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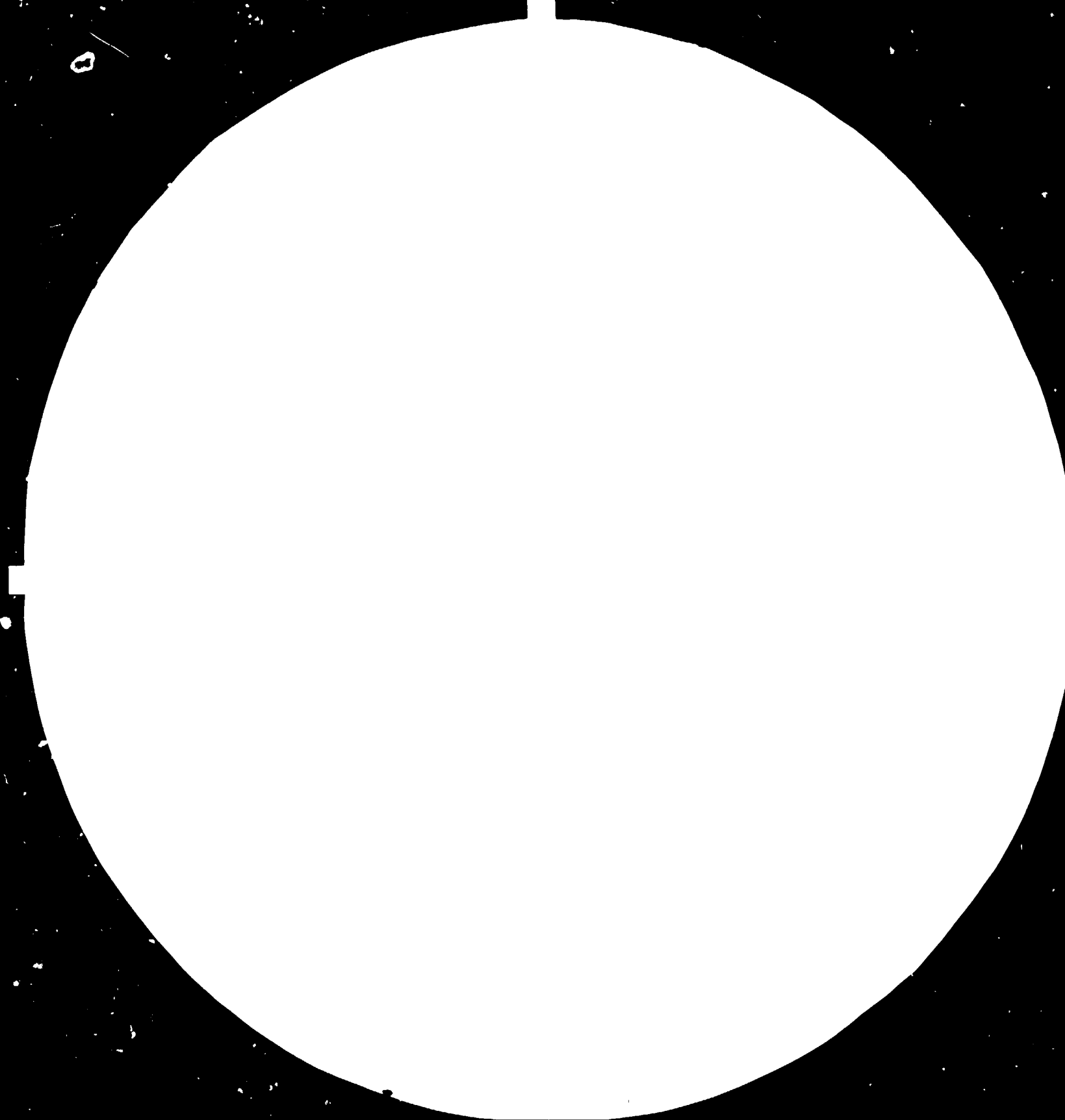

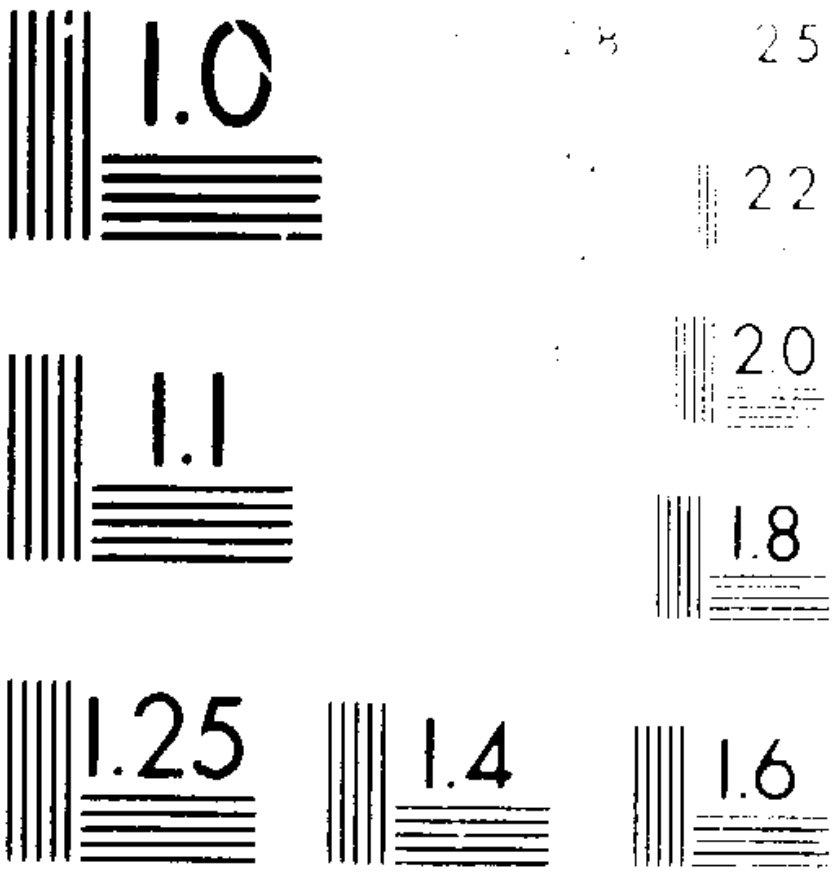
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TECHNICAL ADVISORY SERVICES IN AGRO-INDUSTRY

UC/BHA/84/098

BAHAMAS

Technical Report: Assessment of Agro-industrial Activities and Potential *

Prepared for the Government of the Bahamas,
by the United Nations Industrial Development Organization

Based on the work of Moustafa M. Aref,
Technical Agro-Industrial Advisor

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PREFACE

According to the contractual agreement between UNIDO and the consultant submitting this report, the duty station was supposed to be Andros Island, Bahamas, with local travel. The purpose of the project was "To provide assistance in the preparation of agro-industry projects".

The duties of the consultant as indicated by the contractual agreement were to cover three points in close co-operation with local Government authorities, namely to:

"- make an assessment of the existing planning studies;
- evaluate the raw material situation, market prospects, existing equipment and suitable technologies; and
- indicate the prospective fields for further follow-up and define investment opportunities using the UNIDO Project Profiles Screening and Pre-appraisal Information System (PROPSPIN)."

Background information supplied by UNIDO to the consultant stated that, "For Andros Island certain preparatory planning is already existing for agro-industry projects such as fruit and vegetable and grain processing, oil production from Cascarilla bark, and edible oil production".

The consultant arrived at Andros Island on 3 December 1984, where he was approached by Mr. Ayrett Lightbourne, Officer-in-Charge of the Bahamas Agricultural Research Centre (B.A.R.C.) on North Andros, who was carrying instructions for the consultant to proceed to Nassau. Upon examining the consultant's job description, however, Mr. Lightbourne thought that the consultant should first visit the B.A.R.C. for a day or two to get acquainted with the work being carried out there. He returned to his office to obtain clearance from his superior, the Director General of Agriculture, Mr. Sidney Russell, for the consultant's visit to the B.A.R.C., but unfortunately never informed the consultant of the outcome. The consultant subsequently sought advice from Mrs. Catherine Benjamin, in-charge of co-ordination of applications for technical assistance at the Ministry of Foreign

Affairs, who kindly directed the consultant to report to the Bahamas Agricultural and Industrial Corporation offices in Nassau and made arrangements for his accommodation in a hotel close to the Corporation's offices.

The consultant made contact with the Corporation on 5 December, and was given all required help and assistance. An appointment was made for the consultant to meet with Mr. Sidney Russell, Director General of Agriculture, in order to obtain available information related to the mission. Mr. Russell cordially received the consultant at the outside reception desk of the Department and curtly led him to the office of Mr. Audley Greaves announcing that the latter would supply the consultant with all information available at the Department.

Mr. Greaves was very occupied, and rather pre-occupied, but was gracious enough to devote about thirty minutes of his time to the consultant. After examining the consultant's job description, he declared on behalf of the Department of Agriculture that there were no existing agro-industry planning studies and no investment project profiles available at the Ministry of Agriculture. After some reasoning, however, he handed the consultant the document entitled "Agricultural Development Programme" (A List of Agro-industrial Projects and Research Support Facilities, Being Developed, Planned or Promoted by the Department of Agriculture) which is attached in toto to this report as Annex 1. The consultant inquired whether any of the projects on that list had an investment project profile available at the Department, especially those which had a feasibility study prepared, were in progress, or were to commence in February 1985, but was resolutely informed by Mr. Greaves that all information available to the Department was included in the list. Upon expressing incredulity with respect to one project for which request for funding had already been submitted to finance according to the list, Mr. Greaves handed over a desk study on specialized units for meat production which will be commented on later in this report. Before taking leave of Mr. Greaves, he handed over to the consultant another desk study entitled "Feasibility of a Small Fence Post Treatment Plant". This will also be discussed in this report.

Before leaving the Department of Agriculture the consultant requested permission to meet with Mr. Benno Roesen, the EEC Food Technologist at the Food Technology Complex at Gladstone Road. Mr. Greaves kindly relayed the request to Mr. Russell who granted the request with the proviso that the meeting with Mr. Roesen takes place in the presence of Mr. Smith, the Senior Agricultural Officer in-charge of the Gladstone Road Agricultural Centre. This meeting took place later as will be reported.

The consultant also tried to meet with Mr. Russell to thank him for his courtesy but unfortunately was unable to do so on two separate occasions.

On Thursday, 13 December, the consultant obtained a copy of the Communication to the House of Assembly on the Budget for 1985 by the Right Honourable Sir Lynden Pindling, Prime Minister and Minister of Finance, which was delivered on Wednesday 28 November. The chapter on agriculture contained the following statement, "In the late seventies large projects involving beef cattle-rearing, edible oils manufacturing, production of fruits and vegetables for export to the United States and European Markets were identified". The consultant subsequently called Mr. Greaves to inquire whether details of any of those large projects could be made available to him, but Mr. Greaves confirmed that he had already given the consultant all available information at the Department of Agriculture.

A - INTRODUCTION

1. The Commonwealth of the Bahamas is an independent archipelagic state which stretches over some 100,000 square miles of the Atlantic Ocean from the south-eastern tip of Florida, U.S.A., to the north-western coast of the Island of Hispaniola. There are some 700 islands and cays, with a total land mass of about 5,400 square miles, of which only 26 contain substantial population settlements.

2. The population of the Bahamas is today estimated at 225,000 and increases at a steady 3 per cent per year. Most of the population is concentrated in New Providence Island (65%) where the capital, Nassau, is located, with the balance scattered over the rest of the other islands, collectively known as the Family Islands. Among the latter, Grand Bahama has some 15 per cent of the population, Eleuthera some 5 per cent, Andros about 4 per cent and Abaco some 3.5 per cent. Population distribution is not related to size but rather to employment opportunities and thus population density differs greatly from island to island, with New Providence having some 2,000 people per square mile, Grand Bahama 62, Eleuthera 53, Abaco 10 and Andros 4.

3. Tourism has long been the main source of the Bahamas revenue and the major employer of its work force. Tourist expenditures now exceed one billion dollars annually, accounting for more than 60 per cent of the country's revenue and foreign earnings and employing over two thirds of the work force.

4. The second largest source of income for the country is provided by the banking and finance sector. Over 400 licensed financial institutions, including Bahamian incorporated banks and trust companies, Eurocurrency branches of foreign banks, authorized dealers/agents and restricted companies, account for ten per cent of the work force.

5. Industrial development is of ever-increasing importance to the economy with the largest industrial activity located at Grand Bahama where there is an oil refinery and a petroleum trans-shipment terminal.

