help reduce the weaknesses identified. A number of seminars, and training courses have been organised and briefs on Programme Performance Budgetary System prepared but so far no action has been taken to implement the programme. In the main, the reforms being advocated will operate along the following lines:

- (a) harmonising the budget structure with the provisions of the OFY and the OFYI programmes (and/or the 5-Year plan yet to be published);
- (b) relating the request for funds for various agricultural projects with the OFY and the OFYI provisions for 1977/78;
- (c) relating the request for funds to physical targets.
- (d) reflecting the seasonal nature of agricultural operations in the time phasing of the request for funds;
- (e) developing a system of assigning priorities in the allocation of funds based on the phase of a project-maintenance and completion of on-going projects, new projects and preparatory work for the next budget year.
- (f) Integrating the Capital and the Recurrent budgets. This aspect of the budget reform will enable the Ministry of Agriculture to make a systematic and rational presentation of the need for funds. It is clear that in the course of effectively implementing the OFY and the OFYI projects nothing short of an integrated approach to budget preparation and project financing will deliver the goods. It must be realised that the procedure of classifying the requirement of funds into "Recurrent" and "Capital" is neither based on sound accounting principles nor does it have economic basis. In practice, the procedure makes it virtually impossible to find the actual costs of projects. Not only are there no well defined guidelines to decide the appropriate budgetary category (Capital/Recurrent) for various items of expenditure on a project, the amount approved under the two budget heads are not related to each other. Therefore, it is not uncommon to find that even if adequate provision exists for funds under the "Capital Budget" for a project, its implementation remains unsatisfactory due to insufficiency of funds under the "Recurrent Budget", in particular for items such as travel expenses and office materials.

Moreover, the system of classifying the costs of a project under "Capital" and "Recurrent", given the variation in the time schedule for submission and scrutiny of the two categories of budget proposals, makes the task of viewing the costs of various projects in their totality an extremely difficult one.

- (g) Introducing improved techniques of financial management and control and
- (h) Setting up of a system for project monitoring, progress reporting and performance audit.

- 4 -

2. Import Licence Allocation to Agricultural Sector

Many signs also point to the fact that in the allocation of foreign exchange for the purchase of necessary inputs into agriculture, the sector has been receiving a lesser share than what its accepted importance would warrant. It is easy to point out and even quantify the attractive opportunities for applying a fair share of the limited foreign exchange resources of the country to agriculture with highly beneficial results for saving or earning additional foreign exchange or improving the food supply situation.

During the 1976/77 Financial Year, the Ministry of Agriculture spent a lot of time to prepare a comprehensive programme for Import Licence for the entire agricultural sector. The total bill came to about \$207 million. But only \$25 million has actually been allocated to the sector. Looking at Table 1, it becomes clear that the agricultural sector has not been receiving a fair share of the total import licence issues from 1972 to 1976. The share of the agricultural sector for the years 1972, 1973, 1974, 1975 and 1976 was 3.3%, 5.6%, 3.3%, 3.9% and 5.9% respectively. This development pattern clearly does not reflect the priority supposedly given to agriculture and hence its effect on the OFY and the OFYI programmes is evidently catastrophic.

Two examples will illustrate this point. Weather aside, it is objectively estimated that we lost at least one-third of the 1976 rice crop because of inadequate combine harvesters to pick the paddy before logging. Tons upon tons of seed cotton are being abandoned in the open air because of lack of ginneries to process the raw material into lint. We can multiply examples.

It need be pointed out that it is not only that the agricultural sector has not been receiving a fair share of the nation's Import Licence, but also the timing of the issues of the licence and subsequent follow-up procedures have not been helping the sector at all. Because of the seasonality of agricultural operations, the timing of the issue of import licence and the delivery of the inputs ordered are very crucial. Otherwise, some vital operations cannot be carried out timely. If, for example, combine harvesters are to be ordered, the order should go well ahead of the time so that the equipment will arrive before harvesting starts. Similarly cotton ginneries ought to be ordered well ahead of the time so that the equipment will be there by the time harvesting operation commences.

Conclusion

The above analysis clearly indicates that despite the priority supposedly given to agriculture, the sector has not since the inception of the OFY and the OFYI programmes, been receiving its fair share of (1) the national budget and (2) Import Licence allocation. Clearly the demand made on agriculture via the OFY and the OFYI programmes and the expectations from these programmes are not in line with the resources which are made available for the achievement of the targets defined for the Programmes.

This situation calls for immediate redress otherwise, we shall run into greater difficulties in the coming seasons.

The budget itself should be made an instrument for implementing the OFY and the OFYI programmes. These are gaping weaknesses associated with the present budget system and it is easy to see that these defects partly account for the failures of the OFY and the OFYI programmes as far as the meeting of planned targets is concerned.

So far efforts to introduce reforms along the lines discussed above have met with a great deal of opposition. As far as this Ministry is concerned the opposition stems from fear of perhaps on the part of the organisations losing part of their independence to a central body that will control their budget and subject their expenditure to a greater scrutiny in such a way that every pesewa spent will have to be accounted for.

The opposition from the Ministries of Finance and Economic Planning is rooted in the uncertainty of trying something new and in their belief in the existing budget structure. Perhaps too the fact that the initiative is coming from the Ministry of Agriculture is very much resented. It is our hope that the government will support the idea of introducing the Programme and Performance Budgeting System (PPBS) in the Ministry of Agriculture. Such a move will bring a tremendous boost to the OFY and the OFYI efforts.

