

Nutrition and Food Safety in the South-East Asia Region

Report and Documentation of the Technical Discussions
11-13 April 2007, WHO/SEARO, New Delhi



**World Health
Organization**

Regional Office for South-East Asia

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The report and recommendations of the Technical Discussions on Nutrition on Food Safety, held in WHO/SEARO, New Delhi, 11-13 April 2007 were presented to the Sixtieth session of the Regional Committee for South-East Asia. The Regional Committee noted the report and endorsed the recommendations. The Committee also adopted a resolution on the subject (SEA/RC59/R3).

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PART I – Proceedings*

*Originally issued as document SEA/RC/60/5 Inf. Doc. dated 16 July 2007.

Introduction

1. The Technical Discussions on Nutrition and Food Safety were held during 11–13 April 2007 at the Regional Office for South-East Asia in New Delhi, India. Representatives of the nutrition and food safety sectors from all the Member countries were invited. International and regional experts in related fields, attendees from the WHO collaborating centres on nutrition and food safety in the Region, members from the civil society sector and partner UN and international agencies also participated in the discussions.

2. Dr Poonam Khetrpal Singh, Deputy Regional Director, WHO South-East Asia Region, delivered the inaugural address on behalf of the Regional Director. Professor Dr Ir. Dedi Fardiaz, representative of the National Agency of Drugs and Food Control, Indonesia, and Dr Chanin Charoenpong, Senior Expert in Food Standards, Food and Drugs Administration, Ministry of Public Health, Thailand, were elected Chairperson and Co-chairperson respectively. Dr Htin Lin, Senior Medical Officer, National Nutrition Centre, Ministry of Health, Myanmar, was elected Rapporteur.

Opening remarks by the Chairman

3. The Chairman in his opening remarks explained that the subject for this year's Technical Discussions was proposed by the Fifty-ninth session of the Regional Committee in view of the growing concern in the Region over persisting nutritional disorders and their interaction with food-borne diseases. Furthermore, in the context of recent events globally and in Member countries, the outbreaks of food-borne disease and the increasing resistance of some food-borne bacteria to common therapies are also a cause for concern. The Chairman called this a very good opportunity to discuss the challenges which would be faced in addressing the two broad areas of nutrition and food safety together so that the forthcoming Sixtieth session of the Regional Committee can be a platform to introduce the scope of work to Member countries. The Chair also informed that in recognition of the intensely wide scope of both the areas it had been agreed that the discussions should focus on issues of appropriate and safe nutrition for women and children, and meeting the relevant Millennium Development Goals (MDGs) as they were the pre-eminent objectives.

Introduction to the topic of the Technical Discussions

4. Dr Dini Latief, Director, Department of Family and Community Health (FCH), WHO Regional Office for South-East Asia (SEARO), made a brief presentation on nutrition and food safety. She pointed out that a healthy and well-nourished population serving as the basic foundation for promoting national economic growth is an essential

prerequisite of holistic development. Nutritional well-being needs multi-factorial inputs which include supply of nutritionally adequate and safe food. Hence, persistent nutritional disorders and food-borne diseases and the emerging double burden of malnutrition and outbreaks of food-borne disease make the issue of nutrition and food safety a major and growing health concern in the Region.

5. Malnutrition often stems from multiple denials of the rights of citizens, children, adolescent girls and women in particular. Poor nutrition often starts in utero and extends well into adolescent and adult life, particularly in the case of girls and women. Recognizing the wide scope and ambit of the areas of nutrition and food safety, Dr Latief proposed that the Technical Discussions emphasize on appropriate and adequate nutrition and safe food for women and children, with a firm focus on meeting the relevant MDGs, while simultaneously addressing the problems at all stages of the life course and all major forms of malnutrition.

6. The presentation continued sequentially dealing with the magnitude of the burden, WHO's response, key issues for consideration and the strategic priorities ahead.

7. The SEA Region, accounting for a quarter of the global population, has high infant and young child mortality rates. Despite some improvement in nutrition levels registered in recent years – cases of stunted growth among children and anaemia among pregnant women, for example, showing a downward trend – several nutritional disorders persist in substantial degrees. Their interaction with food-borne diseases and impact on morbidity and mortality among women and children are observed in varying magnitudes in Member countries. The Region accounted for 3.1 million child deaths annually, of which 14.7% are attributed to diarrhoea compounded with malnutrition.

8. Various forms of childhood under-nutrition, micronutrient deficiency and the incidence of interacted diarrhoea persist in varying magnitude in the Region. The simultaneous presence of both malnutrition and infection results in an interaction that has more serious consequences for the host than what the additive effect would have been if the two worked independently.

9. Emerging situations such as the concurrent existence of over-and under-nutrition in the same population poses the double burden of malnutrition. Unsafe food, such as fried “fast foods” rich in salt and sugar ingredients contributes to the increasing prevalence of obesity and diet-related chronic diseases among the growing urban population. Unethical marketing and advertising practices also pose a palpable threat to nutritional well-being and food safety.

10. WHO has responded to these pertinent issues through various World Health Assembly (WHA) resolutions on Infant and Young Child Feeding; Food Standard and Food Safety; Sustainable Elimination of Iodine Deficiency Disorders; Diet, Physical

Activity and Health, and Nutrition and HIV/AIDS. Globally, WHO has responded with the Strategy on Nutrition for Health and Development; Global Strategy for Food Safety; and Global Strategy on Diet, Physical Activity and Health. In the SEA Region, WHO has responded with Region-specific strategies on nutrition and food safety.

11. The importance of addressing the issues of nutrition and food safety collectively throughout the life course, with the focus being on women and children, was highlighted as the key consideration.

12. Food- and water-borne diseases are caused by poor environmental sanitation, poor personal hygiene, unsafe water supply, chemical contamination and unhygienic foods.

13. The double burden of malnutrition in developing countries emerges as “nutrition transition” which is characterized by rapidity of changes, co-existence of obesity and under-nutrition within the same population, and the effect on people from all socioeconomic groups. It was also noted that growth retardation in the fetal and infancy stages leads to nutrition-related chronic diseases in later life. The changing nature of global food supply, easier access to foods high in fats and sugar, an increasing reliance on fast food by the rapidly-growing urban population coupled with sedentary lifestyles is contributing to the problem of over-nutrition in developing nations including many Member countries of the SEA Region.

14. In view of these key considerations, strategic priorities were proposed as Sector-wide Approach (SWAp) and inter-sectoral collaboration for action-oriented research and studies and evidence-based programming, monitoring and surveillance of programmes to focus on women and children with lifecycle approach according to the specific priorities of the country with emphasis on sustainable micronutrient programmes, Food-based National Dietary Guidelines (FBDG), Behaviour Change Communication (BCC), regulations on Universal Salt Iodization and Marketing of Breast Milk Substitutes, consumer education on food safety and regulatory action for food standards.

15. In this context it is important for Member countries to develop/revise their national nutrition policy and plan of action, adopt a sector-wise approach with a common agenda for nutrition and food safety, and to ensure effective implementation of World Health Assembly and Regional Committee resolutions. WHO should support Member countries in developing their national food and nutrition policy and plan of action, evidence-based programming, preparing standards, norms and guidelines, and in ensuring adequate resources.

Technical Discussions

16. The Technical Discussions were conducted through group discussion, presentations and general sessions. Dr Denise Coitinho, Nutrition for Health and

Development (NHD), WHO/HQ, presented WHO's Medium-Term Strategic Plan (MTSP) for 2008-2013 on improving nutrition, food safety and food security throughout the life-course and in support of public health and sustainable development. Dr Biplab K. Nandi, Senior Food and Nutrition Officer, Regional Office for Asia and the Pacific, the Food and Agriculture Organization (FAO), outlined the role played by FAO in promoting nutrition and food safety in Asia.

17. Dr Namita Pradhan, Assistant Director-General (General Management), WHO/HQ, also explained the Strategic Objectives (SO) of the MTSP. WHO has developed a ten-point global health agenda to achieve the MDGs and its responsibilities are identified in the SOs. Nutrition is one of the key issues within the 13 SOs and overlaps with all other SOs. Food safety is an integral part of nutrition and is incorporated into SO 9. International donors have evinced considerable interest in providing support to SO 9.

