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EVALUATION OF NATIONAL NUTRITION PROGRAMMES

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The Government of India has been a pioneer in initiating national programmes to combat macro- and micro-nutrient undernutrition. These programmes have been evolved on the basis of research studies in the country, on the ecological factors responsible, the magnitude of the nutritional problems and feasible interventions, that could be implemented within the existing infrastructure.

At the request of the concerned departments, NFI had undertaken independent third party evaluation of these programmes at the National or State level, identified lacunae in ongoing programmes and recommended remedial measures to improve performance. A summary of some of the evaluations undertaken by NFI are given in the following pages.

National Goitre Control Programme

Iodine deficiency disorders (IDD) continue to be a major public health problem in India even though the National Goitre Control programme has been in operation since 1962.

NFI carried out an evaluation of the ongoing Goitre Control Programme in 1980 to:

- assess reasons for failure of control programmes so far
- identify newly emerging dimensions of this problem and
- set out practical recommendations for future action, based on detailed consideration of causes of earlier failures.

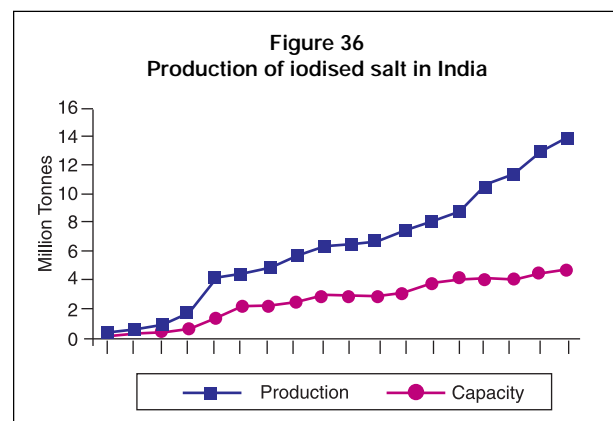
The study showed that the existing salt iodisation facilities were inadequate to meet

the country's needs and even they were working far below their installed capacity. Quality control at the production site was inadequate and iodine loss during transport and storage was very high. Awareness about the need to use iodised salt was low even among the population groups with high IDD prevalence.

NFI made the following recommendations for ensuring universal access to iodised salt:

- opening up iodisation of salt to private sector to ensure adequate production to meet national needs
- ensuring quality control at production site
- packing salt in poly packs to reduce iodine loss during transport and storage
- testing iodine content of salt at consumer level
- improving awareness about the need to consume only iodised salt.

Over the next two decades many of these recommendations have been implemented. Iodisation of salt has been opened to private sector and production capacity has increased many folds. Quality control both at



Source: Salt Department

production and consumer level is improving. Surveys in the 1990s showed that utilisation of iodised salt is high in erstwhile goitre prone states; but in spite of ready availability consumption of iodised salt is low especially in the areas where IDD is not perceived as a problem by the population (Figure 36).

The Tenth Plan had recommended the following steps to achieve the elimination of IDD as a public health problem by 2010:

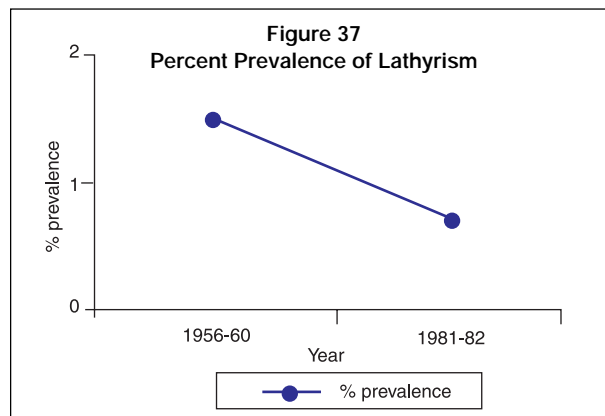
- improve access to iodised salt through TPDS, if necessary, with subsidy to cover cost differential between iodised salt and uniodised salt
- improve awareness in areas where use of iodised salt is low.

Lathyrism

Lathyrus sativus (*kesari dal*) is a hardy crop grown easily on unirrigated land. Till the sixties, this inexpensive pulse was given as wages to bonded labourers in Madhya Pradesh who consumed it in the form of chappatis. The toxin from the pulse, β -oxalyl aminoalanine (BOAA) caused neurolathyrism characterised by spastic paraplegia. In the 1950s, the reported prevalence of lathyrism was 1.5 per cent but studies carried out at NFI in 1981-82 showed that there was a steep reduction in the prevalence of lathyrism (Figure 37).

