

observed in the North-central province, previously a nonendemic area. The same study led to estimates of the prevalence of iodine-deficiency disorders from urinary iodine assays showing that the prevalences of mild, moderate, and severe iodine deficiency were 22%, 7%, and 1.4%, respectively. In pursuing improvement of the situation, Sri Lanka has identified the need to determine thyrotropin levels of newborns and to develop a database on the iodine content of foods, goitrogens in local foods, and the effects of fertilizer, pesticides, and insecticides on the bioavailability of iodine in food.

Anemia is a major public health problem in Sri Lanka, affecting all segments of the population and contributing to increased morbidity and mortality rates. Anemia prevalence in 1973 was estimated as 38% among men, 68% among women, 70% among primary schoolchildren, and 52% among preschool children. The prevalence was 60% among pregnant women in 1988–89. In 2001 the prevalence was estimated as 32% among nonpregnant women, 30% among pregnant

women, 22% among adolescents, 21% among primary schoolchildren, and 30% among preschool children. Operational studies on the iron-supplementation program have indicated that further strengthening is required to achieve optimal results. A comprehensive national strategy was formulated, including iron/folate supplementation to all pregnant women; antihelminthic use and malaria control; promotion of dietary diversification; information, education, and communication (IEC) campaigns to improve compliance; provision of safe drinking water and sanitation; and proper monitoring and further research to improve efficiency and effectiveness. Additional target groups to be included were infants, preschool children, schoolchildren, nonpregnant women, and displaced persons. The possibility of iron fortification as a strategy has been looked into. Challenges ahead for optimal control are proper monitoring and evaluation, securing adequate human resources, improving the bioavailability of micronutrients in foods, promoting food-based methods, and issues related to iron fortification.

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## 10. Thailand

### ***Current situation and status of micronutrient policies and programs in Thailand***

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Thailand has set goals for alleviating three major micronutrient deficiencies that since the early 1980s have been regarded as major public health problems. The prevalence of vitamin A deficiency has decreased, along with the reduction of protein–energy malnutrition among young children and mothers. Iodine and iron deficiency, however, have required additional efforts through salt iodization and iron-supplementation programs during the past two decades. Currently, clinical micronutrient deficiencies have become rare, and the severity of persisting deficiencies has declined to the subclinical level. These remain a significant challenge.

Iron supplementation is the major program addressing anemia during pregnancy. The anemia surveillance system has been an integral part of the efforts to alleviate anemia among school-aged children and pregnant women. Village health volunteers provide the major resource for identifying pregnant women and advising them to attend antenatal care, as well as promoting safe delivery in the hospital. Daily iron supplementation has been provided throughout pregnancy, but adherence

to supplementation is not monitored. Severe anemia among pregnant women has substantially declined as a result of improving the referral system and ensuring compliance to iron therapy. There have been no specific programs for anemia in infants, preschool children, or adolescent girls. Meanwhile, weekly supplementation in primary schools has been piloted but not yet expanded nationwide.

Legislation for iodization of salt has been a major step forward as a nationwide strategy to alleviate iodine deficiency. Continued attention is still needed to ensure the sustainability of salt iodization and household consumption of iodized salt. Cyclic monitoring of the iodine-deficiency situation has been launched, and data on urinary iodine from pregnant women and school children are being used to monitor the situation. Fortification of various foods to address multiple micronutrient deficiencies has been studied, and some products have been commercialized. Partnerships among government, the private sector, and academics have been established since the early stage of the program. The private sector and academic institutions have worked together to formulate the products, and government sectors assist in promoting the use of fortified foods. Systematic evaluation of these programs will be useful in elucidating lessons learned from Thailand.

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