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# NEI BULLETIN

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## The National Goitre Control Programme—A Sad Story

C. Gopalan

It has been estimated that, today, about 40 million people in our country are suffering from goitre. A large number of these are cretins, who are mentally and physically retarded. Goitre is not just a 'cosmetic' problem but a disease which impairs health and productivity.

The endemic goitre belt in our country stretches across the entire sub-Himalayan region and includes the states of Jammu and Kashmir, Himachal Pradesh, Punjab (three districts), Haryana (one district), Bihar (nine districts), Uttar Pradesh (14 districts), West Bengal (five districts), Sikkim, Assam, Mizoram, Meghalaya, Tripura, Manipur, Nagaland, and Arunachal Pradesh. Endemic goitre has also been identified in the Aurangabad district of Maharashtra and the Shahdol and Siddhi districts of Madhya Pradesh. The prevalence of goitre in these endemic areas ranges from three percent to 60 percent with an estimated average prevalence of 30 percent.

### The Programme

The causative factor underlying goitre was identified long ago as iodine deficiency. Prevention and control of goitre, through distribution of iodised salt, is well known and goitre was totally eradicated from the developed countries several decades ago through the application of this technology. The story in our country, unfortunately, has been different.

The National Goitre Control Programme, financed by the Ministry of Health and Family Planning, was launched by the Government of India towards the end of the Second Five Year Plan and had three main components:

- Survey of goitre in suspected areas to identify and assess its prevalence.
- Production and supply of iodised salt to endemic areas to prevent and control goitre.
- Resurvey after five years of continuous supply of iodised salt, to assess the impact of the Programme.

Two goitre survey teams, appointed by the Health Ministry, carried out initial surveys in almost the entire sub-Himalayan region and in certain areas of the central plateau of the country.

Twelve salt iodisation plants have been set up by UNICEF since 1959, for the purpose of manufacturing iodised salt to be distributed in the endemic areas with two more being installed, with UNICEF's support, in Gauhati, to serve the needs of the Goalpara and Kamrup districts of Assam and the adjoining state of Meghalaya. The potassium iodate for iodisation is being produced by Hindustan Salts Limited.

The Programme has had a chequered history. Administrative incompetence, lack of coordination between various agencies involved, and commercial and vested interests, have apparently combined to wreck

the Programme.

The Programme was envisaged to cover only a part of the entire goitre belt. The requirement of iodised salt needed to cover even this area "could not be met even to the extent of 50 percent due to inadequate production and other bottlenecks in the distribution system...Under the circumstances the initial surveys and resurveys have lost their relevance."

The figures, supplied by the Health Ministry, indicate the current state of affairs regarding production of iodised salt. (Table 1 overleaf).

### Inadequate Facilities

The Health Ministry blames the Salt Commissioner and Hindustan Salts Limited for inadequate production resulting from underutilisation of installed capacity. On the other hand, the Salt Commissioner has proposed the installation of six more iodisation plants.

While the actual production of iodised salt is inadequate, its transportation has suffered because of nonavailability of the required number of railway wagons. The present position reads as follows:

"The iodisation units have been facing extreme difficulties in getting the allotment of the required number of railway wagons. The problem of getting covered wagons in the rainy season has not been solved by the railway authorities."

The following factors are considered responsible for the failure of the Programme:

- The Programme has not been properly supervised and evaluated at the state level due to absence of goitre cells in the state health directorates of the endemic states/union territories.

● The district civil supply authorities have not exercised strict control over the salt nominees, resulting in poor supply of gunny bags and poor lifting of iodised salt by these nominees. There has been no coordination between the state health departments and the civil supply departments.

● The Prevention of Food Adulteration Act (PFA) has not been enforced by the state health departments, resulting in the entry of noniodised (common) salt in the endemic areas under the purview of the Programme. Non-enforcement of the Act during a short

tage of iodised salt is valid else there will be an overall scarcity of salt.

● There has been unsatisfactory and uncertain help and cooperation extended by the endemic states during surveys, in terms of allocation of transport facilities and services of a medical officer to supervise the survey work in the blocks.

● Often the ban notification, a prerequisite to the supply of iodised salt, has been unnecessarily held up.

Under the circumstances, the National Goitre Control Programme, in operation for nearly 20 years, has

failed to make a significant impact in many areas as revealed by the data (Table 2).

