

FOOD PROCESSING AND NATIONAL ECONOMIC RECOVERY

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Introduction

In our current economic crisis, many afflicted and deprived Ghanaians unmistakably crave for one item of survival, namely food. In many homes, entire salaries and wages of individuals are put into food purchase, simply because man must eat to survive ! The situation is especially critical in the lean seasons because of the scarcity and the high prices of food. Even the local staples which are traditionally grown in large quantities and often abound in greater profusion on public markets than most other foods, are now hard to come by, while common-place items like cassava, vegetables, garri, kokonte and so on no longer constitute the "cheaper foods" they used to be. To be sure, the scarcity and its attendant high prices have engulfed all sectors of the economy, with no foreseeable improvement in the national predicament for a long time to come.

On the other hand, one does not have to go too far to find the causes of our woes. We are a nation with a high rate of population growth, a high level of consumption of consumer goods and a high preference for variety and volume especially in traditional foods, consequently, it makes good sense to plan for the extensive production and conservation of the foods we utilise most.

You are all familiar with the case of people living in so-called barren lands - under desert conditions : how some of them have orientated their economic activity largely into agricultural pursuits - producing and processing farm produce for home consumption as well as export; and how often we ask ourselves if we could not do likewise if not for any other reason but to feed ourselves !

CONSTRAINTS AND OPPORTUNITIES

Evidently, there will be ~~problems in taking such bold~~ steps - infrastructural, geographic and many others, but then constraints exist everywhere, including the desert ! Sometimes I think we forget that we have especial endowment in this sector also which is a combination of our rich guinea soil with a favourable agricultural environment. We can see aspects of these in our excellent year-round distribution of rainfall in the forests, and in the opportunities offered by artificial lakes, dug-outs and dams as foundations of irrigated agriculture. Traditionally, and under normal circumstances, geographical constraints are the most important factors in food production and with them the degree of precipitation or water supply. We are fortunate, however, that in our case, these do not constitute serious obstacles to production. If anything our problem reduced to its naked dimensions is planning.

LOCAL INDUSTRIES VS. LOCAL NEEDS

Having dwelt briefly on our food woes, I shall take up the subject of the industries of relevance to the national food supply and of what we can expect from them in our quest for relief in the challenging economic plight.

There are many ways of looking at the food industries. You can classify them according to the broad lines of products produced or according to the raw materials processed. For our purposes, however, it would be helpful to base our classification even on a different criterion altogether, namely, the level of technology employed by the industries, as this bears a relationship (as we shall soon see) to the kinds of foods finally put out for sale on the market.

Basically, we can identify the modern industrial establishments such as GIHOC, the various state enterprises (e.g. the State Farms Corporation, Tema Food Complex Corporation, the Sugar Mills, etc.) and finally, private industry both Ghanaian and foreign-owned (Nkulenu, Lever Brothers, Cadbury's and so on). A casual examination of the operations of these establishments shows that they are highly capitalized industries engaged in the production import-substitution items primarily.

The list includes canned and bottled fruit juices, vegetable concentrates like tomato paste, tomato ketchup, refined vegetable oils, margarine, food beverages, milk, sugar, wheat flour, canned meat and fish and spirits and wines to mention some of them. Needless to say, production is based on tastes acquired largely from alien culture and by our long association with foreign habits. There are no handy statistics to quote, but the production volume is very minimal. On the other hand, production inputs including managerial and running costs are high and in some cases, raw materials are imported thus putting high prices on goods.

Contrasting sharply with the above is the traditional sector which is completely homegrown. Processing (or shall I say preservation) is based on the local staples or the foods the people commonly eat. These include everyday items like garri, kenkey, cassava dough, maize dough, roasted corn meal etc. Others are smoked and salted fish, dried snails, smoked game, ground pepper and milled spices. You will no doubt agree that these are the common man's foods. Their technology is simple though labour - intensive, but with no serious overheads or foreign exchange constraints to burden production and make supplies erratic.

THE CHALLENGES FACED

Some people argue that even if we accept the traditional technology for the food industries, the mass-scale production of consumer goods will not be practicable. This is because traditional technology is generally considered as too primitive or too slow for any reasonable advancement to be made in the sector. On the other hand, it can be argued that appropriate technology is available to cater for modern needs.