TABLE I

NATIONAL EXPENDITURE

TOTAL EXPENDITURE (CURRENT & CAPITAL OF SECTORS
EXPRESSED AS PERCENTAGES OF THE TOTAL NATIONAL EXPEN-
DITURE) (CURRENT & CAPITAL)

1973/74

	SECTORS	CURRENT & CAPITAL	PERCENTAGE
1.	Education and Culture	₹ 92,945,100	17.51
2.	Works and Housing	67,324,280	12.69
3.	Fiscal Administration	55,913,000	10.54
4.	General Administration	55,440,000	10.45
5.	Health	54,380,900	10.25
6.	Defence	52,414,000	9.88
7.	Agriculture	30,702,800	5.79
8.	Internal Affairs	28,461,000	5.36
9.	Lab. Social Welf. & Co-ops.	16,534,100	3.12
10.	Economic Planning	14,556,600	2.74
11.	Local Government	10,708,520	2.02
12.	Information	10,383,800	1.96
13.	Foreign Affairs	10,291,400	1.94
14.	Lands & Mineral Resources	9,705,900	1.83
15.	Transport and Communications	8,702,300	1.64
16.	Justice	4,574,000	0.86
17.	Trade & Tourism	4,098,500	0.77
18.	Statutory Expenditure	2,380,900	0.45
19.	Industries	1,189,000	0.22
	TOTAL (NATIONAL)	530,706,100	100.00

TABLE 2

NATIONAL EXPENDITURE

TOTAL EXPENDITURE (CURRENT & CAPITAL OF SECTORS
EXPRESSED AS PERCENTAGES OF THE TOTAL NATIONAL EXPENDITURE
CURRENT & CAPITAL)

1974/75

	S E C T O R S	CURRENT & CAPITAL	PERCENT- AGES
1.	Education & Culture	₹121,564,000	15.20
2.	Fiscal Administration	109,063,000	13.63
3.	Defence	95,787,000	11.97
4.	Works & Housing	90,489,000	11.31
5.	Health	81,803,000	10.23
6.	General Administration	72,333,000	9.04
7.	Agriculture	45,234,000	5.65
8.	Internal Affairs	36,652,000	4.58
9.	Local Government	32,644,000	4.08
10.	Lab. Soc. Welf. & Coops.	23,191,000	2.90
11.	Economic Planning	16,908,000	2.11
12.	Lands & Mineral Resources	16,705,000	2.09
13.	Foreign Affairs	14,709,000	1.84
14.	Information	13,754,000	1.72
15.	Trade & Tourism	10,918,000	1.36
16.	Transport & Communications	8,161,000	1.02
17.	Justice	5,066,000	0.41
18.	Statutory Expenditure	3,313,000	0.41
19.	Industries	1,716,000	0.21
	Total (NATIONAL)	800,010,000	100.00

TABLE 3

NATIONAL EXPENDITURE

TOTAL EXPENDITURE (CURRENT & CAPITAL OF SECTORS
EXPRESSED AS PERCENTAGES OF THE TOTAL NATIONAL EXPEN-
DITURE (CURRENT & CAPITAL))

1975/76

S E C T O R S		CURRENT & CAPITAL	PERCEN- TAGE
1.	Education and Culture	159,038,000	15.78
2.	Works and Housing	124,440,000	12.35
3.	Health	112,095,000	11.13
4.	Defence	103,411,000	10.26
5.	General Administration	94,411,000	9.37
6.	Fiscal Administration	89,723,000	8.91
7.	Agriculture	80,499,000	7.99
8.	Internal Affairs	54,495,000	5.41
9.	Local Government	33,090,000	3.28
10.	Lab. Social Welf. & Co-ops.	29,942,000	2.97
11.	Economic Planning	28,113,000	2.79
12.	Information	23,792,000	2.36
13.	Lands & Mineral Resources	18,482,000	1.83
14.	Foreign Affairs	17,463,000	1.73
15.	Trade & Tourism	13,268,000	1.32
16.	Transport & Communications	10,116,000	1.00
17.	Justice	6,748,000	0.67
18.	Cocoa Affairs	5,354,000	0.53
19.	Industries	3,028,000	0.30
20.	Statutory Expenditure	-	-
TOTAL (NATIONAL)		1,007,538,000	100.00

TABLE 4

VALUE OF IMPORTS LICENCES ISSUED TO SELECTED
SECTORS 1972-76

	Y E A R S				
	1972	1973	1974	1975	1976
Agriculture	9,698,839.25	37,041,656	23,041,656	19,703,390	47,796,652
Cocoa	-	-	-	-	37,217,455
Commerce	23,603,085	75,491,330	91,573,053	23,598,766	26,823,319
Spare Parts	-	14,706,407	23,748,467	14,798,255	21,178,097
Construction	-	-	-	-	15,067,206
Education	-	3,447,870	-	11,022,000	11,352,040
Health	3,415,369	14,696,044	20,799,000	12,072,458	20,592,334
Industry	105,473,676	376,322,948	313,096,545	179,897,509	387,868,801
Mining	-	-	-	-	35,119,939
Timber	-	-	-	-	49,011,131
Crude Oil	-	-	56,078,000	113,000,000	-
Petroleum Products	42,566,918	47,310,315	85,028,440	18,641,000	104,449,800
Government Depts. & Corporations	80,432,068	3,617,021	-	66,893,683	3,232,063
Logistics (Foreign Foods)	31,437,000	44,000,000	79,793,500	42,871,000	47,000,000
TOTAL 000's	296,625	656,630	693,107	502,517	806,706
PERCENTAGE OF AGRICULTURE	3.3%	5.6%	3.3%	3.9%	5.9%

Memorandum

From: Managing Director
To: CHAIRMAN, BHC

SOME OBSERVATIONS ON GHANA'S AGRICULTURAL
DEVELOPMENT AND FOOD PROBLEM

I have recently become interested as well as involved in agriculture and I would wish to make the following observations which might contribute somehow in your new assignment of being a Chairman to a Committee to appraise the Operation Feed Yourself Programme.

Concentration of Agriculture is in the following areas.

- Cocoa
- Palm Oil
- Coconut
- Citrus
- Rubber
- Cotton
- Sugar Cane
- Rice

Apart from rice none of these farm products is an immediate or direct edible commodity. Almost about 80% of eligible educated would-be farmers are concentrating in one of the above mentioned commodities.