Pharmaceutical manufacturing, light assembly, aragonite mining and salt production by solar evaporation are other major industrial undertakings in the country. At the beginning of the 1970's, manufacturing contributed about 9 per cent of GDP and employed approximately 6 per cent of the work force. The sector seems to have lost momentum, however, by the mid-1970's due to a combination of factors both domestic and international, and by 1977 the sector had still not regained its earlier role and contributed a much smaller share of GDP employing only about 4 per cent of the work force. Today, there seems to be continued recovery of industrial activities, but actual figures are not available on the performance of the sector.

5. Only 5 per cent of the country's revenues are generated by agriculture and fisheries, employing a corresponding 5 per cent of the work force. To the Family Islands, however, from which most of this work force is drawn, agriculture is second only to the services sector as a source of employment, accounting for 20 per cent of their work force.

6. Although the value of Bahamian agricultural production has increased from $9 million in 1972 to $30 million in 1983, 70 per cent of the country's food needs must still be met by imports. This amounts at present to some $150 million in order to meet the demands of the indigenous population and some 2 million visitors annually. The Bahamas National Food Policy[1/], therefore, lays stress on expansion of food production both for local consumption and the export trade; on ensuring greater linkages between agriculture, fisheries and tourism; and on creating much greater opportunities for employment in agriculture and fisheries.

7. Studies have shown that some 238,000 acres of prime agricultural land are available for cultivation on the islands of Grand Bahama, Andros and Abaco. It is estimated that the area presently devoted to regular agricultural production is in the neighbourhood of only 40,000 acres, roughly 17 per cent of available lands. There seems to be, therefore, a wide scope for the development of Bahamian agriculture and agri-business and

1/ Ministry of Agriculture and Fisheries. AGRO-Fisheries, investment opportunities in the Bahamas - undated brochure.

the Government is encouraging Bahamian and foreign investors through various measures to stimulate the production of meat, vegetables, citrus fruits and other crops, and to establish processing plants for the production of animal feeds, edible oils and various processed foods.

8. Unlike agriculture, the fishing industry is reserved for Bahamians and is protected by a 200-mile exclusive economic zone. Approximately $11 million worth of crawfish (spiny lobster) tails are exported annually, mainly to the United States, but like other marine resources of the Bahamas, supplies seem to be dwindling due to destructive fishing practices.

To develop and better manage the country's fisheries resources, the Government, aided by the Food and Agriculture Organization of the United Nations (FAO), recently completed an 18-month survey of the Bahama banks. The study assessed the distribution and abundarce of grouper, snapper, crawfish, conch and other shallow-water fisheries, in order to provide a realistic appraisal of their commercial potential.

FAO advisers also assisted the Department of Fisheries in formulating regulations governing acquaculture in the Bahamas. Although this industry is still in its infancy, it provides an excellent potential for the development of various commercial operations. Worldwide Protein (Bahamas), for example, has established a shrimp farm on Long Island, and through a joint venture agreement with King Seafoods (Bahamas), will process shrimp and other seafood for the domestic and export markets. Other experiments in fish farming are taking place in Freeport, Grand Bahama, and on the island of Eleuthera. Research on the feasibility of conch farming is also being carried out at the University of Miami.

9. Since the mid-1970's, the Government of the Bahamas had laid emphasis on institutional development to foster investment in agricultural production in order to cut down on the nation's annual food imports. The Bahamas Agricultural Research Center (BARC) was set up on North Andros in 1974 with assistance from USAID, to carry out research in horticulture and livestock rearing, and disseminate its findings to farmers through trained extension officers.

10. In 1975, the Government established the Bahamas Agricultural Development Corporation (BAC) to hold and manage the Government-acquired poultry and dairy operation at Hatchet Bay, Eleuthera, and to discharge the broader responsibility of facilitating agricultural production and processing in the Bahamas. The BAC, however, seemed to have been concerned only with the poultry and dairy business which was facing serious problems of management and financial control, and never developed the organizational structure and staff necessary to bring about its greater function.

11. Consequently, the BAC was merged with the Bahamas Development Corporation into the Bahamas Agricultural and Industrial Corporation (BAIC) which was established by an Act of Parliament in December, 1981. the main functions of the BAIC are: (i) to assist in creation and development of commerce and industry within the Bahamas; (ii) to be responsible for the orderly development of Government-owned lands in the Commonwealth of the Bahamas; (iii) to stimulate, facilitate and encourage the development of agriculture in the Bahamas; (iv) to expand and create opportunities for Bahamians to participate in the economic development of the Bahamas; and (v) to act as the central agency in assisting potential investors in establishing new enterprises in the country.

12. In discharging those functions, the Corporation is assigned to: (i) provide information on investment opportunities and incentives in all sectors; (ii) provide information in respect of Government regulations on duties and other excise taxes, air and shipping services, financial and commercial institutions, and conditions in the labour market; (iii) assist potential investors in securing suitable land and factory accommodations; (iv) assess proposals for new ventures to determine their viaiblity; (v) assist with applications being made to various Government Ministries and Agencies for approvals and necessary endorsements; (vi) act as an official link between potential foreign investors and the Government, private Bahamian business and the Government, and/or any combination of the three; and (vii) act, if deemed necessary, as a joint venture partner, with a suitable investor.

13. It is obvious from the above that for agro-industrial development, which is the subject of this report, the Corporation must readily receive full support and co-operation from the Department of Agriculture. Unfortunately, this does not seem to be the case and remedial action by higher authorities is called for.

B - AGRO-INDUSTRIAL DEVELOPMENT

1. It may be said in all simplicity that proximity of the Bahamas to the U.S.A. has been both a boon and a bane. This nearness to the largest and most affluent market in the world naturally resulted in a skewed economy in which tourism and off-shore financial activities became the mainstay, to the detriment of agriculture. With salaries and wages quite high for white-collar jobs, and in the apparent absence of a deep-rooted agricultural tradition, the country is experiencing a serious food deficit which seems to grow in direct relation to the growth of the tourist trade.

2. The main outlines of agricultural development activities as gleaned from promotional publications and official pronouncements seem to have been oriented towards export to the North American market rather than to the replacement of imports from it. The Key and Sawyer farms on the island of Abaco, for example, comprise over 3,000 acres of orchards producing limes, avocadoes and grapefruits for export to Canada and the U.S.A.[2/]. Cucumber farms in North Abaco supply 5 per cent or more of the U.S. market for that vegetable, and Parker Groves on Grand Bahama supply markets in Europe, Canada and the U.S. with limes, avocadoes and papaya from a 1,000 acre plantation. No attempt for local processing of those crops seems to have taken place.

3. On the other hand, staple foods such as Irish potatoes, legumes, rice, oilseeds and corn do not seem to be receiving adequate attention. No information on research, completed or underway, on these staples was available at the Department of Agriculture, and no detailed plans on their increased production were given to the consultant

4. As far as meat is concerned, it seems that the country is at present receiving 80 per cent of its poultry needs from a local producer, the Gladstone Farms Limited, with a planned expansion to cover the remaining 20 per cent of national needs.[3/] The industry relies, however, on imported feed which makes up to 60 per cent of total operating costs; thus increased feeds costs

2/ Bahamas Handbook and Businessman's Manual. Silver Jubilee Edition - Dupuch Publications, 1985.

3/ See Annex 1

could squeeze profit margins and cause the industry to stagnate unless local production of poultry feed is stimulated.

5. Local production of other meat such as beef, mutton, and pork is very low and does not seem to account for more than 10 per cent of local consumption. A desk study on the establishment of specialized units for meat production from swine, sheep and cattle was prepared by the Department of Agriculture in 1982 but no information was made available to the consultant on its current status. Although quite comprehensive, the study recommended that no massive new production efforts are undertaken before problems related to predation of dogs and predial larceny are solved. Unfortunately, no solutions to these apparently serious problems have been proposed in the study.

Another matter which the study considers to be problematical if the proposed specialized meat production units are to be established on Crown Lands, is the issue of land tenure. This issue has also been identified by the World Bank[4/] as one of the constraints to agricultural development in the Bahamas.

A serious shortcoming of the study is its estimation of profitability on the basis of animals on the hoof rather than processed or semi-processed products. In other words, there is no attention paid to the possibility of applying the integrated agro-industrial approach to meat production.

6. The integrated agro-industrial approach[5/] involves the vertical integration of the whole production process of food, or other agriculture-based consumer goods, from the field to the final consumer. Vertical integration means that all stages of the process and their planning are managed, or perhaps even owned, by a single market-oriented authority having an industrial approach and applying a policy suited to market demands. Such an authority would have profitability as the only acceptable criterion for success and would endeavour to produce and process acceptable products using an industrial approach that would improve agricultural performance.

4/ World Bank - Economic Memorandum on the Bahamas - Report No. 2975 - BM, 1980.

5/ Aref, M.M. - The Role of Agro-Industries in the Industrialization of Developing Countries - UNIDO/IOD.1, 29 March 1976.

Such an approach catalyzes its own growth through the reinvestment of profits partly in enlarging its own capabilities, and partly in direct and indirect reconstruction of the rural area in which it is applied. It evokes a chain reaction of socio-economic development including road building, improvement of water supplies, housing, credit facilities, as well as training, educational and even cultural activities. Its chances for diversification of both agricultural and industrial activities would be quite substantial.

7. One could visualize the integrated development of the food processing industry in the Bahamas through agro-industrial co-operatives. This is almost dictated by the fundamental issues pertaining to agro-industrial development which would have to be dealt with, i.e. the high cost of labour in general; the scarcity of agricultural labour in particular; the likely high costs for irrigation, training and research; the small size of the local market and its relative sophistication; the logistical problems associated with food transportation; and the ultimately finite availability of land in an island country. All these issues point towards a highly mechanized agriculture geared to local demands as well as the export market, and fully utilizing available resources, by-products and natural phenomena such as wind and solar energies.

8. Agro-industrial co-operatives have been quite successful in many developing countries such as Argentina, Bangladesh, India, Indonesia, the Philippines, Sri Lanka and Thailand. It is perhaps useful for the purpose of this report to elaborate on the success of the agro-industrial co-operatives in India[6/] which was achieved through substantial assistance from the Co-operative League of the U.S.A. (CLUSA), and the Co-operative Union of Canada (CUC).

9. Kaira, a district in the Indian State of Gujarat, has a pattern of milk production typical of rural India and consisting of some 1,000 villages covering about 6,400 square kilometres. Agriculture is the mainstay of more than 80 per cent of the population as landholdings are small with over 50 per cent of the farmers having between 0.1 to 2.0 hectares, while about 22 per cent are landless or tenant farmers.

6/ Aref, M.M. - Integration in the Food-Processing Industry and the Role of Co-operatives in its Promotion through International Collaboration. UNIDO/PC. 69, 25 July, 1983.

Traditionally, the farmers of Kaira supplemented their income by keeping milk animals, but milk yields were low, cost of milk production high and returns poor. Scientific practices in animal husbandry were unknown.

The milk was either sold to a private dairy which converted most of it into butter, or was supplied through private contractors to the Bombay Dairy Scheme, run by the Government.

10. In 1946, the milk producers became better organized, and refused to supply milk to the city of Bombay for two weeks as a protest against low milk prices. The strike brought about an increase in milk prices which encouraged the farmers to establish a co-operative society in Anand, a small town with a population of 15,000 people, 427 kilometres from Bombay.

11. In 1948, the Kaira District Co-operative Milk Producers' Union Ltd., which started with two village milk producers' societies and covered 30 villages, began to supply the Bombay Milk Scheme with pasteurized milk. These societies handled only 250 kilograms of milk daily, but the economic betterment of the members led to the organization of more and more societies.

12. In 1950, Dr. Verghese Kurien, became the manager of AMUL and introduced gradually the concept of integration including scientific dairy farming, proper management and essential services to members.

13. Emphasis was placed on the use of qualified veterinarians, cross-breeding of cattle, scientific balanced feeding and appropriate cattle management practices. Under Kurien's management, the Union grew rapidly. He concentrated on the procurement of more milk from members and the creation of plant facilities for handling fluid milk. The number of milk producers' societies rose from 64 in 1955 to 846 in 1979/80, and significant growth was recorded in the business. Share capital during the same period rose, for example, from 0.03 to 6.89 million rupees and milk procurement rose from 10 to 150 million kilograms annually.

14. The Union at present handles an average of 600,000 litres of milk per day from its 300,000 farmer members organized in some

900 village co-operative societies. It employs about 2,400 persons of which 300 are professionals, and its dairy complex is spread over 45 acres.

15. Today, AMUL's dairies and processing plants produce pasteurized milk, milk powder, butter, different cheese varieties, milk chocolate, and malted milk food, as well as cattle feed. In addition, it has set up a modern rice mill to assist rice growers amongst its members, and a lime juice plant also to help those members who produce limes.

