

# Annex B

## Consensus Statements from Project Workshops

---

The following consensus statements were developed at the regional workshops discussed in Chapter 1.

---

### Consensus Statement on Cooking Oil Fortification

Regional Workshop on Flour and Cooking Oil Fortification

6–8 November 2001

Asian Development Bank

Manila, Philippines

*After 3 days of deliberation, participants from five Asian nations,<sup>58</sup> attending a workshop on wheat flour and cooking oil fortification on 6–8 November 2001, sponsored by the Asian Development Bank, agreed on the following set of principles, strategies, and actions.*

**1. We recognize:**

- that Vitamin A Deficiency (VAD) is a widespread problem with well-documented human and economic impacts;
- that improved Vitamin A status worldwide would be expected to prevent approximately 1.3–2.5 million deaths among children under 5 years of age (WHO 1993);
- that improvement of Vitamin A status in the young child population leads to a reduction of 23% in all-cause child mortality (UNICEF 1993);
- that improved Vitamin A status can reduce mortality during pregnancy;
- that prevalence of VAD in this region is generally considerably higher than the WHO cut-off point, ranging from 20% to 50% among countries participating in this initiative.

**2. We affirm:**

- that the addition of Vitamin A to all cooking oil<sup>59</sup> sold for human consumption is a well-established method for eliminating VAD as a societal problem;
- that fortification of cooking oil with Vitamin A is an inexpensive and effective intervention to reduce VAD;
- that fortification of cooking oil with Vitamin A is feasible technically, economically, and politically;
- that successful models of fortification of cooking oil products with Vitamin A already exist and are operating in the Asian market;
- that people of the region should have access to affordable, safe, and efficacious fortified foods as a permanent commitment to the elimination of micronutrient malnutrition;

---

<sup>58</sup> Indonesia, Pakistan, the PRC, Thailand, and Viet Nam. An unofficial delegation from India was also present. The Government of India reserved its opinion regarding the consensus statement.

---

<sup>59</sup> The important contribution of other oil-based products (e.g., shortening, margarine) was fully recognized by the group as carriers for Vitamin A. However, it was felt by participants that these other products might not be as well targeted to at-risk populations.

- that the consequences of not implementing fortification programs at the national level will be high mortality and morbidity rates for children and mothers, poor child development, low educational achievement of children, and decreased earnings and economic growth;
- that significant benefits can also be achieved by simultaneously addressing micronutrient malnutrition through regional alliances, networks, and institutions.

### 3. **We recommend:**

*We therefore recommend the following national and regional actions to achieve reduction of VAD in the region.*

#### **NATIONAL ACTIONS**

- Pass mandatory oil fortification laws or regulations in all participating countries in the region by 2006. Implementation schedules will be developed on a country-by-country basis depending upon the size and complexity of the fortification projects. The minimum level of fortification should be 25 IU per gram, with precise levels to be determined by the individual countries. Alternatively, the minimum level of fortification should deliver 25% of RDA of Vitamin A per average daily consumption, after accounting for all losses.
- Develop and effectively implement programs for universal oil fortification within all countries in the region.
- All countries in the region should take measures to ensure consumer acceptance by embarking upon consumer education campaigns regarding the health benefits, safety, and quality of fortified oil.
- All countries in the region should ensure adequate regulatory control and enforcement of fortification laws to ensure successful implementation.
- Each country government should facilitate a robust public-private partnership to ensure the sustainability of fortification programs and to provide ample controls to safeguard the safety and health of the consuming public.

- In order to assist with the development of consumer confidence in and national consensus around fortified oils, research should be conducted into stability, efficacy, and packaging options according to each country's production and consumption circumstances. Existing scientific literature can serve as useful reference.
- Countries should urge the elimination of nontariff trade barriers to food fortification, to promote timely implementation and sustainability.

#### **REGIONAL ACTIONS**

- Establish a Regional Center of Excellence in Food Fortification, to undertake the following activities regarding cooking oil fortification:
- Development of regional and international trade standards and guidelines for fortified foods
- Development of quality assurance procedures
- Provision of relevant training and capacity building
- Research into stability, efficacy, and new packaging materials in order improve continuously upon the quality and effectiveness of end products
- Take measures to reduce the price of the fortificant, including investments in producing the fortificant in the region.
- Secure strategic investment in private/public quality assurance capability in the region, including investment in adequate training and testing facilities.
- Participating countries hope that ADB will continue to play a constructive leadership role in supporting fortification efforts in the region.

