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NUTRITIONAL PROBLEMS AND PROSPECTS OF PAKISTAN

All projections of food production point to the world shortage of food towards the end of the first quarter of the coming century Hijra which would compound the existing energy shortage. This shortage would be more in the developing countries, including the countries in the Muslim Bloc leading to greater political instability in the world.

Alone, of all the countries in the Muslim Bloc, Pakistan has the potential due to its land mass, varying climate, manpower, existing technology, research base and organized planning machinery, to reduce this dependence of the Muslim countries on the developed world thus contributing, to the collective security of the Ummah. A very conservative estimate puts the productivity of the Indus valley to a minimum of 3-4 times its present level.

However, the capacity of Pakistan to meet the requirements of the Muslim world is to be seen in the light of its own nutritional problems. Six specific projects, a fiscal and an organizational measure are suggested to overcome Pakistan's own nutritional needs and to enable it to play its due role in meeting the food needs of the Muslim countries.

Two major constraints in realizing its full potential are lack of management skill and finance. The collective effort of the Muslim countries can help Pakistan to overcome the major obstacle of lack of finance.

Generalities of Nutrition

For a proper comprehension of the factors involved in the solution of the nutritional problems in the country, a brief review of the generalities of nutrition is essential.

National nutrition is a function of or is dependent upon 3 factors population growth, food availability and food distribution. This can be expressed by the following equation :

National Nutrition = f (population growth, food availability, food distribution).

This implies that as a first condition enough food must be available

in country to meet the need of a growing population. But food availability in the country by itself, though an essential is not a sufficient condition for its consumption by the people. The mere fact that enough food is available in the country, does not imply that the people have the economic means, food habits and nutrition knowledge to purchase and consume the right type and quantity of food to ensure adequate nutrition. The main problem of national nutrition is not only the availability of enough food, for every one to go round but also a political system to ensure adequate distribution of income and the nutrition education. There has to be an effective demand for the right type of food. The above can be expressed by the following equations :

Food Availability = Home production + Imports — Export of Food .. .. Equation 2

=f (Knowledge of human requirement for adequate nutrition) .. .. Equation 3

Food distribution = f (Political philosophy) Equation 4

However, individual nutrition is a function of two factors only—food consumption and infection. The food consumption would however, depend upon purchasing ability, food habits and nutrition education of people. This can be expressed by the following, equations :—

Individual Nutrition = f (Food consumption, Infection)

Food Consumption = f (Purchasing ability, food habits, cultural factors, nutrition education).

Quite apart from the food consumption, infection plays a significant part in individual nutrition. Provision of pure water supply, environmental sanitation and preventive inocculations by themselves can go a long way in improving the nutrition state of the people.

Nutrition Problems of Pakistan

Having discussed the generalities of nutrition, we shall now move to discuss the specific nutritional problems faced by Pakistan.

It has been reported that 60 per cent of children and expectant and nursing mothers in Pakistan do not consume adequate amounts of calories and as a consequence become protein deficient as well. This is an alarming situation as there is a growing and disturbing evidence that inadequate nutrition in late foetal and early childhood can lead to subnormal mental development affecting quality of life and productivity of the people.

At the root of the major part of our nutritional problems is the caloric deficiency which is due to the low consumption of facts by our people. The fat intake has been estimated to vary between 16% to 19%

as against the desirable ratio of around 25% of total energy intake. While the adults are able to obtain their caloric requirements through simple chappati and dal only, with minimal amounts of fats, the proportionately high requirements of children and women during pregnancy and lactation demand food of higher caloric density and better protein quality specially in view of the limited capacity of stomach of children and restricted appetite of women during pregnancy. There is also less than desirable consumption of pulses and the animal proteins generally in the country. For about 25 per cent of our population however the nutrition problem is overeating of all foods specially fats. With the major problems thus defined, it is possible to devise agricultural strategy and adopt fiscal measures aimed at securing higher consumption of the generally deficient elements in our national diet.