The failure of the National Goitre Control Programme highlights the current state of affairs with regard to the implementation of health programmes (including centrally sponsored programmes) in the country. Earlier issues of the *NFI Bulletin* had pointed out the unsatisfactory manner in which the Vitamin A Deficiency (nutritional blindness) Prevention Programme was being implemented. Goitre and similar health and nutritional problems are diseases of the poor and underprivileged and, therefore, apparently looked upon as 'their' problem, not 'ours'.

The situation regarding the National Leprosy Control Programme and the Tuberculosis Control Programme has been similar.

#### Qualitative Change Needed

What is needed is a *qualitative* change in the approach to these problems. There must be a greater awareness of the importance and urgency of these problems and high priority must be accorded to their control and prevention. A basic prerequisite for national development is the improvement of the quality of human resources.

Better coordination between the central and state health agencies for implementing centrally sponsored health programmes is essential. Separate and specific institutional arrangements must be made for each programme, job responsibilities at different levels clearly delineated, and specific time bound targets laid down.

There must be periodic independent monitoring and evaluation of each programme with achievements and shortcomings audited and highlighted. Responsibilities for lapses, if any, should be fixed ensuring due accountability in the execution of these programmes. There should also be a system of rewards for outstanding achievement and punishment for dereliction of duty respectively.

Unless health, nutrition and welfare programmes are executed in all seriousness, with a sense of urgency and dedication, the present drift will continue.

### Production of Iodised Salt

Table I

Total annual requirement of iodised salt	700,000	MT
Total installed capacity of 12 iodisation plants already set up	376,000	MT
Total annual quota fixed for production for use in India	220,000	MT
Production quota in the Sambhar Lake and Khargoda area for supply to Nepal	60,000	MT
Total actual production for both India and Nepal together		
in 1974-75	122,000	MT
in 1978-79	106,000	MT

### Impact of the Programme

Table II

District/ State	Baseline survey year	Prevalence percentage rate	Commence- ment of salt supply	Resurvey year	Prevalence percentage rate
<b>HIMACHAL PRADESH</b>					
Sirmoor	1959	35.8	1963	1980	28.07
Kangra	1956	41.2	1962	1962	32.10
<b>PUNJAB</b>					
Gurdaspur	1961	52.3	1964	1969	42.30
Hoshiarpur	1961	40.3	1964	1969	23.60
Chandigarh	1969	11.2	1968	1977	45.90
<b>BIHAR</b>					
Champaran (East and West)	1960	40.3	1964	1979	64.51 East 57.20 West
<b>WEST BENGAL</b>					
Darjeeling	1965	34.5	1967	1975-76	35.58
<b>UTTAR PRADESH</b>					
Dehra Dun	1965	39.7	1966	1969	16.90
Bijnore	1960	23.2	1960	1969	23.60

## REVIEWS AND COMMENTS

### Carbohydrates in Diabetic Diet

Diets for diabetics are being continually evaluated. Time was, when these diets were virtually free of carbohydrates. Today, there is a growing consensus that the quantity of carbohydrates need not be restricted (J.M. Feldman: *Diagnosis and Treatment*, vol 3, Am. Diab. Assn., New York, 1971).

The more important question is whether all carbohydrate rich foods are innocuous. It is generally agreed that all rapidly absorbable sugars should be strictly avoided though less is known about starchy foods. There is a widespread notion in South India, among the laity and the medical profession that diabetics should avoid rice and eat wheat. There is no scientific data to confirm or disprove this.

#### Starch and Blood Glucose

Ramanathan and Gopalan (M.K. Ramanathan and C. Gopalan: *Indian J. Med. Res.* 45:255, 1957) observed a smaller rise in blood glucose levels when ragi (*Eleusine coracana*) was consumed as compared to rice. A recent study by Crapo *et al* (P.A. Crapo, G. Reaven and J. Olefsky: *Diabetes*, 25: 741, 1976) showed that the increments with rice were much less than with potato, when the two were given in quantities providing equal amounts of starch. There was no difference between rice and wheat (P.A. Crapo, O.G. Kolterman, N. Waldeck, G.M. Reaven and J.M. Olefsky: *Am. J. Clin. Nutr.* 33: 1723, 1980), a relief for the rice gourmet. Srinivasan (M. Srinivasan: *Lancet* 2: 317, 1957) observed that the rise in blood glucose after oral glucose administration was less when pulses were also ingested.