18. The conclusions arrived at the discussions were as follows:

- All Member countries reached a consensus on the need to integrate food safety into their overall nutrition development agenda and address the issue with the life cycle approach focusing on human and national development. All partners attending the discussion agreed to collaborate. FAO, WHO and UNICEF expressed commitments in collaborative activities such as playing key advocacy roles and in strengthening capacity building. FAO committed support in food-borne disease surveillance and laboratory activities to promote food safety.
- Participants appreciated the timely opportunity to address the important issue and the commitment expressed by international agencies to support the efforts of countries. Participants indicated the need to develop clear, concrete and action-oriented recommendations which reflect practical aspects of "nutrition and food safety".
- Several success stories with nutrition and food safety projects were possible with support from policy-makers. One pertinent example is the Street Food Project in India. School health programmes, school sanitation, gardening and nutrition monitoring projects are other good examples.
- Participants noted that the stated term should emphasize "Appropriate, adequate nutrition and safe food". A more integrated approach in the working paper to link nutrition and food safety was also suggested.
- A number of important issues were raised by participants which included, among others, the following:

Strategic approach

19. Nutrition and food safety challenges should be addressed in all age groups throughout the life cycle with emphasis on the most vulnerable and affected group,

that of women and children. Special care should also be extended to adolescent girls considering that they form one of the most neglected groups while being in the most important stage of nutrition preparedness for life cycle challenges. A national database on body mass index (BMI) of adolescent girls should be prepared.

20. The nutrition and food safety workforce should be strengthened in Member countries and placed as an integral part of the primary health care system. Community participation and empowerment is required at the grass-roots level for carrying out the interventions regarding nutrition and food safety.

Research, monitoring and regulations in food safety

21. Though food safety plays a crucial role in nutrition morbidity and mortality, data on the same are scarce. On the other hand, since food safety is a broad area, assessment and monitoring throughout the whole food chain – from the farm to the fork – is not practical. The focus should be on food for the consumer and food-borne diseases. Food-borne disease surveillance which can promote strategic formulation should address microbial as well as chemical contamination from food ingredients, food additives etc.

22. Since countries in this Region have similar dietary patterns, a uniform system of monitoring and collecting data on food contamination for the entire Region should be developed with assistance from WHO collaborating centres. Data can be generated at the national level and then extrapolated for the Region. Countries should start with symptom-based surveillance in congruence with existing WHO guidelines on food contamination at different levels, such as laboratory-based, hospital-based, etc. WHO and partner agencies should assist in capacity building within the countries. The role of relevant sectors in food-borne disease surveillance should be identified by the countries themselves. Total diet studies can help assess the extent of community risk. Small-scale pilot studies should be considered for different segments of the population classified according to age or other demographic benchmarks.

23. Compliance with Codex or national food standards and regulations, and the WTO-SPS agreement, functional harmonization with Codex of standards for pesticide and food colouring levels, and regulating street food are necessary steps to be initiated by Member countries. Programmes should also advocate, communicate with and encourage the food industry on ethical marketing practices such as correct labeling of foods.

Conclusions and recommendations

24. After reviewing the magnitude of burden in the Region, key considerations and proposed strategic priorities, the Technical Discussions group made the following recommendations for Member countries and WHO.

For Member countries

25. It is recommended that Member countries should:

- (1) Review/revise or develop as necessary a national nutrition and food safety policy and plan of action, to focus on integrated actions emphasizing multisectoral effort and a sector-wise approach; ensure incorporation of appropriate nutrition and food safety for all segments of the population with special emphasis on women and children, based on the Right to Food guidelines while ensuring follow-up implementation of relevant World Health Assembly and Regional Committee resolutions, and in keeping with global and regional strategic guidelines, taking into account the current status with respect to MDGs, to ensure timely implementation of national plans of action.
- (2) Initiate and support action-oriented research and studies to further strengthen evidence-based programme development and implementation in nutrition and food safety.
- (3) Establish/strengthen and utilize monitoring and/or surveillance systems that focus on diet, nutrition and food safety.
- (4) Prioritize, revitalize and/or strengthen community-based programmes based on the primary health care approach to ensure appropriate and adequate nutrition and safe food, including safe water and sanitation, for all – especially women and children – throughout their life course.
- (5) Strengthen and sustain prevention, control and elimination of micronutrient deficiency disorders as appropriate.
- (6) Strengthen regulatory action and mechanisms to enforce regulations for universal salt iodization and code for marketing of breast milk substitutes, to follow the Codex standards and guidelines as appropriate, and to develop national guidelines for consumer protection and education.
- (7) Implement a health promotion strategy in education that enumerates the appropriate nutrition and safe food parameters for appropriate target groups and stakeholders.
- (8) Develop a preparedness plan on nutrition and food safety in response to natural and man-made emergencies.
- (9) Combat emerging issues such as over-nutrition and nutrition for people living with HIV/AIDS by determining prevalence and undertaking suitable action.
- (10) Ensure adequate resources to sustain nutrition and food safety programmes.

For WHO

26. It is recommended that WHO should:

- (1) Provide support and technical leadership to Member countries for the development of a national policy and plan of action for nutrition and food safety and to ensure effective programming as the necessary follow-up measures for relevant World Health Assembly and Regional Committee resolutions.
- (2) Assist Member countries in developing evidence-based programme actions, and in assessment, monitoring and surveillance of problems and programmes on nutrition and food safety through information sharing, consultation and training.
- (3) Provide assistance to Member countries in estimating the economic burden caused by malnutrition and food-borne diseases to encourage policy development on nutrition and food safety.
- (4) Establish information networking and sharing mechanisms on nutrition and food safety in the Region through the SEA Nutrition Research-cum-Action Network and INFOSAN, in collaboration with international, intersectoral and other partners.
- (5) Support, and obtain assistance from, global development of evidence-based standards, norms and guidelines for appropriate diet, nutrition and food safety.
- (6) Assist and support Member countries to ensure adequate resources for sustainable nutrition and food safety programmes through programme planning, budgeting, and proposal preparation in collaboration with WHO/HQ and potential donors.
- (7) Monitor and report the progress of implementation and the trend in the Region.

27. The Technical Discussions Group proposed that the Sixtieth session of the Regional Committee may consider adopting a resolution on the subject based on the recommendations made.

28. Dr Myint Htwe, Director, Programme Management, WHO/SEARO, addressed the concluding session. He underlined the significance of these discussions in the context of the meeting of health ministers from Member countries and the Sixtieth session of the Regional Committee in Thimphu, Bhutan, in August 2007. Recommendations made by this Technical Discussions group will be considered by the Regional Committee, which may possibly adopt a resolution on the subject. Dr Myint Htwe thanked all the participants from Member countries, resource persons from the countries and WHO collaborating centres, partner agencies and NGOs, and contributors from WHO/HQ, for their thoughtful deliberations, enthusiasm and invaluable contributions to the Technical Discussions.

**PART II – Resolution, Agenda
and Working Paper**

Resolution*

The Regional Committee,

Recalling World Health Assembly resolutions WHA33.32, WHA49.13, WHA52.24, and WHA57.17 and other resolutions on infant and young child nutrition, appropriate feeding practices and related questions, and particularly resolution WHA53.15 on food safety, which urges integration of food safety into the essential public health and public nutrition functions,

Also recalling its own resolution SEA/RC57/R4 on Iodine Deficiency Disorders in the South-East Asia Region, SEA/RC56/R8 on Water, Sanitation and Hygiene Determinants of Health and SEA/RC53/R7 on Food Safety,

Recognizing that the simultaneous presence of both malnutrition and infection results in an interaction that has more serious consequences for the host than the additive effect would be if the two worked independently,

Concerned that nutritional disorders and food-borne diseases remain a major threat to the health and development of populations in the South-East Asia Region, and by recent food-borne disease outbreaks, both globally and in the Region,

Recognizing that both malnutrition and unsafe food are a major challenge to the attainment of MDGs in the Region, and

Having considered the report and recommendations of the Technical Discussions on Nutrition and Food Safety in the South-East Asia Region, held in New Delhi during 11-13 April 2007,

ENDORSES the recommendations contained in the report (SEA/RC60/5 and SEA/RC60/5 Inf.Doc.);

URGES Member States to implement the recommendations of the Technical Discussions; and

REQUESTS the Regional Director:

to support Member States in further strengthening efforts in the area of nutrition and food safety, and to support monitoring and reporting of progress in implementation and on the status of National Nutrition and Food Safety Policy and Plans of Action in the Region to the Sixty-third session of the Regional Committee in 2010.

