ICMR funded Advanced centre for nutrition research at NFI

Back ground information

NFI had carried out policy research and operational research studies under ICMR Advanced Centre for Nutrition Research 2005-2010. NFI had submitted a proposal to ICMR for initiating policy research on newer areas and operational research for following up leads that evolved from the earlier operational research studies. ICMR had sanctioned this proposal . The work pertaining to both policy andoperational research were initiated on 1.2.2012**.** The major thrust areas identified for research under the Advanced Centre are given below.

Nutrition Policy Research

Advanced centre will undertake policy research in three areas in a phased manner over the next five years:

- Policy and programme implications from Mid Day Meal programme evaluation.
- Impact of food inflation on food consumption and nutrition.
- Impact of the National Rural Employment Guarantee Act (NREGA) on income, food security and nutrition.

Policy and programme implications from Mid Day Meal programme evaluation

Miday Meal programme is a major initiative of the Governmennt of India aimed at improving school enrolement and retention which was initiated in 1995. From 2003 MDM provides region specific hot cooked meal to all primary school children in government and government aided schools .Currently it is reported that there is near-universal coverage under the Mid Day Meal (MDM) programme, but the quantity and quality of food served continue to show massive inter-state differences. One of the major problems is that, while efficient and effective coverage has been achieved in better-performing states and in urban areas, the coverage and content have been sub-optimal in the remote, rural and tribal areas where the need for MDM is greatest.

There have been numerous evaluations of MDM, focusing on specific objectives including improvement in school enrolment rates, retention rate, and social integration. Nutrition and health scientists have investigated the quantity and quality of food served, attempted interventions aimed at improving the micronutrient content of MDM, and explored the potential for utilization of the MDM programme as a focal point around which nutrition and health education could be imparted to school children and through them to their families and the community.

With the recent revision of the RDA norms for Indians, and the emerging problem of dual nutrition burden in children not only in the urban affluent populations but also among poorer segments of the population, it has become important to explore the magnitude of the nutrient gaps in the food intake of school children and tailor MDM accordingly.

Progress so far:

NFI has initiated a review of the available data from the various studies available in the websites of the Central ministry and those of different states. Efforts are under way to trace evaluation reports in the gray literature and in the form of MSc. dissertations or Ph.D theses. Once collected, the data will be analysed, and a comprehensive report will be prepared on the policy and programme implications of the findings.

***Impact of food inflation on food consumption and nutritional status*.**
Progress so far

NFI has obtained the NSSO data bases on consumer expenditure surveys 2004-05 (pre food inflation) and 2009-10 survey (after the latest food inflation set in). Analysis of the unit-level data on consumer expenditure on food and consumption of major food items, both per household and per capita, from the 2004-05 NSSO survey (pre-price rise) in comparison with the data from the 2009-10 survey (during the period of high food prices) may provide some insights into the effects of food inflation on these vital parameters. The clinical, anthropometric and biochemical (CAB) component of the Annual Health Survey (AHS), which is expected to commence in the calendar year 2012 with a major role for NFI (as described in another section of this report), and DLHS 4 are expected to provide important data on anthropometric indices relating to the nutritional status of the members of households in the post- inflation period. An attempt will be made to assess the nutritional status data of persons from different income groups in the CAB survey states during the year 2010 (during food price inflation) and compare them with the data from DLHS 2 , NFHS2, and NFHS-3 (pre- inflation).

Impact of NREGA on income, food security and nutrition
Progress so far
Till now, NSSO surveys or AHS surveys have not collected data on the NREGA status of households. Linking NSSO data on household food intake at state level to the AHS data on nutritional status at state level can be attempted, but at the moment neither NSSO surveys nor AHS survey specifically identify the households where members have been employed under NREGA .

The NREGA programme has been implemented over the last three years and it can be expected that evaluation reports of the programme implementation-related issues will become available soon. It is likely that, once the Right to Food bill is passed, there will be a greater impetus to obtain data on food security aspects, in relation to both NREGA and food inflation. If, in the future, NNMB and other nutrition surveys incorporate questions about NREGA and cost of food in their proformae, it will be possible to assess the magnitude of changes in food habits and nutritional status in the NREGA vs non-NREGA families and during high food inflation vs low food inflation periods. The Advanced Centre for Nutrition Research at NFI will continuously scan the web sites and publications for studies in these aspects, and in the third, fourth, and fifth years, prepare policy papers based on the available primary data.

Clinical, operational and biochemical studies in pregnancy

Clinical and operational research studies carried out under the Advanced Centre for Nutrition Research and other research projects undertaken by NFI during the last five years have identified two major nutrition priority areas for clinical and operational research in pregnant women:

- micronutrient status (biochemical) of pregnant women with anaemia, and assessment of response to treatment with iron plus folic acid vs iron plus vitamin B complex
- vitamin D status of pregnant women in different seasons of the year, and the response to vitamin D and calcium supplementation

Studies in anaemia in pregnancy

Studies carried out by NFI indicated that it is possible to screen and treat all women for anaemia when they come to antenatal clinics. Screening can be done using the cyanmethaemoglobin method. Women who had haemoglobin (Hb) levels between 5.0 and 7.9 g/dL, who were in their second trimester of pregnancy, who had no other obstetric or systemic problems, and who were willing and able to come for daily injections, were given injections of iron sorbitol citric acid complex containing 150 mg elemental iron, 1500 mcg folic acid, and 150 mcg hydroxocobalamine acetate (vitamin B_{12}).Data from the studies showed that even after injection of 1500mg of elemental iron, the rise in mean Hb was only ~2 g/dl .

Concerned at the apparent sub-optimal response to IM therapy, NFI, in collaboration with National Institute of Nutrition, carried out a study to investigate the iron, folate and B_{12} status of anaemic pregnant women, and in women before and after IM therapy. Data from the study indicated that:

- combined deficiency of iron and folic acid was the most common deficiency and occurred in one-half of the women;
- one-half of the women with mild anaemia and one-fourth of those with moderate anaemia did not have iron, folic acid, or B12 deficiencies
- consequent to the IM iron injections, the iron deficiency was corrected; there was no change in B12 deficiency after IM therapy; there was a steep rise in isolated folic acid deficiency after IM iron therapy.

These data suggested that there was an urgent need to:

- investigate the micronutrient status (iron, folate, riboflavin, vitamin B_6 and vitamin $B_{12,}$ Vit A, Vit E) and homocystine status in pregnant women with anaemia attending antenatal clinics.
- study the changes in these micronutrients following therapy with iron and folic acid or iron and vitamin B complex