Very surprisingly the rise in blood glucose with potato starch showed similar results to glucose. (P.A. Crapo, G. Reaven and J. Olefsky: *Diabetes*, 26: 1178, 1977). Thus all starchy foods may not have a similar effect on

## Nutrition in the Developing World

Prof M. Gabr, Minister of Health,  
Arab Republic of Egypt

The impact of nutritional status on social and economic development is being increasingly recognised. Political stability could be affected by a situation of food insufficiency. Nutrition has acquired a more significant role as an 'instrument' rather than as the 'outcome' of national development. However, scientists alone cannot make decisions and enforce policy for combating nutrition problems. Policymakers have to be enlightened with regard to the nature of nutrition problems and appropriate actions for successfully combating them.

Working towards this goal, contributions of voluntary scientific organisations are strongly needed to support governmental efforts in formulating and implementing nutrition action programmes. The establishment of the Nutrition Foundation of India is therefore a remarkable and significant event. I am sure that this step will be an inspiration to the formation of similar foundations in other Third World countries. Chaired by Dr Gopalan, an eminent nutrition scientist of international standing, it is expected that the Nutrition Foundation of India will, no doubt, extend its experience to other countries.

The Government of Egypt has lately taken action to ensure that adequate nutrition is available for all its people. This is considered one of the national goals. An interministerial committee for food security has been established. I believe that the establishment of a Nutrition Foundation for Egypt will follow in due time. It is going to be a challenge to recruit the needed scientists who could give their time and effort to fulfil the goals of such a foundation. One of the main goals would be to formu-

late a coordinated programme in which food and nutrition, health care and family planning activities are integrated.

late a coordinated programme in which food and nutrition, health care and family planning activities are integrated.

Participation of the community is essential for the success of such a programme. People themselves have to be oriented to their role. Nutrition and health education programmes are most effectively carried out by voluntary organisations who work in harmony with the concerned governmental agencies.

In addition to the needed cooperation and exchange of ideas between different disciplines in one country, the exchange of knowledge and experiences between different Third World countries is greatly needed. This is best achieved through non-governmental scientific institutions. India has provided the lead in this respect.

I welcome the establishment of the Nutrition Foundation of India under its present auspices. On behalf of my colleagues in Egypt and myself, I wish Dr Gopalan and his associates at the Foundation all success in their humanitarian endeavour—both at the national and international level.

Prof M. Gabr is an outstanding pediatrician who has evinced considerable interest in the problems of nutrition and maternal and child health. He has played a leading part in the World Health Organisation (WHO) and the International Union of Nutrition Sciences (IUNS). In view of his interest in nutrition problems of the Third World, he has followed the progress of the Nutrition Foundation of India with keen interest and sympathy. The *NFI Bulletin* is happy to publish the gracious message he sent recently.

Editor

blood glucose—the difference being due to differences in fibre content and consequent differences in gastric transit time and digestibility, or due to some other factor.

It is reasonable to argue that foods which raise blood sugar are those that are easily digested and absorbed. Srinivasa Rao, who reported a greater rise in blood glucose with green gram than with Bengal gram (P. Srinivasa Rao: *J. Ag. Fd. Chem.* 24: 958, 1976), also observed the *in vitro* digestibility of green gram to be higher (P. Srinivasa Rao: *J. Ag. Fd. Chem.* 24: 958, 1976).

vasa Rao: Indian J. Med. Res. 57: 2151, 1969). Green gram contained the least amount of amylose compared to Bengal gram, red gram, arhar and black gram. A similar correlation between amylose content and *in vitro* digestibility was also observed between different varieties of rice (P. Srinivasa Rao: J. Nutr. 101: 879, 1971). The author however, was of the opinion that more than the amylose content, the chain length of the amylose molecule may be more important in determining the effect of a particular starch on blood glucose.

The chain length may possibly determine susceptibility to enzymatic digestion and subsequent release of glucose. The amylose chain in green gram was much shorter than in Bengal gram (P. Srinivasa Rao: J. Ag. Fd. Chem. 24: 958, 1976). It is, however, unlikely that this is an important determinant. Although the amylose chain of potato starch is longer than that of wheat starch (A.L. Potter and W.Z. Hassid: J. Am. Chem. Soc. 70: 3488, 1948), the rise in blood glucose was higher with potato (M. Srinivasan: Lancet 2: 317, 1957).

