

# **Reducing Child Malnutrition: Thailand Experience (1977-86)**

## **A Review of International Literature**

### **Abstract:**

Thailand has been one of the most outstanding success stories of reducing child malnutrition post 1970s. The international literature on Thailand experience provides varied assessments of the actual rate of decline in child malnutrition, depending upon different sources of data used. But it is unanimous in accepting Thailand's success in reducing child malnutrition. The literature also agrees that the success is attributable not just to the rapid economic growth but the direct nutrition programmes implemented by Thai government were much more responsible [Heaver 2002]. The major reduction in malnutrition rates was in the period 1980-1986 during which child malnutrition (underweight) rate was effectively reduced from 50% to 25% [Tontisirin et al 1992]. This has significance for nutrition programmes in India as the levels of per capita GDP, proportion of women in agricultural workforce and child malnutrition rates around 1980 in Thailand were similar to what we have in India in 2007 [Suntikitrungruang in Jennings ed.1989]. Thailand started intervening in Nutrition from 1961 onwards and launched large focused programmes on nutrition in 1977. These programmes managed to reduce child malnutrition (underweight) to 25% by 1986 and Anemia to 27% by 1988 through a mix of interventions including intensive growth monitoring and nutrition education, strong supplementary feeding provision, high rates of coverage ensured by having high human resource intensity, Iron and Vitamin supplementation and salt Iodisation along with primary health care. Once it reached the level of 25% malnutrition, it introduced additional strategies like Food Coupons in 1988 which enabled malnourished children to get eggs etc. [Kachondham et al 1992].

### Evidence of Decline in Child Malnutrition in Thailand:

The international literature quotes two sets of data on child malnutrition (underweight) rates in Thailand:

Table: Child Malnutrition (underweight %) in Thailand as per different data sources

	Nutrition Surveillance Division Report		National Sample Survey
Year	Moderate + Severe <sup>1</sup> Malnutrition (Thai Standard, Gomez Classification) [Heaver 2002]	Mild + Moderate + Severe Malnutrition (Thai Standard, Gomez Classification) [Tontisirin et al 1992]	(NCHS Standard <- 2SD) [Heaver 2002]
1979-82	15.13	50.79	
1983	6.7	35.23	
1984	4.47	29.33	
1985	4.11	28.45	
1986	3.25	25.09	25.8
1987	2.36	22.89	
1988	1.62	21.15	
1989	1.15	20.86	
1990	0.80	20.00	
1991	0.77	17.10	
1995			15.4

The Thai government data prior to 1985 has been questioned by Richard Heaver (Thailand's National Nutrition Programme: Lessons in Management and Capacity Development, World Bank, 2002) as it shows very high rates of decline around 1983 and is based on low weighing coverage. But Heaver agrees with the declining trend and says that the high rate of decline can be explained by the phenomenon that any nutrition programme in its initial years encounters more of the 'easier' cases which tend to respond better to its interventions. Heaver states that National Sample Survey data is more accurate and as per it the child malnutrition rate was 25.8% by 1986. This figure agrees with the Nutrition Surveillance Division Report quoted by Tontisirin et al (excerpt quoted below) which puts the figure at 25.09% in 1986. The nutrition standards followed in these two sources are slightly different but Heaver agrees that for under-2 year children, the difference would be negligible. Heaver also agrees with Tontisirin et al that the declining trend of malnutrition rate in Thailand continued further and it reached around 15% by year 1995. He further states that such sharp rate of decline can not be explained by

<sup>1</sup> Division of Nutrition, Ministry of Public Health Using Thai growth reference of body weight as percent of standard weight: 90 and up (normal), 75-89 (mild), 60-74 (moderate) and below 60 (severe) cut-off points.

economic growth alone and direct nutrition programmes of Thai government played a big role. Apart from Tontisirin et al, various research papers presented at 14<sup>th</sup> and 15<sup>th</sup> International Congresses on Nutrition (1989 to 1992) organized by United Nations various UN conferences accept that malnutrition rates in Thailand were reduced to half between 1980 and 1986 [Kachondham et al 1992, Suntikitrungruang 1989] . Thus, the literature is unanimous in accepting that Thailand's performance in reducing child malnutrition has been outstanding.