*Originally issued as SEA/RC60/R3.

Agenda*

1. Introduction
2. Magnitude of burden
3. WHO's responses
4. Key considerations
5. Strategic priorities
6. Actions ahead

*Originally issued as Agenda for the meeting held in SEARO from 11-13 April 2007.

Annotated Agenda*

1. Introduction

- Nutrition and Food Safety; growing concern
- Appropriate nutrition for women and children
- Food safety; effect on nutrition of women and children

2. Magnitude of burden

- Burden of persistent nutrition disorders and food-borne diseases
- Burden of emerging disorders

3. WHO's responses

- Infant and young child feeding
- Food standard and food safety
- Diet, physical activity and health
- Nutrition and HIV/AIDS
- Nutrition for health and development
- Global Strategy for Food Safety
- Global Strategy on Diet, Physical Activity and Health
- WHO's responses in South-East Asia Region

4. Key considerations

- Life cycle approach and appropriate nutrition for women and children
- The double burden of malnutrition
- Food-borne diseases and chemical contamination of food
- Street foods, fast foods and nutritionally claimed commercial food products
- Cross-cutting of nutrition and food safety issues across all sectors

*Originally issued as Annotated Agenda for the meeting held in SEARO from 11-13 April 2007.

5. Strategic priorities

- Sector-Wide Approach and inter-sectoral collaboration to provide appropriate, adequate nutrition and safe food for women and children throughout the life course and to ensure follow-up and implementation of the relevant World Health Assembly and Regional Committee resolutions and global and regional strategies on nutrition and food safety.
- Action-oriented research and studies to provide information for development of evidence-based programming in the field of nutrition and food safety.
- Regular assessment, analysis, monitoring and surveillance.
- Programmes to focus on evidence-based initiatives that impact on key stages of the life cycle and integration of food safety and nutrition.
- Promotion of sustainable micronutrient deficiency control and elimination programmes.
- Strengthening regulatory action and mechanisms.
- Promotion of optimum nutrition and food safety.
- Assure adequate funding on a sustained basis.

6. Actions ahead

Role and responsibilities of Member States

- Review/revise or develop as necessary, national policy and plans of action for nutrition and food safety, to focus on integrated actions emphasizing multi-sectoral effort and sector-wise approach, ensuring incorporation of appropriate nutrition and food safety for all segments of the population with special emphasis on women and children, based on the right to food guidelines ensuring follow-up and implementation of relevant World Health Assembly and Regional Committee resolutions, according to global and regional strategic guidelines, taking into account the current status with respect to MDGs, to ensure timely implementation of national plans of action.
- Initiate and support action-oriented research and studies to further strengthen evidence-based programme development and implementation in nutrition and food safety.
- Establish/strengthen and utilize monitoring and/or surveillance systems that focus on diet, nutrition and food safety.
- Prioritize, revitalize and/or strengthen community-based programmes based on the primary health care approach to ensure appropriate, adequate nutrition and safe food, including safe water and sanitation for all, especially women and children throughout their life course.

- Strengthen and sustain prevention, control and elimination of micronutrient deficiency disorders as appropriate.
- Strengthen regulatory action and mechanisms to enforce regulations for universal salt iodization and code for marketing of breast milk substitutes, to follow Codex standard and guidelines as appropriate and to develop national guidelines for consumer protection and education.
- Implement health promotion strategy in education on appropriate nutrition and safe food for appropriate target groups and stakeholders.
- Develop preparedness plan on nutrition and food safety in response to natural and manmade emergency.
- Combat emerging issues such as over-nutrition and nutrition in HIV/AIDS by determining prevalence and undertake actions.
- Ensure adequate resources to sustain nutrition and food safety programmes.

Role and responsibilities of WHO

- Provide support and technical leadership to Member countries for development of national policy and plans of action for nutrition and food safety and to ensure effective programming as a follow-up to relevant World Healthy Assembly and Regional Committee resolutions.
- Assist the Member countries in developing evidence-based programme actions, assessment, monitoring and surveillance of problems and programmes on nutrition and food safety, through information sharing, consultation and training.
- Provide assistance to Member countries in estimating the economic burden caused by malnutrition and food-borne diseases to encourage policy development on nutrition and food safety.
- Establish information networking and sharing mechanisms on nutrition and food safety in the Region through SEA Nutrition Research-Cum Action Network and INFOSAN, by working closely in collaboration with international, inter-sectoral and other partners.
- Support, and obtain assistance from, global development of evidence-based standards, norms and guidelines for appropriate diet, nutrition and food safety.
- Assist and support Member countries to ensure adequate resources for sustainable nutrition and food safety programmes through programme planning, budgeting, and proposal preparation in collaboration with HQ and potential donors.
- Monitor and report on progress of implementation and status trend in the Region.

Working Paper*

1. Introduction

1.1 Nutrition and food safety; growing concern

1. Appropriate and adequate nutrition is essential for proper physical growth, mental development and intellectual functions that determine an individual's working capacity and productivity. Inadequate nutrition restricts physical, mental and intellectual capabilities, reduces work capacity and productivity and increases the rehabilitative cost endangering the developmental process. A healthy and well-nourished population, being the best and basic foundation for promoting national economic growth, is an essential input to national development (1).

2. The proximate causes of malnutrition include inadequate dietary intake and exposure to disease. Household food security, quality of care, and healthy services and healthy environment are three underlying factors that determine dietary intake and nutritional status. Household food security again depends on a nutritionally adequate and safe food supply nationally, at the household level and for each individual (2).

3. The interaction of malnutrition and infection is found to be the leading cause of morbidity and mortality in children in most countries in Africa, Asia and Latin America. The simultaneous presence of both malnutrition and infection results in an interaction that has more serious consequences for the host than the additive effect would be if the two worked independently (3,4).

4. In the study of the Global Burden of Disease (GBD), malnutrition and poor sanitation were found as the dominant hazards responsible for almost a quarter of the global burden (5).

5. Lack of food safety plays an important role in infant diarrhoea, which accounts for 3.2 million deaths per year as well as high morbidity contributing to under-nutrition (6).

6. Recently, emerging food-borne disease outbreaks linked to the increasing resistance of some food-borne bacteria to common therapies, particularly because of the widespread use of antimicrobials in agriculture and in clinical practice, have added another dimension to the concern with regard to nutrition and food safety (7).

*Originally issued as Working Paper for the meeting held in SEARO from 11-13 April 2007.

1.2 Appropriate nutrition and safe food for all

7. Access to safe food and adequate and appropriate nutrition are fundamental prerequisites for health and development for all the people. Specifically, women and children's nutrition is an important determinant of the health and well being of subsequent generations and thereby contributes to human capital formation.

8. Nutrition challenges continue throughout the life cycle and it is the women and children who are worst affected by the burden of malnutrition. Malnutrition often stems from multiple denials of the rights of children, adolescent girls and women in particular. Poor nutrition which starts in utero extends particularly for girls and women, well into adolescent and adult life. It also continues across generations. Under-nutrition that occurs during childhood, adolescence and pregnancy has an additive negative impact on birth weight of infants. Low-birth-weight infants, who have suffered intrauterine growth retardation as fetuses, are at a higher risk of dying in the neonatal period or in later infancy. If they survive, they are unlikely to reach their full potential. Low birth weight is associated with impaired immune systems, poor cognitive development, and high risk of developing acute diarrhoea or pneumonia (8,9). A low-birth-weight infant is more likely to be underweight or stunted in early life. The damaging effects of under-nutrition which occur during pregnancy and the first two years of life on health, brain development, intelligence, educability and productivity are largely irreversible (10). Multiple micronutrient deficiencies also co-exist with the problems of under nutrition and are of great public health concern. Deficiency in one or more micronutrients such as iron, vitamin A and iodine may be due to inadequate dietary intake and /or poor dietary quality. Another major cause is mal-absorption of micronutrients as the result of gastrointestinal tract dysfunctions mainly due to food-borne infections like diarrhoea.