2. In the case of rice I have had experience in the Bank of having customers coming to enquire about investment opportunities, because of late, they anticipate problems of rainfall and incessant burning of their rice farms in the North and therefore they would wish to direct their accumulated funds into something else.

3. The category of people or companies who go into the cultivation of products mentioned above is disciplined entrepreneurs who have managerial ability or are capable of buying management know-how and have the foresight to invoke on the use of existing governmental machinery in respect of extension services etc.

4. As a reference to one area, the Western Region, which abounds in Rubber, Sugar Cane, Oil Palm and Coconut Plantations, one would observe that it is the able bodied labourers in these surrounding villages who are engaged in these plantations. These cash crops are very labour intensive.

5. The Rubber plantations with about 30,000 acres or 10,000 hectares for example is very labour intensive, employing the whole family or household i.e., wife and grown up children of the family as well.

6. An enquiry made reveals that some small patchments of land are left for the labourers to farm on for food crops such as cassava and maize.

7. One would therefore observe two things:

1. Food farming is a secondary consideration and is very casual. The labourer does an acre or two to supplement his income or for his own consumption but the land available cannot cover all.

2. The rest of farmers who engage in real food production are old folk and children whose effort would cover very few acres

In conclusion one would say that apart from rice there is no organized food plantation geared towards feeding the population let alone leave some for export. The only one such organization is Food Production Corporation which is not sufficient. The only private Company engaged in plantation on food crops (apart from rice) and being run on commercial basis at the moment is Ejura Farms Ltd.

POSSIBLE SOLUTIONS:

Companies Presently Engaged in Plantation System

Many companies are being encouraged to go into cash crops as itemised above with the object of repatriating part of their profits. Large tracts of land have been acquired for the purpose.

It must be made incumbent by legislation on these companies to allocate a percentage of the acquisition (say 25%) to produce food at least for their workers and families.

These are companies who have the management know-how and are capable of buying the expertise or agriculturist in the field of particular food production and paid for by the proceeds out of the 25% acquired land.

Food Plantation Joint Venture Companies

Without having been involved in this type of discipline and therefore would not claim any knowledge, I would wish to refer to observations made by Prince Charles on the BBC during his visit to West Africa. Even though his visit was at the instance of Ghana, the Prince of Wales in his BBC commentary commended highly the agriculture base in the form of various food and other crops plantation in Ivory Coast.

I refer to what Teodoro said at the REDCO Board Meeting. That is, Ghanaians have not been involved in mass production of houses and even though we may get Ghanaians who are qualified in various fields, management techniques applied to this area is still yet new. This advice is in the area of SHELTER. It is this defect which has resulted in rent escalation. The same principle can be applied in FOOD. Self complecency among Ghanaians must reduce and aim at very practical steps.

What we need now is not expert advice but just simply go out and pick entrepreneurs who are associated with types of food crops we want to encourage, enter into joint partnerships with them and give them such incentives which will enable us to take off in food production. This is what Ivory Coast does and this is what Brazil does also.

Along side the plantations to be developed by the foreign entrepreneurs in conjunction with Ghanaian participation should be outgrowers plan to give the local farmers in the area such extension services etc.

Banks of River Food Development

We have the Biblical Nile and historical River Ganges; they all have had history to tell. Ghana abounds in a number of rivers. I wonder whether there is no simple mechanism now known in this universe by which small pumps can be used in dragging water from the rivers and using the sprinkler system to irrigate an area which could be an optimum economic unit for a family. I am ware that the Japanese have such systems and have produced small scale plants which are not expensive.

As I have already indicated, all along our rivers a contiguous tracts of land can be cleared and divided into multiples of 5 acres (depending on the extent and the reach of the small irrigation plant) and distributed to farmers. Seeds and other extension services will be provided and a marketing system also established to buy and distribute the produce so that all what the farmers would be required is to concentrate in food production.

Along the Banks of the rivers in the Black Forest in Germany for example are fish farms which rear millions of fish a year. In my last visit to Germany I met one who was desirous of coming to Ghana to set up such a farm. The Volta River Basin can be an opportunity as a medium. Such commercial Farming Company must conform to such direction as to type of produce, acreage involved and any direction to be given from time to time.

Financing. Ghana must leave the era of pilot schemes and direct her attention to sizeable economic scale farming to feed ourselves!

The Timber Industry this year obtained \$60 million to develop the wood industry.

I strongly propose a FOOD BOARD which is to be different from Food Production Corporation or Food Marketing Board etc.

I can feature the Timber Marketing Board with its allocation of \$60 million being in a position to monitor, control and prepare analysis of how the \$60 million was utilized, how many tons of wood were processed into what shapes and sizes and how many were used for the local market and what were exported and for what income.

The FOOD BOARD must be analogous to this treat. A special allocation in Foreign Exchange must be made. The Bank of Ghana has also set up an Agricultural Fund and the two funds together must be allocated to seriously minded agricultural projects using the Agricultural Development Bank for such schemes.

The food situation is such that a strong independent body with concentration on food crop production must be created to deal with such aspects as:

- Broad Financing of Companies to produce Food
- Clearing
- Production
- Storage
- Maintenance of Agricultural Equipment
- Marketing etc.

The Board will not engage in the various fields themselves but must ensure that the funds allocated are channelled into the specific commercial farms etc., and using the Agricultural Development Bank and the National Investment Bank (Agric Unit) as well as other Agricultural Divisions of the Commercial Banks which could be considered as disciplined institutions (because of their continuity) to monitor, control and report on performance.

Land Acquisition

There are two alternative suggestions.

Government Acquisition: Tracts of land must be acquired and readily made available for entrepreneurs we invite to participate in food production. The land so acquired must be controlled by the FOOD BOARD and the invited entrepreneurs must deal directly with the Board and no other agency. The composition of the Board must be such as to make its approval cut across all borders including all the necessary concessions and incentives.

Taxation of Vacant Land

The main purpose of tax on vacant land is to bring the land into productive use to meet the needs of growing population.