Again there are people who consider that an invasion of the traditional by any form of transfer or so-called appropriate technology will work to the detriment of an otherwise stable socio-economy and wreck job opportunities and incomes. Contrary to these notions, I believe that the new technologies will modify the traditional practice for the better by forging out new ideas, technique refinement and

introducing labour-saving and energy-saving devices and processes which in the long run may mean improved working conditions and easier and abundant life for processor and consumer alike.

Evidently, ours are very difficult times in which we should take every worthy suggestion as a vehicle for change. My suggestion to your Corporation, therefore in its quest to contribute to Ghana's economic recovery is simple and two-fold. Initially you could expand the present operations and broaden the scope of products offered particularly those based on local raw materials. The other is to move massively into the traditional sector - to the foods closer to the appetites and pockets of the people. I would go as far as suggesting that you ^{should} create a modest new company or subsidiary commissioned with the express task of preserving and processing selected staple food items for the people. I believe such an organization could eventually become a force in food marketing, equal in strength, and perhaps in influence to the present traditional set-up. I believe that unless we can tackle our national problems at grass roots level and tackle them well, no improvement in the living standard can be anticipated for a long time. At this stage, perhaps, a brief survey of the activities at my Institute can point a way as to how some of these objectives can be achieved.

THE F.R.I. RESEARCH PROGRAMMES

The Food Research Institute operates a Research Programme with a Consultancy Section which in addition to carrying out investigations into problems of the food industries, assists clients in solving industrial problems at an agreed fee. Whatever results we obtain from our investigations therefore, become the proprietary possession of the client unless the information is common knowledge and as such likely to be acquired by anyone or naturally passed on to all by tradition.

We operate mostly in the field of technology development, seeking to improve upon process and products peculiar to or occurring in our food economy. Our emphasis, however, is on technologies appropriate to given products or lines or units of production.

These involve a Labour-Saving and Rural Technology Programme and a Processing and Preservation Programme in a coordinated venture geared to the fabrication and testing of equipment and processing of food produce for industry.

Supporting these activities are our Economics and Consumer Studies Programme which costs production and determines the viability of processes and operations. There is also a Nutrition Programme which works on special dietary items such as baby foods, invalid foods, as well as the nutritional profile of all foods processed in the Institute for purposes of balancing them where nutritionally deficient. Finally there is a Storage Programme geared to the control of post-harvest losses in grains, roots, tubers and vegetables, thus making more food and food raw materials available for industry and people.

THE PRESENT LINE OF RESEARCH

At this stage, it may be worth mentioning what we have accomplished in the Food Research Institute and what products and processes we can offer your Corporation in the goal it has set itself to aid the national reconstruction effort.

Much of the technology we have developed in respect of local foods is in the field of dehydrated products. We have taken this line of investigation because food dehydration is not only indigenous to Ghana but is easier to employ as a technique, cheaper to use and produces products readily storable and preparable. Other local technologies which we have improved upon and willing to pass on to Ghanaian entrepreneurs are in the salting and smoking of animal foods. I shall now discuss some of these processes in detail.

Maize Dough: Mzize is commonly used in Ghana in the form of fermented dough. However, the processes involves in the manufacture of the dough are tedious and time-consuming. One of these is the fermentation of the fresh dough which requires a succession of microorganisms to bring about the desired changes in flavour and final form of the product. In our studies, we have introduced a starter culture with which we innoculate the fresh dough directly to lessen the fermentation period. Thereafter the fermented material is dehydrated in a cabinet dryer, milled and packed in plastic

bags for the market. This dough now serves as an intermediate product which can be used for the variety of maize dishes known to the people - namely kenkey, banku, abolloo, akpler, akasa and so on.

Bread flours: Maize has also been processed into flour in substitution for a part of the wheaten component of bread. The practice of making corn bread in Ghana first gained eminence during World War II 1939 - 1945, and recently in the early 1970s when wheat flour became scarce in the country. We believe that the practice of eating this type of bread in substitution for the wheaten variety can be reactivated in view of the frequent shortages of imported flour on the market.

Instant Fufu flour: Presently improvement has been made in the processing of cassava and yam flours for use in the making of instant fufu. In the past, these flours have not been well received because of the strong preference for the traditional methods of making fufu, namely by use of the mortar and pestle. But as food habits change it would be hoped that flour-based fufus would also make more favourable inroads into the food economy.