9. A new dimension of the malnutrition problem is also emerging. The epidemic of obesity and diet-related chronic diseases of the developed world are now spreading to developing countries. The changing nature of global food supply, easier access to foods high in fats and sugar and a sedentary lifestyle is contributing to the problem of over-nutrition in developing countries including the South-East Asia Region. Epidemiological evidence from both developing and developed countries suggests foetal under-nutrition as the origin of obesity and diet-related noncommunicable diseases such as cardiovascular disease and diabetes (10,11).

1.3 Food safety; effect on nutrition

10. Food-borne diseases affect all age groups. However, they most seriously affect pregnant women and children already affected by other diseases. Unsafe food which is contaminated with microorganisms and chemicals poses severe challenges to appropriate and safe nutrition. Food-borne diseases especially diarrhoea, dysentery and intestinal helminthes deserve particular attention because of their wide distribution

and direct effect on nutrition (12). Availability of safe food definitely improves the health and nutrition of women and children.

11. Considering the wide scope of the term “food safety”, using the food chain approach from agricultural practices, manufacturing, processing, transport, storage, marketing and consumption, this working paper proposes to focus on appropriate, adequate nutrition and safe food for all especially women and children throughout the life cycle, giving emphasis on situation analysis of the interaction between food-borne diseases and nutrition, leading to consideration of required actions for the South-East Asia Region.

2. Magnitude of burden

2.1 Burden of persistent nutrition disorders and food-borne diseases

12. In recent years, the countries of the SEA Region have made significant progress in improving the health of, and services to their ever-growing populations. Nutrition deficiencies have been remarkably decreased in the Region as a whole; however, the persistence of the substantial magnitude of several nutritional disorders, their interaction with food-borne diseases and impact on morbidity and mortality in women and children are still seen in a variable range among the countries (74,75).

13. Food or water becomes unsafe when contaminated with pathogenic organisms, toxins, or pesticides, thus posing health risks. Food-borne diseases which most seriously affect pregnant women and children are commonly caused by a variety of micro-organisms which contaminate food and water through un-sanitary environment and practices. According to the World Health Report 2006, an estimated 279 million people (17%) in the South-East Asia Region do not have access to improved water facilities and 526 million (32%) are living in un-sanitary conditions. One third of Bangladesh’s population has no safe water and 50% lack sanitation facilities. India reported that only one third of households have safe water by any method for drinking and about 64% of households have no sanitation facility (NFHS II).

14. Low birth weight in newborns indicates that those babies are more likely to be born in poor socio-economic conditions, where, women are more susceptible to poor diet and infections as the result of unsanitary conditions (15,16). High incidences of low birth weight have been reported across the South-East Asia Region, in a significant variation; from 6% in Bhutan and Indonesia, to 40% in Bangladesh. High incidences are also reported by India, Myanmar and Nepal. It perpetuates an intra-generational cycle of under-nutrition, the consequences of which are passed along to children by mothers who themselves are in poor health and/are undernourished. Childhood and maternal underweight alone are responsible for 138 million disability adjusted life years (DALYs) lost or 9.5% of the global burden of disease, mostly contributing to the high mortality in developing countries.

15. Globally, 10.8 million children under-five years of age die annually (14). Since the 11 Member countries of the WHO South-East Asia Region are home to about a quarter of the world population, the Region accounts for 3.1 million child deaths (13). Over half of these deaths are contributed by just five preventable communicable diseases (pneumonia, diarrhoea, malaria, measles and HIV infection) compounded by malnutrition and unsafe food. Diarrhoea, an outcome mainly due to poor food and water quality contributes to 22% of total child deaths (14). 14.7% of under-five deaths in the South-East Asia Region are attributable to diarrhoeal diseases (74).

16. Exclusive breastfeeding for the first six months protects children from diarrhoea – one of the major causes of infant mortality in the developing world. Particularly in unhygienic conditions, breast-milk substitutes carry a high risk of infection and can be fatal in infants. Exclusive breastfeeding in the first six months of life and continued breastfeeding from 6 to 11 months could reduce the annual number of deaths of children under five by 1.3 million, or 13% (21). In five out of nine reporting countries in the South-East Asia Region, less than half of the infants are exclusively breast-fed during the first six months of age, the lowest rate being found in Maldives (10%).

17. When complementary foods are introduced in the infant's diet at six months, infants may be exposed to food-borne pathogens and are at risk of developing diarrhoea. For children under five years in developing countries, there is a median of 3.2 episodes of diarrhoea per child. Millions of children in the world die each year from diarrhoeal diseases (22); hundreds of millions suffer from frequent episodes of diarrhoea and consequent impairment of nutritional status (23). Food safety, especially of the complementary foods, is one of the major concerns that have posed a threat to the health of children. Contaminated foods are responsible for up to 70% of diarrhoea episodes in children under five years of age (24).

18. In the South-East Asia Region, high incidence of diarrhoea has been reported. In four out of eight reporting countries the incidence is more than 100 per 1000 under-five children, Bhutan having the highest incidence (464 per 1000 under-fives). Five countries reported diarrhoea as a major cause of death for children under five years of age.

19. High Infant and under-five mortality rates are common in the Region. Infant mortality rates (IMR) range from 11 (Sri Lanka) to 70 (Timor-Leste) per 1000 live births. High IMR rates are also reported by Bangladesh, Nepal, India and Myanmar. Reported under-five mortality rates (U-5MR) range from 16 (Maldives and Sri Lanka) to 125 (Timor-Leste) per 1000 live-births, high rates (>80) being reported by Bangladesh, India and Nepal. IMR and U5MR are regarded as a reliable and sensitive index of the health status of a community. Poor infant feeding practices contribute to malnutrition and infant mortality while diarrhoea is one of the major causes. Universalizing breastfeeding alone could reduce infant mortality by 13%.

20. The inter-relationship between ongoing malnutrition and an increasing incidence of food-borne disease is highly complex. Reduced immunity due to poor nutritional status renders people, particularly infants and children, more susceptible to food-borne infections including diarrhoea. On the other hand, diarrhoea is as much a nutritional disorder as one of fluid and electrolyte loss. Diarrhoea mortality, despite good management of dehydration is usually due to concurrent severe malnutrition. During diarrhoea, decreased food intake, decreased nutrient absorption and increased nutrient requirements together cause weight loss, growth failure and deficiency of various micronutrients. Any pre-existing malnutrition is made worse. In turn, malnutrition contributes to diarrhoea which is more severe, prolonged and more frequent in malnourished children (3,20).

21. There is a large variation in the prevalence of under-nutrition in the Member countries. Under-nutrition includes under-weight for one's age, stunting as short for one's age, thinness (wasting), and micronutrient malnutrition (deficient in vitamins and minerals). Bhutan, Indonesia and Nepal reported very high prevalence — over 39% and Bangladesh, DPRK, India and Myanmar reported high prevalence — over 29% of stunting indicating high prevalence of persistent chronic nutrition (73). Prevalence of stunting in the Region ranges from 14% (Sri Lanka) to 46% (Indonesia). Inappropriate feeding of infants and young children, especially the lack of optimal breastfeeding and responsive complementary feeding, along with common food-borne diseases like diarrhoea and helminthes are major causes of under-nutrition (15,16).