To quote Tontisirin et al (1992):

During the last decade, Thailand dramatically reduced the prevalence of protein energy malnutrition (PEM) in preschool children. PEM by weight-for-age in children under five (which reflects macro-nutrient deficiencies) was over 50% between 1979-1982. Growth monitoring was then institutionalized by the Division of Nutrition, Ministry of Public Health (MOPH), at the beginning in the Fourth National Economic and Social Development Plan (NESDP) in 1981, and it has achieved a coverage of more than 2.7 million pre-school children by 1991. Using a Thai growth standard, combined mild, moderate and severe malnutrition by weight for age, as shown in Table 1, declined consistently from approximately 50.8% in 1982 to 17.1% in 1991 (for moderate and severe combined, the decline went from about 15.13% to 0.77% in the same period).

### **Nutrition Programmes in Thailand**

While Thailand had continuous and fast decline in child malnutrition between 1980 and 1995, the period 1980-86 is most important to draw lessons for India. It was the period when Thailand reduced its malnutrition rate from 50% to 25% which is close to the goal envisaged for India's 11<sup>th</sup> Five Year Plan. By 1988, the anemia amongst children as well as women had reduced to 27.3% [Suntikitrungruang in Jennings ed.1989]. Thailand's success in this period (1980-86) was based on intensive nutrition programmes implemented by its government, especially during the period of 1977-1986 [Tontisirin et al 1992].

In 1977, the first National Health and Nutrition Plan (NHNP) was launched in Thailand though it had nutrition programmes with lesser budgets and coverage since 1961. The main interventions in the period 1977-81 were [Kachondham et al 1992]:

1. Focus on infants, pre-school children and pregnant women
2. Focus on Protein Energy Malnutrition (PEM)
3. Also targeted Iron, Vit A, Iodine and Riboflavin/Thiamine deficiencies by providing tablets
4. Supplementary food was provided through Health department. It was centrally procured and processed at 1200 production centres set up for the purpose. Home delivery of supplementary food was provided for severely malnourished children [Tontisirin et al 1992].

The malnutrition rate however did not decline much till 1980 as the coverage was low (nearly 30%), the centralised processing of supplementary foods posed logistical problems in distribution and the interventions remained uni-sectoral as health care and agriculture continued to be neglected. But the programme did succeed in bringing the focus on malnutrition as an issue of national importance and created the momentum for more effective interventions in the subsequent phase [Kachondham et al 1992].

The Second National Health and Nutrition Plan (NHNP) 1982-86 was able to address many of the earlier weaknesses [Kachondham et al 1992]. It combined the focus on nutrition with health care and poverty alleviation. A large cadre of health and nutrition workers: Voluntary Health Communicators (VHCs) and Voluntary Health Volunteers (VHVs) was created [Kachondham et al 1992]. The cadre strength rapidly grew to reach the level of one worker per 20 children [World Bank 2006]. The annual cost of this component alone was around \$11 per child [World Bank 2006]. The number of VHCs and VHVs reached 500,000 and 50,000 respectively by 1989 and this ensured very high programme coverage [Kachondham et al 1992]. These workers were provided intensive training inputs [Kachondham et al 1992].

It had the following key interventions: [Kachondham et al 1992]

1. Nation wide growth monitoring, additional attention paid to moderate and severely malnourished
2. Nutrition Education on breastfeeding promotion, complementary feeding, correction of food taboos etc.
3. Promoting production of nutritious foods like legumes, sesame, fish and poultry by communities
4. Decentralisation of production and distribution of Supplementary Foods to community level. Formulation consisted of rice, beans, groundnut/sesame. Each child was provided 100 g of the formulation per day providing around 450 kcal and 12-14 grams of protein. In addition, malnourished children were also provided take home rations [Dhanamitta et al 1985].
5. Iodisation of Salt
6. Tablets for Iron, Vitamins

To quote Tontisirin et al (1992):