Pattern of Food Availability

The biggest deficiency in the national food availability is that of edible oils which is available only to the extent of 42 per cent of the requirements. There is a need therefore to institute a crash programme for increasing the edible oil production in the country. Sunflower a draught resistant shortmaturing plant offers the most promising solution to the problem of shortage of edible oils. A considerable amount of spade work has already been done in the country. Other suitable crops are safflower and soyabean. We must undertake the promotion almost on war footing of the cultivation of sunflower and other similar crops and relieve the economy of the huge burden of mounting import of edible oils. Coupled with fiscal measures to encourage the consumption of refined edible oil (as against vanaspati) this single package of measure will go a very long way to remove the problem of malnutrition in the country. The use of oil with its content of polyunsaturated fatty acid will also reduce the risk of heart disorders. By balancing our diet, it would also reduce the consumption of wheat and thus help bridge the shortfall in its production. Effort just in this one field will remove a major part of malnutrition in a very short period of time.

National Diet

A striking feature of our national diet is very high consumption of wheat at an average rate of 12.4 oz as against 4.5 oz in the West. This shows the margin by which the consumption of wheat can be reduced. With our population doubling every 23 years the requirements of wheat currently placed at one crore tons will go over to 2 crore tons by the year 2002. If there is no substantial reduction in population growth this

will escalate to 4 crore tons by 2025 which is bound to distort our cropping pattern. This is not all. The second major item of food and feed is gram which constitutes 60% of total legume production and is also grown in the rabi season. The country thus depends upon one cropping season for a major part of the production of food for the entire year. A noted authority on barani areas said some time back that as the increase in the production of rabi crop has been mainly by extension in the acreage in barani areas, such lands lie fallow during the subsequent Kharif season as the poor barani lands cannot take two crops in a year. When rains come during summer the bare lands suffer erosion and are lost to cultivation. If these two crops remain our main items of food and feed we would soon reach the end of the tether. There is need to diversify our food production and consumption and encourage the production of Kharif pulses and oil seeds thus reducing our dependence upon wheat. The section of society that consumes adequate amount of fats takes about half the amount of wheat consumed by the poor people in the country. The degree by which the shortfall in wheat will be bridged can be gauged from the above.

An unpleasant feature of the green revolution in the sixties was a reduction in the production of pulses as research and resources were concentrated towards the cereals. The current production of pulses is only 60% of our requirements. There is a need to evolve high yielding varieties of pulses capable of competing with other crops. Increase in the consumption of pulses can improve the protein quality and reduce the consumption of wheat. Similarly, there is need to develop and increase the production of millet, sorghum, and fodder crops mainly based on barani lands for animal and industrial use.

Animal Proteins

Even though our major deficiency is in calories and animal proteins have been indicted lately as causing loss of food value in its conversion from vegetable to the animal form, in our specific set-up there are cogent reasons to take urgent steps to augment their availability.

The major part of our land consists of barani areas, the bulk of which are unfit for any agronomic or forestry crops and can only be developed as range lands. These can be used for rearing cattle for milk and meat production only. Again for bulk of our landless peasantry, an animal is the main source of income. The intake of animal proteins can lead to the greater consumption of tubers like potatoes which produce more calories per hectare of land than do cereals. This would decrease the requirements of wheat. Lastly with the fair amount of technical

know-how being available in the country and high demand in the adjacent Muslim countries, animal breeding has a high export potential. However the export of oil cakes and molasses and the burning of bagasse shows that we are not utilizing our full potential of animal breeding in the country. It is important to ensure that animal breeding is not done on human grade cereals, but only on grasses, bagasse, oil cake, blood and fish meal and other unconventional protein foods. Some attempts at animal breeding were carried out in the past but poor management prevented any head way being made. The project need to be organized again on commercial lines, both for home consumption and export.

Milk

A finding of major concern is the continuous and consistent decline in per capita production of milk over the last seven years. This is due to the fact that milk production has shown an increase of 25% only while the population has risen by 3% annually. The situation has been further compounded by an increase in the demand for milk which has been rising at an estimated rate of 8%. This has led to a phenomenal increase in the import of powdered milk.

There are two approaches for the solution of this vital problem. First a chain of artificial insemination centres be opened all over the country to enhance the milk yielding capacity of the country's milch animals by genetic improvement. Both the expertise and the infrastructure for the programme already exists. Second is a gradual replacement of the pasteurisation process by the sterilisation of milk in the country. Locally fabricated sterilisation milk plant can be installed at the small mandi town level. The process can increase the life of pasteurised milk from 12 hours to 2-4 weeks which would reduce the losses and increase the range of distribution of milk. It would reduce the demand for powdered milk. The scheme is entirely based on local manufacturing capacity. Though needing considerable financial outlay and organisational component there is a need to push the two programmes with vigour and conviction.

