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NFI BULLETIN

Bulletin of the Nutrition Foundation of India

Nutrition Foundation of India—Current Programmes

Though only a few months have elapsed since the Nutrition Foundation of India was set up, it may be useful, at this point, to inform our readers of the progress registered so far.

The Foundation has been fortunate to attract the generous support of enlightened citizens and the enthusiastic cooperation of a large body of scientists and scientific institutions in the country, concerned with the problems of food, nutrition and national development. International agencies, particularly the UNICEF, have evinced keen interest in strengthening and reinforcing the Foundation's programmes. Perhaps the most heartening feature has been the generous support and blessings which the Foundation has received from the highest echelons of our Government.

We carry in this issue the gracious message sent to us by our Prime Minister. The Prime Minister's deep concern over the problems of children, and of the poor, and the underprivileged is well-known. The Foundation is confident that, in the challenging task which it has undertaken, it will enjoy the Prime Minister's abiding interest and support.

The Foundation is also grateful to the Planning Commission, the Ministry of Social Welfare and the other organs of the Government for the encouragement, advice and support which they are extending. These developments augur well for the future of the Foundation. Indeed, it is because of such all-round support that the



PRIME MINISTER

I have always regarded nutrition as one of the key points for the launching of the attack on poverty. However, we do not need to reach the level of incomes of affluent countries (who seem to be only squandering their resources) in order to ensure that all our people have adequate, healthy diet. This involves a good deal of public education and research, including rediscovery and popularisation of traditional foods which have gone out of vogue.

My good wishes for the work of the Nutrition Foundation of India.

New Delhi
May 29, 1980

(Indira Gandhi)

Foundation has been able to get into its stride rapidly.

In the inaugural issue of this Bulletin, the objectives of the Foundation had been briefly outlined. Among other objectives, the Foundation's main task is to highlight and focus public and Government attention on major national problems connected with malnutrition and to initiate, conduct and support action-oriented studies and research on these problems through existing institutes, university centres and other suitable bodies in order to evolve appropriate

solutions capable of application in the current context. The Foundation has necessarily to work in close concert with the Government and the scientific community in order to achieve this objective.

ACTION-ORIENTED RESEARCH PROGRAMMES

We are happy to record that, during the last few months, in pursuance of this objective, the Foundation has already taken up the following four major Action-oriented Research Programmes which are now in differ-

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ent stages of formulation and implementation:

1. Survey of Infant-Feeding Practices with special reference to the use of commercial infant foods.
2. Evaluation of the relevance and effectiveness of Health and Nutrition Education at the community level.
3. Development of a meaningful and feasible Health and Nutrition component as an integral part of the Rural Employment Scheme (Food for Work Programme, Employment Guarantee Scheme, etc.)
4. A study of the health and nutritional consequences of small scale water development programmes in Punjab and Uttar Pradesh.

AIMS AND OBJECTIVES OF THE PROGRAMMES

The aims and objectives of each of these programmes are briefly reviewed:

(1) Survey of Infant Feeding Practices

- a. To survey the current infant feeding practices in the community with special reference to the use of commercial infant foods, especially those that are promoted as a substitute for breast milk in different segments of the population and in different parts of the country.
- b. To obtain qualitative data on the type of food, including milk other than breast milk, used for feeding infants under 12 months of age, and the reasons why such foods are used or are *not* being used.
- c. To study the manner and mode of use of different foods including breast milk.
- d. To obtain information on some health indicators of the infant, associated with these practices.

The study will be carried out at four Centres, each including a metropolitan city, namely, Bombay, Calcutta, Delhi and Madras. The 'Universe' for the study will be constituted by the metropolitan city, the population living within a zone of 5-15 Km. outside the city limits, two towns in a zone 50-100 Km. away from the metropolitan city, one with a population of about 50,000-100,000 and the other 20,000-50,000.

(2) Nutrition Education

- a. To determine, within the context of a given programme, what the major real health and nutrition problems in the community are which should be

tackled through educational efforts (recognising that the purpose of education is to reinforce good practices and to change behaviour with respect to detrimental ones).

- b. To determine the extent to which the content of current education is relevant to these problems, and if not, to change it.
- c. To determine the most effective means of communicating the content so that the desired changes in behaviour are brought about.