### Carbohydrate Content

Cereals and pulses have a high content of 'nonavailable' carbohydrates, or fibre. It is now believed that dietary fibre may have a beneficial effect on diabetics. Among the various fibre constituents, guar gum has been shown to improve glucose tolerance (D.J.A. Jenkins *et al*: Lancet 2: 172, 1976). The legume, cluster bean (*Cyamopsis tetragonoloba*), is an important material for the industrial production of guar gum.

Guar gum is rich in galactomannans. Most other legumes are also rich in galactomannans; other plant seeds are also known to contain these carbohydrates (I.C.M. Dea and A. Morrison: Adv. Carbohydr. Chem. Biochem. 31: 241, 1975). Whether the galactomannans in any way impede absorption of glucose, and whether differences in galactomannan content of the foods could explain their differential effect on blood glucose levels, needs to be looked into. This may help in the better formulation of diabetic diets.

Kamala S. Jaya Rao

## The Child-in-Need Institute

Dr S.N. Chaudhury,  
Director, CINI, Calcutta

The Child-in-Need Institute (CINI) is a voluntary organisation, registered under the Societies' Act. It has two basic objectives:

- To provide integrated health and nutrition services to the child in need.
- To act as a catalyst in promoting socioeconomic developments of the poor and needy.

Apart from programmes in nutrition supplementation and primary health care, provided to mothers and children in the villages and slum areas of South Calcutta, a concerted effort is being made to improve socioeconomic conditions of needy families and improve the status of women. Funding comes partly from the community for services rendered and partly as donations.

The child in need in the Indian context usually brings into focus a malnourished child below the age of six years, suffering from intercurrent infections and living in a poor family in a village or the sprawling slums of metropolitan cities. The logical inter-

The Nutrition Foundation of India is organising and implementing its action research programmes through a network of action oriented institutes under competent and dedicated leadership. The Child-in-Need Institute is one such institute through which an important multi-centric research study of the Nutrition Foundation of India is currently being carried out.

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vention from the humane point of view is to break the vicious interaction between malnutrition and infection by providing low cost nutritional supplement to vulnerable groups, along with primary health care.

A pediatrician and a nutritionist with the help of on the job trained MCH workers, set up mother and child health clinics in Calcutta's slum areas in late 1974 and CINI was born.

Clinics, set up in various poverty pockets in villages and slum areas of South Calcutta, train groups of mothers to prepare a low cost nutritious food supplement from a cereal pulse mix (CINI nutrimix). Both at the clinics and during home visits, the mothers are told about better child care and low cost nutritious foods with the help of posters, flannellographs, puppets and slides.

### Food Supplementation

Wheat/rice along with moong dal (*Phaseolus aureus* Roxb) is roasted over coal fired *chulas* (ovens), ground at the local mill and packed into 500 gram polythene packets. These are provided at subsidised rates every week to malnourished children selected by weight-for-age criteria (below 50 percent of Harvard). The children provided supplemental food are immunised against preventable ailments and treated for minor ailments with low cost medicines and their weights and nutrition status are monitored regularly on parent retained weight-for-age cards.

Severely undernourished children (kwashiorkor, marasmus, marasmic kwashiorkor, vitamin A deficiency), referred by CINI workers or seeking care on their own, are admitted with their mothers to the Nutrition Rehabilitation Centre. Intercurrent infections (diarrhoea, chest infection, etc) take about one to two weeks to be treated.

A further six to eight week stay at the Centre, where the mother is trained on low cost food, improves the child sufficiently to be discharged and to be followed up regularly at the (weekly) MCH clinics: Mothers of the admitted children participate in cooking, cleaning and working at the kitchen garden plots during their stay at the Centre.

Prenatal and postnatal care is provided to village mothers through prophylactic immunisation, nutrition supplementation and monitoring the health status of pregnant/lactating

mothers. A low cost delivery kit (costing fifty paise) from old sarees, razor blades and cord tie, all autoclaved, are made available to pregnant mothers. Trained *dais* use the kit to help deliveries at home.

Home based income generation projects are encouraged. Mothers are trained in skills such as weaving, umbrella assembly, sewing and knitting. Traditional means of supplementing the family income by goat rearing or having a kitchen garden in a small backyard plot, are encouraged. Sometimes repayable loans are given to initiate small businesses such as vegetable/fish selling, puffed rice making, plying *rickshaw* vans, setting up barber shops, etc.