### 4. **Signatories:**

The participating delegations from Viet Nam, Thailand, People's Republic of China, Pakistan, and Indonesia endorsed this statement by consensus during the workshop. Delegations represented a broad partnership of public- and private-sector representatives.

## Consensus Statement on Wheat Flour Fortification

Regional Workshop on Flour and Cooking Oil Fortification

6–8 November 2001

Asian Development Bank

Manila, Philippines

*After 3 days of deliberation, participants from five Asian nations<sup>60</sup> attending a workshop on wheat flour and cooking oil fortification on 6-8 November 2001, sponsored by the Asian Development Bank, agreed on the following set of principles, strategies, and actions.*

### 1. We recognize:

- that iron deficiency is causing serious damage to social and economic development through poorer pregnancy outcomes, impaired cognition especially in young children, reduced work capacity, and increased morbidity from infectious diseases;
- that zinc deficiency is associated with lowered immunity, slower growth, and increased risk of heavy metal poisoning in contaminated environments;
- that folic acid deficiency in women who become pregnant contributes to congenital abnormalities of the central nervous system of the newborn and is an independent risk factor for coronary heart disease, and contributes to anemia;
- that the key B-vitamins thiamin, riboflavin, and niacin along with most iron and folic acid are removed during milling, contributing to micronutrient malnutrition among populations whose diets include noodles, bread, and other flour-based foods;
- that while additional research and development is needed in specific areas to define optimal iron fortification approaches, it is also recognized that *nutrition delayed is equivalent to nutrition denied*, and therefore countries of the region should move forward consistent with the current evidence and scientific consensus.

### 2. We affirm:

- that the addition of micronutrients to flour according to the guidelines elaborated below is

a feasible, affordable, and efficacious method to reduce the prevalence of these key micronutrient deficiencies;

- that white flour of ash content up to 0.80% should include a basic package of micronutrients according to the following *guidelines* as an initial reference point:

1. 60 ppm iron as electrolytic iron<sup>61</sup> or 30 ppm iron as ferrous sulfate
2. 30 ppm zinc
3. 2.5 ppm thiamine
4. 4 ppm riboflavin
5. 2 ppm folic acid

- that *atta* flours (unrefined brown flours) or flours with ash content of more than 0.80% include a basic package of micronutrients according to the following guidelines:

1. 60 ppm electrolytic iron
2. 30 ppm zinc
3. 2 ppm folic acid

- that when considered feasible and affordable, standards for electrolytic iron in *atta* flours substitute equivalent levels of sodium iron-EDTA or disodium EDTA plus ferrous sulfate;
- that where these deficiencies are of high public health concern, the basic package above be enhanced with the addition of Vitamin A, Niacin, B<sub>6</sub>, B<sub>12</sub>, and/or calcium at levels delivering 25% of RDA at average levels of daily consumption;

<sup>60</sup> Indonesia, Pakistan, PRC, Thailand, and Viet Nam. An unofficial delegation from India was also present. The Government of India reserved its opinion regarding this consensus statement.

<sup>61</sup> *Electrolytic iron* appears to be the best choice of the elemental iron powders at the current state of our knowledge. If electrolytic iron is not available at a reasonable cost, another type of elemental iron powder may need to be considered. Whatever type of elemental iron powder is selected, it is recommended that 325 mesh (<45 microns) be used rather than 100 mesh as specified for reduced iron in the current FCC guidelines.

- that there are no capacity constraints for private roller millers to implement the guidelines above and to provide affordable fortified flour to their consumers;
- and that the consequences of not implementing fortification programs at the national level will be poor child development, low educational achievement of children, and decreased earnings and economic growth.

### 3. We therefore pledge

- that governments and producers work together towards a goal of fortifying all flour used in the preparation of staple foods such as leavened and unleavened breads, noodles, pastas, biscuits, and other flour products that are consumed by populations at risk of micronutrient deficiencies by the year 2006.