Such studies should help in the identification of a small number of critical messages which could have wide application and could be used by all those who have contact with the community and also by those who have access to mass media. Data obtained from these investigations should also help in providing guidelines for the preparation of manuals which should cover not only the content but also the techniques of communication, and the methodology for determining the problems at the community level and for tailoring general messages to fit particular situations.

Post-Harvest Technology of Foodgrains and Oilseeds in India

Foodgrain Protection for Minimising Shortages

While adequate nutrition to populations can be ensured only by raising the family income levels, post-harvest management of food stocks for reducing losses at various phases of handling, drying, storage, processing, and distribution is a crucial national priority requiring the ingenuity of scientists, technologists, engineers and management experts. While food stocks in urban storages managed by Government, trade and cooperatives can be protected by infestation control strategies, loss reduction in farm households is a stupendous operation limited by factors of low income, poverty, inadequate education, and above all, absence of a dedicated agency oriented towards mobilising village level operations.

Food disinfestation technologies for urban and rural level using fumigants such as phosphine, methyl bromide ethylene dibromide-methyl bromide

(3) Health and Nutrition Component of Rural Employment Guarantee Scheme

To develop and test the feasibility of a programme of "Health and Nutrition Insurance for Under-Fives" as an integral component of the Food for Work Programme/Employment Guarantee Scheme.

The programme will be addressed to children under five years of age, among whom malnutrition is now widespread and prevails in a specially severe form with long-term implications.

It is proposed that this project may be initiated in two States in the first instance. In each State, the project will be carried out over an area consisting of about 100,000 total population, which will provide a population of about 15,000 under fives.

(4) Study of the Health and Nutritional Consequences of Small Scale Water Development Programmes

- (a) To contribute substantially to the increasingly important area of health impact assessment of non-health development projects.

mixtures have been developed and are in commercial use while new chemicals such as methyl formate, methyl iodide and acrylonitrile are in advanced stages of testing in the country. Insecticidal formulations for treating bag surfaces to prevent cross-entry of pests have also been developed, tested widely and are awaiting clearance from Insecticide Board for routine uses. While increasing use of pesticidal chemicals can result in generating new industrial capacities, health risks are bound to increase in the absence of implementing facilities for regulatory measures. Hence, steps will become necessary for popularising the concept of using non-toxic insecticides such as inert clays and dusts for foodgrains and mineral salt mixtures for milled materials as also of means of biological control of pests, for which technologies are available in national R&D institutions.

Experience so far gained in extension programme has shown that the real impact of improved techniques can be felt only by sustained and committed efforts by a centrally administered organisation specially created for implementing the infesta-

(b) To develop a methodology for rapid field assessment of health and nutritional status.

(c) To measure and monitor health and nutrition differentials—both in pre-intervention and post-intervention stages—among important population sub-groups, as determined by age, sex, socio-economic group, etc.

(d) To improve our knowledge on the neglected topic of seasonal variations in health and nutritional status and their possible relationships with food availabilities, workloads, etc.

MECHANISMS FOR FORMULATION AND IMPLEMENTATION OF PROGRAMMES

In the formulation and implementation of these Action-oriented Research Programmes, the Foundation, in accordance with its declared policy, has involved a large body of scientists and institutions. Since many of these studies are of an inter-disciplinary nature, the Foundation has attempted to constitute inter-disciplinary groups drawn from different parts of the country and from different institutions

composed of scientists of the highest calibre and integrity to actively participate in the formulation and implementation of these programmes. The procedure that is being followed in the case of each of these research programmes is to set up a compact Task Force composed of such scientists charged with the task of not only preparing the detailed study design but also of monitoring its implementation. Among the research projects mentioned above, the project concerned with the survey of Infant Feeding Practices with special reference to the use of commercial infant foods, has already made considerable headway. The Task Force that had been set up for this purpose, consisting of Prof. M.S. Gore, Director, Tata Institute of Social Sciences, Bombay; Prof. J.D. Mehra, Delhi University; Dr. K.S. Sanjivi, Voluntary Health Services, Madras; Dr. Kamala Jaya Rao, National Institute of Nutrition, Hyderabad; Dr. S.N. Chaudhuri, Director, Child in Need Institute (CINI), West Bengal; Dr. S. Malhan, Editor, Nutrition Foundation of India; Dr. C. Gopalan, Nutrition

Foundation of India; Dr. J.P. Greaves, Senior Programme Officer, UNICEF, New Delhi; Ms. Padmini Ramaswamy, Planning Officer, UNICEF, New Delhi; Prof. T.J. Ramaiah, Indian Institute of Management, Ahmedabad; Shri N.S. Kharola, Deputy Secretary, Ministry of Social Welfare, New Delhi, has held meetings and has formulated a detailed study design.