NFI recommended that:

- cultivation of lathyrus should be prevented
- payment of wages to workers in the form of lathyrus sativus must be prohibited
- ban on inter-state movement of lathyrus must be strictly enforced
- laboratory facilities for detection of BOAA in pulse flour must be made freely avail-



able in food testing laboratories to detect the adulteration of other pulses with lathyrus.

- research to develop low toxin strains of lathyrus sativus should be encouraged.

Agricultural scientists were not very successful in developing low toxin (BOAA) strains of Lathyrus and the other recommendations were not implemented effectively. Subsequent studies in the nineties have shown that lathyrism has become rare. The decline was due to the fact that cost of *kesari dal* had increased several folds and so it was no longer given to laborers as 'wages'. Lathyrism is an example of the 'nutritional' problem, which was solved by 'market forces'.

Integrated Child Development Services (ICDS)

The ICDS programme, initiated by the Government of India in 1975, is the largest and perhaps one of the most imaginative, progressive and ambitious programmes for 'human resource development' to be attempted by any developing country. The programme is designed to facilitate and promote the 'total development' of the child by making available, at the doorstep of poor communities, a coordinated package of mutually reinforcing child development services – health, nutrition and education. The emphasis is on the most crucial stages of child

development the intrauterine phase and early childhood (0-6years). In response to a request from the Ministry of Social Welfare and Women's Affairs of the Government of India, the Foundation undertook an evaluation of the ICDS programme.

The evaluation showed that:

- training received by the anganwadi workers (AWWs) is inadequate
- the AWW's knowledge regarding some basic concepts about vaccines, diseases and treatment was incomplete and inaccurate
- she needed better training about nonformal preschool education, supplementary nutrition, immunisation, health check-up and referral services, growth monitoring and record keeping
- there were no functional linkages between the ICDS and PHC set-up either for providing primary health care or referral services.

The Foundation recommended that:

- apart from the three-month pre-service training, AWW should receive refresher orientation courses and in-service training. It was suggested that different training modules suited for various regional conditions may be used
- effective system of referrals from anganwadis should be worked out through joint consultations between the health system and the ICDS system and arrangements formalized
- it will be useful if officers-in-charge of ICDS, and health officers periodically attend joint orientation programmes. The National Institute of Public Cooperation and Child Development (NIPCCD), with its regional centres and network of Home

Science colleges in the country, could be entrusted the task of organizing such orientation programmes.

During the 1980s and 1990s, ICDS has undergone substantial expansion. The GOI-World Bank reviews in 1997 and 2001, showed that the content and quality of resources under ICDS remain suboptimal because of gaps in training and supervision of anganwadi workers, and there was a lack of intersectoral coordination and community support.

The Tenth Plan envisages that there will be improvements in coverage, content and quality of services provided by ICDS for reducing macro and micronutrient undernutrition, so that the goals set in the Tenth Plan are achieved.

Nutrition Health Education and Environmental Sanitation (NHEES)

India has a vast infrastructure of rural schools offering primary education to poor children. It is estimated that in spite of poor enrolment and high dropouts, the total number of children in rural primary schools is nearly 60 million. Practically, every village in the country has a school within a radius of 1 km.

In recognition of the enormous potential of the rural school system, the Government of India launched the Nutrition Health Education and Environmental Sanitation (NHEES) Project in 1975. This project was coordinated by the National Council of Education Research and Training (NCERT) and funded by UNICEF.

The NHEES project attempted to provide a more intensive focus and purposeful direction to the health/nutrition component in the primary education system. Perhaps the most daring and innovative part of the

NHEES project was the attempt to reach the community through the rural school system.

Between 1975 and 1983, the Project was developed and expanded in two stages. In the first stage (1975-79), the project was confined to school children. In the second phase it was extended to the entire school community, namely, the pupils, the parents and the village community as a whole.



Community contact programme

Government of India (Ministry of Education), NCERT and UNICEF (the international agency funding the project) requested the Nutrition Foundation of India (NFI) to undertake an evaluation of the programme.

NFI found that the curriculum at the primary education level had an urban elitist bias. A few statements were found to have no scientific validity. Some instructions in the curriculum were unimaginative, complicated and repetitive. The curriculum was rather weak on information with regard to the effects of poor diets on health, which is perhaps one of the most important areas. 'Population education', even in a very elementary form, did not find a place in the curriculum; coverage of important community health problems related to poor environment, such as diarrhoea in children, and communicable diseases received inadequate coverage.