22. An iodine-deficient diet prevents brain growth and leads to poor school-performance, reduces intellectual ability and impairs work capacity. Iodine deficiency is particularly damaging during early pregnancy and childhood. Maternal iodine deficiency increases the risk of stillbirths and miscarriages. It also has a detrimental effect on fetal brain development (15, 16). Total goitre rates in school-age children, one of the indicators of Iodine Deficiency Disorders (IDD), ranges from 0.7% (Thailand) to 40% (Nepal). One of the goals of sustainable IDD elimination; Median Urinary Iodine Excretion (UIE) in the population at or above 100 ug per litre, has reportedly been attained by most Member countries except Thailand (median UIE 82.5). However, other required goals like iodized salt consumption (effectively iodized salt consumed by at least 90% households) is still to be achieved by most countries. Out of 11 Member countries, only Bhutan has achieved elimination of IDD.

23. Iron deficiency anemia is a major cause of maternal deaths and contributes to low birth weight and premature births. In young children it is associated with cognitive deficits and can permanently affect later motor development and school performance. Anaemia also has a negative impact on the economic well-being of individuals, families and national economies (15, 16). Prevalence of anaemia among pre-school children reported by DPRK, Sri Lanka, Thailand and Timor-Leste indicates a moderate level of public health significance, while the remaining seven countries report severe level —

over 39.9%. Prevalence among pregnant women in DPRK, Maldives and Sri Lanka also indicate a moderate level while the remaining eight countries are at a severe level of public health significance (76).

24. Vitamin A supplementation has been shown to reduce child mortality by 23% in areas with high vitamin A deficiency (15, 16). Prevalence of vitamin A deficiency is reported to be of public health significance in Bangladesh and Sri Lanka. Coverage for Vitamin A supplementation has largely been achieved (80-90%) in most of the reporting Member countries except India, Indonesia and Timor-Leste (21, 64 and 35% respectively). Some countries have successfully carried out Vitamin A food-based fortification and dietary diversification

25. There is also concern regarding the widespread multiple micronutrient deficiencies. Most micronutrient deficiencies (e.g., zinc, iron) affect the immune system (39, 65). Both iron and vitamin A deficiencies cause anaemia. Both iron and iodine affect cognitive development; protein/energy, calcium, and vitamin D affect longitudinal growth (65). Thus, addressing one deficiency alone may not improve the situation, when there are several deficiencies affecting the same individual.

2.2 Burden of emerging disorders

26. Concurrent existence of over- and under-nutrition are found in an increasing number of countries in the Region. Due to the nutrition transition occurring in Member countries, over- and under-nutrition tend to exist in the same country, within the same community and even within the same household although in different people. This is the double burden of nutrition which is being faced by the Member countries. The direct costs of obesity consume a sizeable proportion of national health budgets. Indirect costs, including workdays lost, physician visits, disability pensions and premature mortality are far greater than direct costs. Intangible costs such as impaired quality of life are also enormous (17).

28. The risks of chronic diseases such as diabetes, cardiovascular disease and hypertension, rise steadily with increasing weight. There are also clear indications of intergenerational factors in obesity, such as parental obesity, maternal gestational diabetes and maternal birth weight. Low maternal birth weight is associated with higher blood pressure levels in the offspring, independent of the relation between the offspring's own birth weight and blood pressure (18). The burden of chronic diseases is rapidly increasing worldwide. In 2001, chronic diseases contributed approximately 60% of the 56.5 million total reported deaths in the world and approximately 46% of the global burden of disease (19). Half of the total chronic disease deaths are attributable to cardiovascular diseases; obesity and diabetes. Obesity and related chronic diseases present the greatest public health burden, either in terms of direct cost to society and government, or in terms of disability adjusted life years (DALYs).

29. Unsafe food in terms of excess fat, sugar and salt, commonly prepared and available as commercial “fast food” is one of the major causal factors for overweight, obesity and consequent chronic diseases. Globalization and increased urbanization have led to changes in eating patterns. In most urbanized families, with both parents working away from home, there is little time for cooking home foods, leading to increased reliance on so-called fast foods which are generally high in fat, sugar and salt. Excess consumption of these foods along with sedentary life style is a risk factor for obesity and nutrition-related chronic diseases.

30. In the South-East Asia Region, the highest prevalence of overweight and obesity has been reported by Maldives in a study of the population in its capital city; with 63% and 40% overweight and 30% and 7% obesity among women and men respectively. While Bangladesh has the lowest prevalence rates (5-6% overweight), high rates are reported by Bhutan, Myanmar, DPRK and Thailand. At the same time, under-nutrition among adult women as defined by thinness (BMI <18.5) is reported as a public health problem in the Member countries. The problem of thinness is low in Thailand, at medium level in Indonesia, high in India, Myanmar, Nepal and at a very high level in Bangladesh (73).

3. WHO’s Response

31. WHO has paid increased attention to reducing all forms of malnutrition and improving food safety and food security. WHO has provided a strategic framework and directions to the Member countries and set norms and standards in areas related to nutrition and food safety.

3.1 Infant and young child feeding

32. In promoting infant and young child nutrition WHO has played a key role, working closely with partners in the field. The joint WHO/UNICEF meeting on Infant and Young Child Feeding at WHO/HQ in Geneva in 1979 initiated recommendations on promoting breast-feeding for improvement of infant and young child nutrition.

33. To protect, promote and support breastfeeding, the World Health Assembly (WHA) has adopted a total of 10 resolutions. WHA Resolution 33.32 (26) in 1980, endorsed the statement and recommendations made by the Joint WHO/UNICEF meeting (25). Consequently, World Health Assembly resolution WHA 34.22 in 1981 adopted the International Code of Marketing of Breast-milk Substitutes as a minimum requirement. Thereafter, WHA 35.26 (1982), WHA 39.28 (1986), WHA 41.11 (1988), WHA 43.3 (1990), and WHA 45.34 (1992) recommended various ways to protect, promote and support breastfeeding and stressed the need for adequate and appropriate legislation for this purpose (26).

34. After the Code had been in existence for nearly a decade, it was reconfirmed and set as a goal by the Innocenti Declaration (WHO/UNICEF-1992). It called for the establishment of national authority, Code reinforcement, the Baby-friendly Hospital Initiative (BFHI) and maternity entitlement (27).

35. The World Health Assembly resolutions WHA 45.34, WHA 47.15 (1994) and WHA 49.15 (1996) continued to urge Member States to continue to implement the International Code of Marketing of Breast-milk Substitutes (The Code) and relevant World Health Assembly resolutions and the Innocenti Declaration (28).

3.2 Food standard and food safety

36. The establishment of the Joint FAO/WHO Food Standards Programme and Codex Alimentarius Commission was approved by the Sixteenth World Health Assembly in 1963 (29). The main objective of the Commission is to protect the health of consumers and to ensure fair practice in food trade through the elaboration of food standards contained in a food code. The participation of WHO was required because of its mandate for public health and food safety.

37. The importance of food safety as an integral part of public health and public nutrition functions was confirmed by World Health Assembly resolution WHA 53.15 in 2000 (26). This resolution committed WHO and its Member States to a range of multisectoral and multidisciplinary actions to promote the safety of food at local, national and international levels. Specifically, it resolved to expand WHO's responsibilities in food safety, and to use limited resources efficiently to promote food safety as an essential public health function, and suggested appropriate interventions to improve global food safety.

38. The Fifty-fourth World Health Assembly in 2001, through resolution WHA 54.2 (26) urged Member States to recognize the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger. The resolution also encouraged the Codex Alimentarius Commission to take the International Code and relevant subsequent World Health Assembly resolutions into consideration in developing its standards and guidelines; and to inform the general public on progress in implementing the Code and subsequent relevant World Health Assembly resolutions.

39. The Fifty-fifth World Health Assembly through resolution WHA 55.25 in 2002 adopted the Global Strategy for Infant and Young Child Feeding (30) and requested the Codex Alimentarius Commission to improve quality standards of processed foods for infants and young children and promoting their safe and proper use at an appropriate age, including through adequate labeling, consistent with the policy of WHO, in particular the International Code of Marketing of Breast-milk Substitutes, resolution WHA 54.2, and other relevant resolutions. Full implementation of these activities was urged by World Health Assembly Resolution WHA 58.32 in 2005.