16. The success of AMUL has been obviously achieved by effectively integrating milk production, processing and marketing. One of the main results of this integration was a major breakthrough in milk yields which rose from 3 litres to 4.5 litres per day per head of milk cattle. Such an accomplishment was only possible as an integrated function of several inputs, namely artificial insemination, veterinary first-aid treatment, balanced cattle feeding and improved cattle management practices.

17. The role of AMUL, however, has not been confined to the creation of a viable milk processing industry in the Kaira district. The Government of India, recognizing the merit of AMUL's strategy, has appointed its manager, Dr. Kurien, as Chairman of the National Dairy Development Board and launched two large projects to spread the AMUL strategy all over India.

18. Furthermore, the Government also asked Dr. Kurien in 1977 to extend the same strategy to the restructuring of production, processing and marketing of oilseeds and vegetable oils. This was prompted by official concern over the control exercised by 13 powerful families in Gujarat State over the multimillion dollar edible oil industry. The result of that control by the so-called "oil kings" was the exploitation of thousands of small farmers who sold their crops at a low dictated price for want of an alternative. The production of oilseeds naturally stagnated, and India was importing about one million tons of edible oil annually to meet domestic demands.

19. Dr. Kurien based his oil operation in Gujarat State which is the biggest groundnut growing area in the country, accounting

for about 35 per cent of total production. He used experienced staff from the dairy co-operatives to form the Gujarat Co-operative Oilseeds Growers' Federation (GCOGF) which offered farmers higher prices for their crops as well as good quality seeds, fertilizers, pesticides, rhizobium cultures and modern farming equipment at reasonable prices. By the end of 1982, the co-operative owned two oil mills and was planning to construct five more processing units, two solvent extraction plants and storage facilities, at the cost of about US$ 850 million. From 34 co-operative societies with 300 members in 1980, membership of GCOGF grew to 70,500 in 946 societies by the end of 1982. The target is 1,400 societies by 1984. Procurement of groundnuts surpassed the projected goal of 100,000 tons, or 6 per cent of total production, by the end of 1982.

20. When the Government of India requested the National Dairy Development Board (NDDB) to apply its very successful dairy development technique to India's vegetable oil industry, NDDB asked CLUSA and CUC if they might donate commodities for financing as was done to finance the establishment of the dairy co-operatives. CLUSA contacted the US Agency for International Development (AID), which found the request both possible and interesting and CUC approached the Canadian International Development Agency (CIDA) which also supported the request.

A plan was developed based on a grant of 160,000 tons of soybean oil (or the equivalent) from PL480, Title II, commodities. These commodities represent US Government purchases of surplus domestic stocks such as milk products, wheat, rice, cotton and sugar, as well as vegetable oil. Intially, 117,500 tons of oil were granted by AID for the first phase of the project, with the remaining oil subject to a review of proje. accomplishments. CUC sent a 3 million dollars shipment in 1982, both financed by CIDA which was expected to continue its support for the project.

21. Refined oil is delivered at an Indian port, where title is passed to NDDB in accordance with an agreement between CLUSA, CUC and NDDB (approved by the Government of India and AID/CIDA). NDDB then handles the oil and markets it commerically, simultaneously generating funds for project financing and establishing the marketing system for project-processed oil as well. The

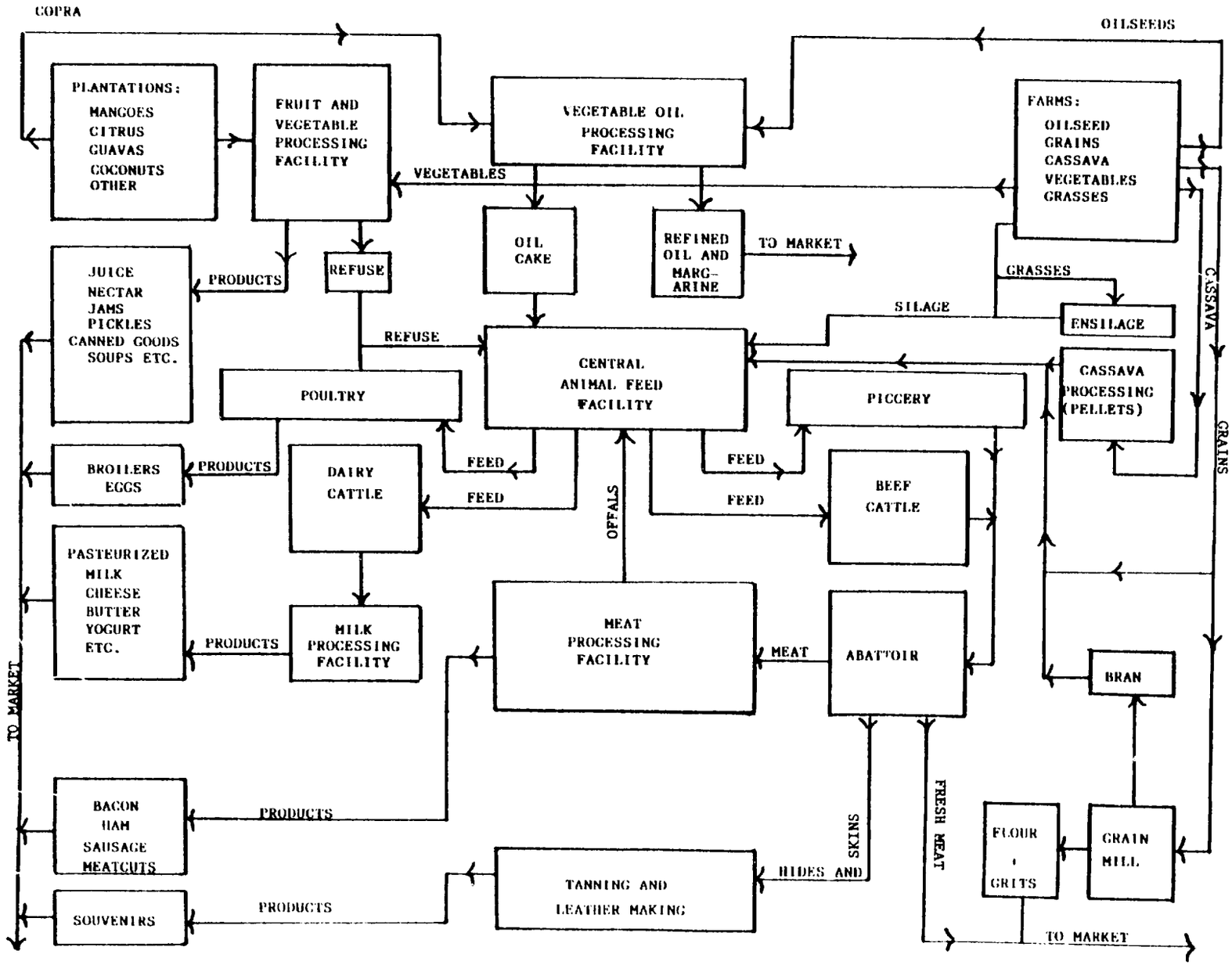
funding covers a series of integrated elements which begin with co-operative formation and oilseed production enhancement and extend to marketing of finished diversified products.

Items funded by the proceeds of the sale of donated oil include: institution and infrastructure development, manpower development, operations research, monitoring costs, revolving operating capital for the new co-operatives, new product development, and market research.

22. It is obvious from the above description that both the dairy and oilseeds co-operatives are playing a major role in strengthening the dairy and oilseed processing industries in India. They are definitely succeeding in integrating production, processing and marketing, but this success could not have been achieved without the commitment of the Government of India to the co-operative movement. This commitment started in 1904 with the Co-operative Societies Act which gave a formal shape to the movement. At first, the emphasis was placed on credit for the increase of agricultural production. It took half a century to change that emphasis when the All India Rural Credit Survey Committee recommended in 1954 the development of an integrated approach to credit, marketing, processing and storage in the rural sector. One result of that recommendation was the establishment in 1962 of the National Co-operative Development Corporation (NCDC) for the planning and promotion of various programmes for co-operative marketing, processing, distribution of inputs, and warehousing of agricultural produce. With a subsequent modification of its charter, the NCDC is now planning, promoting and financing co-operative development programmes for production, marketing, processing, storage, export and import of agricultural produce, foodstuffs including fish and dairy products, cattle and poultry feed and other specific commodities such as fertilizers, insecticides, agricultural machinery, etc.

23. There is no reason to believe that such an approach to the development of the food processing industry cannot succeed in the Bahamas if it would be acceptable to the Government. Co-operative food processing would undoubtedly provide the small farmer with

FIGURE 1 - POSSIBLE PLAN FOR CO OPERATIVE FOOD PROCESSING IN THE BAHAMAS



both the incentive and the means to increase his production, and can play a far-reaching role in attracting young Bahamians to agriculture. A schematic presentation of a possible co-operative food processing system in the Bahamas is shown in Figure 1.

24. During the two Consultations convened by UNIDO on the Food Processing Industry (The Hague, November 1981 and Copenhagen, October 1984), it was clearly indicated by several industrialized country co-operatives that they would be willing to collaborate with developing countries in their efforts to promote co-operative food production and processing. The forms of collaboration identified by the two Consultations included preparation of feasibility studies, training of personnel in co-operative management as well as technical aspects, provision of consulting services in a wide spectrum of food processing activities, marketing of products in the industrialized countries, and in certain cases even indirect financial assistance as described in paragraph 20 and 21 above.

25. Whatever route is going to be taken for the development of the food processing industries in the Bahamas, there are basic requirements to be fulfilled if success is to be attained. It would seem from information given by the Department of Agriculture that there has been no sustained effort, for example, to acquire knowledge with respect to suitability of different lands to support commercial-size plantations of native fruits, or to determine the relative merits of one fruit vis-à-vis the other.

26. Similarly, no information was available with the Department of Agriculture on the different aspects of oilseed production and processing. During a meeting with the technical personnel at the Food Technology Complex at Gladstone Road, it was revealed that some experimentation with sunflower production was going on, but these seemed to be still in an early stage.

Extensive work is still required before a decision could be reached as to which oilseed to grow and where.

27. Corn seems to grow well in different parts of the Bahamas and its production is reported to have increased six times during the past four years.[7/] It would be possible, therefore,

7/ Communication to the House of Assembly on the Budget for 1985 by the Right Honourable Sir Lynden Pindling, Prime Minister and Minister of Finance - 28 November 1984.

to further increase the area under corn to support animal production and create a corn-syrup industry for use as sweetener for certain goods. But again this needs to be compared to sugar production from cane with the inherent use of cane tops and molasses for animal feed.

28. Cassava also seems to grow well in the Bahamas and the possibility of its commercial production and utilization for animal feed and other products should be investigated.

29. Obtaining knowledge on the potential for food and feed production in the Bahamas, is, however, only half the problem. There still seems to be a great need for the Government to take action to strengthen agro-industrial project preparation and evaluation capabilities. This was also the findings of the World Bank[4/] in 1980 with respect to the Department of Agriculture, and is corroborated by the absence of investment project profiles at that Department as previously mentioned. Their desk study entitled "Feasibility of a Small Fence Post Treatment Plant" which is indirectly related to meat production from sheep and goats, raises doubts as to the willingness of farmers to relinquish what they use today in favour of the proposed posts, and does not come to any satisfactory conclusions.

C - AGRO-INDUSTRIAL INVESTMENT PROJECTS PROFILES

1. Investment project profiles preparation for all sectors at the Bahamas Agricultural and Industrial Corporation is the responsibility of a single officer who is severely handicapped by his workload and does not seem to obtain technical inputs from the Department of Agriculture with respect to agro-industrial projects. Nevertheless, he has submitted three investment project profiles for analysis by the UNIDO Project Profile Screening and Pre-Appraisal Information System (PROPSPIN). These are: (i) Production of Animal Feed; (ii) Pork Production and Processing; (iii) Beef and Dairy Production. Since the last two projects are dependent on the first, it was decided to enter its data into the PROPSPIN. This system lends itself quickly to "screening" different project proposals to select those worthy of serious attention. The analyses the system performs and report schedules it produces, display physical and financial data that highlight cost elements, potential inefficiencies and assumptions that may represent major risks to successful project completion.

If PROPSPIN reveals specific problems in a project's structure, input data can be changed until a suitable set of conditions are found at which the project will be viable, such as a different capital structure product or selling price. Thus, PROPSPIN encourages early investigation of design changes and supports effective negotiations with suppliers and/or prospective investors.