The tax would motivate landowners either to develop their sites in accordance with the agreed plan or to sell the property to private or public concerns willing to undertake the type of development required. For example in Taiwan, vacant land which is not developed within a prescribed period is subjected to tax ranging from three to ten times the land value tax which is the standard real property tax.

It is not only housing development but on all other developments initiated by the Government for local authorities this principle can apply...

The same principle applicable elsewhere can easily be instituted here on our agricultural farms lands.

Plantation system should be on a contiguous stretch of land using the same vegetation. It has its advantages of large scale production. Apart from the first alternative suggestion discussed above, it must be realised that Ghanaians are very individualistic and that co-operative system must be seen as a reflection of individual interest compounded on a whole. Our communal system has a basis of purely individual interest approach. Our agricultural system especially food production using land ownership as a yardstick must take this into consideration.

The hypothesis I wish to develop means that it is possible to have plantation system using owner plots provided there is some legislation or regulations governing such a system. Let us take for practical example of a district.

According to our Agricultural experts a district has been zoned as a good ground for cassava, maize, avocado, etc. For the year 1977, an area of 1,000 acres can be mapped out for cassava. All owners of this area must have their ownership in this 1,000 acres registered. Where an owner has plots of land sparsely scattered on the 1,000 acre "cassava acre", the total acreage can be worked out using the Pooling Technique as is used in India. Under this system the land is assembled, given a new layout provided with the necessary infrastructure services, and redistributed among the original owners. The principle of Taxation of Vacant Land must apply if the owner refused to develop.

There must be an organization, say, Ministry of Agriculture, etc. to take charge of land clearing supply of seeds, fertilizers etc. The owner of land within this registered area who fails to develop must make his own arrangements under some regulations of the Food Board or he should/forced to acquiesce to any regulations laid down by the FOOD BOARD.

The main aim of the Board should then be to develop say, 1,000 acres of contiguous cassava farm based on individual ownership system. This rule can be applied to thwart reactionary, recalcitrant owners who claim ownership of vast lands but do nothing on the land thereby frustrating economic development.

(SGD.) EDWARD AFRIYE
MANAGING DIRECTOR
20/4/77

AGRICULTURAL REVOLUTION IN GHANAIntroduction

1. "And God told Moses, 'I will lead my people of Israel into a land of Milk and Honey'". This biblical quotation, from the beginning, was almost impossible to the point of being a farce when one considers that the land of Israel is almost totally a desert. How then could a desert be converted into a land of milk and honey? By selfless hard work and perseverance, the prophecy had come true and a desert had been turned into a fertile land - not by the hand of God himself but through the effort of His people the Israelites. It had become a land where apples, grapes, fruit and a great number of foodstuff are produced and exported. This shows that whatever the nature of the land, with the right approach, any land could be made to yield food for the people.

2. Here in Ghana, it is the opposite. Virgin forest abound. In places, one could even see the forest creeping to the edge of the sea. With rainfall, crops and seeds grow where they are put. Ghana is an Agricultural country with good forest, good soil, some rain and rivers. Yet Ghana is hungry in the midst of plenty. One tuber of yam is ₵4.00 and a finger of plantain, 50 pesewas. A small cup of rice to be eaten by a child is around 80 pesewas and has therefore become a delicacy for the rich. Even gari, which was used only in the days of acute hunger has become scarce and costly. Cocoa, the mainstay of the economy is going into decline because the average cocoa farmer is between 50 and 60 years of age while their farms are over 15 years old. People now call "Operation Feed Yourselves", "Operation Fool Yourselves" because they do not understand the strength and wisdom behind this great move. Economic saboteurs are not to ruin it without hindrance and already it has gone into a number of phases. The little food produced is also being smuggled out to be shared with neighbouring countries. One may then ask why Ghana is hungry with all her resources.

A I M

3. This paper will seek to find the reasons for the scarcity of food in the country, the agricultural future of the country and suggest ways and means of combatting it.

Reliance of Nature

4. For a long time, Ghanaians have been relying on natural means of rainfall to produce food. If the season provides too much rain, crops get rotten, roads become impassable and therefore there is scarcity of food. If there is less rain, crops wither and die. Ghana relies on the right amount of rain falling at the right time in order to produce food to feed herself. Irrigation, although as old as the world, is little practised because its values have not been fully recognised and therefore little benefit is derived from it. .../2

Reliance on Land

5. Because of the vast areas of available land in Ghana, farmers tend to cultivate a fresh piece of land every year. Although fertilizers are available their uses are not widely practised and crop yields are limited. This means that when a fresh land is cleared and this land is not fertile enough, no additives are used to make the soil rich in order to increase crop yield and therefore the yield per acre is found to be small when compared to the effort employed.

Reliance on Archaic Tools

6. Farmers in Ghana rely mostly on the axe, cutlass and hoe to clear land in order to cultivate. Bulldozers to clear land, tractors to plough and harrow and general agricultural machinery, are in short supply. In the fishing industry, fishermen still use the dug-out canoe propelled by oars. Outboard motors and in some cases suitable nets are in short supply. One may ask how many acres a farmer could weed with a cutlass and hoe or how far could a fisherman go to sea with an oar to propel his boat?

Education

7. The mentality in Ghana that only the illiterate has got to farm or only the never-do-well can go back to the land because farming is a menial job is costing Ghana a great deal. A middle school leaver would like to get a white-coloured job rather than to go to the farm because of such a mentality. The secondary school leaver would like to be an office messenger rather than own a farm because he thinks he would be a laughing stock in society if he is found farming. Only by strong and direct education and improving the farmer's lot would Ghana get over this.

Land Tenure System

8. The nature of land tenure system in the country is causing a lot of havoc to the nation's farming policy. It is not easy for a person to get a piece of land from a chief or a land-owner in order to do a piece of serious farming. If one had no money, it would be difficult to get the land. The odds are stacked against the newcomer to the agricultural field and it is only when chiefs and landlords are made to see the necessity of giving up land for agriculture that some of the problems would be alleviated.