3.3 Diet, physical activity and health

40. Concerned by the rising trend of noncommunicable diseases especially in the developing world, the World Health Assembly through resolution WHA 57.17 in 2004 endorsed the Global Strategy on Diet, Physical Activity and Health (31), which addresses two of the main risk factors for noncommunicable diseases, namely diet and physical activity, while complementing the long-established and ongoing work carried out by WHO and nationally on other nutrition-related areas, including under-nutrition, micronutrient deficiencies and infant and young child feeding.

3.4 Nutrition and HIV/AIDS

41. Alarmed by the rising trend of HIV/AIDS in several countries, and recognizing that nutrition should be integrated into a comprehensive response to HIV/AIDS, the Fifty-ninth World Health Assembly noted that food and adequate nutrition are often identified as the most immediate and critical needs by people living with, or affected by the HIV/AIDS pandemic. Nutrition and food security require systematic and simultaneous action to meet the challenges of the pandemic. World Health Assembly resolution WHA 59.11 (32) urged Member States to make nutrition an integral part of their response to HIV/AIDS by identifying nutrition interventions for immediate integration into HIV/AIDS programmes.

3.5 Nutrition for health and development

42. WHO aims at building and implementing a science-based, comprehensive, integrated and action/policy-oriented “nutrition agenda” at the global, regional and country levels that addresses the whole spectrum of nutrition problems towards attaining the Millennium Development Goals and other nutrition-related international commitments, including the prevention of diet-related chronic diseases.

43. WHO’s response to improve nutrition, food safety and food security is provided through a 10-step Rapid Action Plan (33) as follows:

- (1) Building national capacity to develop food and nutrition policies.
- (2) Providing diagnostic reviews and country nutrition profiles.
- (3) Providing knowledge-based advisory services to policy makers and programme managers through practice communities.
- (4) Optimizing fetal development.
- (5) Improving infant and young child feeding practices and the care of severely malnourished children.
- (6) Recommending vitamin and mineral requirements for children up to three years.
- (7) Implementing guidelines on food fortification.

- (8) Developing scientific evidence, assessment and policy guidelines on obesity and nutrition in transition.
- (9) Establishing nutrition-friendly schools.
- (10) Ensuring the integration of nutrition into responses for people living with HIV/AIDS and people affected by conflicts and crisis.

3.6 Global Strategy for Food Safety

44. The WHO Global Strategy for Food Safety (12) outlines the broad plans of action needed to reduce food-borne illness. The strategy is predicated on a long-term commitment to food safety as a means of improving public health, which will be reflected in medium- and long-term workplans.

45. Trends in global food production, processing, distribution and preparation present new challenges to food safety. WHO and its Member States have responded to these new challenges by integrating food safety as an essential public health function. WHO's role in food safety is to reduce the burden of food-borne illness by advising and assisting Member States to reduce exposure to unacceptable levels of chemicals or microorganisms in food. The aim of WHO's Global Strategy for Food Safety is to identify global needs in food safety and to provide a global approach to reducing the burden of food-borne illness.

3.7 Global Strategy on Diet, Physical Activity and Health

46. The overall goal of WHO's Global Strategy on Diet, Physical Activity and Health is to promote and protect health by guiding the development of an enabling environment for sustainable actions at individual, community, national and global levels that, when taken together, will lead to reduced disease and death rates related to unhealthy diet and physical inactivity.

47. The Global Strategy fosters the formulation and promotion of national policies, strategies and action plans to improve diet and encourage physical activity. WHO, in cooperation with other United Nations organizations, commits to provide the leadership, evidence-based recommendations and advocacy for international action to improve dietary practices and increase physical activity, in keeping with the guiding principles and specific recommendations contained in the Global Strategy.

3.8 WHO's responses in the South-East Asia Region

48. The WHO Regional Office for South-East Asia and country offices have specific programmes to assist the Member countries in promoting nutrition and food safety, and in implementing global and regional strategies.

49. The Nutrition for Health and Development (NHD) Programme in SEARO aims to prevent and reduce malnutrition in all forms in the Region by supporting the

strengthening of national capacities in developing and implementing actions to reduce malnutrition and eliminate micronutrient deficiencies. NHD also provides technical inputs to other programmes related to nutrition, and coordinates the regional network of collaborating centres in the area. The main function is to assist Member States to reduce morbidity and mortality related to all forms of malnutrition. Technical and financial support is provided for the development and implementation of national nutrition policies and programmes. Collaboration with national health authorities, members of the Research-cum-Action Network and the WHO Collaborating Centres for nutrition facilitate this work.

50. The regional activities undertaken in previous years can be seen as: Control and prevention of micronutrient deficiency (Vitamin A, Iron and Iodine) with particular focus on Iodine Deficiency Disorder Elimination; promotion and capacity building for appropriate infant feeding (emphasizing exclusive breastfeeding and adequate complementary feeding); capacity building for management of severely malnourished children; advocacy and capacity building for appropriate infant feeding and nutrition for the HIV/AIDS affected population; advocacy for improving adolescent and maternal nutrition; and advocacy for healthy lifestyle, including diet and physical activity.

51. Over the current biennium plan, the assistance covers technical guidance and financial support to help in: Assessment of child malnutrition, growth and development by adopting the new WHO Child Growth Standard; development and updating integrated national food and nutrition policies and plans for addressing nutrition through the life course; nutrition transition and nutrition in crisis; implementation of integrated strategies for improving child growth and nutrition; and assessment and strengthening of the programmes for prevention and control of micronutrient malnutrition.

52. The WHO medium-term strategic plan (MTSP) 2008-2013, focuses on improving nutrition, food safety and food security. The Strategic Objective 9 states, "to improve nutrition, food safety and food security, throughout the life course, and in support of public health and sustainable development". Nutrition, food safety and food security are crosscutting issues that permeate the entire life course from conception to old age. A nutrition perspective can strengthen key development mechanisms and help in integrating food safety and food security into national policies, programmes and processes.

53. Improving nutrition, food safety and food security as a strategic priority in WHO's MTSP (2008-2013) plays a critical role in achieving several Millennium Development Goals, particularly goals 1,4,5 and 6 (72).

54. Eradication of extreme poverty and hunger as called for in MDG 1, is not possible without improved nutrition including food safety and food security. There is a substantial and strong evidence that malnutrition, which increases the risk of disease and impairs physical and intellectual development, reduces economic productivity

throughout the life cycle and across generations. Malnutrition erodes human capital and diminishes livelihood skills and options (35). Human capital deficits, if created in early childhood, tend to persist and affect labour force earnings throughout an individual's lifetime, diminishing them by sizable amounts.

55. The MDG 4 targets to reduce child mortality. More than 50% of child deaths before the age of five years are either directly or indirectly attributable to malnutrition. Malnutrition and infection are intertwined in a synergistic vicious cycle. Under-nutrition raises the risk of mortality by increasing the likelihood that the illness will be prolonged or become severe. Reducing by two thirds the mortality rate among children under five requires improvement of young child feeding practices, household food security as well as macro and micronutrient nutrition of infants and children.

56. Maternal nutrition is a direct contributor to achieving MDG 5 to improve maternal health with the target of reducing maternal mortality. Maternal malnutrition is associated with both maternal morbidity and mortality in many ways. Maternal stunting is associated with obstructed labour, with pregnancy complications and maternal mortality. Maternal under-nutrition is directly associated with poor health through the malnutrition infection complex, and places both the mother and her fetus at risk. Micronutrient deficiencies are also associated with pregnancy complications and maternal mortality. Iron deficiency anaemia among pregnant women is associated with an estimated 20% of maternal deaths in developing countries each year. Reduction of the maternal mortality ratio is possible only by improving maternal nutrition through appropriate and safe nutrition and improving food security of households.