2. Basic data and PROPSPIN analysis for the Animal Feed project are presented in Annex 2. It can be seen that the Breakeven Point under the proposed basic data provided by the project would be reached at 3 per cent of capacity utilization during the fifth year of operation. In addition, the internal rate of return (227 per cent) seems to be quite abnormal for this type of project. It was decided, therefore, to alter some of the input data to find out whether a more reasonable situation would result. Fixed investment for machinery and equipment was raised by $100,000; capacity utilization was lowered to 40 per cent for the first year

and increasing by 5 per cent per year (except for year 7, where the increase was made to be 10 per cent); and cost of materials was raised to $100 instead of $84. Basic data and PROPSPIN analysis for this modified project are presented in Annex 3. It can be seen that the Breakeven Point under the modified basic data would be reached at 7 per cent of capacity utilization during the fifth year of operation, and that the internal rate of return becomes more reasonable (95 per cent), though still quite high for this type of project.

It is, therefore, concluded that the project seems to be overly optimistic and needs to be redesigned on more factual bases. The use of the PROPSPIN would be very useful in this connection.

D - RECOMMENDATIONS

With respect to agro-industrial development of the Bahamas and in particular the growth of the food processing industry to meet local demands and enhance exports, it is recommended that:

1. The Government take the necessary steps to unify activities related to agro-industrial investment project development in order to avoid fragmentation of efforts, overlapping of responsibilities and under-utilization of available resources.

In view of the terms of reference of The Bahamas Agricultural and Industrial Corporation (BAIC) as established by an Act of Parliament in 1981, it would appear useful to confine those activities to the Corporation while assigning the task of technical backstopping to other units of the relevant ministries as required by BAIC.

2. Action be taken to strengthen existing agro-industries project development capabilities of BAIC through redeployment of staff from other Government units to BAIC, acquisition of short-term specialists from U.N. Agencies, the EEC, or through bilateral agreements with friendly governments.

3. The BAIC acquire the Project Profile Screening and Pre-Appraisal Information System (PROPSPIN) of the United Nations Industrial Development Organization (UNIDO).

4. The BAIC organize through the Investment Co-operative Programme of UNIDO an Investment Promotion meeting for the Bahamas during 1985. This meeting should be limited to the promotion of investment projects concerned with food production and processing and related matters such as fertilizer and pesticide production or formulation, agricultural machinery and packaging.

5. The Government launch a long-term programme to create commercial-size plantations of native fruits, such as coconuts, mangoes and guavas, capable of supporting large-scale food processing operations to supply the local market, including the tourist trade with various products. Such a programme should be based on systematic agronomical, technological and marketing research for the identification of lands, fruit varieties, products and markets.

6. The BAIC carry out a feasibility study on the establishment of a corn-syrup industry for partial replacement of imported sugar. Such a study, should involve a comparison of the relative merits of corn-syrup production versus sugar production from cane.

7. The BAIC investigate the feasibility of establishing a local flour mill to replace wheat flour imports and make available bran for inclusion in local animal feed products.

8. The Government initiate a comprehensive programme for the development of a local vegetable oil industry. There seems to be need in this connection to carry out extensive agronomical/ food technological research to determine the comparative merits of soybean, sunflower and groundnuts. Once the suitability of one of these crops is established for a certain region of the country, it would be possible to erect an oil mill to be initially supplied by imported seeds while local production to replace imports is under way.

9. The Government take action to obtain assistance to the local food processing industry in the area of packaging technology. It is proposed in this connection that the Government, possibly in consultation with other governments in the region, approach the United Nations Development Programme (UNDP) with a request to transform the existing National Packaging Centre in Jamaica (DP/JAM/82/004) into a Regional Packaging Institute for the Caribbean. As the UNDP involvement in that centre will be concluded by 1st April 1985, immediate action will be needed if this recommendation is acceptable to the Government.

10. The Government request UNIDO/UNDP to carry out a feasibility study on the establishment of a Glass Containers Industry in the Bahamas.

11. The Government accelerate the development of the new Food Technology Laboratory Complex at Gladstone Road, Nassau. One way of accomplishing this acceleration would be a twinning arrangement of the laboratory with a food research institute in North America. Such an arrangement would facilitate exchange

of personnel, information and research methodology, and would open the door for sustained training of Bahamian personnel at the twin institute. The Canadian Food Research Institute in Ottawa, which is part of Canada Department of Agriculture might be a suitable partner for such a twinning arrangement.

12. The BAIC sponsor research at the Food Technology Laboratory Complex, or elsewhere as appropriate, for the separation of the active material(s) in the Cascarilla bark from the eleuthera tree Croton eluteria, in order to gain value-added in the case of export and to encourage local production of tonics or apéritif-like drinks. The latter could well become a large selling article for the tourist trade if properly marketed in airports, hotels, cruise boats and the like. Expansion of cascarilla bark production through establishment of eleuthera tree plantations should also be considered.

13. The BAIC sponsor the development of Bahamian gourmet food items for the tourist trade. Bahamian foods include several items which tourists appreciate and cultivate a taste for during their visit to the country. One of these, for example, is a chowder made from conch, Strombas gigas, which could be easily canned in an attractive package and sold under a desirable trade name. This would not contain more than 30 per cent of edible conch according to the contents of similar products on the international market, and should be priced at about $1.20 for a 14 fl.oz. can. Test-marketing may be first undertaken through a contractual agreement with a soup manufacturer in North America at nominal cost.

14. As many herbs and spices are native to the Bahamas such as basil, chives, dill, parsley, sage and thyme, it would be useful to investigate whether others would also thrive in the country, with the purpose of creating a spice production and processing industry to partially supply the North American and European markets and meet local demands.

15. The BAIC commission a comprehensive feasibility study on co-operative milk and meat production in the Bahamas based as much as possible on local feed production. This should preferably be

preceded by a pre-feasibility study, and the final study should cover all aspects of animal production including identification of suitable breeds, use of conventional and non-conventional feedstuffs, intensive breeding and fattening, disease control, as well as processing to produce appropriate meat and dairy products, utilization of by-products such as hides and skins, and training of managerial and technical staff.

Such a study would roughly cost US$ 300,000, including US$ 30,000 for the pre-feasibility, if commissioned to an independent consulting firm, but might be carried out by a North American Co-operative organization through bilateral aid.

ANNEX 1

AGRICULTURAL DEVELOPMENT PROGRAMME

(A LIST OF AGRO-INDUSTRIAL PROJECTS AND RESEARCH SUPPORT FACILITIES, BEING DEVELOPED, PLANNED OR PROMOTED BY THE DEPARTMENT OF AGRICULTURE.)

* INDICATES PROJECTS VITAL TO "NATIONAL" FOOD SECURITY AND SELF SUFFICIENCY.

PROJECT	LOCATION	DEVELOPMENT STATUS	PROPOSED DEVELOPER/ FUNDING AGENCY	FINANCING STATUS	ESTIMATED CAPITAL INVESTMENT		PROJECTED JOBS CREATED	PROJECT PARAMETERS	OUTPUT AS % OF NATIONAL DEMAND
					INIT.	TOTAL			
BEEF *	ABACO	JOINT VENTURE AGREEMENT BETWEEN PARTIES BEING PREPARED	PERRON GROUP/ BAIC	PERRON GROUP TO CONFIRM	$8.00m	$25m	800-2,500	19,000 HEAD 1,500 TONS BEEF/ANNUM	20-25%
EDIBLE OILS PLANT *	"	INVESTOR BEING SOUGHT	—	—	5.00m	12m	500-1,200	5,000 TONS EDIBLE OIL /ANNUM	60-80%
COMPOUND FEEDS MILL*	"	"	—	—	3m	20m	300-2,000	20 TON/ HOUR COMPOUND PIG/ POULTRY RATIONS	80-90%
MOLASSES PROJECT	ANDROS	DISCUSSIONS TO COMMENCE WITH BACARDI FOR FEASIBILITY STUDY	TO BE SOUGHT	—	?	?	—	50,000 TONS MOLASSES/ ANNUM	80-90%
EXPORT HORT	ANDROS	DISCUSSIONS WITH PROPOSED INVESTOR	EITAN ISRAELY/ BAIC	TO FINANCE WITH ISRAELY GROUP	3m.	—	300	CANTALOUPES CUCUMBERS ETC. FOR EXPORT.	—

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					INIT	TOTAL			
BEEF *	ANDROS	BEING PLANNED	SMALL BAHAMIAN UNITS-BDB,CDB, IBD FOREIGN INVESTORS BEING SOUGHT	REQUEST FOR FUNDING SUBMITTED TO FINANCE	$16m	$35m	1600-3500	40,000 HEAD FROM SEVERAL PROJECTS	30-50%
COMPOUND FEED MILL*	ANDROS	BEING PLANNED	INVESTOR BEING SOUGHT	—	$5m	15m	600-1500	20 TON/HR PIG/POULTRY FEEDS	40-50%
LIME PRODUCTION /EXPORT	GRAND BAHAMA	IN PROGRESS	PARKER BROS LTD.	ALREADY FUNDED	$3-5m	?	100-300	2,000 ACRES PERSIAN LIMES	—
PAPAYA PRODUCTION /EXPORT	GRAND BAHAMA	IN PROGRESS	KENDALL BROS.	"	$1-2m	?	30-50	400 ACRES	—
AVOCADO PRODUCTION/ EXPORT	GRAND BAHAMA & ELEUTHERA	IN PROGRESS	KENDALL BR. UNION STOCK-YARDS	"	$3-5m	?	100-300	1,800 ACRES	—
DAIRY*	GRAND BAHAMA	FEASIBILITY STUDY PREPARED	GBPA/MINISTER AGRICULTURE	BEING DISCUSSED	$4-8m	-	50-150	350 HEAD DAIRY UNIT	30-40 %

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HONEY *	G.B.	IN PROGRESS	SMITH/GODET	FINANCING SOUGHT FROM BDB	$75,000	350,000	15-20	UP TO 1,000 HIVES IN ASSOCIATION WITH PARKER LIME GROVES	80-90 & EXPORT
COFFEE MANUFACTURING	G.B.	PROPOSAL SUBMITTED TO GBPA. FEASILIL-ITY STUDY TO BE DONE	RELIABLE PRODUCTS MARKET INC.	—	$10-12m	—	80-100	1,000 TONS/ MONTH	90-95% EXPORT
PORK PROCESSING PLANT*	G.B.	BEING PLANNED	DUNCANSON GROUP	TO BE SOUGHT THROUGH BDB	$3-4m	—	200-300	2-3 MILLION LBS. PORK PRODUCTS	30-40%
PORK PROCESSING PLANT*	N. PROVIDENCE	BEING PLANNED	BEING SOUGHT	THROUGH BDB EIB, CDB	3-4m	—	200-300	2-3 MILLION LBS OF PORK PRODUCTS	30-40%
POULTRY*	NEW. PROV.	IN PROGRESS	GLADSTONE FARMS LTD. (EXPANSION)	GLADSTONE FARMS LTD.	$0.6-0.8m	—	30-50	45,000 BIRDS /DAY PROCESS-ING PLANT	20%

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					INIT	TOTAL			
PROTOTYPE SWINE UNIT *	NEW PROV.	PLANNED	BAHAMAS DEV. BANK	AWAITING BANK APPROVAL	500,000	-	35-50	3 30-SOW UNIT	5%
PROTOTYPE SWINE UNITS TRAINING *	" "	AWAITING FUNDING	GOVERNMENT DEPT. OF AGRICULTURE	AWAITING DPP/FINANCE APPROVAL	75,000	-	15	TRAINING 15 POTENTIAL PIG PRODUCERS	--
SOUTH EAST ISLAND DEVELOPMENT *	CAT ISLAND ELEUTHERA EXUMA L. ISLAND ACKLINS ANDROS MAYAGUANA	AWAITING FUNDING	BAHAMAS GOVERNMENT THROUGH IDB BDB, CDB, ETC.	REQUEST SENT TO FINANCE FOR ONWARD TRANSMISSION	$25m $19 LOAN FROM CDB, $6m GOVT CAPITAL BUDGETING OVER 5 YEARS		2,500	SEE ATTACHED SCHEDULES	CROPS-15-20 LIVESTOCK 25-30 POULTRY 5%

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					INIT	TOTAL			
ANIMAL FEEDS - * PILOT FEED MILL	NEW PROV.	ALMOST OPERATIONAL	GOVERNMENT	REQUIRES $250,000 TO FULLY COMPLETE ALL PHASES	$1.2	-	25	5,000 TONS/ ANNUM EXPERIMENTAL PIG/POULTRY RATIONS	-
- OFFALS PLANT *	NEW PROV.	TO COMMENCE IN FEBRUARY, 1985	GOVERNMENT/ EEC	APPROVED BY EEC	$0.6-08m	-	5	900 TONS/ ANNUM POULTRY OFFAL PROTEIN	15% PROTEIN SUPPLEMENT
- FEED WAREHOUSE*	NEW PROV.	AWAITING FUNDING	GOV'T	AWAITING FUNDING	$75,000	-	3	-	-
-CASSAVA PROCESSING PLANT*	NEW PROV. ANDROS ELEUTHERA	BEING PLANNED	GOV'T	TO BE BUDGETED	150,000	-	15	EXPERIMENTAL CASSAVA PROCESSING	-
-BUILDINGS- * FEEDING TRIALS	NEW PROV.	ALREADY OPERATIONAL	GOV'T	-	125,000	-	3	TO TEST ABOVE RATION	-