Capital

9. To start any farm needs money or capital. The newcomer to the agricultural field, unless he is already having the means, is faced with the problem of finding capital to start his farm. He has no property to secure with the bank in order to get a loan to start and is therefore forced to seek other employment even though he would have liked to go back to the land. This allows many young farmers to drift to the cities in search of other means of livelihood and when the pay is not sufficient resort to all kinds of vices.

IS THERE A SOLUTION?

Pre-Adult or Continuation Schools

In this stage would be classified all those in the elementary schools and secondary schools who would have no chance of continuing their education to higher levels and would choose to go into agriculture or fishing. Settlement farms are to be made by these in groups of 5 or 10 and the land should be cleared by the Ministry of Agriculture. Seeds should also be provided. Pupils are to work on these farms under an agricultural officer's supervision who will be in charge of an area. Proceeds from the farm will be sold to the Food Distribution Corporation. Part of the proceeds should go into paying for the cost of clearing and seedlings and the balance as allowances for the pupils. It is suggested that the continuation school should take 2 to 3 years and within this time, the farms should be viable enough to be handed over to the groups. Where the group opts to go into fishing, canoes and nets with an outboard motor could be purchased for them or where money is available, a fishing boat with all gear could be purchased for each group of 10 or 15 depending upon the size of the boat. A fishing officer would then go to sea with each group. Fish caught would be sold to the State Fishing Corporation and part of the proceeds used to pay for the equipment and part as allowances for the students. Boats thus purchased would be handed over to the crew when paid for. In all this, the area agricultural and fishing officers would visit and assess the performance of each group and give advice periodically even after the farms and boats had been handed over.

School and College Farms

11. The Ministry of Education should instruct that all schools, colleges and universities should have individual farms. These farms would be under the direct supervision of Headmasters, Principals and Chancellors and work on these farms should be participated in by all students at week-ends. Agricultural Officers in the regions should be tasked to advise and help in the setting up of the farms and how to run them. Proceeds from the farms would be used by the schools and the surplus sold to supplement subventions granted to the schools by the Ministry. Headmasters of schools that fail to implement these should be held responsible and disciplinary action taken against them.

12. This phase is envisaged to embrace the whole nation and is intended to get every person, organisation and firm involved in the operation. Notwithstanding Operation Feed Yourself where the individual could cultivate his own farm or back-yard garden, it is suggested that the following could also be adopted:

a. The nation should be divided into agricultural regions and districts to conform to the present political demarcations. .../4

Each region and district should be assessed to determine the kind of agricultural produce that could be grown in the area, be it foodstuff, raw materials for factories or any other agricultural produce for export. This should be done by the Ministry of Agriculture and Agricultural experts posted to regions and districts to be charged of various areas.

Land clearing and agricultural machinery units be set up in each region and later, if possible, each district to cater for land clearing in these areas. The machinery would be on hire basis and the Agricultural Development Bank could loan money towards that effect.

Each Regional Commissioner, District Commissioner, City Council, Paramount Chief and Sub-chief to be agriculturally responsible for his region, district, city paramountcy and town or village respectively.

A land measuring not less than 50 acres or hectares to be allocated by each village or town to be used to grow the kind of agricultural produce best suited for the area as determined by the area agricultural expert having in view the overall plan for the nation.

One day out of the seven days of the week be set aside by the sub-chief, chief, city council District Commissioner or Regional Commissioner to be used by the entire community to work on the town or village farm.

All able-bodied persons between the ages of 15 to 50 except sick and infirm or nursing mothers with babies of less than one year old be asked to work on the farm on the day so chosen. Sub-chiefs, chiefs, city council, managers, District Commissioners and Regional Commissioners should therefore be empowered to act against any offenders who refuse to take part of this without due course.

Request for machinery assistance, seedlings and fertilizers be made through district and regional agricultural officers for prompt action.

Agricultural Officers assigned to regions, districts and areas would carry out weekly, monthly and quarterly inspections of farms in their areas of responsibility and submit reports to a Regional Agricultural Council that would meet once a quarter to evaluate progress of the Agricultural Revolution in the region. This council will be chaired by the Regional Commissioner and attended by all District Commissioners, the Regional Administrative Officer and the Senior Regional Agricultural Officer. Copies of meeting reports would be submitted to the Commissioner for Agriculture who would compile a national report to Government.

The Food Distribution Corporation will set up buying agencies in each region to purchase foodstuff thus produced for equitable sale to the whole nation.

Money so realised from the sale would be put into town/village and city committee funds which should be audited and used for development projects in the particular city, town or village. The Government should give subventions for development to towns and villages that show progress in these lines.

Fishing villages and towns should be helped with loans to purchase boats and nets. Weekly catch should be bought by the Ghana Cold Stores and State Fishing Corporation who would set up cold storage depots in all regions. Two-thirds of the proceeds should go into the payment of the loan and one-third to the maintenance and the development of the town or village.

Notwithstanding the above, firms and all enterprises that does not show any proof of being engaged in this should not be issued with any import licence. Licences should therefore be issued according to the size of farms cultivated. This does not however apply to governmental bodies and agencies.

On cocoa and other exportable commodities, it is suggested that apart from individuals making plantations, the various food co-operatives, state farms and the Cocoa Marketing Board set up pioneer farms. These farms should be managed by the various bodies that set them up.

Irrigation

As long as Ghana relies on natural rainfall, her agriculture cannot be controlled. Only massive effort at irrigation would solve this problem. It is suggested that while efforts are being made to produce food, irrigation equipment be ordered and extensively introduced into the country to supplement the rainfall. It is suggested that an irrigation board be set up under the Ministry of Agriculture to coordinate and plan irrigation systems embracing the whole nation. Simple dams and ponds should be made by various villages, towns with the assistance of the Irrigation Board and small pumps ordered and sold to farmers to enable them conduct their own irrigation. It is appreciated that money would not be available to conduct this operation nation-wide and should be made in phases by Districts and regions.