### 4. We recognize that the achievement of these critical goals will require:

- that countries of the region establish an enabling environment for fortification of flour by working towards national mandatory standards for all flour used in the preparation of staple foods such as breads, noodles, pastas, biscuits, and other flour products that are consumed by populations at-risk of micronutrient deficiencies;
- that food laws and regulations be reviewed and amended to ensure they support and enable the addition of all essential micronutrients in appropriate food carriers;
- that public policies and regulations constraining or impeding investment in food fortification be reviewed and amended and that all nations collaborate to produce uniform or consistent standards based on international best practices;
- that customs protocols and trade regulations be revised or enacted to facilitate the import and export of certified and safe fortified foods;
- that the cost of food fortification must ultimately be borne by the producer and the consumer, but a transition period of cost sharing between the public and private sectors may be necessary;

- that efforts be continued to inform the public of the benefits of fortified flour to the learning and earning capacities of the region's children;
- that food fortification must be a part of a comprehensive strategy of anemia prevention and control that includes supplementation, dietary diversification, breast feeding promotion, and other public health measures.

### NATIONAL ACTIONS

#### 5. We further recognize that the achievement of flour fortification will require the following coordinated actions at national, provincial, and local levels:

- Pass and effectively implement mandatory laws for flour fortification in a timely fashion, that these laws reflect consideration of the guidelines for the minimum basic package and enhanced package of micronutrients elaborated above.
- Enhance current regulatory frameworks and build capacity to implement food control and enforcement functions in a systematic, transparent, and fair manner.
- Establish a monitoring framework to assess the effectiveness of flour fortification on the population with particular emphasis on populations defined as at-risk of micronutrient deficiencies.
- Urge the elimination of all tariffs, sales taxes, value-added taxes, and other fees or charges on the inputs to fortification and fortified food products.
- Systematically review all tariffs, sales taxes, value-added taxes, and other fees or government charges that impact the price of fortified flour products to identify appropriate mechanisms for government cost sharing until such time as the costs of fortification can be fully passed on to the consumer.
- Systematically review all government sources of revenue derived from the import and sale of wheat, flour, and flour products to identify appropriate mechanisms to ensure full support to government regulatory and enforcement functions, nutrition surveillance and monitoring functions, and public education and social marketing of fortified flour.

- Collaboration among public and private sectors to ensure that any consumer price rise in fortified products is reasonable and fairly reflects only the incremental costs of flour fortification.
- Collaboration among government, industry, and international donors to define sustainable mechanisms passing all costs of fortification, quality assurance, enforcement, and marketing to the consumer as soon as feasible.
- Integrate fortification into national programs and policies, including a requirement that all public purchases of flour and flour products be fortified.
- In countries where the small milling sector represents a significant proportion of flour production, move forward on an accelerated basis to address technical and commercial constraints at the small mill (*chakki*).
- Promote an expanded public/private sector dialogue on the fortification of wheat flour and organize advocacy events to increase program and donor support.
- Develop and implement a communication strategy to raise public awareness of the benefits of fortified wheat flour and wheat flour products and promote increased consumer preference for these products.
- Demonstrate through regional policy dialogue to economic planning agencies and the general public the large economic damage caused by poor nutrition and the proven low-cost solutions available to the region.
- Advocate resource mobilization by governments from domestic budgets, public and private sectors, and strategic investments from development partners, and share country experience in regional forums.
- Review and recommend financial and capacity-building incentives to sustain food fortification and its expansion to other essential foods widely consumed by the poor.
- Create communication mechanisms to share advocacy, technical, and promotional activities among themselves and with the global community.
- Include micronutrient malnutrition issues into the agenda of regional expert group consultations such as associations of pediatricians, nutritionists, and reproductive health specialists.
- Prepare progress reports toward elimination of micronutrient malnutrition to the appropriate councils of regional organizations such as ASEAN, SAARC, as well as APEC.
- Develop expert committees and other mechanisms to finance, undertake, peer review, and develop regional consensus of research and development in areas including:

## REGIONAL ACTIONS

6. **We further recognize that the achievement of flour fortification will require the following coordinated actions at the regional level:**
  - Develop a framework for drafting and proposing harmonized regional and international trade standards and guidelines for fortified foods.
  - Develop regional activities such as roundtables, joint reports, and crosscountry training focusing on legislation, communication strategies, and capacity building for public and private sectors including the establishment of a regional millers' association.
  - Open a dialogue with regional and global suppliers of premix, microfeeders, and other fortification-related technology to explore partnerships for cost-effective regional production and distribution of these critical inputs.
  - 1. Fortification and quality assurance at small mills
  - 2. Comparative bioavailability of iron compounds in all flours with particular attention to *atta* flours
  - 3. Interaction of micronutrients and their impact on both organoleptic characteristics and bioavailability
  - 4. Loss of vitamins during cooking and processing
  - 5. Accelerate review, replication, and expansion of NIN/Hyderabad's current research into the bioavailability of iron in *atta* flours
  - 6. Review national and regional regulatory and trade protocols with a view to smoothing out the import and export of fortified food products

## 7. Signatories:

The participating delegations from Viet Nam, Thailand, People's Republic of China, Pakistan, and

Indonesia endorsed this statement by consensus during the workshop. Delegations represented a broad partnership of public and private sector representatives.