57. To combat HIV/AIDS, which is one of the targets of MDG 6, nutrition and food security play a critical role in all four strategies; prevention, care, treatment and mitigation. Malnutrition hastens the onset of AIDS among HIV-positive people. Several studies have indicated that providing undernourished mothers with multivitamin supplements reduce child mortality and HIV transmission through breastfeeding. Care of HIV/AIDS-affected people through nutritional interventions can help manage symptoms, promote response to medical treatment, and increase the quality of life by improving daily functioning and nutritional status. Adequate nutrition may retard the progression of HIV to AIDS-related diseases. Even in the early stages, HIV increases the body's nutritional needs (WHO/FAO 2002). Antiretroviral drugs can interact with food and nutrients, affecting drug efficacy, side effects and adherence to drug regimens. Antiretroviral drugs, in turn, can affect food consumption, nutrient utilization and nutritional status. Certain antiretroviral drugs have an effect on energy, fat and bone metabolism that require dietary management (WHO 2003).

4. Key considerations

58. Appropriate and adequate nutrition and safe food for women and children to meet the demand of both macro and micronutrients throughout the life course is

critical for the nutritional well-being of the whole population and key to national development.

4.1 Life cycle approach and appropriate nutrition for women and children

59. The process of growth and development begins from conception and continues through adulthood. Most of the brain growth is complete by the end of two years. Almost half of the adult height is acquired by the first three years of life. The periods of rapid growth are fetal life, infancy and early childhood and adolescence. Under-nutrition that occurs during childhood, adolescence and pregnancy has an additive negative impact on birth weight of infants. Maternal nutrition, both before and during pregnancy, affects fetal growth, early child growth and development.

60. Nutrition interventions integrated with routine health services should focus on each stage of the life cycle. Provision of adequate, appropriate and safe nutrition for women and children to meet the demands of rapid growth during these critical stages of life is deemed essential.

61. Providing balanced energy and protein supplementation during pregnancy has been shown to increase birth size, reduce neonatal mortality and improve maternal nutritional status, especially during food shortages (36). The provision of routine iron-folate supplements improves birth size (37) in addition to reducing anaemia and maternal mortality. Correction of maternal iodine deficiency by iodized salt in women prevents the risk of stillbirths, miscarriages and its detrimental effect on fetal brain development (3,4).

62. During infancy and early childhood, promotion of exclusive breastfeeding for the first six months of life and timely introduction of complementary foods and active feeding promote child growth and prevent morbidity and mortality. Growth monitoring and promotion can give timely warning to the caregivers about health and nutritional problems. Immunization contacts can be used for vitamin A supplementation. A periodic de-worming scheme can be integrated (39). Provision of fortified complementary foods and iron supplements alone or with other micronutrients can benefit child growth and development. Vitamin A supplementation can reduce young child mortality in Vitamin A deficient populations by an average of 23% (38).

63. Children at early school age are vulnerable to hazards associated with foods, in particular those from street food vendors. Interventions to raise food safety awareness and to apply good hygienic and processing practices should be carried out at school. Applying good hygienic and processing practices in the school cafeteria is a good example. Parents, mothers in particular, should be involved in food safety awareness programmes and in good hygienic practices at the household level.

64. The returns on investing in girls' primary education have been well documented. Girls who have completed at least primary school are more likely to have children later which reduces the chances of Intra-uterine Growth retardation (IUGR). Nutrition interventions such as de-worming and micronutrient supplementation have been shown to be beneficial in improving educational performance by reducing anaemia and improving school performance.

65. Adolescence is a critical period of life when nutritional requirements are very high to support rapid growth. Stunting among girls in pre-pregnancy period and micronutrient deficiency pose the risk of pregnancy complication, maternal morbidity and mortality. In many parts of South-East Asia, girls are married and begin childbearing early (40). Preventing adolescent pregnancy can help break the intergenerational cycle of malnutrition. Iron supplementation is a cost-effective strategy to improve iron status of adolescents and has the potential to build up iron stores (41).

66. Appropriate, adequate nutrition and safe food are important for women throughout the childbearing years. The factors in any stage and their consequences for nutrition will have effects on both nutritional status and health in the other stages of life.

4.2 The double burden of malnutrition

67. The World Health Report-2002 indicated that under-nutrition, together with micronutrient deficiencies, accounts for over half the disease burden in low-income countries. It also indicated that a substantial disease burden is attributable to risks related to overweight and the over consumption of certain foods and food components.

68. Developing countries are currently undergoing nutrition transition. The three main features of nutrition transition in developing countries are (43):- rapidity of changes; co-existence, within the same population, of nutrition and health problems associated with under-nutrition (infectious diseases, micronutrient deficiencies) and those with overweight (cardiovascular diseases, cancers); and its effect on people from all socio-economic groups. This has been termed the "double burden of disease" (WHO 2003). Recent evidence shows that exposure to under-nutrition during critical periods of fetal development and infancy, predisposes individuals to chronic diseases in later life (diabetes and cardiovascular disease) by increasing their susceptibility to chronic disease risk factors (45). Thus, people with low income who suffered from nutritional deprivation in fetal life and infancy may be more susceptible to nutrition-related chronic diseases as they get older. Prevention of nutrition-related chronic diseases should begin with appropriate, adequate and safe nutrition during fetal life and infancy and continue throughout the life course with the promotion of healthy diets and active living at each stage.

4.3 Food-borne diseases and chemical contamination of food

69. Food- and water-borne diarrhoeal diseases are leading causes of illness and death in less developed countries, killing approximately 1.8 million people annually, most of whom are children (46).

70. Studies show that in developing countries, complementary foods for infants are often prepared in an unhygienic manner and are frequently heavily contaminated with pathogens. Environmental sanitation and unsafe water supply play a significant role. Improper methods of preparation and storage of foods also contributes to food contamination. Contaminated foods are responsible for up to 70% of diarrhoea episodes. Caregiver's behaviour and socioeconomic factors may involve measures which would help reduce risk of food-borne infections (46-51).

71. Chemical contamination of food affects fetal and child growth and development. While chemicals can be a significant source of food-borne illness, their impact is not always as evident because of the long-term effect (12). Chemical contaminants in food can include naturally occurring chemicals in plants, animal toxicants, heavy metals such as mercury and lead and environmental pollutants like dioxins. Chemical contaminants can also come from food additives, and pesticide and veterinary drug residues, which are deliberately used for food production.

4.4 Street foods, fast foods and nutritionally-claimed commercial food products

72. The problem of malnutrition is aggravated by the tremendous demographic changes of rapid urbanization. Around 50% of the urban population living in major cities in the South-East Asia Region live in conditions of extreme poverty, overcrowding and poor sanitation. Urbanization results in a heavier emphasis on the purchase and consumption of food outside the family home. In many countries, the boom in food service establishments is not matched by effective food safety education and control. Unhygienic preparation of food provides ample opportunities for contamination, growth, or survival of food-borne pathogens. The control of food services requires a concerted effort on the part of the three principal partners, namely governments, the food industry and consumers.

73. The reliance on "fast foods" poses an additional nutritional threat. These fast foods which are fully or partially cooked are generally high in fat, sugar and salt. Excess consumption of these foods along with sedentary lifestyle is a risk factor for nutrition-related chronic diseases. Monitoring fast foods for food safety should focus on harmful chemicals produced during processing and packaging of foods, such as 3-mcpd that maybe present in soy sauce or protein hydrolyzate prepared by acid hydrolysis and chemicals that may migrate from plastic packaging (food contact materials). Using plastic packaging for hot and fatty fast foods is an example of food safety risk.

74. The promoters of several commercial food products make exaggerated nutritional and health claims (57), exercise emotional appeals and power of persuasion to sell their products. Health and nutritional claims are sometimes taken seriously and trusted by consumers to the extent that it may lead to high consumption of foods rich in fat, sugar and salt. A good-practices approach as a preventive measure should be applied in the whole food chain, from farm to table.

4.5 Cross-cutting of nutrition and food safety issues across all sectors

75. Malnutrition is a multifaceted problem. Working to improve nutrition requires appropriate action in health and care, agriculture, education, rural development, food industry, law enforcing agencies, entrepreneurs, social protection and gender, etc. Also, community-driven development can help in improving overall nutrition situation of people. The nutrition status of people depends to a great extent on the level of development in several sectors “other than nutrition” in the country (58). The role of the consumer is vital in improving food safety such as the role of social enforcement. Raising food safety awareness through consumer education should be done continuously with better communication as a strategic approach.