Co-operative Pepper Producers & Marketing Society
Sotto.- Agricultural Revolution

Regional Head Office,
Post Office Box 753,
Suva F.M.S.

12th April, 1977

FACTS ON PEPPER

SUBMITTED BY THE SUYANI CO-OPERATIVE PEPPER
PRODUCERS AND MARKETING SOCIETY TO THE COMI-
TTEE TO EVALUATE THE OPERATION FEED YOURSELF
AND OPERATION FEED YOUR INDUSTRIES

- (1) CROP: HOT PEPPER OF DIFFERENT VARIETIES
- (2) HISTORICAL BACK-GROUND

The Co-operative Pepper Producers and Marketing Society Limited was formed as a result of the meeting between the Pepper Growers in Brong Ahafo Region and the Regional Administrative Officer.

The Primary aim of the meeting was to explore how best pepper as a cash crop could be of good use under the Operation Feed Yourself Programme and how pepper growers would have financial assistance to achieve their aim.

At that meeting the then Regional Administration Officer Mr. G. N. Nutsugah appealed to the Pepper Growers to form themselves into Co-operatives. See Pioneer of 15th March, 1975. Present at the meeting were Officials from Ministry of Agriculture, Export Promotion Council, Agriculture Development Bank, the Co-operative Bank and the Department of Co-operatives.

(3) AIMS AND OBJECTIVES

- (1) Agriculture Revolution is our aim.
- (2) To mobilize and put the creative power of the Ghanaian Farmer behind the Agriculture Revolution, Operation Feed Yourself Programme and Export Campaign.
- (3) To produce more pepper to feed the Nation and export the excess of our produce to foreign markets to earn foreign exchange to support the country's economy.
- (4) To offer employment to the educated youth of Ghana to go back to the land and translate their academic knowledge to boost pepper production.
- (5) To promote pepper as a viable crop on International Markets.

(4) ORGANISATIONAL STRUCTURE

The Society had organised the pepper farmers in the region into sub-societies with more than 1,500 farmers as members.

There are 27 sub-societies and every sub-society had established not less than 10 hectares of pepper plantation. Apart from the sub-society farms, the individual members have their own pepper farms ranging between 2 to 5 hectares each.

PRODUCTION

- (1) Cost of Production of 1 hectare on traditional method is ₵250.00 scientific method cost ₵300.00 per hectare.
- (2) Yield per hectare on traditional method is not less than 15 bags, while the scientific method yield is not less than 20 bags per hectare.
- (3) A bag of pepper costs between ₵20.00 and ₵70.00 depending upon the season.

MARKETING

Our marketing centres are sited at Sunyani, Dwene, Degedge near Wenchi, and Techiman all in the Brong Ahafo Region. We have regional sales representatives in Northern Region, Ashanti, Eastern and Greater Accra.

PRODUCTS ON MARKET

- (1) Improved seeds
- (2) Seedlings (Supply on special request)
- (3) Powdered pepper
- (4) Dry Pepper

EXPORT

Trade negotiations are going on with some Foreign Companies. And we hope to start export of our produce as soon as negotiations are completed.

NEEDS

- (1) Pepper farmers find it difficult to have financial help from our Banks.
- (2) Chemicals such as Akotin, Aldrex 40 are difficult to come by.
- (3) Spraying machines and chain-saws are needed urgently by pepper farmers.

SUGGESTIONS

Setting up of Processing Centres to dry pepper would boost the pepper production.

- (1) Bank should try to give financial assistance to pepper farmers to step into large scale production.
- (2) Setting up of this type of Co-operatives in other Regions of the country would increase production and help to export the excess.

GHANA'S AGRICULTURE - A NEW APPROACHTwo Basic Principles.

In this Memorandum I should like to put forward two basic propositions. The first proposition is that the traditional method of tackling the nation's agriculture has failed and will continue to fail to make Ghana a great agricultural country. The second proposition is that it is possible for Ghana to produce enough food to feed her people, and her industries and still have enough to export provided of course, that new and revolutionary policies are adopted - a new approach.

No marked change in Ghana's Agricultural Policies and practices.

Ghana's agricultural policies have not markedly changed since pre-independence days. Attempts have, of course, been made now and then, and here and there to break loose from these apparent shackles but like the proverbial snail, Ghana agricultural policy-makers recoil into their shells as quickly as they had wriggled out.

Three Main features of Ghana's agriculture

The main features of Ghana's agriculture have been the following: Firstly a large peasant population consisting mostly of illiterate and farmers currently estimated at about 75% of the total working force. This is a large number of people to produce so little. Economists all over the world know too well that nations which have efficient agriculture have smaller percentage of their population engaged in the industry. For example, the United States of America which has perhaps the most efficient agriculture has only 5% of its population tied up in its agricultural sector. Conversely nations with a large proportion of their members engaged in agriculture have inefficient agricultural industry. The second feature of Ghana's agriculture is its one-crop economy (a feature originally developed for British imperial reasons and as part of the old colonial policy - Kenya/coffee, Australia/cheese and butter; India/tea; West Indies/sugar; and Ghana/cocoa). The third feature of Ghana's agriculture is its very large and overgrowing Ministry of Agriculture with great budgets to administer, but still unable or unwilling to reach the bulk of the nation's farmers.

Main features themselves are the Main weaknesses of our Agriculture.

I do not need to build an economic model to demonstrate the inefficiency of our predominantly peasant agricultural economy, nor do I have to emphasise the danger of one-crop agriculture. The impotence of the Ministry of Agriculture as an instrument of agricultural development should be obvious to everybody by now. Ministers and Commissioners of Agriculture may come and go, but so long as they come only to preside over and not seek to alter the structure and policies of the Ministry, the Agriculture Ministry will continue to be an appendage to our national effort.