Meat

Poultry has a high conversion ratio of feed to meat to the extent that the chicken is the cheapest meat in the West. A heartening expansion of the poultry industry has taken place in Pakistan. A limitation of poultry is its dependence on cereals. There is a need, therefore, to start a similar venture at Government level for organising and promoting the breeding of 'teddy' goats and rabbits. Both have a high fecundity and

conversion ratio, acceptability of their meat in the country and of course a great export potential. As small units, like chicken, they are suitable for backyard rearing. The higher intake of animal proteins can permit the increased consumption of tubers like potatoes which produce more calories than cereals but are comparatively poor in protein contents. Increased use of potatoes will further lower our need for wheat.

It is important to ensure that the animal rearing is not done on human grade cereals but only on grasses, bagasse, oil cake, blood and fish meal and other unconventional protein foods.

Prospects

The Indus Valley, according to very conservative estimates, has the potential to produce 3—4 times its present level of food output. Six specific projects, a fiscal and an administrative measure are given below which would not only lead towards the solution of our own nutritional problem but would also result in realizing the objectives of collective security of the Muslim World.

Overall Strategy

A two-pronged approach is needed to solve the food problems in the country:

(*a*) To apply Science and Technology to our agriculture sector to improve the per hectare yield of crops and the genetic improvement of animals.

(*b*) To progressively extend the utilization of the barani areas and uncultivated lands.

Specific Projects

The following six projects and a fiscal and an administrative measure be initiated as a first phase of our effort to improve the nutrition status of our people.

Project No. 1

An intensive drive be undertaken to increase the edible oil production by 100% in as short a period as possible. Sunflower cultivation offers the most feasible solution to this problem. A programme is being undertaken by the Ghee Corporation of Pakistan and needs to be pursued vigorously by an active field organization. Besides sunflower, soyabean and cotton seed and ground nuts can play important role in the production of edible oil, all of which need attention.

Project No. 2

A net work of artificial insemination centres be opened in the country for the genetic improvement of the milch animals. Both expertise and infra-structure for the programme exists. An extensive project with high cost and training component, the programme has a high potential for increasing milk/meat production in the country. A phased programme under the direction of a specially set up sub-committee be launched on a country-wide basis.

Project No. 3

Evolving high yielding, disease resistant kharif pulses, millets, sorghum and fodder, capable of competing with other crops. A 100% increase in the production of kharif pulses, to be realized to make up the current deficiency. The millet and sorghum can be grown in barani areas and can provide starch for animal feed and industrial uses.

Project No. 4

The pasteurization of milk be replaced by its sterilization. This would increase the life of the milk from 8-12 hours of pasteurized milk to 2-4 weeks, thus increasing the range of distribution and reducing its conversion to khoa etc. which is main reason for the shortage of fluid milk and demand for milk powder, locally fabricated sterilizers are available in the market. The project is based entirely on indigenous capacity.

Project No. 5

Establishment of semi-government breeding farms for 'teddy' goats, rabbits and cattle to augment the meat production in the country. The success of poultry breeding in the country through the pioneering efforts of PIA points to the necessity of organizing the projects on commercial basis. The project has a high management component with a great export potential in addition to increasing the availability of meat in the country. As small units, 'teddy' goats and rabbits like poultry are suitable for backyard rearing.

Project No. 6

Nutrition education programme be launched to educate the masses. This may be the linch-pin in our effort to combat malnutrition. An experimental project, is being planned by the Planning Division. The experience gained can be used for regular nutrition education programme.

Fiscal Measure (Measure No. 7)

Fiscal measure to be taken to reduce the price of refined oil, as against vanaspati, to encourage its higher consumption by the people. The polyunsaturated fatty acid content of oil will be protective against heart disorders. It would also not show the price elasticity of demand for vanaspati.

Administrative Measure (Measure No. 8)

An independent Nutrition Section be created in Planning Division to undertake planning and programming of nutrition projects. As nutrition is inter-disciplinary subject, requiring co-ordination with different fields like agriculture, health, education, mass media, finance etc., the chief of the section should be in NPS-21. This would give direction and push to the nutrition activity.

The importance of nutrition in national development and productivity demands that we observe the second Hijri year as a National Nutrition Year, to undertake a massive education drive and to lend to our agricultural and development efforts a nutritional bias for the lasting benefit of the country.