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FOOD TECHNOLOGY COMPLEX * - MICROBIOLOGY LAB - CHEMISTRY LAB - INVEST & DEVELOPMENT LAB - PILOT-FOOD PROCESSING PLANT	N.P.	OPERATIONAL OCTOBER, 1984	BAHAMAS GOVERNMENT/ EEC	APPROVED	$1.2m	-	30-40	MICROBIOLOGY STANDARDS & TESTING ETC.	MONITORING OF LOCAL FOOD INDUSTRIES AND IMPORTED FOOD PRODUCTS
DIAGNOSTIC VETERINARY* LABORATORY & CLINICS	N.P. & FAMILY ISLANDS	TECHNICAL ASST. FOR DESIGN ETC SOUGHT FROM PAHO	CDB/BAHAMAS GOVERNMENT	REQUEST SENT TO FINANCE	$2.7m	?	-	CENTRAL LAB IN N.P. WITH CLINICS IN F.I.S.	ANIMAL HEALTH CONTROL

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PLANT PROPAGATION UNIT *	N.P.	TO COMMENCE IMMINENTLY	BAHAMAS GOVERNMENT/ EEC	APPROVED BY EEC	$1.1m	-	15	7 ACRES EXPERIMENTAL UNIT	SUPPLY PLANTS AND ORNAMENTALS.
SHEEP IN CONFINEMENT PROJECT *	LONG ISLAND	IN PROGRESS	GOV'T/FAO	ALREADY FUNDED	$250,000	-	5	16 ACRE COPPICE IS. LIVESTOCK RESEARCH STATION	SUPPLY DATA FOR SOUTH-EAST ISLANDS DEVELOPMENT
TEMPERATE ORCHARDS RESEARCH STATION	G. BAHAMA NEW PROV. ANDROS	PLANNED " "	GOV'T/CHEVRON OIL GOV'T/GETTY OIL " "	REQUESTED " "	? ?	- -	2 2	SMALL LONG RANGE RESEARCH	
					?	-	2	UNITS (APPLES GRAPES, PEARS PEACHES, ETC	

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CENTRAL AGRICULTURAL STATION *	N. PROV.	BEING DEVELOPED	GOV'T	ONGOING	$2m	$5m	50	GENERAL AGRICULTURAL RESEARCH	
BAHAMAS AGRICULTURAL RESEARCH CENTRE *	ANDROS	BEING DEVELOPED	GOV'T/USAID	ON GOING	$10m	$15m	75	GENERAL AGRICULTURAL RESEARCH	

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MEAT GOAT PROJECT * Mingo Hill Ranch, Inc.	CAT ISLAND	IN PROGRESS	MURPHY OIL	FUNDING COMMENCED	$600,000	2-3m	20-30	1,500 HEAD SPANISH MEAT-TYPE GOATS.	10-15

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					INIT	TOTAL			
EXPORT HORTICULTURE	N. ANDROS	BEING PLANNED APPROVED IN PRINCIPAL	OMAR LYNCH/ HOWARD HEASTIE	BEING ARRANGED BY PROPOSERS	1.5m	4.00m	80 - 200	500 ACRES CUCUMBERS, UP TO 1500 ACRES LIME /AVACADOES	FOR EXPORT
HORTICULTURE /DAIRY	N. ANDROS	APPROVED IN PRINCIPAL	MENNONITE MESSIANIC MISSION	BEING ARRANGED	$100,000	$1.0m	30 - 50	1500 ACRES MIXED FARMING ON LEASE ARRANGEMENT WITH LOCAL FARMERS	15% EXPORT
HORTICULTURE	ABACO	IN PROGRESS	B. G. HARMON	ARRANGED	$8 - 10	$36 m	300	10,000 ACRES CITRUS	EXPORT
EXPANSION * MARKETING INFRASTRUCT-URE	CAT ISLAND EXUMA ABACO L. ISLAND	BEING PLANNED	BAHAMAS GOVERNMENT CDB	FEASIBILITY BEING EVALUATED	900,000	1 m	80 - 100	PACKING HOUSES	—

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					INIT	TOTAL			
CASCARILLA PROJECT	CAT ISLAND ACKLINS CROOKED IS N. PROV.	TECHNICAL ASSISTANCE SOUGHT FROM CFTC FOR PROJECT DEVELOPMENT	GOV'T/EEC	TO BE DISCUSSED UNDER VI EDF	-	-		DETERMINE FEASIBILITY OF CASCARILLA PROCESSING PLANT/ PLANTATIONS	EXPORT OF CASCARILLA OIL BARK

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROPSPIN SUMMARY SHEET

*** Rough Reference Run ***

Restricted
Date: 19/12/94

IDENTIFICATION:

1. Project Title: Animal Feed Production
2. Location: Bahamas
3. Constr. Period:

	Prod 1	Prod 2	Prod 3
4. Products:			
5. Capacity/Year:	45,000 tons	0 tons	0 tons
6. Selling Price:	140 US$	0 US$	0 US$

FINANCIAL SUMMARY

6. Total Investment, US$ '000:	640
7. Internal Rate of Return:	227 %
8. Payback Period:	Before end of year 1
9. Breakeven Point:	3 % Cap Util
10. Debt/Equity Ratio:	0.14 Year 5
11. Return on Equity:	552 % in year 9

OPERATIONS SUMMARY

	Year 1	Year 3	Year 5
12. Capacity Utilization % :	60	70	80
13. Total Sales, US$ '000:	3,780	4,410	5,040
14. Total Employment:	18 Persons		

SENSITIVITY ANALYSIS

Will be prepared on request

LIST OF ATTACHED SCHEDULES

PROJECT PROFILE SCREENING AND PRE-APPRAISAL INFORMATION SYSTEM Schedule 1a
PROPSPIN - INVESTMENT

Project Title: Animal Feed Production
Location: Bahamas | Date: 19/12/84 | Income Tax Rate: 0
Project No: | Base Year: | Income Tax Defer.Yrs: 0
Sponsor: | Startup:
Prepared By: G. Bonder | Inflation: 0

Schedule 1a INVESTMENT	Local	Foreign	Total	Depr Amrt Rate	Annual Maint & Insur. Rate	Maint & Insur. Expense
Land	0	0	0	0	0	0
Site Preparation	0	0	0	2	0	0
Design & Engineering	0	0	0	8	0	0
Bldgs & Civil Works	70,000	0	70,000	5	2	1,400
Service Facilities	0	0	0	5	2	0
Transport Equipment	0	0	0	25	5	0
Plant Mach & Equipment	0	80,000	80,000	10	3	2,400
Infrastructure	0	0	0	3	1	0
Preprod Capital Exp.	0	350,000	350,000	0	0	0
Subtotal	70,000	430,000	500,000			3,800
Contingencies	0	100,000	100,000	5	0	0
Research & Development	0	0	0	20	0	0
Technology	0	0	0	20	0	0
Total Fixed Investment	70,000	530,000	600,000			3,800
Net Working Capital	20,000	20,000	40,000			
Total Investment	90,000	550,000	640,000			

PROPSPIN - INVESTMENT

Schedule 1b CAPITAL STRUCTURE	Local	Foreign	Total	% Rate Local	% Rate Foreign	Maturity Years Local	Maturity Years Foreign	Grace Years Local	Grace Years Foreign
Equity	311,040	121,600	432,640	0	(for & loc % of net profit)				
Long Term Loans	207,360	0	207,360	13	0	7	0	0	0
Short Term Loans	0	0	0	0	0	0	0	0	0
Bonds/Debentures	0	0	0	0	0	0	0	0	0
Suppliers Credits	0	0	0	0	0	0	0	0	0
Export Credits	0	0	0	0	0	0	0	0	0
Subsidies	0	0	0						
Total Debt & Equity	518,400	121,600	640,000						

Schedule 1c DEBT SERVICE

Local Per>	1	2	3	4	5	6	7	8	9
L/T Loan: Repayment	29622.857	29622.857	29622.857	29622.857	29622.857	29622.857	29622.857	0	0
Balance	177737.14	148114.29	118491.43	88868.571	59245.714	29622.857	-8E-09	-8E-09	-8E-09
Interest	26,957	23,106	19,255	15,404	11,553	7,702	3,851	0	0
S/T Loan: Repayment	0	0	0	0	0	0	0	0	0
Balance	0	0	0	0	0	0	0	0	0
Interest	0	0	0	0	0	0	0	0	0
Bonds/Deb: Repayment	0	0	0	0	0	0	0	0	0

PROJECT PROFILE SCREENING AND PRE-APPRAISAL INFORMATION SYSTEM
PROPSPIN - INVESTMENT

Schedule 1d
DEPRECIATION AND AMORTIZATION

	Period 1			Period 2			Period 3		
	New/Repl Invest	Depr/ Period	Accum	New/Repl Invest	Depr/ Period	Accum	New/Repl Invest	Depr/ Period	Accum
Land		0	0		0	0		0	0
Site Preparation		0	0		0	0		0	0
Design & Engineering		0	0		0	0		0	0
Bldgs & Civil Works		3,500	3,500		3,500	7,000		3,500	10,500
Service Facilities		0	0		0	0		0	0
Transport Equipment		0	0		0	0		0	0
Plant Mach & Equipment		8,000	8,000		8,000	16,000		8,000	24,000
Infrastructure		0	0		0	0		0	0
Preprod Capital Exp.		0	0		0	0		0	0
Subtotal		11,500	11,500		11,500	23,000		11,500	34,500
Contingencies		5,000	5,000		5,000	10,000		5,000	15,000
Research & Development		0	0		0	0		0	0
Technology		0	0		0	0		0	0
Total		16,500	16,500		16,500	33,000		16,500	49,500

	Period 4			Period 5			Period 6		
	New/Repl Invest	Depr/ Period	Accum	New/Repl Invest	Depr/ Period	Accum	New/Repl Invest	Depr/ Period	Accum
Land		0	0		0	0		0	0
Site Preparation		0	0		0	0		0	0
Design & Engineering		0	0		0	0		0	0
Bldgs & Civil Works		3,500	14,000		3,500	17,500		3,500	21,000
Service Facilities		0	0		0	0		0	0
Transport Equipment		0	0	0	0	0		0	0
Plant Mach & Equipment		8,000	32,000		8,000	40,000		8,000	48,000
Infrastructure		0	0		0	0		0	0
Preprod Capital Exp.		0	0		0	0			0
Subtotal		11,500	46,000	0	11,500	57,500		11,500	69,000
Contingencies		5,000	20,000		5,000	25,000		5,000	30,000
Research & Development		0	0		0	0		0	0
Technology		0	0		0	0			0
Total		16,500	66,000	0	16,500	82,500		16,500	99,000

	Period 7			Period 8			Period 9		
	New/Repl Invest	Depr/ Period	Accum	New/Repl Invest	Depr/ Period	Accum	New/Repl Invest	Depr/ Period	Accum
Land		0	0		0	0		0	0
Site Preparation		0	0		0	0		0	0
Design & Engineering		0	0		0	0		0	0
Bldgs & Civil Works		3,500	24,500		3,500	28,000		3,500	31,500
Service Facilities		0	0		0	0		0	0
Transport Equipment		0	0		0	0	0	0	0
Plant Mach & Equipment		8,000	56,000		8,000	64,000		8,000	72,000
Infrastructure		0	0		0	0		0	0
Preprod Capital Exp.			0		0	0		0	0
Subtotal		11,500	80,500		11,500	92,000	0	11,500	103,500
Contingencies		5,000	35,000		5,000	40,000		5,000	45,000
Research & Development		0	0		0	0		0	0
Technology			0		0	0		0	0
Total		16,500	115,500		16,500	132,000	0	16,500	148,500

PROJECT PROFILE SCREENING AND PRE-APPRAISAL INFORMATION SYSTEM
OPERATIONAL ANALYSIS — Schedule 2a

Title: Animal Feed Production
Location: Bahamas — Date: 19/12/84 — Income Tax
Project No: — Base Year: — Rate: 0
Sponsor: — Startup: — Income Tax
Prepared By: G. Bond — Inflation: 0 — Defer.Yrs: 0 Div. Rate:

Item	Unit Vals	1	2	3	4	5	6	7	8	9
SALES ANALYSIS:										
Product 1:										
Capacity/Year (tons)		45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Capacity Utilization (%)		60	65	70	75	80	85	90	90	90
Unit Production		27,000	29,250	31,500	33,750	36,000	38,250	40,500	40,500	40,500
Unit Price		140	140	140	140	140	140	140	140	140
Total Product Sales		3,780,000	4,095,000	4,410,000	4,725,000	5,040,000	5,355,000	5,670,000	5,670,000	5,670,000
Product 2:										
Capacity/Year (tons)		0	0	0	0	0	0	0	0	0
Capacity Utilization (%)		60	65	70	75	80	85	90	90	90
Unit Production		0	0	0	0	0	0	0	0	0
Unit Price		0	0	0	0	0	0	0	0	0
Total Product Sales		0	0	0	0	0	0	0	0	0
Product 3:										
Capacity/Year (tons)		0	0	0	0	0	0	0	0	0
Capacity Utilization (%)		60	65	70	75	80	85	90	90	90
Unit Production		0	0	0	0	0	0	0	0	0
Unit Price		0	0	0	0	0	0	0	0	0
Total Product Sales		0	0	0	0	0	0	0	0	0
Total Sales:		3,780,000	4,095,000	4,410,000	4,725,000	5,040,000	5,355,000	5,670,000	5,670,000	5,670,000
% Export	0	0	0	0	0	0	0	0	0	0
MATERIALS:										
Item 1:										
Qty/Unit of Prod	1	27,000	29,250	31,500	33,750	36,000	38,250	40,500	40,500	40,500
Cost/Unit of Item		84	84	84	84	84	84	84	84	84
Total Item Cost		2,268,000	2,457,000	2,646,000	2,835,000	3,024,000	3,213,000	3,402,000	3,402,000	3,402,000
Item 2:										
Qty/Unit of Prod	0	0	0	0	0	0	0	0	0	0
Cost/Unit of Item		0	0	0	0	0	0	0	0	0
Total Item Cost		0	0	0	0	0	0	0	0	0
Item 3:										
Qty/Unit of Prod	0	0	0	0	0	0	0	0	0	0
Cost/Unit of Item		0	0	0	0	0	0	0	0	0
Total Item Cost		0	0	0	0	0	0	0	0	0
Item 4:										
Qty/Unit of Prod	0	0	0	0	0	0	0	0	0	0
Cost/Unit of Item		0	0	0	0	0	0	0	0	0
Total Item Cost		0	0	0	0	0	0	0	0	0
Item 5:										
Qty/Unit of Prod	0	0	0	0	0	0	0	0	0	0
Cost/Unit of Item		0	0	0	0	0	0	0	0	0
Total Item Cost		0	0	0	0	0	0	0	0	0
Total Material Cost		2,268,000	2,457,000	2,646,000	2,835,000	3,024,000	3,213,000	3,402,000	3,402,000	3,402,000
LABOUR:										
Unskilled Number		15	15	15	15	15	15	15	15	15
Payrate ($/day & yr)	14	3640	3640	3640	3640	3640	3640	3640	3640	3640
Period Cost		54,600	54,600	54,600	54,600	54,600	54,600	54,600	54,600	54,600

Semi-skilled No.		0	0	0	0	0	0	0	0	0
Payrate ($/day & yr)	0	0	0	0	0	0	0	0	0	0
Period Cost		0	0	0	0	0	0	0	0	0
Skilled & Tech No.		2	2	2	2	2	2	2	2	2
Payrate ($/day & yr)	32	8320	8320	8320	8320	8320	8320	8320	8320	8320
Period Cost		16,640	16,640	16,640	16,640	16,640	16,640	16,640	16,640	16,640
Total Direct Labour		71,240	71,240	71,240	71,240	71,240	71,240	71,240	71,240	71,240
Cler/Adm No.		0	0	0	0	0	0	0	0	0
Salary ($/day & yr)	0	0	0	0	0	0	0	0	0	0
Period Cost		0	0	0	0	0	0	0	0	0
Expatriate No.		0	0	0	0	0	0	0	0	0
Salary ($/day & yr)	0	0	0	0	0	0	0	0	0	0
Period Cost		0	0	0	0	0	0	0	0	0
Management No.		1	1	1	1	1	1	1	1	1
Salary ($/day & yr)	109	26000	26000	26000	26000	26000	26000	26000	26000	26000
Period Cost		26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
Total Salaries		26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
Total Payroll		97,240	97,240	97,240	97,240	97,240	97240	97240	97240	97240
Total No. Employees	18									
UTILITIES:										
Electricity Un kwh/t	0	0	0	0	0	0	0	0	0	0
Unit Cost		0	0	0	0	0	0	0	0	0
Period Cost		6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Liquid Fuel l/t	0	0	0	0	0	0	0	0	0	0
Unit Cost		0	0	0	0	0	0	0	0	0
Period Cost		1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
Coal Units	0	0	0	0	0	0	0	0	0	0
Unit Cost		0	0	0	0	0	0	0	0	0
Period Cost		0	0	0	0	0	0	0	0	0
Gas Units	0	0	0	0	0	0	0	0	0	0
Unit Cost		0	0	0	0	0	0	0	0	0
Period Cost		0	0	0	0	0	0	0	0	0
Water Units	0	0	0	0	0	0	0	0	0	0
Unit Cost		0	0	0	0	0	0	0	0	0
Period Cost		0	0	0	0	0	0	0	0	0
Total Utilities		7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800
OVERHEADS										
Depreciation		16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500
Maintenance	3,800	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533
Insurance		1,267	1,267	1,267	1,267	1,267	1,267	1,267	1,267	1,267
Transportation		0	0	0	0	0	0	0	0	0
Training		0	0	0	0	0	0	0	0	0
Taxes		0	0	0	0	0	0	0	0	0
Misc.		4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700
Total Overhead		25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Adm & Mktg Expense		0	0	0	0	0	0	0	0	0
Total Cost of Operations		2,398,040	2,587,040	2,776,040	2,965,040	3,154,040	3,343,040	3,532,040	3,532,040	3,532,040
Operating Income		1,381,960	1,507,960	1,633,960	1,759,960	1,885,960	2,011,960	2,137,960	2,137,960	2,137,960
Total Interest Exp		26,957	23,106	19,255	15,404	11,553	7,702	3,851	0	0
Profit before Tax		1,355,003	1,484,854	1,614,705	1,744,556	1,874,407	2,004,259	2,134,109	2,137,960	2,137,960

PROJECT PROFILE SCREENING AND PRE-APPRAISAL INFORMATION SYSTEM — Schedule 3

PROPSPIN - NET INCOME STATEMENT

Project Title: Animal feed production — Income Tax

Project No: — Date: 19/12/84 — Equity: 432,640 — Rate: 0

Sponsor: — Div. Rate: 0 — Income Tax

Prepared By: G. Bonder — Defer.Yrs: 0

Period	1	2	3	4	5	6	7	8	9
Total Sales	3,780,000	4,095,000	4,410,000	4,725,000	5,040,000	5,355,000	5,670,000	5,670,000	5,670,000
Less: Operating Cost									
Variable:									
Materials	2,268,000	2,457,000	2,646,000	2,835,000	3,024,000	3,213,000	3,402,000	3,402,000	3,402,000
Labour	71,240	71,240	71,240	71,240	71,240	71,240	71,240	71,240	71,240
Utilities	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800
Fixed:									
OvHeads,incl dep	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Adm & Mktg Expen	0	0	0	0	0	0	0	0	0
Mgmt & Tech	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
Total	2,398,040	2,587,040	2,776,040	2,965,040	3,154,040	3,343,040	3,532,040	3,532,040	3,532,040
Operating Profit	1,381,960	1,507,960	1,633,960	1,759,960	1,885,960	2,011,960	2,137,960	2,137,960	2,137,960
Less: Interest Exp	26,957	23,106	19,255	15,404	11,553	7,702	3,851	0	0
Profit before Tax	1,355,003	1,484,854	1,614,705	1,744,556	1,874,407	2,004,258	2,134,109	2,137,960	2,137,960
Income Tax Expense	0	0	0	0	0	0	0	0	0
Net Profit	1,355,003	1,484,854	1,614,705	1,744,556	1,874,407	2,004,258	2,134,109	2,137,960	2,137,960
Less: Dividends	0	0	0	0	0	0	0	0	0
Undistributed profit	1,355,003	1,484,854	1,614,705	1,744,556	1,874,407	2,004,258	2,134,109	2,137,960	2,137,960
OPERAN:MAINTENANCE	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533

PROJECT PROFILE SCREENING AND PRE-APPRAISAL INFORMATION SYSTEM
PROPSPIN - BALANCE SHEET Schedule 4

Project Title: Animal Feed Production
Project No:
Sponsor:
Prepared By: G. Bonder Date: 19/12/84

Period	Days (Wrk Cap)	1	2	3	4	5	6	7	8	9
ASSETS										
Current Assets										
Cash	5	52,500	56,875	61,250	65,625	70,000	74,375	78,750	78,750	78,750
Accounts Rcvbl	30	315,000	341,250	367,500	393,750	420,000	446,250	472,500	472,500	472,500
Inventory										
Raw Material	60	378,000	409,500	441,000	472,500	504,000	535,500	567,000	567,000	567,000
In-Process	15	97,209	105,084	112,959	120,834	128,709	136,584	144,459	144,459	144,459
Finished Goods	30	199,837	215,587	231,337	247,087	262,837	278,587	294,337	294,337	294,337
Spares	120	422	422	422	422	422	422	422	422	422
Subtotal		1,042,968	1,128,718	1,214,468	1,300,218	1,385,968	1,471,718	1,557,468	1,557,468	1,557,468
Securities		63,867	2,048,274	3,587,731	5,257,039	7,056,198	8,985,209	8909960.7	8926460.7	11080921
Current Assets		1,106,835	3,176,992	4,802,199	6,557,257	8,442,166	10456927	10467429	10483929	12638389
Fixed Assets										
Cost		600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000
Less Dep/Amort		16,500	33,000	49,500	66,000	82,500	99,000	115,500	132,000	148,500
Net		583,500	567,000	550,500	534,000	517,500	501,000	484,500	468,000	451,500
TOTAL ASSETS		1,690,335	3,743,992	5,352,699	7,091,257	8,959,666	10957927	10951929	10951929	13089889
LIABILITIES										
Current Liabilities										
Accounts Payable	45	299,755	323,380	347,005	370,630	394,255	417,880	441,505	441,505	441,505
Loans										
Short-term		0	0	0	0	0	0	0	0	0
Long-term		177,737	148,114	118,491	88,869	59,246	29,623	0	0	0
Bonds/Debentures		0	0	0	0	0	0	0	0	0
Export Credit		0	0	0	0	0	0	0	0	0
Supplier Credit		0	0	0	0	0	0	0	0	0
Total		177,737	148,114	118,491	88,869	59,246	29,623	0	0	0
Equity		432,640	432,640	432,640	432,640	432,640	432,640	432,640	432,640	432,640
Undistributed Profit		1,355,003	2,839,857	4,454,563	6,199,119	8,073,526	10077784	10077784	10077784	12215744
TOTAL LIABILITIES		2,265,135	3,743,992	5,352,699	7,091,257	8,959,666	10957927	10951929	10951929	13089889
NET WORKING CAPITAL		807,080	2,853,612	4,455,194	6,186,627	3,047,911	10039047	10025924	10042424	12196884

PROJECT PROFILE SCREENING AND PRE-APPRAISAL INFORMATION SYSTEM
PROPSPIN - CASHFLOW STATEMENT

Project Title: Animal Feed Production
Project No:
Sponsor:
Prepared By: G. Bonder

Schedule 5

Total fixed Assets: 600,000 Date: 19/12/84

Period	Days (Work Cap)	0	1	2	3	4	5	6	7	8
SOURCES OF CASH										
Net Profit			1,355,003	1,484,854	1,614,705	1,744,556	1,874,407	2,004,258	2,134,109	2,137,960
Depr & Amort			16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500
Incr in Acc Pay	45	149,878	149,878	23,625	23,625	23,625	23,625	23,625	23,625	0
New Equity		432,640								
New Loans		539,178	0	0	0	0	0	0	0	0
Total		1,121,695	1,521,381	1,524,979	1,654,830	1,784,681	1,914,532	2,044,383	2,174,234	2,154,460
USES OF CASH										
Incr in Cash Bal	5	26,250	26,250	4,375	4,375	4,375	4,375	4,375	4,375	0
Incr in Acc Rcvbl	30	157,500	157,500	4,375	26,250	26,250	26,250	26,250	26,250	0
Inc in Inventories										
Raw Material	60	189,000	189,000	31,500	31,500	0	31,500	31,500	31,500	0
In-Process	15	48,605	48,605	7,875	7,875	7,875	7,875	7,875	10,584	0
Finished Goods	30	99,918	99,918	15,750	15,750	15,750	15,750	15,750	15,750	0
Spares	120	422	422	0	0	0	0	0	0	0
Fixed Assets		600,000								
Repayments			29,623	29,623	29,623	29,623	29,623	29,623	29,623	0
Dividends			0	0	0	0	0	0	0	0
Addl Payout-Reinv			970,063	1,431,481	1,539,457	1,700,808	1,799,159	1,929,010	2,056,152	2,154,460
Total		1,121,695	1,521,381	1,524,979	1,654,830	1,784,681	1,914,532	2,044,383	2,174,234	2,154,460