## Consensus Statement on Regulation, Quality Assurance, Surveillance, and Trade of Fortified Processed Foods

Regional Workshop on Regulation, Quality Assurance, Surveillance, and Trade of Fortified Food Products  
23–25 April 2002  
Bangkok, Thailand

*After 3 days of deliberation at the Regional Workshop on Regulation, Quality Assurance, Surveillance, and Trade,<sup>62</sup> delegations representing the public and private sectors from Indonesia, Pakistan, People's Republic of China, Thailand, and Viet Nam,<sup>63</sup> along with other esteemed participants, agree on the following set of principles, strategies, and actions.*

### 1. We recognize that:

- Micronutrient deficiencies are causing serious damage to social and economic development through poorer pregnancy outcomes, impaired cognition especially in young children, reduced work capacity, and increased morbidity and mortality from infectious diseases;
- Improved nutrition is one of the key components to the reduction of poverty and the raising of human resource quality contributing to sustained economic and social development;
- Efforts to improve nutrition are the joint responsibility of the public and private sectors;
- *Privatization of poverty reduction* involves the partnership of the public, private, and civic sectors, and the processed food industry's contribution of fortified, affordable, and essential foods widely consumed by the poor is an example of such a partnership;
- Food fortification offers a significant low-cost and sustainable approach to reducing the prevalence of these deficiencies;
- The contribution of food fortification to the Millennium Development Goals arises from public-private partnerships, especially the

reduction of hunger and absolute poverty and the mortality of women and young children, while supporting the readiness of children to learn to their full potential;

- While additional research and development is needed in specific areas to better define optimal fortification approaches, it is also recognized that *nutrition delayed is equivalent to nutrition denied*, and therefore countries of the region should move forward consistent with the current evidence and scientific consensus.

### 2. We affirm that:

- It should be the public policy to make available to our populations foods fortified with Vitamin A, iron, iodine, folic acid, and other critical micronutrients at levels sufficient to impact public health.<sup>64</sup>

<sup>62</sup> Sponsored by the Asian Development Bank, The Keystone Center, and the Institute of Nutrition at Mahidol University.

<sup>63</sup> The delegation from India believes that appropriate ministries of Government must review this statement to have the opportunity to assess its content, and suggest changes and amendments. Therefore, the Indian delegation reserved the right to become a signatory to this statement at a later date.

<sup>64</sup> Vitamin A, iron, iodine, and folic acid are viewed as especially important at this time because of the magnitude and widespread nature of their deficiencies, the evidence of significant public health and socioeconomic problems that the deficiencies are causing, and the availability of cost-effective interventions.