***The First through Fourth National Health Development Plans***

The first important step in the development of Thailand's national health and nutrition policies was the formulation of a series of five-year National Health Development Plans (NHDP) as a part of the National Economic and Social Development Plan (NESDP) started in 1961. The First five-year NHDP emphasized the construction and expansion of health facilities especially at the provincial level. The Second and Third NHDPs shifted this emphasis towards optimizing resource use. This fostered greater planning coordination between national, regional and provincial levels resulting in an increase in available resources for public health facilities. There was also a strengthening of new

programs in line with national socio-economic development goals, most notably maternal and child health care, family planning, nutrition, development and environmental health, and communicable disease control and eradication.

While nutrition was one focus of these three plans, it was a small, integrated portion of health service activities which still had very low coverage and an emphasis on curative, rather than preventive aspects. Another major facet of these plans, especially towards the end of the Third five-year plan, was a heightened concern on increasing the number of qualified health personnel and their capacity to undertake work in line with the NHDP. This was prompted by the need to expand the range of existing health facilities in order to improve their availability .

The Fourth NHDP (1977-1981) was the first time that full attention was given to formulating a concrete five year strategy which took into serious consideration the need to upgrade and expand government health services to people living in rural areas with a quality comparable to that provided in urban settings. During this plan, a number of district hospitals were constructed which led to a target of increasing the number of health personnel in various fields, especially those who would work in rural areas. It was during the Fifth NHDP, however, that a concerted attempt was made for full coverage of general and specialized hospitals at the provincial level, community hospitals for districts, and health centers at the subdistrict level.

### ***The First National Food and Nutrition Plan***

Historically, Thailand's nutrition program was a component of the National Health Development Plan. But it was not until 1977 that the First National Food and Nutrition Plan (NFNP) was included as an entity in the Fourth National Economic and Social Development Plan (NESDP) (1977-1981). This coincided with the implementation of the Fourth NHDP. Since it was clear that malnutrition was a multifaceted problem, a multisectoral approach was devised. Thus, a National Food and Nutrition Committee was appointed, consisting of members representing various ministries, especially the four major Ministries of Agriculture, Education, Health and Interior (community development). A committee at the provincial level with a similar composition was also appointed.

The First NFNP listed seven major nutrition problems: protein-energy malnutrition, iron-deficiency anaemia, vitamin A deficiency, beri-beri from thiamine deficiency, goitre caused by iodine deficiency, angular stomatitis induced by riboflavin deficiency, and urinary bladder stone disease resulting from phosphorous deficiency. Protein-energy malnutrition was considered the most significant and a priority problem because of its high prevalence, especially among pregnant and lactating women and preschool and school-aged children. Possible causes were identified as inadequate food production for household consumption; inefficient and inequitable food market system; poverty and high population growth; improper food habits and lack of nutrition education and inadequate health services.

The First NFNP set out ambitious and comprehensive goals to improve the nutritional status of the population by tackling it on many fronts, most notably the improvement of health care and hygiene; increased food availability; nutrition education; and improvement of socioeconomic conditions of the vulnerable groups. The plan targeted rural infants, preschool children (children under age five), pregnant and lactating women, and, to a lesser extent, school-aged children. At that time it was estimated that 55 000 infants and preschool children died annually due to PEM as either a direct or associated cause of death.

Although both short- and long-term strategies and activities were formulated, short-term actions to remedy severe and moderate malnutrition were the most obvious outputs which were largely achieved by feeding children high-protein supplements at Child Nutrition Centers (approximately 1200 were constructed). These foods were centrally produced and supplied through the health system to the periphery. Home delivery of supplementary foods was provided for children with severe malnutrition .

Yet by the end of the First NFNP, the nutrition program was not fully implemented due to the lack of inter- and intra-sectoral collaboration, little involvement of people, and many policies were not successful in attaining their set objectives, such as the central production of supplementary food and creation of village nutrition rehabilitation centers. Although some action plans were well-defined, planning was entirely a top-down approach. Planning, authorization and budget allocations were decided at the central or provincial levels and vertically channeled to the grass-root levels (districts, subdistricts, communities). No single agency, however, was responsible for overall coordination and monitoring of programs. There was no change in the program planning and budget allocation structure to support multisectoral efforts. There was also very little participation by the community.