PROJECT PROFILE SCREENING AND PRE-APPRAISAL INFORMATION SYSTEM

PROPSPIN - RATIO ANALYSIS

Project Title: Animal Feed Production — Schedule 6
Project No:
Sponsor:
Prepared By: G. Bonder — No. of Employees: 18 — Date: 19/12/84

Period		1	2	3	4	5	6	7	8	9
-Return on Tot Invest		225.8	247.5	269.1	290.8	312.4	334.0	355.7	356.3	356.3
-Return on Equity		313.2	343.2	373.2	403.2	433.2	463.3	493.3	494.2	494.2
-Return on Sales		35.8	36.3	36.6	36.9	37.2	37.4	37.6	37.7	37.7
-Payback Period Calc										
Intitial Invest.	640,000									
Cashflow (NP+Dep+Int)		1,398,460	1,524,460	1,650,460	1,776,460	1,902,460	2,028,460	2,154,460	2,154,460	2,154,460
Cumulative Cashflow		1,398,460	2,922,920	4,573,380	6,349,840	8,252,300	10280760	10280760	10280760	16744140
Lookup period		1	2	3	4	5	6	7	8	9
Payback Period	#N/A									
-Debt Service Coverage		24.7	28.9	33.8	39.5	46.2	54.3	64.4		
-Investment Turnover		5.9	6.4	6.9	7.4	7.9	8.4	8.9	8.9	8.9
-Debt/Equity Ratio		0.4	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0
-Investment/Employee	35,556									

-Internal Rate of Return

Enter Trial (%):	227	NPV:	472
	228.0		-2,444

-Breakeven Point Calculation — Year 5 (Assumed normal year)

Sales:	5,040,000	
Fixed Costs:	62,553	
Variable Costs:	3,103,040	5,040,000
BEP:	3	

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROPSPIN SUMMARY SHEET

*** Rough Reference Run ***

Restricted
Date: 19/12/84

IDENTIFICATION:

1. Project Title: Animal Feed Production
2. Location: Bahamas
3. Constr. Period:

	Prod 1	Prod 2	Prod 3
4. Products:			
5. Capacity/Year:	45,000 tons	0 tons	0 tons
6. Selling Price:	140 US$	0 US$	0 US$

FINANCIAL SUMMARY

6. Total Investment, US$ '000:	740
7. Internal Rate of Return:	95 %
8. Payback Period:	2 Years
9. Breakeven Point:	7 % Cap Util
10. Debt/Equity Ratio:	0.20 Year 5
11. Return on Equity:	324 % in year 9

OPERATIONS SUMMARY

	Year 1	Year 3	Year 5
12. Capacity Utilization % :	40	50	60
13. Total Sales, US$ '000:	2,520	3,150	3,780
15: Total Employment:	18 Persons		

SENSITIVITY ANALYSIS

Will be prepared on request

LIST OF ATTACHED SCHEDULES

PROJECT PROFILE SCREENING AND PRE-APPRAISAL INFORMATION SYSTEM — Schedule 1a
PROPSPIN - INVESTMENT

Project Title: Animal Feed Production
Location: Bahamas — Date: 19/12/84 — Income Tax Rate: 0
Project No: — Base Year: — Startup: — Income Tax Defer.Yrs: 0
Sponsor:
Prepared By: G. Bonder — Inflation: 0

Schedule 1a INVESTMENT	Local	Foreign	Total	Depr Aert Rate	Annual Maint & Insur. Rate	Maint & Insur. Expense
Land	0	0	0	0	0	0
Site Preparation	0	0	0	2	0	0
Design & Engineering	0	0	0	8	0	0
Bldgs & Civil Works	70,000	0	70,000	5	2	1,400
Service Facilities	0	0	0	5	2	0
Transport Equipment	0	0	0	25	5	0
Plant Mach & Equipment	0	180,000	180,000	10	3	5,400
Infrastructure	0	0	0	3	1	0
Preprod Capital Exp.	0	350,000	350,000	0	0	0
Subtotal	70,000	530,000	600,000			6,800
Contingencies	0	100,000	100,000	5	0	0
Research & Development	0	0	0	20	0	0
Technology	0	0	0	20	0	0
Total Fixed Investment	70,000	630,000	700,000			6,800
Net Working Capital	20,000	20,000	40,000			
Total Investment	90,000	650,000	740,000			

PROPSPIN - INVESTMENT

Schedule 1b CAPITAL STRUCTURE	Local	Foreign	Total	% Rate Local	% Rate Foreign	Maturity Years Local	Maturity Years Foreign	Grace Years Local	Grace Years Foreign
Equity	311,040	121,600	432,640	0	(for % loc % of net profit)				
Long Term Loans	307,360	0	307,360	13	0	7	0	0	0
Short Term Loans	0	0	0	0	0	0	0	0	0
Bonds/Debentures	0	0	0	0	0	0	0	0	0
Suppliers Credits	0	0	0	0	0	0	0	0	0
Export Credits	0	0	0	0	0	0	0	0	0
Subsidies	0	0	0						
Total Debt & Equity	618,400	121,600	740,000						

Schedule 1c DEBT SERVICE

Local Per)	1	2	3	4	5	6	7	8	9
L/T Loan: Repayment	43908.571	43908.571	43908.571	43908.571	43908.571	43908.571	43908.571	0	0
Balance	263451.43	219542.86	175634.29	131725.71	87817.143	43908.571	7E-09	7E-09	7E-09
Interest	39.957	34,249	28,541	22,832	17,124	11,416	5,708	0	0
S/T Loan: Repayment	0	0	0	0	0	0	0	0	0
Balance	0	0	0	0	0	0	0	0	0
Interest	0	0	0	0	0	0	0	0	0
Bonds/Deb: Repayment	0	0	0	0	0	0	0	0	0

PROJECT PROFILE SCREENING AND PRE-APPRAISAL INFORMATION SYSTEM
PROPSPIN - INVESTMENT

Schedule 1d
DEPRECIATION AND
AMORTIZATION

	Period 1			Period 2			Period 3		
	New/Repl Invest	Depr/ Period	Accum	New/Repl Invest	Depr/ Period	Accum	New/Repl Invest	Depr/ Period	Accum
Land		0	0		0	0		0	0
Site Preparation		0	0		0	0		0	0
Design & Engineering		0	0		0	0		0	0
Bldgs & Civil Works		3,500	3,500		3,500	7,000		3,500	10,500
Service Facilities		0	0		0	0		0	0
Transport Equipment		0	0		0	0		0	0
Plant Mach & Equipment		18,000	18,000		18,000	36,000		18,000	54,000
Infrastructure		0	0		0	0		0	0
Preprod Capital Exp.		0	0		0	0		0	0
Subtotal		21,500	21,500		21,500	43,000		21,500	64,500
Contingencies		5,000	5,000		5,000	10,000		5,000	15,000
Research & Development		0	0		0	0		0	0
Technology		0	0		0	0		0	0
Total		26,500	26,500		26,500	53,000		26,500	79,500

	Period 4			Period 5			Period 6		
	New/Repl Invest	Depr/ Period	Accum	New/Repl Invest	Depr/ Period	Accum	New/Repl Invest	Depr/ Period	Accum
Land		0	0		0	0		0	0
Site Preparation		0	0		0	0		0	0
Design & Engineering		0	0		0	0		0	0
Bldgs & Civil Works		3,500	14,000		3,500	17,500		3,500	21,000
Service Facilities		0	0		0	0		0	0
Transport Equipment		0	0	0	0	0		0	0
Plant Mach & Equipment		18,000	72,000		18,000	90,000		18,000	108,000
Infrastructure		0	0		0	0		0	0
Preprod Capital Exp.		0	0		0	0			0
Subtotal		21,500	86,000	0	21,500	107,500		21,500	129,000
Contingencies		5,000	20,000		5,000	25,000		5,000	30,000
Research & Development		0	0		0	0		0	0
Technology		0	0		0	0			0
Total		26,500	106,000	0	26,500	132,500		26,500	159,000

	Period 7			Period 8			Period 9		
	New/Repl Invest	Depr/ Period	Accum	New/Repl Invest	Depr/ Period	Accum	New/Repl Invest	Depr/ Period	Accum
Land		0	0		0	0		0	0
Site Preparation		0	0		0	0		0	0
Design & Engineering		0	0		0	0		0	0
Bldgs & Civil Works		3,500	24,500		3,500	28,000		3,500	31,500
Service Facilities		0	0		0	0		0	0
Transport Equipment		0	0		0	0	0	0	0
Plant Mach & Equipment		18,000	126,000		18,000	144,000		18,000	162,000
Infrastructure		0	0		0	0		0	0
Preprod Capital Exp.			0		0	0		0	0
Subtotal		21,500	150,500		21,500	172,000	0	21,500	193,500
Contingencies		5,000	35,000		5,000	40,000		5,000	45,000
Research & Development		0	0		0	0		0	0
Technology			0		0	0		0	0
Total		26,500	185,500		26,500	212,000	0	26,500	238,500

PROJECT PROFILE SCREENING AND PRE-APPRAISAL INFORMATION SYSTEM
OPERATIONAL ANALYSIS

Schedule 2a

Title: Animal Feed Production
Location: Bahamas
Project No:
Sponsor:
Prepared By: G. Bond

Date: 19/12/84
Base Year:
Startup:
Inflation: 0

Income Tax Rate: 0
Income Tax Defer.Yrs: 0 Div. Rate:

Item	Unit Vals	1	2	3	4	5	6	7	8	9
SALES ANALYSIS:										
Product 1:										
Capacity/Year (tons)		45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Capacity Utilization (%)		40	45	50	55	60	65	75	80	85
Unit Production		18,000	20,250	22,500	24,750	27,000	29,250	33,750	36,000	38,250
Unit Price		140	140	140	140	140	140	140	140	140
Total Product Sales		2,520,000	2,835,000	3,150,000	3,465,000	3,780,000	4,095,000	4,725,000	5,040,000	5,355,000
Product 2:										
Capacity/Year (tons)		0	0	0	0	0	0	0	0	0
Capacity Utilization (%)		40	45	50	55	60	65	75	80	85
Unit Production		0	0	0	0	0	0	0	0	0
Unit Price		0	0	0	0	0	0	0	0	0
Total Product Sales		0	0	0	0	0	0	0	0	0
Product 3:										
Capacity/Year (tons)		0	0	0	0	0	0	0	0	0
Capacity Utilization (%)		40	45	50	55	60	65	75	80	85
Unit Production		0	0	0	0	0	0	0	0	0
Unit Price		0	0	0	0	0	0	0	0	0
Total Product Sales		0	0	0	0	0	0	0	0	0
Total Sales:		2,520,000	2,835,000	3,150,000	3,465,000	3,780,000	4,095,000	4,725,000	5,040,000	5,355,000
% Export	0	0	0	0	0	0	0	0	0	0
MATERIALS:										
Item 1:										
Qty/Unit of Prod	1	18,000	20,250	22,500	24,750	27,000	29,250	33,750	36,000	38,250
Cost/Unit of Item		100	100	100	100	100	100	100	100	100
Total Item Cost		1,800,000	2,025,000	2,250,000	2,475,000	2,700,000	2,925,000	3,375,000	3,600,000	3,825,000
Item 2:										
Qty/Unit of Prod	0	0	0	0	0	0	0	0	0	0
Cost/Unit of Item		0	0	0	0	0	0	0	0	0
Total Item Cost		0	0	0	0	0	0	0	0	0
Item 3:										
Qty/Unit of Prod	0	0	0	0	0	0	0	0	0	0
Cost/Unit of Item		0	0	0	0	0	0	0	0	0
Total Item Cost		0	0	0	0	0	0	0	0	0
Item 4:										
Qty/Unit of Prod	0	0	0	0	0	0	0	0	0	0
Cost/Unit of Item		0	0	0	0	0	0	0	0	0
Total Item Cost		0	0	0	0	0	0	0	0	0
Item 5:										
Qty/Unit of Prod	0	0	0	0	0	0	0	0	0	0
Cost/Unit of Item		0	0	0	0	0	0	0	0	0
Total Item Cost		0	0	0	0	0	0	0	0	0
Total Material Cost		1,800,000	2,025,000	2,250,000	2,475,000	2,700,000	2,925,000	3,375,000	3,600,000	3,825,000
LABOUR:										
Unskilled Number		15	15	15	15	15	15	15	15	15
Payrate ($/day & yr)	14	3640	3640	3640	3640	3640	3640	3640	3640	3640
Period Cost		54,600	54,600	54,600	54,600	54,600	54,600	54,600	54,600	54,600