*Balwadis*, where children are fed a supplemental meal and involved in preschool activities, are also conducted by *mahila mandals* in different village centres. Regular meetings with *mahila mandal* members ensure participation and representation of the members in village development.

A survey of village primary schools, in the two blocks covered by CINI's developmental activity, showed inadequate facilities in terms of classrooms and teaching aids, and a high dropout rate among school children. A school welfare committee was organised with representation of teachers and CINI staff. Gradual improvement of facilities has taken place following the advice of this committee.

With the expansion of child welfare programmes in rural and slum areas by the Department of Social Welfare in many states, there is a shortage of trained workers at the grassroots level. CINI trains *anganwadi* workers for ICDS programmes and also provides orientation in child care to other categories of government workers such as BDOs, MO of PHC, etc. Innovative training strategies and practical case studies from admitted cases in the Nutrition Rehabilitation Centre are employed.

Community nutrition and child care programmes conducted by CINI also provide learning opportunities during field visits. The training unit is staffed by fulltime workers from the areas of pediatrics, nutrition, sociology, anthropology, graphics, and community health and development. A total of 1722 workers from the

government as well as voluntary organisations were trained in 1980. Some of them were trained at CINI, others at the block level by the Mobile Training Team.

A CINI team of two pediatricians left for Karamoja in Uganda during 1980 to volunteer in the massive famine relief programme launched there for three and a half months. The team worked in nutrition rehabilitation centres, in a government hospital to provide temporary medical manpower, and organised the movement of food to famine stricken areas as requested by the World Food Programme and UNICEF. During late 1979 a CINI team worked in the Kampuchean refugee camps on the Thailand-Kampuchea border sharing its expertise in the rehabilitation of children and adults

who are severely malnourished

Under CINI's Research and Evaluation Programme:

- A detailed study on 2000 families covered by CINI activities has just been completed. The data are being analysed to determine health, nutrition, literacy and other socio-economic indicators of the community.
- A study was undertaken last year in collaboration with the Government of West Bengal, UNICEF and the All India Institute of Hygiene and Public Health to determine the impact of the Mother and Child Care Programme, launched as a postflood rehabilitation effort, in 30 blocks in the state.
- A study on infant feeding practices is now going on, under the sponsorship of the Nutrition Foundation of India.

## FOUNDATION NEWS

**A meeting of a task force** of the Nutrition Foundation of India was held in New Delhi on June 13, 1981 to finalise the study designs for two projects dealing with investigations of health and nutrition consequences of 'developmental programmes'. The following members were present: (Dr S.G. Srikantia, Chairman; Dr P.S. Sunder Rao, Prof of Biostatistics, Christian Medical College, Vellore; Prof I.C. Tiwari, Head, Department of Preventive and Social Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi; Prof Vijay Kumar, Head, Department of Preventive Medicine, Post Graduate Institute of Medicine, Chandigarh; Dr Meera Chatterjee, Ford Foundation; Dr C. Gopalan, Nutrition Foundation of India, New Delhi.)

The two projects will be conducted under the auspices of the Nutrition Foundation of India in Uttar Pradesh and Punjab. Prof I.C. Tiwari will be the project leader in Uttar Pradesh and Prof Vijay Kumar will be the project leader in Haryana.

The projects will last for three

years and provide information as to the behavioural and attitudinal changes with regard to health, and food habits; changes in expenditure pattern; and measurable changes in health and nutritional status if any. The developmental programmes in the areas under study do not at present include any special health and nutrition component.

Under the circumstances, the study will mainly indicate to what extent economic development and elimination of poverty *per se* would contribute to improvement of health and nutrition in poor communities, even in the absence of specific and intensive health and nutrition programmes in the areas. Thus, the situation here would be directly opposite of the situations prevailing in other areas, where health and nutrition programmes have been initiated in the absence of economic developmental programmes designed to attack poverty.

**The office of the Nutrition Foundation of India** in New Delhi will be located at the National Heart Institute Building, Community Centre, East of Kailash, New Delhi 110065. All routine correspondence addressed to the Foundation may in future be sent to the above address. However all letters personally addressed to Dr C. Gopalan may continue to be sent to B-37 Gulmohar Park, New Delhi

# Nutrition and Contraception

Mehtab S. Bamji

In several developing countries of South East Asia and Latin America the adoption of family planning has increased significantly, and it is estimated that over 90 million women in the developing world (excluding the People's Republic of China) practice family planning. These are also countries where there is a great deal of malnutrition, especially among women and children.