In the implementation of these projects, several scores of scientists drawn from different institutions will be involved. The Foundation at its headquarters is recruiting a nucleus of core staff which will help to coordinate the programmes and facilitate the functioning of the Task Forces.

The Foundation once again wishes to acknowledge the enthusiastic support, advice and encouragement which it has received in generous measure from the Government, international agencies and the scientific community, which has made these developments possible.

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tion control technology in farm sector. Such an organisation could also be charged with the task of production and field level application of innocuous pesticides.

Field pests such as *Sitotroga cerealella* of paddy, *Trogoderma granarium* of wheat, *Sitophilus Oryzae* of sorghum and Bruchids of pulses are carried into the storages causing various degrees of losses in quantity and quality depending upon climatic conditions, season and environmental hygiene. Several indigenous varieties of foodgrains are poor yielders, but show resistance to insect infestation. Some of the high yielding varieties, on the contrary, are less resistant to infestation and require protection by the use of pesticidal chemicals.

Improved Processing for Stretching Food Grain Supplies

Rice is milled in more than 84,000 mechanised units consisting of 70,000 hullers, 14,000 shellers and some modern rice mills. Hullers give poor yields of rice (less than 65 per cent) and also husk-bran mixture which is not suited for oil extraction. Besides, shellers give better yields and also a husk-free bran but are capital inten-

sive. Since most of hullers and shellers operating in the country have become old, the Rice Milling Policy of Government of India has stipulated their progressive replacement by improved mills equipped with rubber rollers or centrifugal shellers within scheduled time span.

Mini rice mills incorporating improved features such as paddy cleaner, separator, centrifugal shellers and cone polisher, have been developed at CFTRI and released for commercial use. Each of these units (capacity 0.5 tonnes/hour) costs Rs. 30,000 and can yield about 70 per cent of rice, which is higher by about 4 per cent than that of hullers. Such units can be established in limited space, operated by two persons (one of whom could be the owner himself) and are ideal for rural sector since small quantities of paddy can be handled for custom milling operations.

Total production of rice bran by milling sector could be estimated at 2.11 million tonnes capable of yielding at least 0.32 million tonnes of oil. Although India produces about 70,000 tonnes of rice bran oil every year, the edible grade oil hardly accounts for

5,000 tonnes since the oil extracted from stored bran is fit only for industrial purposes because of lipase activity. Technology and the necessary devices have been developed in the country for stabilising rice bran so that it could be stored for extended periods for production of edible grade oil from rice bran.

Development of high yielding varieties of dryland crops such as maize, *Jowar*, *Bajra* and *Ragi* has added a new dimension to the processing technology since each of them contains the fibrous husk which has to be removed for improving the consumption appeal. The current production of maize and millets has been estimated at 5.95 and 21.54 million tonnes respectively. Although maize and millets have constituted the foodgrain staple of people from lower income groups so far, future potential for these crops is unlimited by virtue of their adaptability in low rainfall tracts, relay cropping systems under irrigated conditions and high per hectare yields. Hence, know-how and equipment have been developed for the removal of fibrous husk of *Jowar* and *Bajra* by conditioning to

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a suitable moisture level and pearling so that they can be popularised for daily consumption and also for the preparation of breakfast items like *Idli* and *Dosai*. Likewise, a mini maize mill (capacity 500 kg/hour) which costs about Rs. 130,000 has also been designed and fabricated for obtaining a semolina from endosperm freed of husk and germ.

Grain legumes, also called pulses, account for a production of about 11 million tonnes and constitute the major source of protein for supplementing that of cereals and millets through supply of deficient amino acid-lysine. Since production of pulses is short of requirements, extreme care is necessary for minimising processing losses. Traditional techniques of conditioning pulses necessary to facilitate pearling in mills are dependent on climatic conditions and do not permit continuous operation. Hence, improved techniques for conditioning and pearling, as also the milling units have been developed in the country. Recent reports indicate that at least 10 such improved units are functioning in different parts of the country independent of weather conditions.