PROPSPIN - OPERATIONAL ANALYSIS Page 2b

Semi-skilled No.		0	0	0	0	0	0	0	0	0
Payrate ($/day & yr)	0	0	0	0	0	0	0	0	0	0
Period Cost		0	0	0	0	0	0	0	0	0
Skilled & Tech No.		2	2	2	2	2	2	2	2	2
Payrate ($/day & yr)	32	8320	8320	8320	8320	8320	8320	8320	8320	8320
Period Cost		16,640	16,640	16,640	16,640	16,640	16,640	16,640	16,640	16,640
Total Direct Labour		71,240	71,240	71,240	71,240	71,240	71,240	71,240	71,240	71,240
Cler/Ads No.		0	0	0	0	0	0	0	0	0
Salary ($/day & yr)	0	0	0	0	0	0	0	0	0	0
Period Cost		0	0	0	0	0	0	0	0	0
Expatriate No.		0	0	0	0	0	0	0	0	0
Salary ($/day & yr)	0	0	0	0	0	0	0	0	0	0
Period Cost		0	0	0	0	0	0	0	0	0
Management No.		1	1	1	1	1	1	1	1	1
Salary ($/day & yr)	100	26000	26000	26000	26000	26000	26000	26000	26000	26000
Period Cost		26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
Total Salaries		26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
Total Payroll		97,240	97,240	97,240	97,240	97,240	97240	97240	97240	97240
Total No. Employees	18									
UTILITIES:										
Electricity Un kwh/t	0	0	0	0	0	0	0	0	0	0
Unit Cost		0	0	0	0	0	0	0	0	0
Period Cost		6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Liquid Fuel l/t	0	0	0	0	0	0	0	0	0	0
Unit Cost		0	0	0	0	0	0	0	0	0
Period Cost		1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
Coal Units	0	0	0	0	0	0	0	0	0	0
Unit Cost		0	0	0	0	0	0	0	0	0
Period Cost		0	0	0	0	0	0	0	0	0
Gas Units	0	0	0	0	0	0	0	0	0	0
Unit Cost		0	0	0	0	0	0	0	0	0
Period Cost		0	0	0	0	0	0	0	0	0
Water Units	0	0	0	0	0	0	0	0	0	0
Unit Cost		0	0	0	0	0	0	0	0	0
Period Cost		0	0	0	0	0	0	0	0	0
Total Utilities		7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800
OVERHEADS										
Depreciation		26,500	26,500	26,500	26,500	26,500	26,500	26,500	26,500	26,500
Maintenance	6,300	4,533	4,533	4,533	4,533	4,533	4,533	4,533	4,533	4,533
Insurance		2,267	2,267	2,267	2,267	2,267	2,267	2,267	2,267	2,267
Transportation		0	0	0	0	0	0	0	0	0
Training		0	0	0	0	0	0	0	0	0
Taxes		0	0	0	0	0	0	0	0	0
Misc.		-8,300	-8,300	-8,300	-8,300	-8,300	-8,300	-8,300	-8,300	-8,300
Total Overhead		25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Ads & Mktg Expense		0	0	0	0	0	0	0	0	0
Total Cost of Operations		1,930,040	2,155,040	2,380,040	2,605,040	2,830,040	3,055,040	3,505,040	3,730,040	3,955,040
Operating Income		539,960	679,960	769,960	859,960	949,960	1,039,960	1,219,960	1,309,960	1,399,960
Total Interest Exp		39,957	34,269	28,581	22,892	17,204	11,516	5,828		0
Profit before Tax		500,003	645,711	741,419	837,128	932,836	1,028,544	1,214,132	1,309,960	1,399,960

PROJECT PROFILE SCREENING AND PRE-APPRAISAL INFORMATION SYSTEM — Schedule 3

FEED PROPSPIN - NET INCOME STATEMENT

Project Title: Animal/Production — Income Tax
Project No: — Date: 19/12/84 — Equity: 432,640 — Rate: 0
Sponsor: — Div. Rate: 0 — Income Tax
Prepared By: G. Bonder — Defer.Yrs: 0

Period	1	2	3	4	5	6	7	8	9
Total Sales	2,520,000	2,835,000	3,150,000	3,465,000	3,780,000	4,095,000	4,725,000	5,040,000	5,355,000
Less: Operating Cost									
Variable:									
Materials	1,800,000	2,025,000	2,250,000	2,475,000	2,700,000	2,925,000	3,375,000	3,600,000	3,825,000
Labour	71,240	71,240	71,240	71,240	71,240	71,240	71,240	71,240	71,240
Utilities	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800
Fixed:									
OvHeads.incl dep	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Adm & Mktg Expen	0	0	0	0	0	0	0	0	0
Mgmt & Tech	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
Total	1,930,040	2,155,040	2,380,040	2,605,040	2,830,040	3,055,040	3,505,040	3,730,040	3,955,040
Operating Profit	589,960	679,960	769,960	859,960	949,960	1,039,960	1,219,960	1,309,960	1,399,960
Less: Interest Exp	39,657	34,249	28,541	22,832	17,124	11,416	5,708	0	0
Profit before Tax	550,303	645,711	741,419	837,128	932,836	1,028,544	1,214,252	1,309,960	1,399,960
Income Tax Expense	0	0	0	0	0	0	0	0	0
Net Profit	550,303	645,711	741,419	837,128	932,836	1,028,544	1,214,252	1,309,960	1,399,960
Less: Dividends	0	0	0	0	0	0	0	0	0
Undistributed profit	550,303	645,711	741,419	837,128	932,836	1,028,544	1,214,252	1,309,960	1,399,960
OPERAN:MAINTENANCE	4,533	4,533	4,533	4,533	4,533	4,533	4,533	4,533	4,533

PROJECT PROFILE SCREENING AND PRE-APPRAISAL INFORMATION SYSTEM
PROPSPIN - BALANCE SHEET Schedule 4

Project Title: Animal Feed Production
Project No:
Sponsor:
Prepared By: G. Bonder Date: 19/12/84

Period	Days (Wrk Cap)	1	2	3	4	5	6	7	8	9
ASSETS										
Current Assets										
Cash	5	35,000	39,375	43,750	48,125	52,500	56,875	65,625	70,000	74,375
Accounts Rcvbl	30	210,000	236,250	262,500	288,750	315,000	341,250	393,750	420,000	446,250
Inventory										
Raw Material	60	300,000	337,500	375,000	412,500	450,000	487,500	562,500	600,000	637,500
In-Process	15	77,709	87,084	96,459	105,834	115,209	124,584	143,334	152,709	162,084
Finished Goods	30	160,637	179,587	198,337	217,087	235,837	254,587	292,087	310,837	329,587
Spares	120	756	756	756	756	756	756	756	756	756
Subtotal		784,301	880,551	976,801	1,073,051	1,169,301	1,265,551	1,458,051	1,554,301	1,650,551
Securities		2,955	589,726	1,245,612	1,997,206	2,844,508	3,787,518	4,848,111	6,116,446	7,474,781
Current Assets		787,256	1,470,277	2,222,413	3,070,257	4,013,809	5,053,069	6,306,163	7,670,748	9,125,333
Fixed Assets										
Cost		700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000
Less Dep/Amort		26,500	53,000	79,500	106,000	132,500	159,000	185,500	212,000	238,500
Net		673,500	647,000	620,500	594,000	567,500	541,000	514,500	488,000	461,500
TOTAL ASSETS		1,460,756	2,117,277	2,842,913	3,664,257	4,581,309	5,594,069	6,820,663	8,158,748	9,586,833
LIABILITIES										
Current Liabilities										
Accounts Payable	45	241,255	269,380	297,505	325,630	353,755	381,880	438,130	466,255	494,380
Loans										
Short-term		0	0	0	0	0	0	0	0	0
Long-term		263,451	219,543	175,634	131,726	87,817	43,909	0	0	0
Bonds/Debentures		0	0	0	0	0	0	0	0	0
Export Credit		0	0	0	0	0	0	0	0	0
Supplier Credit		0	0	0	0	0	0	0	0	0
Total		263,451	219,543	175,634	131,726	87,817	43,909	0	0	0
Equity		432,640	432,640	432,640	432,640	432,640	432,640	432,640	432,640	432,640
Undistributed Profit		550,003	1,195,715	1,937,134	2,774,261	3,707,397	4,735,641	5,949,893	7,259,853	8,659,813
TOTAL LIABILITIES		1,487,350	2,117,277	2,842,913	3,664,257	4,581,309	5,594,069	6,820,663	8,158,748	9,586,833
NET WORKING CAPITAL		546,001	1,200,897	1,924,908	2,744,627	3,660,054	4,671,189	5,868,033	7,204,493	8,630,953

PROJECT PROFILE SCREENING AND PRE-APPRAISAL INFORMATION SYSTEM
PROPSPIN - CASHFLOW STATEMENT

Project Title: Animal Feed Production — Schedule 5
Project No:
Sponsor:
Prepared By: G. Bender — Total fixed Assets: 700,000 Date: 19/12/84

Period	Days (Work Cap)	0	1	2	3	4	5	6	7	8
SOURCES OF CASH										
Net Profit			550,003	645,711	741,419	837,128	932,836	1,028,544	1,214,252	1,309,960
Depr & Amort			26,500	26,500	26,500	26,500	26,500	26,500	26,500	26,500
Incr in Acc Pay	45	120,628	120,628	28,125	28,125	28,125	28,125	28,125	56,250	28,125
New Equity		432,640								
New Loans		539,261	0	0	0	0	0	0	0	0
Total		1,092,528	697,131	700,336	796,044	891,753	987,461	1,083,169	1,297,002	1,364,585
USES OF CASH										
Incr in Cash Bal	5	17,500	17,500	4,375	4,375	4,375	4,375	4,375	8,750	4,375
Incr in Acc Rcvbl	30	105,000	105,000	4,375	26,250	26,250	26,250	26,250	52,500	26,250
Inc in Inventories										
Raw Material	60	150,000	150,000	37,500	37,500	0	37,500	37,500	75,000	37,500
In-Process	15	38,855	38,855	9,375	9,375	9,375	9,375	9,375	21,459	9,375
Finished Goods	30	80,418	80,418	18,750	18,750	18,750	18,750	18,750	37,500	18,750
Spares	120	756	756	0	0	0	0	0	0	0
Fixed Assets		700,000								
Repayments			43,909	43,909	43,909	43,909	43,909	43,909	43,909	0
Dividends			0	0	0	0	0	0	0	0
Addl Payout-Reinv			260,694	582,053	655,386	789,094	847,302	943,010	1,057,884	1,268,335
Total		1,092,528	697,131	700,336	796,044	891,753	987,461	1,083,169	1,297,002	1,364,585

PROJECT PROFILE SCREENING AND PRE-APPRAISAL INFORMATION SYSTEM

PROPSPIN - RATIO ANALYSIS

Project Title: Animal Feed Production — Schedule 6
Project No:
Sponsor:
Prepared By: G. Bonder — No. of Employees: 18 Date: 19/12/84

Period		1	2	3	4	5	6	7	8	9
-Return on Tot Invest		78.6	92.2	105.9	119.6	133.3	146.9	173.5	187.1	200.0
-Return on Equity		127.1	149.2	171.4	193.5	215.6	237.7	280.7	302.8	323.6
-Return on Sales		21.8	22.8	23.5	24.2	24.7	25.1	25.7	26.0	26.1
-Payback Period Calc										
Intitial Invest.	740,000									
Cashflow (NP+Dep+Int)		616,460	706,460	796,460	886,460	976.460	1,066,460	1,246,460	1,336,460	1,426,460
Cumulative Cashflow		616,460	1,322,920	2,119,380	3,005,840	3,992,300	5,048,760	6,295,220	7,631,680	9,058,140
Lookup period		1	2	3	4	5	6	7	8	9
Payback Period	2									
-Debt Service Coverage		7.4	9.0	11.0	13.3	16.0	19.3	23.1	##########	##########
-Investment Turnover		3.4	3.8	4.3	4.7	5.1	5.5	6.4	6.8	7.2
-Debt/Equity Ratio		0.6	0.5	0.4	0.3	0.2	0.1	0.0	0.0	0.0
-Investment/Employee	41,111									

-Internal Rate of Return

Enter Trial (Z): 227 NPV: -450.949

228.0 -452,294

-Breakeven Point Calculation — Year 5 (Assumed normal year)

Sales:	3,780,000	
Fixed Costs:	68,124	
Variable Costs:	2,779,040	5,040,000
BEP:	7