Palm Pulp Powder: The aim of this project is to develop a powder from the palm fruit that can serve as a convenience food as well as a means for preserving the palm. Initially therefore, we produce a palm pulp slurry then dehydrate it in a drum dryer after which we pack the finished product in polythene bag. The material stores well at ordinary temperatures and reconstitutes favourably. Meanwhile the Government of Ghana has granted the Food Research Institute ₵5 million to go into semi-commercial production of the palm powder while arrangements are being made with technical aid agencies to assist in the procurement of equipment and machinery for the plant.

Cassava/Garri Technology: Various units of equipment for the primary processing of cassava and garri have been developed or adapted from known models by transfer technology. These include graters, mashers, presses and dryers all of which have been evaluated for efficiency and yield with favourable results.

Studies are therefore under way to design a garri production outfit, complete with a roaster to pilot the production of this important food-stuff for the market.

Incidentally, our dryers include a solar dryer introduced into the Institute by an Australian Scientist. This dryer has been tested for efficiency in the drying of fresh fish, winged beans, cassava chips, kokonte and garri. It consists of a wooden frame tent with plastic sheeting or cover to protect the material being dried from adverse environmental influences. Presently we propose to test the usefulness of the dryer for cocoa, coffee, rice and maize as well.

Tomatoes, Pepper, Onions

Recently work has been completed on the dehydration of cut tomatoes, pepper paste and sliced onions, using a cabinet dryer. The product is then packed in plastic bags and stored. Reconstitution is excellent for soups, stews or sauces. Besides a dehydrated minced plantain/maize dough tatale or what is simply known as tatale mix has been produced for convenience demand.

Baby, infant foods

We have in our work programme, a special place for nutritionally vulnerable groups such as infants and children. Much of baby foods in Ghana are imported but these are expensive and cannot be produced here as the usual raw materials are unavailable. Accordingly, we have produced a substitute, a wholly vegetable milk from oilseeds, groundnuts etc. and balanced its protein content to simulate that of fresh cow's milk. A weaning food has also been formulated from winged bean flour, agushie flour and a local cereal. Both products have been fed to infants in clinics and hospitals with satisfactory results and pilot production is under way.

Fish technology

In the area of fish technology, we have achieved some success with the salting and drying of fish - specifically the trigger fish which has a tough skin^{and}/considered inedible and has not been a favourite with most people. Work is also in progress to improve upon fish smoking ovens currently in use or developed for use in the country - to arrive at a

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design of a composite oven that will eventually answer as much of the technological and commercial needs of fish processors. Alongside this study is a survey on fish storage practices in the country and their improvement.

Rabbit products

With the perennial state of meat deficiency in the country, the Institute is attempting to interest Ghanaians in rabbit products. Rabbits are not readily accepted for food in this country although their turnover in meat is higher in relation to livestock. To enhance and encourage the acceptability of rabbits therefore, we are attempting to dry smoke the meat in similar practice to the processing of game or wildlife in rural markets, while additionally we are studying the possibility of making corned meat, sausages, ham and bacon from rabbit meat. The project is current but preliminary trials have shown that some of the results will have favourable reception from consumers.

Other Projects

Generally, the number of projects completed or on hand are many. Suffice to say, however, there are others of equal interest worth mentioning here. These include improvements presently being made in traditional vegetable oil processing, the production of wines from cassava or cassava liquor, and the extraction of juices from citrus fruits and pineapple. Studies are also being conducted aimed at minimizing losses in the storage of maize, while new and improved ways of storing cassava and yam are being sought.

At present, the Institute is conducting a project with the IDRC of Canada on the dehulling and milling of cowpea on a special machine brought from Canada for the purpose. Out of the flour produced, has been prepared various food recipes for the table in interesting varieties. Further trials are in the meantime being contemplated with maize, sorghum, millet and other cereals.

C O N C L U S I O N

In conclusion, I would say that the choice is open to you, to decide in what way the Institute can be of assistance to your Corporation. We can offer you a consultancy or an advisory service on any line of production I have mentioned above, but whether or not our investment eventually succeeds in the sector will depend to a large extent on the availability of raw materials. I think a conscious effort must be made to secure a raw materials base such as establishing farms to support the needs of the industries.

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