- Each delegation's country currently has, or will at the appropriate time propose, the legal authority needed for adequate regulation of a fortified food supply.
  - Collaboration between government, private sector, and civil society is the key to sustained and effective implementation of food fortification to reduce micronutrient deficiencies.
  - Investment in food fortification offers a significant opportunity over the medium to long term for poverty alleviation and the acceleration of national social and economic development.
  - Substantial additional investments will be necessary to implement quality food fortification initiatives throughout the region, and these investments are justified due to the high human, social, and economic returns, such as:
    1. Substantially increased GDP for all countries in the region;<sup>65</sup>
    2. Increased economic competitiveness due to improved nutritional status;
    3. Substantial reduction in several chronic and subchronic disease states;
    4. Substantial additional effects in improving the overall food inspection systems and;
    5. Promoting Asian competitiveness and penetration of the global markets in food trade.
  - While the precise range of vehicles selected for fortification will vary from country to country, the delegations propose that their countries fortify flour with iron and folic acid, cooking oil with vitamin A, salt with iodine, and that further research on the bioavailability in brown or *atta* flours and the fortification of sugar with Vitamin A be researched.
  - Investments and reforms to expand *existing* food control and quality assurance systems will enable production and trade in fortified food products, on a domestic and international basis, fairly and transparently throughout the region.
3. **To achieve the above, the following national actions are necessary:**
1. **Legal and Regulatory Framework—The Governments of the nations whose delegations were party to this Consensus Statement should:**
    - Establish appropriate intergovernmental and/or institutional mechanisms to implement effective policy in concert with partners in industry and civil society.
    - Communicate clearly the benefits of fortification to the public, make appropriate legal requirements and standards to be observed by the food industry, and ensure consistency and coordination among government agencies.
    - Establish mechanisms enabling the private sector and civil society to bring the full extent of their resources, expertise, and credibility to bear on the promotion of fortified food products.
    - In the case of mandatory fortification programs, minimize taxes and duties on inputs to fortification as well as taxes on domestically produced fortified food products.<sup>66</sup> Participating countries agree to refer to the appropriate ministries the proposed suspension of all tariffs on fortificants and fortification technologies. The impact of these actions will be reviewed by an independent expert panel that will allow the region to assess (1) the revenues foregone versus profitability of the private sector, and (2) the social benefits to consumers, especially the poor.<sup>67</sup>
  2. **Food Control and Quality Assurance Framework—Appropriate governmental authorities from the nations whose delegations were party to this Consensus Statement should:**
    - Ensure adequate legal power to enforce fortification laws, with respect to the inspection of plants, records, and products.

<sup>65</sup> Additionally, some delegations also believe that increased emphasis on nutritional development will have substantial direct positive effects on the development of industry in the region, thereby shifting public resources for other societal problems.

<sup>66</sup> Delegations noted that consultations with national parliaments and in some cases international organizations may precede confirmation of the noted recommendation.

<sup>67</sup> The Indian delegates respectfully believe that this issue may not be considered for India due to revenue loss to the Government.

- Initiate programs to empower inspectors and technicians. This should include a range of incentives as well as penalties to enable personnel to enforce laws fairly and transparently. A combination of improved recruitment, training, protocol development, oversight, and increased penalties should be implemented, with a view toward zero tolerance of corruption in the inspection force and in industry.
  - Empower consumer protection organizations to identify abuses and bring them to light in the public media, the judicial process, and the government.
  - While current sampling, analytical, and laboratory capacities are limited, work to define the human and financial resources necessary for effective functioning and enforcement of quality assurance systems.
  - Work toward a flexible system of sampling and enforcement that provides incentives to the private sector for consistently performing to quality standards.
3. **Nutrition Surveillance Framework—The appropriate public health authorities in the nations whose delegations were party to this Consensus Statement should work to:**
- Implement nutrition surveillance systems for four key micronutrients: iron, Vitamin A, iodine, and folic acid.
  - Produce reliable and regionally equivalent data on population micronutrient status through the use of the following harmonized approaches:
    - Common protocols and methods of surveillance at a regional level;
    - Standardized representative cross-sectional surveys of sufficient sample size;
    - Targeting surveys to parallel population groups as follows:
      - ✓ iron—women of child-bearing age and adolescent girls;
      - ✓ Vitamin A—preschool children and possibly pregnant and lactating women;
      - ✓ iodine—6- to 12-year-old children and/or women of child-bearing age
      - ✓ folic acid—women of child-bearing age
- Use of common biochemical indicators as follows:
    - ✓ iron—hemoglobin with the addition of other indicators;
    - ✓ Vitamin A—serum retinol;
    - ✓ folic acid—serum or RBC folate;
    - ✓ and iodine—urinary iodine.
  - Endeavor to use intermediate surveys to assess the household and intrahousehold use of fortified foods and to periodically reassess individual biological indicators when coverage meets accepted goals, particularly people in target at-risk groups.
  - Mobilize additional financial and human resources for the upgrading of national laboratories as well as training for lab technicians and field workers.
4. **To achieve the above, the five countries signatory to this Consensus Statement recognize that networks building regional collaboration and capacity will provide an Asian framework for effectively working together to:**
1. ***Establish a Legal and Regulatory Framework:***
    - Create mechanisms, under the auspices of existing institutions (e.g., WHO, ASEAN, SAARC, APEC), to harmonize standards and ensure no unnecessary barriers to trade.
  2. ***Establish a Regional Food Control and Quality Assurance Framework:***
    - Through collaboration of regional institutions such as ASEAN and SAARC with international accreditation bodies such as ISO or NABL, establish accreditation of quality-control laboratories in government, industry, and academe. Through this process a harmonized regional laboratory network for fortified foods should be in place by 2005.
    - A Regional Center of Excellence and Expertise—new or existing—should initiate a *training-of-trainers* program for inspectors, analysts, and technicians. This trained corps will be sufficiently empowered and resourced to conduct sequential in-country trainings of their respective national government, industry, and academic institutions.