## Effect of Family Size

Logic, supported by ample data, suggests that large family size has a detrimental effect on the nutritional and health status of low income group families. Thus malnutrition, anaemia and B-complex vitamin deficiency are more often seen in women having four or more children (C. Gopalan and N. Naidu, *Lancet* 2:1077, 1972). Severe protein energy malnutrition is seen twice as frequently in children born after four or more (K. Vishweshwara Rao and C. Gopalan, *Proc. 1st Asian Congress of Nutrition*, p 339, 1971).

Family planning should, therefore, have a beneficial effect on nutritional status. However, interaction between nutrition and contraception is a complex phenomenon with several aspects such as (a) effect of the contraceptive method *per se* on nutrition status, (b) effects of malnutrition on some of the known metabolic and clinical side effects of contraceptive methods, (c) effects of contraceptives on diseases typical of developing countries and drugs used in their treatment, and (d) effect of malnutrition on the contraceptive efficacy of the method used.

These interactions are particularly relevant for systemic or invasive methods such as hormonal contraceptives and intrauterine devices.

It was estimated that in all developing countries (excluding China), breast feeding and associated lactational amenorrhea alone provided 35 million couple years of contraceptive protection compared to the 24 million

couple years provided by government and privately sponsored family planning programmes (Rosa: *Population Reports Series J*, no. 4, 1973).

Available data, on fertility during lactation suggest that given the same duration of lactation, the duration of infertile lactational amenorrhea (period following delivery when menstruation ceases, and the woman is relatively infertile) is shorter in better nourished than in malnourished women (Jain *et al*, *Demography* 7, 1970; Salber *et al*, *Am. J. Epidemiology* 82:347, 1966).

Studies on Guatemalan women have shown that dietary supplements did not show the expected improvement in lactational performance, but shortened the duration of lactational amenorrhea (Chevez and Martinez, *Nutrition Rep Internat* 7:1, 1973). Thus, improvement in maternal nutritional status during lactation could well shorten birth spacing, unless appropriate contraceptive care is extended.

In an earlier issue of *NFI Bulletin* the need for the effective functional integration of nutrition and family planning programmes was emphasised. The observations presented in this paper adduce further interesting evidence which serves to underscore the need for the close integration of nutrition and family planning programmes.

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Introduction of early supplements to infants (a desirable practice from the point of view of the infant's health) would also shorten the duration of lactational amenorrhea, and birth spacing. Frequency of suckling is known to be a stimulus for the lactation promoting hormone prolactin. It is, therefore, obvious that programmes directed towards improving maternal nutritional status, and introduction of infant weaning foods in the community should definitely be

backed by the adoption of family planning.

*Hormonal contraceptives:* When the combination type oral contraceptives (OC), which contain varying amounts of synthetic estrogens and synthetic progestrogens, were first introduced in the 1960s, it was hoped that at long last a magic pill which is effective and safe had been found. After all what could be safer than hormones of the kind a woman produces?

The synthetic hormones had better absorability than natural ones and hence could be used in lower doses. However, it was soon realised that the OC produce a plethora of metabolic and clinical side effects some of which—nausea, vomiting, weight gain, breast tenderness and facial pigmentation—are of a trivial nature, whereas others like increased risk of thromboembolism, diabetes, neoplasia and liver diseases, particularly benign hepatomas, are more serious.

It is thought that the risk of these serious side effects might be considerably reduced with the introduction of the low dose estrogen combination pills and 'progestrogen only' formulations. The contraceptive efficacy of the latter is however not as good as that of the combination pills.

A few years ago several reports from developed as well as developing countries including work at the National Institute of Nutrition (NIN), Hyderabad showed that use of the combination type OC has adverse effects on the biochemical status of several B-complex vitamins (particularly vitamins B<sub>2</sub>, B<sub>6</sub>, and folic acid) and vitamin C whose blood levels fall (M.S. Bamji, *Indian J. Med. Res. [Suppl.]* 68:80, 1978).