The Foundation recommended that an expert group consisting of experts in home science, child health and preventive medicine, with practical experience and first-hand knowledge of rural health problems and education may be convened for the purpose

of reviewing and modifying the curriculum and the syllabus.

The community contact programme was initiated in the second phase when it became clear that nutrition/health education confined to pupils within the four walls of the schools had not made any significant impact on their health/nutrition behaviour. The communication strategy for the delivery of the messages adopted in the project included the following two approaches:

- periodic door-to-door home visits by the teachers
- organisation of periodic meetings and exhibitions, group discussions on community problems and groups singing in the school where the same messages were to be explained to the village community.

The community contact programme had ceased for nearly two years before NFI's evaluation study. Despite the two-year gap, many community members could still offer useful comments and reactions. It was found that the programme had, in fact, promoted better awareness of nutrition/health problems among some sections of the commu-

nity. The Foundation recommended that every attempt must be made to develop this part of the project, not as an isolated activity of the Department of Education, but as the common concern and responsibility of all departments engaged in rural development in the village, with the rural school system acting as a focal point and playing a coordinating role.

Evaluation of health and nutrition interventions in Madhya Pradesh

Anaemia and Vitamin A deficiency are major public health problems in pregnant women, lactating women, and children under five years of age. Dietary inadequacies and malaria aggravate anaemia. To combat these problems, the Ministry of Health & Family Welfare, Government of India, has initiated various steps to facilitate procurement, storage, supply and distribution of the needed micronutrient supplements, antihelminths, and antimalarials. However, it has been reported that the programme is not being implemented well. The Nutrition Foundation of India undertook an evaluation to identify bottlenecks, so that programme managers, health administrators and health care providers take steps to improve implementation of these programmes.

The evaluation was carried out in the Bhopal Division of Madhya Pradesh in two districts; 505 pregnant women, 395 lactating women and 900 children under the age group of five years living in 24 remote villages were interviewed. Health care providers in four Primary Health Centres (PHC) and 24 sub centres (SC) were interviewed about their knowledge and practices; pharmacists were interviewed about the availability of drugs. Focus group discussions were undertaken at the district, PHC, SC and village level.

The supply of antihelminths, antimalarials and micronutrients was not regular. Supervision and monitoring of the supply of the supplements and their distribution was poor. Though health care providers were found to have knowledge regarding the programme, their actual performance was poor. The number of pregnant and lactating women receiving IFA tablets showed an increase in comparison to previous years. However, a similar increase was not seen in children up to five years of age. Actual levels of consumption of IFA tablets were low. It is possible that the health care providers do not effectively communicate the importance of the regular consumption of IFA tablets. Massive dose Vitamin A coverage had increased in comparison to previous years. However there was no change in number of persons taking antihelminthic and antimalarial drugs. The focus group discussions revealed that greater attention was needed towards educating the community regarding the beneficial effects of these programmes. If these problems are sorted out, the vulnerable groups can get the expected benefits from these programmes.

Mid-day Meal Programme

Primary school children (6-14 years) form about 20 per cent of the total population. Free and compulsory education up to the age of 14 years is the constitutional commitment. However, even now school enrolment is not universal and about 40 per cent of the children drop out of primary school. Poor enrolment and high school dropout rate are attributed to poor socio-economic conditions, child labour, lack of motivation and poor nutrition status of the children. Data from the National Nutrition Monitoring Bureau (NNMB) Surveys (2000) indicate that majority of children in the school-going age are undernourished and anaemic.

Mid-day meal programme (MDM) also referred to as 'Nutrition Support to Primary Education' is considered as a means of promoting improved enrolment, school attendance and retention. Simultaneously, it may improve the nutritional status of primary school children. With children from all castes and communities eating together, it is also a means of bringing about better social integration.

The MDM scheme, initiated in 1995s aims to provide each school child roughly a third of the daily nutrient requirement. The Central government supplies food grains for the programme. The Supreme Court of India's Interim Order dated 28th November 2001 directed the State Governments/Union Territories to implement the Mid-day meal scheme by providing every child in every Government and Government assisted schools with a hot cooked Mid-day meal with a minimum of 300 Kcals and 8-12 grams of protein on each school day for a minimum of 200 days. In compliance with this Order, the Government of Delhi, in July 2003, initiated the programme in 410 schools for serving hot meals to the children. The programme is being extended in a phased

manner to cover all the schools. At the request of MCD, NFI undertook a third party evaluation of the programme being carried out in schools run/aided by MCD.