- For the purposes of fair and transparent regional trade as well as domestic food control, when the above-described laboratory accreditation and human resource development process is established, certification from an accredited laboratory will validate product and/or micronutrient quality to the appropriate inspectors.
3. ***Nutrition Surveillance Framework:***
- Mobilize investments that will lead to: a common surveillance framework and common guidelines; adequately staffed regional reference laboratory and individual country laboratories; and the bulk purchasing of lab kits.
4. ***National and Regional Investment Planning and Resource Mobilization:***
- The signatories to this consensus statement appreciate the importance of reaching regional consensus on appropriate food fortification

technologies, the applications of science to measure food composition, and the assurance of food safety and domestic nutrition improvements. Of equal importance, the signatories recognize that Country Investment Plans prepared under the project will require careful review of existing policies and programs for surveillance, quality assurance, and regulatory, customs and trade protocols. Both structural reforms and resource mobilization are the next steps for each country and for the region. The signatories request assistance of the Asian Development Bank, The Keystone Center, and other Development Partners to raise the level of resource commitments for Asia.

#### **Signatories**

Delegations representing the public and private sectors of Pakistan, Viet Nam, People's Republic of China, Indonesia, and Thailand.

### **Consensus Statement on the Fortification of Complementary Foods**

Regional Workshop on Optimizing Child Growth and Development Through Improving  
Complementary Feeding Including Use of Fortified Processed Complementary Foods

25–27 June 2002

Singapore

*After 3 days of deliberation at the regional workshop, delegations representing the public and private sectors from Indonesia, India, Pakistan, People's Republic of China, Thailand, and Viet Nam, along with other esteemed participants, agree on the following set of principles, strategies, and actions.*

1. **We recognize that:**
- The numbers of underweight, stunted, and micronutrient-deficient children in Asia are the highest in the world, and the consequences of this condition are avoidable, premature death; mental and physical disabilities that lead to high school dropouts, low employability, low wages, and low household investment in the quality of the next generation's children; and lost economic growth that will jeopardize the region's ability to compete in the global marketplace.
  - Early Child Nutrition is an essential part of Human Resources Development Policy in all Asian countries.
  - The optimal period of physical and mental development is in pregnancy and the first 2 years, and the maximum prevalence of malnutrition mainly occurs from 6 to 24 months. This is a largely unexplored "window of opportunity" for society to influence the hopeful prospects of Asia's newborns for lifelong learning and earning.
  - The Millennium Development Goals, to which all Asian nations and their Development

Partners subscribe, set the world's agenda through 2015: virtual elimination of maternal, infant and young child mortality; universal primary school enrollment and completion; and halving of hunger and poverty in the developing world.

- The role of government is critical in setting policies, programs, and standards that involve all stakeholders through participation and accountability, and in utilizing public funds for the lowest cost to government and highest benefit to optimal child growth and development.
  - The guiding principles to optimizing child growth and development according to the WHO include: ensuring adequate supplementation for pregnant and lactating women as long as they are lactating, universalizing exclusive breastfeeding for the first 6 months of life,<sup>68</sup> followed by introduction of complementary foods of both locally produced/home-prepared and industrially processed types, reinforced by good infant feeding practices and good domestic hygiene.
  - Processed Complementary Foods (CFs) represent an important niche in the family's options to meet the extraordinarily high requirements for micronutrients in the first 2 years, and should be developed with the adequate standards of quality, safety, efficiency and cost-effectiveness so that they will be widely available and affordable to lower socioeconomic groups where the worst nutrition problems are concentrated. These foods are not a replacement for breastfeeding or home-prepared CF.
  - Convergence of nutrition in public health strategies should support optimal child growth and development, and the interventions include quality health, health education, and nutrition services to mother and child, incorporation of complementary feeding into health care delivery, promotion of healthy nutrition behaviors through home visits for assessment care and referral, social marketing of CFs of every type for informed choice by parents and other primary caregivers, and compliance with the International Code for Marketing of Breast Milk Substitutes.
  - Delivery of the Comprehensive Maternal and Child Health and Nutrition Package is the most cost-effective way to assure high levels of educational achievement and productive contribution to society.
  - There is scope and need for building a public-private-civil society partnership to make mutually reinforcing contributions to optimizing child growth and development.
  - This depends crucially on the adoption and maintenance of the accepted professional standards, i.e., avoidance of unethical practice, such as offering free samples of CFs to mothers of infants under 6 months.
2. **We affirm that:**
- CFs are an integral component of programs for optimizing nutrition for young children.
  - The addition of micronutrients to CFs according to the Codex Alimentarius along with the most current guidelines such as WHO-UNICEF recommendations of 2002 is a feasible, affordable, and efficacious method to reduce the prevalence of key micronutrient deficiencies in children 6-24 months.
  - Public policy should strive to enable production to make available to children 6–24 months CF-fortified critical micronutrients at levels sufficient to impact public health.
  - As an initial reference point, guidelines for fortification for processed CF should include at least iodine, iron, vitamin A, and folic acid at 50–100% of RDA on the basis of daily consumption. Additional micronutrients at these levels could be considered by individual countries on a case-by-case basis.
  - A collaboration of public, private, and civic sectors is critical to creating an enabling environment to expand production and distribution of affordable and appropriate fortified complementary foods.
  - Substantial investments will be needed to provide access to affordable and appropriate fortified CF, and these investments are justified due to the high human, social, and economic returns.