Conversely, the plasma levels of fat soluble vitamins such as vitamin A were found to increase. Animal experiments conducted at NIN and elsewhere suggest that these effects of OC on vitamin economy are mediated through alterations in the levels of specific vitamin binding proteins. For instance, vitamin A plasma levels increase due to an increase in the retinol binding protein which mobilises the vitamin from the liver into the plasma.

Levels of folate and riboflavin, on the other hand, fall in the blood, but increase in tissues such as the liver.

the physiological implications of such redistributions of vitamins between tissues remains to be understood (Bamji, 1978)

Studies conducted on malnourished women of low income groups in India and Thailand suggest that in these women vitamin deficiencies due to dietary constraints are so marked, that use of contraceptives does little to aggravate the situation. Nevertheless the question of administering vitamin supplements to women using OC is being investigated.

Some workers have observed suppression in lactation following use of estrogenic OC. Often OC are prescribed only six to eight months post-partum. The probability of transfer of steroids through milk and their adverse effects on infants is being actively investigated.

*Availability of contraceptive steroids in malnutrition:* It was at one time suspected that steroid doses needed by well built western women may be too high for smaller structured women in developing countries. However, recent pharmacokinetic studies on women in Hyderabad suggest that the elimination of steroids is faster, and their half life in the body less, in malnourished women (Prasad *et al.* Contraception, 20:77, 1979). Thus, it may not be advisable to reduce the dose of steroids based on body weight.

*Intrauterine devices:* Available data indicate that all IUDs, whether bio-active or inert, excepting progesterone releasing ones, substantially increase the amount of blood loss during menstruation. Some reports do indicate an IUD associated fall in haemoglobin, serum iron and ferritin levels. However, studies conducted at NIN show that the risk of anaemia due to an IUD is nonexistent (K. Prema, Indian J. Med. Res. 69: 756, 1979).

The commonest cause of anaemia in women of developing countries is closely spaced pregnancies. Prevention of this more than compensates for the slightly increased blood loss due to an IUD insertion. Nevertheless, it may be advisable to ascertain the haemoglobin status of women opting for contraception and take appropriate preventive measures.

Blood loss due to pregnancy termination can also be expected to affect

## Minimum Needs Programme in the Sixth Plan

The Minimum Needs Programme, introduced in the Fifth Five Year Plan, is expected to continue during the Sixth Plan. Its components and the allocations in the Fifth Plan and the Sixth Plan are indicated in the Table:

### Outlay in the Fifth and Sixth Plan (in million rupees)

Component	Fifth Plan	Sixth Plan
Elementary and adult education	4630	9200
Rural health	2960	4082
Rural water supply	5630	14,076
Rural roads	5020	11,650
Rural electrification	2820	3010
Rural housing	1090	3540
Environmental improvement	1050	1510
Nutrition	2870	2190
	<u>26,070</u>	<u>49,258</u>

It is envisaged that the different components of the Programme will be implemented as an integrated package in specific areas and selected beneficiary groups, and not

as sectorally isolated programmes. This implies detailed microlevel area planning.

The nutrition component of the package comprises of two elements:

- Special Nutrition Programme to cover five million children and five lakh women including those in 600 ICDS blocks.

- Midday Meal Programme to cover 17.4 million school children, to be integrated with other essential services for school children.

Other nutrition programmes as those for the prevention of nutritional blindness, anaemia and goitre are apparently being provided for, from the allocation for Health and Family Welfare in the Plan.

The reduced allocation for nutrition in the Minimum Needs Programme as compared to the increased allocation for all other components is striking; and probably reflects the view that lasting nutritional improvement can be better achieved through all-round development rather than through supplementary feeding programmes. However all the components of the Minimum Needs Programme put together can succeed in improving nutrition, only if programmes to combat poverty and to limit family size are given high priority and are effectively implemented in the same groups, as essential parts of the integrated package.

C.Gopalan

haemoglobin status particularly in malnourished women. However, a recent study on Indian women shows that irrespective of blood loss and initial haemoglobin levels, there was no fall in haemoglobin levels one month after abortion (K. Prema, Indian J. Med. Res. 69:605, 1979). This was so even in women who did not receive any haematinics during the postabortal period.

In summary, it can be concluded

that contraceptive methods *per se* have minimal or no adverse effects on nutrition status, when compared with the heavy drain of unwanted pregnancy. Improvement in maternal nutrition status and introduction of infant weaning foods can reduce the contraceptive protection due to lactational amenorrhea. Nutrition supplementation and education programmes, therefore, should also include contraceptive education and care.