The objectives of the evaluation were to assess

- the infrastructural facilities available at the food supplier level
- the hygienic aspects of the food prepared by the food suppliers
- the system for receiving, storage and distribution of the meals at the schools
- overall quality (with special emphasis on nutritional quality) of the food served.

In addition, an attempt was made to obtain the feedback from children and teachers on the MDM programme through focus group discussions.

NFI helped MCD in standardisation of the food items to be given to the children in MDM, taking into account nutritional adequacy (calories and protein), variety and taste. Initially in the mid-day meals, 18 dishes were being served. Subsequently, most of the schools started serving one of the following seven items: *chhole* rice, *rajma* rice, *puri*



Children having MDM at school

sabji, vegetable *pulao*, *dal* rice, *sambhar* rice and stuffed *paranthas*.

The Nutrition Foundation of India (NFI) carried out surprise visits to 79 kitchens of suppliers of MDM and visited 316 schools to assess distribution of the MDM at school level. Evaluation of the kitchens was done on the basis of the “Code for Hygienic Conditions for Establishment and Maintenance of the Mid-Day Meal School Programmes” laid by the Indian Standards Institution (1972). Kitchens were rated on the basis of their infrastructure facilities, procurement and storage of raw material, pre-preparation and preparation activities, management of the left over food, personal hygiene of the food handlers, sanitary conditions of the cooking area, kitchen waste disposal, and transportation of the cooked food.

There was wide variation in the infrastructure facilities. Some of the kitchens had a big multipurpose room where all the activities were carried out. Only a few kitchens had well demarcated areas for different activities. There were no special pest control measures in most of the kitchens. The hy-

giene of cooks/food handlers was not up to the mark. They were not provided with aprons/headgears or gloves. Management of kitchen waste disposal in most kitchens was not satisfactory. None of the kitchens could be graded as good; majority were graded as fair and some as poor.

Some of the kitchens were located in very unhygienic environments, with open drains in front of the kitchens or the garbage dumps in close proximity. The choice of location of the kitchen seems to have been made on the basis of availability of space without due consideration to hygiene and sanitation of the location.

The schools were evaluated on the basis of their organization, personal hygiene of food handlers, cleanliness and hygienic condition of receiving, storage and distribution area and utensils, evaluation of food quality and drinking water facility. NFI also evaluated the personal hygiene of the children, quantity of food served per child, and consumption pattern of children at class level. Focus group discussion was held with school teachers as well as children to find their views about the MDM programme in their schools.

It was observed that some schools were functioning without proper buildings, drinking water facilities, toilets, furniture and staff. Most of the afternoon shift schools were not as clean as the morning shift schools. The toilet facilities provided were generally in poor condition. Some



Cooking of mid day meals at one of the kitchens.

children never took mid-day meals; others took the food when they liked the preparation. Many children did not completely eat all the food provided. The schools were maintaining records of children who took MDM; but they should also maintain written records of the number of children who do not avail MDM and the reasons for not availing the MDM.



Transportation of a cooked mid-day meal in covered utensils

Personal hygiene of the children was graded on the basis of cleanliness of their nails, hair, uniform and general appearance. It was observed that majority of the children did not wash their hands before eating their meals, even though they used their hands to eat. In terms of hygiene, majority of the children were rated as fair, but about a third were rated as poor.

Based on the findings, NFI recommended that

- the MCD may have to look into availability of space and environmental hygiene in the vicinity of the kitchen
- there is a need to provide orientation and training to the suppliers chosen for supplying MDM on the basic principles laid by the Indian Standards Institution in 1972. NFI suggested that the suppliers should be trained in large scale institutional catering and should be oriented regarding the parameters for qualitative assessment of the various areas in the kitchens preparing MDM, so that they themselves can assess the shortfalls and make necessary modifications
- public health personnel and the MCD officials should carry out continuous monitoring of preparations, transport and distribution of MDM and make appropriate mid-course corrections
- the school should develop a system in which the teachers play a key role in:
 - Monitoring and ensuring quality and quantity of food served
 - Persuading children to consume all the food provided
 - Observe hygienic practices such as washing hands before eating and ensuring that utensils are clean
 - Ensuring that left over food is not thrown in and around the school to prevent environmental deterioration.



Inauguration of the Food Safety Workshop, December 2003



Dr Prema Ramachandran (Director, NFI) making a presentation at the workshop in the Medical Curriculum