<sup>68</sup> The Indonesian delegation reserves its opinion regarding this clause.

3. **We therefore pledge to raise the priority of Complementary Feeding and fortified CFs as an integral component of the child nutrition package through these activities:**
- Develop a regulatory environment that supports and promotes complementary feeding and exclusive breast feeding as equally important components of health and nutrition for children under 2 years of age.
  - Multisectoral advocacy to build support at all levels of government for investment in early child nutrition within government and political leadership including local and municipal institutions.
  - Develop national standards for appropriate and ethical marketing of micronutrient-fortified CF based on the current WHO-UNICEF Guidelines.
  - Set national goals for increased production and distribution of affordable fortified CF including both public and private sectors.
  - Review public policy and behavioral barriers to the expansion of production and marketing capacity including small- and medium-scale enterprises.
  - Develop opportunities to integrate investment in production, distribution, and promotion of fortified CF into public health and development programs with clear linkages to all key child nutrition strategies, including breastfeeding, child care, hygiene, and maternal health and nutrition.
  - Include fortified complementary foods in all public distribution and food subsidy programs.
  - Conduct technical research regarding CF fortification in five areas, several of which may generate concern in specific country situations regarding the introduction of CFs into national systems. These areas are nutritive value, safety, affordability, accessibility, and acceptability.
4. **We recognize that the following coordinated set of actions will be necessary at national, provincial, and local levels:**
- A variety of technologies, products, and marketing strategies including complete CFs, nutrient supplements, and dietary education targeted according to risk status, local foods, and cultures.
  - Public incentives to enable the production sector to expand affordable product offerings to at-risk children through the awarding of government seals of approval, generic public promotional campaigns, and special access to government channels of distribution and communication as well as targeted subsidies.
  - Public policies regarding use of subsidies will be reviewed to ensure that adequate resources are focused on the Comprehensive Package, including pregnant and lactating women and under-twos. Where appropriate, resources should be redirected to fortify food provisions for young children and their mothers, uses of external food assistance should be directed to under-twos and their mothers, and partial use of special public funds should be reserved for innovative approaches to poverty reduction.<sup>69</sup>
  - Public-private partnership should be extended to industrial and trade policies, with careful consideration of whether the pattern and level of tariffs and value-added taxes help or impede the delivery of processed CFs to children in need. Adjustments to those fiscal and trade policies may be required if potential revenues foregone are exceeded by long-term benefit streams to families and nations.<sup>70</sup>
  - Governments will ensure that the code of conduct for the private sector will include marketing guidelines for CFs, including labeling and advertisement that direct the consumer to feed children older than 6 months only.
  - Industry should be encouraged to introduce multitier pricing for products directed to less-affluent market segments without compromising on product quality.
  - Capacity building to upgrade medium- and small-scale enterprises to enable production of fortified CF to simultaneously develop local business and income generation opportunities along with provision of CF.
  - Comprehensive social communications and marketing to raise consumer demand and awareness based on research to determine feeding practices, motivations, and barriers to acceptance and efficacy of fortified complementary foods.