It was not surprising that the First NFNP produced limited results. Malnutrition continued to be a serious problem, especially protein-energy malnutrition among infants and preschool children and iron-deficiency anemia among children, pregnant and lactating women. A 1980 nationwide survey showed that 53% of preschool children suffered from protein-energy malnutrition. However, the most significant accomplishment of this plan was the creation of a strong awareness of nutritional problems among public and private sectors alike and at all levels. This led to an even stronger political commitment on the part of the nation's policy makers.

### ***The Fifth National Health Development Plan (1982-1986) and the Second National Food and Nutrition Plan***

The Fifth NHDP's main policy centered firmly on people participation as opposed to the government shouldering the entire burden. The primary health care (PHC) approach was seen as a practical mechanism for attacking many of the persisting health problems of the time. This led to the nationwide training of village health volunteers and village health communicators which are now found in virtually every rural village. Regarding health infrastructure development, the top priority was given to districts and communities. At

least one hospital was made available in each district area which also spawned a remarkable increase in the number of lower level health facilities, particularly community hospitals, and subdistrict health centers.

Likewise, the Fifth NESDP (1982-1986), which coincided with the Fifth NHDP, continued to include the food and nutrition plan, however the planning concept and approach changed. Rather than being a food problem, malnutrition was recognized as a manifestation of poverty and ignorance. Consequently policy makers and planners targeted the eradication of poverty as the chief control measure. Nutrition programs employed during the Fourth NESDP were seen as only stopgap measures to relieve the most severe forms of malnutrition until more systematic solutions could be developed.

As in the First NFNP, the Second NFNP's main target groups were infants and preschool children as well as pregnant and lactating women. Moreover, this plan also paid greater attention to school-aged children. The Second NFNP's goals were also more quantifiable, that is, the elimination of severe malnutrition among target groups, a reduction in moderate malnutrition by 50% and mild malnutrition by 25% in infants and preschool children, and a reduction in protein-energy malnutrition by 25% in infants and preschool children, and a reduction in protein-energy malnutrition by 50% in school-aged children, and the eradication of iodine deficiency goitre in nine endemic provinces in the North.

The main nutrition policy thrust during this period rested within the broader national social development policy (Fifth NESDP). The latter centered on a Poverty Alleviation Plan (PAP) entailing the development of backward areas along with a primary health care (PHC) approach for health development. This emphasis marked an important turning point in Thailand's developmental approach which formally focused attention on overall economic growth and its trickle down effects for rural development. The strategies employed to solve malnutrition and improvement of the nutritional status of the population included the following.

First, nutrition surveillance included growth monitoring by using weight charts, prevalence of goitre, clinical signs of anaemia and angular stomatitis. A child was weighed every 3 months at a community weighing post. For a case of moderate or severe PEM, or for a child who did not gain weight, he/she would be weighed monthly along with a monthly supplementary feeding program. PEM cases with complications such as diarrhoea, measles or pneumonia were referred to a nearby health center.

Second, nutrition information, education and communication emphasized increasing food and nutrition knowledge during pregnancy and lactation periods, promotion of breast feeding, introduction of proper supplementary foods, increased awareness of the five food groups, food hygiene and correction of false food beliefs and taboos.

Third, production of nutritious foods in communities was also promoted through such activities as home gardening, growing of fruit trees, cultivation of legumes and sesames, fish ponds, and the prevention of epidemic diseases in chicken.

Fourth, supplementary food production and supplementary feeding program at village level has also strengthened. Supplementary food mixtures containing rice, legumes and sesames or rice, legumes and peanut were prepared at the community level by women's groups with the support of village health communicators (VHC) and village health volunteers (VHV). These food mixtures could be kept for 1-2 months and used for the supplementary feeding of severe and moderate PEM cases in the community<sup>4</sup>. The mixtures were also sold to the mothers or to nearby villages. Income from such sales was successfully used to establish village nutrition funds for development.