# Coping With Disability

Past the halfway mark of its 365 days, the International Year of Disabled Persons is still notable for its unanswered questions. In what ways—and to what extent—are we improving our perception of the challenge of disability and our capacity to cope with it? Have the winds of change implied in the National Plan of Action begun to blow?

The fact finding on disabilities built into the 1981 Census was expected to pinpoint some of the severest disabilities. Enumerators were instructed to list the totally blind, the totally orthopaedically handicapped and the totally dumb. A suggestion to enumerate the deaf rather than the dumb was not accepted, despite the fact that dumbness is often a corollary of hearing impairments. Pending detailed analysis of the Census findings, one cannot predict how useful the data collected will prove to be; it is at least an attempt to begin charting largely unknown territory.

## Detailed Enquiry

The more detailed enquiry, undertaken by the National Sample Survey Organisation this summer, is more likely to uncover information about causes of disability. Data collected from about 400,000 households will surely take India an important step closer to knowing the real dimensions of the challenge set by IYDP. One causative factor that is already identified is malnutrition. Both popular and technical documentation published for the Year point to malnutrition in pregnancy and infancy as a major cause of disability in children. Like its predecessors dedicated to environment, population control, women's rights and child welfare, the Year of Disabled Persons has also drawn our attention to the damage done by poverty and ignorance.

Fact finding alone will not arm national planners with the weapons

they need to overcome these twin obstacles. We are already confronted with the knowledge that one-tenth of our population is—and will continue to be—physically or mentally disabled. We also know that present technologies can prevent, or at least contain, a very large proportion of present disabilities. We share this knowledge with the other developing countries.

Thus, at midpoint in the Year, we are faced not only by the imperative to know more, but also by the imperative to do more—and not to do it in a handful of expensive specialised institutions. Cost intensive approaches that have won laurels for producing miracles for the few who are lucky enough to have access to limited services must be progressively replaced by a more flexible infrastructure that can provide lower cost 'miracles for the many'.

It is no coincidence that the thematic years proclaimed by UN member states have come as signposts clustered around the launching of the Water and Sanitation Decade and the pledging of global effort to the achievement of 'health for all' by the year 2000. The course corrections in development policy and health planning that could ensure adequate safe water and public health standards could also ensure significant reductions in the incidence of malnutrition and disabling disease. And all the road signs of development are pointing towards the community level.

The Sixth Plan formulae go a step further—to focus on the family as the unit of development. For the disabled, the United Nations also identifies a well advised and supported family as the 'greatest available resource for helping them to live lives which are as normal and as productive as possible'.

Two questions arise in the IYDP context: How does the family attain the required level of awareness and competence, and how reasonable is it to expect a developing country to invest scarce resources in rehabilitating a minority? Clearly the answer to the first is easier articulated than achieved.

The Sixth Plan goal of human resource mobilisation as a means to popular participation will have this to

grapple with. Education to change discouraging attitudes toward disability is another awesome task.

But a brief foray into simple arithmetic should serve to underline the urgency of addressing these challenges, even in the poorest of countries. For if one person in every 10 is disabled, and about 146 million of the world's disabled are children, and at least 88 million of these are in Asia—how many Third World families and communities are affected by disability?

The UN estimates that it might well be as many as 25 percent. So even if we argue that the disabled are only 68 million in India, we have to be conscious of the ominous ripple effect of neglecting them.

## Integration Strategy

The integration of disability prevention, and rehabilitation, into primary health care strategies probably offers the greatest hope for the future. Current services, based on imported technologies and semicustodial approaches, serve barely one percent of the developing world's disabled people. The similarity to high cost, hospital based medical care is obvious. The lessons to be learnt from such comparisons should be equally clear. The National Plan of Action for IYDP reflects many of these perceptions. Where it falls short of clarity is in enunciating how the process is to be set in motion.

It is reasonable to support that the actual implementation of the Plan will have to begin at state level, and will vary according to needs highlighted by census and survey information. All the same, appropriate technologies and low cost methods must be devised, tested, tried and adapted, in a variety of decentralised situations.

For the larger imponderables national policy must provide the motive force. For the practical questions of 'how' and 'what' and 'when' it is the scientists, professionals and extension workers, whether in government or outside it, who must start translating objectives into action before the Year is out, and sustain the effort long after the Year has passed into history.

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