<sup>69</sup> The Indian delegation reserves its opinion regarding this statement.

<sup>70</sup> The Indian delegation reserves its opinion regarding this statement.

- Training of health care providers to provide essential communication to support the use of fortified CF in all contacts with pregnant women and mothers of newborns as well as all children under 24 months of age.
- Based on individual country situations, research may be needed before widespread implementation of CF production and distribution systems are put in place:
  - (i) nutritional quality and safety—develop appropriate guidelines for small and medium enterprises to enable adherence to Good Manufacturing Principles and Codex Alimentarius, and for food safety (protection against microbiological, antinutritional, and toxic factors).
  - (ii) market research on affordability of the CF products for lower socioeconomic segments.
  - (iii) research linking assessment of micronutrient deficiencies in target populations, and analysis of ideal protein, energy, and micronutrient balance in CFs, including risk of under/over dosing.
  - (iv) consumer acceptability tests (sensory) based on updated methodologies research linking appropriate and hygienic introduction of locally prepared CFs and balanced use of processed CFs.
  - (v) accessibility of processed CFs, particularly in remote areas, related to local production using appropriate technology (with production manuals) and distribution networks.
  - (vi) develop the feasibility of nutrient food supplements such as “sprinkles,” “spreads,” and “foodlets” of appropriate size and portion in locally prepared CFs where processed foods are not accessible or affordable, and testing consumer preference, food preparation practice, and potential risks.
  - (vii) research on product/process development and technology transfer with industry’s cooperation.
  - (viii) behavioral research on pregnant and lactating mothers (in terms of feeding patterns and energy expenditure of infants along with the nutritional quantity and quality of breast milk and sustaining their own nutritional needs during prolonged lactation).

## Annex C

# Estimation of the Impact of Vitamin A Fortified Foods on the Prevalence of Vitamin A Deficiency<sup>71</sup>

by Kevin Sullivan and Jack Bagriansky

---

Vitamin A deficiency (VAD) is a significant global health problem. A variety of intervention strategies have been devised to eliminate VAD and therefore prevent the morbidity and mortality associated with it. Interventions to prevent VAD include the use of vitamin A supplements and the fortification of commonly eaten foods. While vitamin A supplementation has played an important role in preventing VAD, the distribution of capsules to target groups (usually preschool children and women after delivery) can be difficult to maintain, particularly at high coverage levels over long periods. The fortification of commonly consumed processed foods is an alternative that has a number of advantages over supplementation. The impact of vitamin A fortified foods on VAD has been infrequently studied. In this manuscript, we estimate the impact of vitamin A fortified food on the prevalence of VAD.

A review of the literature identified three studies on the effect of vitamin A fortified foods on the prevalence of VAD, based on laboratory assessment in children. These studies used the prevalence of low serum retinol levels to define VAD. The studies are as follows.

- A study in Indonesia using fortified monosodium glutamate (MSG; 810 micrograms of retinol equivalent (RE)/gram), a controlled field trial, and serum retinol values in preschool children. In the study area, 80% of the MSG was fortified (Muhilal, et al., 1988).

- A study in Guatemala using fortified sugar (10 micrograms RE/gram), a “before and after” assessment of 10 sentinel sites, and serum retinol values in preschool children (Arroyave, et al., 1981).
- An assessment of sugar fortification in Guatemala using fortified sugar, serum retinol values in adults, and national estimates using a “before and after” design (Dary, 1999).

The results of the studies are depicted in Table C1. The foods fortified were either MSG or sugar; the estimated daily intake of vitamin A from the fortified foods varied from 117 to 345 micrograms; and the baseline prevalence of VAD varied from 26% to 48%. The estimated daily intake of vitamin A from the fortified food takes into account the level of fortification and estimates of the amount of the food consumed per day and the proportion of individuals consuming the fortified product. While the food vehicles and overall diets involved vary in these studies and assessments, for the purposes of projecting the impact of added vitamin A on the prevalence of VAD it is assumed that each microgram of actual vitamin A intake will have a consistent and comparable impact regardless of the vehicle.

These studies provide three point estimates. To enable an estimation of the impact of a fortified food on prevalence, we assumed the following.

1. If the daily intake were half as high as reported, then the ratio from the pre- to post-prevalence of VAD would be halved. For example, if an

---

<sup>71</sup> Annexes C, D, and E were written by consultants specifically for this report. They have not been published elsewhere.