Fifth, school lunch programs covering 5000 schools in the poverty areas were established. This program was eventually expected to be community-supported with only initial funds being provided by the Ministry of Education .

Sixth, food fortification was emphasized in terms of salt iodization and distribution to endemic goitre areas through both the health infrastructure and private channels.

Seventh, training was provided for health personnel, VHC and VHV, as well as community leaders.

The success in implementing community-based nutrition programs was further strengthened and accelerated by the long-term policy of improving people's quality of life through the Poverty Alleviation Plan in which policies placed nutrition as an important component for reaching the Health for All goal.

### **Post 1986 period:**

In the third National Health and Development Plan, further new strategies were introduced. In addition to decentralized production and distribution of supplementary foods, food coupons were introduced through which moderate and severely malnourished children were able to get eggs etc. from local shops. Each child got food coupons worth 3 baht (Rs.6 approx.) per day and it was increased to 5 baht (Rs. 10) by 1991 [Kachondham et al 1992]. But the overall budget required for the purpose was not very high as Thailand had already reached low levels of child malnutrition before 1988.

To quote Kachondham et al (1992):

A new strategy of food coupons was then introduced in addition to the village food processing in 1988. The food coupon was given to individual children who were second and third degree malnourished. A monthly booklet of thirty coupons, each worth 3 baht in 1988 was given to the mothers of these children (5 baht in 1991). Every day, one coupon could be used at the local shop on specific items of food indicated on the coupon, such as eggs. Authorized shop owners in the village collected the coupons and were reimbursed from the sub-district health office.

## Lessons for India:

Based on this review, we draw the following lessons of India's nutrition programmes for 11<sup>th</sup> Plan:

- **Have a strong Supplementary Food programme:** Thailand provided 450 kcal and 12-14 gram of protein supplementation per 100 gram of food which included pulses and fats in addition to cereal. In India we have been providing only 300 kcal per 100 gram of SNP and that too mainly as cereal. Secondly, success was more pronounced after 1982 when decentralized production and distribution was instituted. In comparison, India has had highly centralized SNP system with obvious delays and leakages. Thirdly, for malnourished children, both moderate and severe, Thailand provided home delivery of supplementary foods. In India, there have been gaps: a) provision of additional rations has been limited only to severely malnourished children and moderately malnourished children have been left out b) the additional provision is in form of more cereal which is completely inappropriate for tackling severe malnutrition. c) there has been no system of home delivery of food to malnourished children
- **Ensure High Coverage:** Thailand's programme during 1977-81 did not achieve much change as the coverage was only 30%. Thailand was able to achieve major reduction in child malnutrition only after 1982 when its programmes ensured high coverage rates. In India, the coverage rates so far have been very low.
- **Ensure nation wide growth monitoring and nutrition education by having high human resource intensity:** Thailand was able to ensure intensive growth monitoring and nutrition education mainly through Village Health Communicators (VHCs). It reached a level of one nutrition worker per 20 children by 1990 and spent \$11 per child per year on human resources. India also has a cadre of Anganwadi workers equivalent to the VHCs in Thailand. But the number of children per Anganwadi worker is close to a hundred. This reduces her ability to provide intensive growth monitoring and nutrition education services.
- **Give Iron and Vitamin supplements a real chance:** Thailand was able to reduce Anemia to low levels by 1988 by using Iron and Vitamin tablets for supplementation and ensuring high coverage. In India, similar programmes have been present but with huge gaps. Iron tablets for children and Vit A supplements have been mostly missing. Improved forms and regular supplies backed by health education can achieve desired effectiveness.
- **Back nutrition programmes with strong primary health care linkage and agricultural development:** Thailand achieved fast improvements in child nutrition status when it combined nutrition programmes with strong provision of primary health care from 1982. The programme also converged well with poverty alleviation and agriculture based strategies like promotion of legumes, sesame, poultry etc. India also has an opportunity of improving health linkages through National Rural Health Mission.

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