Oilseed Processing

Oilseeds like groundnut, rape/mustard, sesame, safflower and cottonseed account for the production of 6, 1.56, 0.4, 0.19 and 2.1 million tonnes respectively. Depending on the oilseed, 75-85 per cent of production is extracted for the edible oil.

The Indian Oil Processing Industry consists of 2,30,000 *ghanis* operated by animal and mechanical power, 15,000 power driven expellers, 200 solvent extraction units and 84 *vanaspati* units. The mill residues, or the oilcakes, which contain 40-45 per cent of proteins can be rendered fit for human consumption by suitable processing. Even though export of oilcakes has continued over the last several years, adequate technologies and expertise have been generated in India to obtain safe, and edible grade protein rich flours from the cakes of groundnut, sesame and rape/mustard. The processing operations ensure that groundnuts selected for edible flour

production are free from fungal damage and therefore, from mycotoxins. Likewise, the outer husk of sesame rich in oxalates and fibres is removed while the rape/mustard flour is freed from the toxic glucosinolates.

By virtue of higher production (and in most parts of the country), relatively simple processing, and lower costs, groundnut flour has been used in supplementary foods, weaning foods, vegetable toned milk and protein rich biscuits. A groundnut protein of more than 92 per cent purity is manufactured using indigenous know-how.

Products such as *Bal-Ahar* (based on cereal, pulse and groundnut flour) are being manufactured by the Food Corporation of India for distribution in feeding programmes.

Foods like Energy Food, *Laddu* mixes and NIN formulations which are toasted mixtures of cereals, pulses and groundnut/groundnut flour can be used in special nutrition programmes for feeding pre-school children and pregnant/nursing mothers to correct the calorie and protein deficiencies. A policy decision to use these locally available raw materials for preparing supplementary foods could help in stopping the charities from outside agencies. High protein biscuit is already being manufactured, while production units for milk-tones with groundnut protein (Miltone) have been established in Bangalore, Hyderabad and Ernakulam for stretching the milk supplies. The total installed capacity of these units amounts to 3 million litres.

New Sources of Fat

The fat of *Sal* seeds abundantly available particularly in the forests of Bihar, Orissa and Madhya Pradesh, has begun to attract international attention as cocoa butter substitute. Likewise, the fat from mango kernels also resembles cocoa butter in some of its physico-chemical properties thereby indicating the potential for applications in confectionery items. Studies on these fats are being carried out by CETRI and other research organisations in India. Investigations for proper fat quality and nutritional safety studies on the fats of *Dhup* and *Kokam* are in progress at the Institute.

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NUTRITION NEWS

A Task Force of the Nutrition Foundation of India met in Delhi on May 23 and 24, 1980 to draw up the detailed study design for the proposed investigation of Infant Feeding Practices with special reference to the use of Commercial Infant Foods. Prof. M.S. Gore, Director of Tata Institute of Social Sciences, chaired the meeting. The study is now expected to start soon in the four metropolitan centres of Delhi, Bombay, Calcutta and Madras and their environs.

A meeting on Nutrition Policy, Planning and Implementation was held on May 21, 1980 in Yojana Bhavan. Following the meeting, a Task Force has been set up by the Planning Commission, to review and update the Nutrition Plan. The first meeting of the Task Force was held on July 9, 1980 in Yojana Bhavan.

The Seventh meeting of the Central Coordination Committee on Nutrition was held on June 10, 1980 in Shastri Bhavan under the chairmanship of Mr. Saran Singh, Secretary, Ministry of Social Welfare, to review the current Nutrition Programmes in the country.

Dr. Gopalan who had participated in the meeting of the Council of the International Union of Nutritional Sciences in London on July 1 and 3 will be participating in the meeting on Medical Ethics to be held in WHO, Geneva from July 23 to 25, 1980.

The Task Force on Nutrition of the Planning Commission will hold meetings on July 9, 10 and 11 in order to finalise the Nutrition Component of the Five Year Plan.

The Third Asian Congress of Nutrition

The Congress will take place in Jakarta from October 6 to 10. It will be conducted in the form of workshops, symposia and free communications which fall under the following three main topics:

1. Nutrition, food and health
2. Nutrition and population
3. Nutrition and environment