New approach

In this article I would like to suggest that a new approach to our agricultural policies and practices is urgently required if we should get out from our present agricultural impasse. Two things should be done; firstly a new policy of participatory agriculture should be introduced. Secondly a national machinery for agricultural development should be created,

Participatory agriculture

As the ultimate in democracy is participatory democracy so it is that the ultimate in the agricultural economy should be participatory agriculture in which every single farmer has a contribution to make and rights to enjoy. This new approach to our agriculture should be called participatory agriculture. Participatory because it will involve total mobilisation in and participation of all farmers in the agricultural economy.

- i) Development section
- ii) Marketing section
- iii) Storage section

DEVELOPMENT SECTION:

The period July 1971 to June 1972 was a period of exploration and to begin with the Board decided to concentrate on maize and rice and accordingly started by identifying problems facing farmers in the cultivation of these crops.

A small loans scheme was also instituted from the Board's own resources, and credit to the tune of £38,452 in cash and kind was given out to farmers. The scheme however had to be discontinued due to difficulties in loan recovery.

The Development section with its few staff members worked closely with the Department of Co-operatives, Ministry of Agriculture and the Agricultural Development Bank. Maize and rice farmers were organised into primary societies to facilitate farm lending by the Agricultural Development Bank and the following numbers of societies were registered in the various regions:-

Central Region	-	202 societies
Volta Region	-	17 "
Ashanti Region	-	81 "
Brong Ahafo Region	-	106 "
Northern & Upper Regions-		28 "

The Board also engaged in measuring farmers' farms to check acreage to hasten the disbursement of loans. Inputs like seed and fertilizer were acquired for distribution to farmers and the Development staff ensured the necessary technology transfer through extension services.

MAIZE PROGRAMME

Maize Adaptive Trial:

A maize breeding and adaptive trial programme was initiated in the 1973 main crop season in the various ecological zones of the country, to test the adaptability of the test varieties to the different conditions. The varieties of maize used in the trials are La Posta, Composite 4 and Golden Crystal.

The trial was repeated in the 1974/75 seasons and the three varieties of maize have since been introduced to farmers.

Maize Demonstration:-

The Board's policy under this programme is to help farmers obtain higher yields per acre rather than encouraging acreage expansion. A 5-year maize demonstration programme was therefore initiated during the 1974/75 major season in 5 maize growing regions of the country. A total of 183 demonstration plots, each measuring 1/20 acre were distributed as follows:

to delimit their districts into Agricultural Areas or AA. Every farmer should register in his AA, giving particulars of agricultural production, total holding, and any relevant information on Form 1. Form 1 will tell the nation what, where and how much of each crop we produce. Properly designed Form 1 will be the basis of the agricultural statistics of the country.

The Marketing Department

The best incentive for any agricultural production is an assured market and a guaranteed price. It would be the duty of the marketing section of the Bank to formulate policies to ensure that there are ready markets for all crops which the farmers will be asked to produce. Once a year there should be a tripartite meeting between farmers' representatives, the Government and the Bank to fix guaranteed producer prices for such commodities as the Government will decide. Storage and transportation would be a special responsibility of the marketing department of the Bank.

Agro-industrial Department

Agriculture can and should be the basis of our industrialisation. A special department of the Bank would have full responsibility to invite industrialists to establish either alone or in partnership with the Bank, such agro-based industries as fruit and vegetable canning, cassava processing factories, palm oil mills etc. The agro-based industries will in addition to providing ready markets for our agricultural output, also add value to our agricultural products so that we will not be perpetually condemned to exporting only raw materials. Agro-based industries will also provide full employment for our chemists, biologists and other applied scientists and in addition bring about such allied industries as container manufacturing etc.

Personnel of the new Agricultural Development Bank

The work of the new Agricultural Development Bank, as it is envisaged, is more Agricultural than Banking. It is therefore my contention that the Chairman and the Chief Executive of the Bank should be an eminent agricultural economist or a practical agriculturist. Such a person should know what he wants and should lead his specialist team rather than be led by them.

PREPARED AND SIGNED BY:

MR. S. B. OFORI,
RIDGE FOODS LIMITED,
A C C R A.

THE CHAIRMAN,
COMMITTEE ON THE EVALUATION OF
OFY AND OFYI PROGRAMMES,
C/O THE MINISTRY OF AGRIC.
ACCRA.

JOHN KOBINA ASIEDU,
METHODIST PRI. SCHOOL,
P. O. BOX 1,
AYANFURI,
VIA DUNKWA-ON-OFFIN.

15TH FEBRUARY, 1977.

Dear Sir,

SUGGESTIONS TO THE COMMITTEE ON THE
EVALUATION OF 'OFY' AND OFYI PROGRAMMES

I read the Daily Graphic of Saturday, 12th February, 1977 and observed on the back page that a Committee headed by Major General D.K. Addo, (a retired Army Officer) has been set up by the Government to evaluate the 'OFY and 'OFYI' programmes for the year 1977. Thanks to the Government.

Sir, can I please submit the following suggestions to serve as part of the Committee's day to day discussions on the topic.

- SUGGESTIONS:
1. The Ministry of Agriculture should recruit about 50% of its labourers throughout the country to plant on food items such as casava, plantain, yam and other food crops which are mostly needed for home consumption.
 2. Middle School Leavers who would not be fortunate to further their education should also be encouraged by the Government to take farming as their career. The encouragement should be in the form of acquiring lands by the Government herself and employ them to plant food crops, as it was done in the Operations of the WORKER'S BRIGADE, instituted by our late president, Osagyefo Dr. Kwame Nkrumah, (of Blessed Memory).
 3. Every Ghanaian youth, whether educated or not should be made to join this crusade. I for one, a talented fellow in farming, and being unfortunate to further my education due to financial difficulties, would be very energetic to join any move for finding food to feed the country's population.

I hope, some of my suggestions will be considered by the Committee.

Thank you Sir,

Yours Obediently,

SGD

J.K. ASIEDU (PUPIL TEACHER)

Vincent Kofi Ocloo
Ocloo Farms - Danchira
c/o Mr. F.F. Asarey,
P.O. Box M.199
Accra.

10th June, 1977.

Dear Sir,

MEMORANDA ON AGRICULTURAL PROBLEMS
GREATER ACCRA REGION

For the success of Operation Feed Yourself and Industries in the Country, it will be advisable to encourage all Ghanaians, both young and old to close down their ranks and files and go back to the land. Every Region has its role to play in the field of Ghana's Agricultural Revolution.

Greater Accra Region is comparable with other Regions in the production of both early cash crops as well as perenical crops such as Maize, Rice, Cassava, Sweet potatoes, Yam, Groundnut, Cocoyam, Cowpeas, Banana, beans, Challo, Onion, Okro, Gardeneggs, Tomatoes, etc. and that of biennial crops such as Pepper, Coconut, Oilpalms, Mangoes, Cashew etc.

Secondly, rearing of Live Stock both on poultry and animal Husbandry also contribute a great quota in the field of Agriculture. But all these, we farmers in the Greater Accra Region, sit down idle or roam about in the streets or sit under trees and hold discussions that Greater Accra is not suitable for Agriculture.

Some also say "I would not go to school and come back to farm." To them, farming is a dirty job. But then they forget that the food they come to chop is the product of the poor farmer.

In order to make the Operation Feed Yourself and Industries a success, the following factors must be taken into consideration. These are:- The regions Ministry of Agriculture should appoint more Field Learners and Field Assistant under Senior Extension Officers should be increased. Learners should be stationed in the midst of Farmers within the production spheres. They should be supplied with bicycles at least, to enable them to go round from village to village to educate these farmers on how best these can be carried on for a greater output.

(2) Farmer's census should be conducted by these Field Learners and Assistants through registration of the farmers by the help of Chiefs and Headmen of each village categorically on the production sphere at each district and in the Region as a whole. I make this suggestion simply because the Region is covered with forest and Savannah Areas.

Forest area is thickly populated with maize and cassava growers but they are hidden and the field assistants do not visit their farms. These visits is the method adopted by Ghana Tobacco Company and the Cotton Development Board which enable them to achieve their goals annually. The Field Learners should allocate the acreage cultivatable by the farmer, according to his or her capacity of farming. By doing this the region can achieve its target.

(3) Low Cost Housing for Farmers:-

In order to attract the youth of the Region and the Country as a whole. The Regional Administration should ask the Corporation concerned to build some of these Low Cost houses for established farmers who are staying on their farms and not to those part-time farmers who neglect their farms. By doing this, the youth will divert from the white collar jobs and go back to the land. I make this suggestion to encourage more youth to work on the land than at present hence increased output.

(4) Farming Inputs

The farming inputs such as fertilizer, insecticide and cutlass should be sold to the farmers on credit basis and payment to be made after harvest time. These Inputs should be supplied by the Regional Administrations to ensure fair distribution.

(5) Inter-Regional Film Show on Agriculture:

This will also help the farmers to learn from each other in each region and to promote more zeal among the farmers in every Region and Ghana as a whole. For example when an Ashanti Farmer is viewing a farmer from the Greater Accra Region does on his or her farm it would encourage him or her to put the same into practice on their farms.

(6) Regional & District Competition for Farmers:

Competition by the farmers should be conducted by the Regional Administrations on large acreages; to adjudge the best farmers in every production sphere and the region as a whole. This will also bring more zeal among the farmers.

(7) Award of Prizes to Farmers:

Prize awards should also be introduced by Regional Administrations for the best farmer in every production sphere in the Region. I suggest this simply because in the time of Col. F.G. Bernasco former Commissioner for Agriculture, this method was in practice and it gave moral booster to the farmers in the regions which resulted in making the Operation Feed Yourself and Your Industries programmes successful.

(8) Overseas Trips for Farmers:-

May I suggest that as far as Ghana is playing a leading role in the struggle of Africa Revolution we should also play an important role in the field of Agriculture to justify Ghana as an Agricultural Country on the continent of Africa.

though Ghana is a developing Country we have to double our efforts in farming so that we shall in future become a leading country in the field of Agriculture. In this wise it would be a good idea to institute the price awarding to best farmers to go abroad to study other modern forms of Agriculture. This will also help them to produce more to sustain our economy.

(9) Private Sector or Family Labour Force:

This should be highly considered because when a farmer, his wife and children are farming, they do hard and better work because they know that the farm belongs to themselves. This also impacts agricultural ideology in the midst of the family.

(10) Fertilizer Depots:

May I suggest that small fertilizer depots should be established in the nearest stations within the production spheres since it is difficult for a poor farmer to collect a fertilizer at Omankepe or Accra for example without his own means of transport.

(11) Better Markets for Farmer's Products:

Markets should be erected near farmers in every production sphere since it can also limit transportation costs.

(12) Factories for Farmers:

Factories should be erected in the midst of farmers to assist them at areas where great harvests are realised on processing some of Ghanaian foods in the Region. For instance tomato Factory could be erected at Kasseh Junction - Ada for the promotion of Tomato Industry in the Region. Gari factory in the Ga Rural Area.

(13) The size of Acreage of Ocloo Farms - Danchira in the Greater Accra Region, for example as is listed below:-

Size of Farm	Crop	Variety	Acre Cultivated
	Maize	Composite '4'	150
	"	La Posla	80
	"	Local White	40
	Groundnut	Cameroun	10
	"	Florespond	5
	"	Main Pontar	1/10
	Yam	Local	1/2
	Sweet Potato	"	1/2
	Banbara Beans	"	1/2
	Rice	"	3
	Cassava	(well matured)	10
	"	(under Plantation)	100
	Mango		6
	Pineapple		1/4

Total: 411 Acres

I shall be grateful if the farms could be inspected by any Officer who so wishes.

Prepared and Signed by

.....
(Vincent Kofi Ocloo)
Regional Chief Farmer
Ocloo Farms - Danchira
Greater - Accra.

THE REGIONAL COMMISSIONER,
GREATER ACCRA REGION,
A C C R A.