76. Some successful community-based programmes have used multisectoral approaches in their design and implementation. Thailand’s successful Basic Minimum Needs programme stems from macro planning with multisectoral approach (health, agriculture, education and interior administration) and utilizes a tradition of community self-help (59). Assessment of 10 successful community nutrition programmes, carried out in Kenya, Tanzania, and Uganda between 1999 and 2000, shows that all programmes have incorporated various sectors into programme interventions or collaborated with programmes of these sectors. Nearly all the programmes address *food production and agriculture* because agriculture is a source of livelihood for most of the populations served (60).

77. The role of private-public partnerships is increasingly recognized in improving the health and nutrition situation of people. Private industry is taking up social responsibility. Governments should capitalize on the management experience, technologies, research capacity and marketing skills and vast distribution networks of the private sector to enable improved nutrition for all. However, the profit motive of private organizations should not compromise public welfare and the government needs to put a regulatory mechanism in place to check this.

78. As a result of globalization, food production and consumption patterns are shifting to more centrally processed and packaged foods with increasing attention to food safety, hygiene and quality (61). The food industry is becoming more global. Several opportunities exist for governments, food companies, scientific establishments, development agencies and NGOs to collaborate in ensuring appropriate and safe nutrition.

79. There are several areas of potential/ongoing private-public partnerships (62) worldwide including; Fortification of staple foods and condiments; fortified processed foods for distribution in public institutional feeding programmes; production and marketing of industrially produced fortified complementary foods; marketing of nutritional supplements; effective processing, storage, transport and distribution of conventional foods of nutritional significance; education programmes to create greater nutrition awareness; and implementation of nutrition programmes.

80. Over the past decade private-public partnerships have shown significant success in promoting nutrition. The percentage of the global population with access to iodized salt has increased from 20 to 70%. Public investment of \$400 million has leveraged more than \$ 1.5 billion of private investment in salt iodization (61). The Asian Development Bank estimates that a public investment of \$ 115 million in food fortification in five Asian countries supplemented with private investment of \$ 700 million could deliver iron and folic acid to 1 billion people at a cost of 8 cents per capita and a benefit in the cost ratio of 7:1 (39).

81. National development and policies can have a significant impact on the nutritional status of the population. Since many of the basic causes of malnutrition lie outside the immediate field of nutrition, reducing malnutrition is possible only when nutrition is included in non- nutritional plans and policies of the government.

82. Creating a multisectoral (including private-public) partnership is crucial to eliminate malnutrition. Each sector should analyze and plan the contributions it can make in reducing malnutrition. Sectoral plans should define specific objectives and the activities for the sectors, which can contribute to nutrition improvement through their respective programmes.

83. The commitment of all sectors to the right to food and adequate nutrition, recognizing food safety as an integral part of overall nutrition development, developing food and nutrition policy based on these considerations and allocating adequate resources are essential steps to address this important issue of nutrition and food safety.

5. Strategic priorities

5.1 Sector-Wide Approach and inter-sectoral collaboration to provide appropriate, adequate nutrition and safe food for women and children throughout the life course and to ensure implementation of the relevant World Health Assembly and Regional Committee resolutions and global and regional strategies on nutrition and food safety

84. The Sector-Wide Approach (SWAp) is a promising approach (10) in the new programming environment. It is the shift from projects to programmes, from a

conventional way of financing and implementing vertical disease-specific projects to multi-sectoral action, stake holders being various sectors and groups like agriculture, food industry, education, gender, law enforcement, entrepreneurs, front-line workers, consumer and community organizations, along with health. In SWAp, governments and all development partners/sectors; co-finance branches of a common national programme and its financing is incorporated into the regular government budget. Sound monitoring is especially important for the success of sector-wide programmes because many of them disburse funds on the basis of output and outcome targets achieved. The inter-related sectors have nutrition-focused objectives and activities which help to improve the nutrition status of people.

85. Collaboration among inter-related sectors is deemed essential to ensure provision of appropriate and adequate nutrition and safe food to women and children at all critical stages of the life. The lifecycle targets can only be achieved through various sectors: reproductive health; gender and women's health; neonatal health; child health and development; adolescent health; prevention and control of micronutrient deficiencies; prevention and control of communicable and noncommunicable diseases; water- and food-borne diseases; and prevention, care and treatment of HIV/AIDS.

86. The Essential Nutrition Actions (ENA) approach (63), with a less wider scope of inter-sectoral implication also attempts to incorporate the essential and proven nutrition interventions through actions at health facilities, in communities and through communication channels.

87. Countries in the Region should strengthen collaboration among interrelated sectors by adopting SWAPs and/or a combination of approaches in the national programmes. This will help in mainstreaming nutrition into the development agenda leading to sustainable results. It should also ensure that various World Health Assembly and Regional Committee resolutions and follow-up of global and regional strategies for nutrition and food safety are effectively implemented by multi-sectoral programming.

5.2 Action-oriented research and studies to provide information for development of evidence-based programming in the field of nutrition and food safety

88. Collecting evidence through action-oriented research should be the initial part of programming. Unsolved or sustained nutrition and food safety-related problems as well as the emerging problems should be tackled systematically. While WHO should ensure to provide Member countries with evidence-based guidelines, recommendations and technical assistance, national programmes should also make sure to collect evidence essential for programming through action-research. The reasons for persistence and/or re-emergence of nutrition deficiency disorders as well as over-nutrition leading to chronic diseases should be thoroughly assessed programmatically.

89. Scientific risk assessment is the fundamental basis for decisions dealing with both health and trade aspects of food. Total diet studies (TDS) which are designed to measure the average amount of each chemical ingested by different age/sex groups living in a country is part of WHO's Global Environment Monitoring System - Food Contamination Monitoring and Assessment Programme (GEMS/Food) and is the most effective approach for assessing chemical contaminants in diet at regional and national levels. These data are necessary to assess the risk of specific chemicals to health. They can provide general assurance that the food supply is safe from certain chemical hazards and develop priorities for possible risk management intervention. Pilot studies should be planned and conducted. Periodic total diet studies can provide some assurance about the safety of the food supply from toxic chemicals and offer guidance about the need for specific monitoring programmes if high levels are encountered (64,65).

5.3 Regular assessment, analysis, monitoring and surveillance

90. Countries in the Region should institutionalize a regular system of monitoring and surveillance of the double burden of malnutrition and the burden of food-borne diseases. Food and nutrition surveillance would contribute to early identification of "at-risk" groups and also prompt initiation of early action to promote optimal nutrition and food safety. It would also provide information to help in the preparation of action plans at different levels.

5.4 Programmes to focus on evidence-based initiatives that impact on key stages of the life cycle and integration of food safety and nutrition

91. Keeping in mind the essentiality of appropriate nutrition and safe food during the life course, countries should set up priority programmes to tackle nutrition problems, based on the information from monitoring and surveillance. The double burden of malnutrition should be tackled as one agenda.

92. The Global Strategy for Infant and Young Child Feeding remains the foundation for action to be taken by governments, international organizations, civil societies and communities. Comprehensive national infant and young child feeding guidelines should be established /strengthened by the countries. The Baby-friendly Hospital Initiative (BFHI) should be revitalized as a minimum requirement for all facilities providing maternity, neonatal and child health services. All provisions of the International Code of Marketing of Breast-milk Substitutes and relevant World Health Assembly resolutions should be implemented in their entirety as a minimum requirement, Maternity protection legislation and other measures that facilitate six months of exclusive breastfeeding should be adopted for women employed in all sectors. Training of all health care staff should include appropriate guidelines and skill building regarding infant and young child feeding practices so that they are able to provide support to mothers.

93. Nutrition promotion and micronutrient supplementation particularly iron-folates to prevent anaemia among girls in primary school and adolescent age should be seriously considered. Nutritional care, monitoring and support during pregnancy are also an essential programme which require continuum. Ensuring appropriate nutrition and safe food for women throughout the child-bearing age is also necessary.

94. Food-Based Dietary guidelines (FBDG) address (67) total diet, rather than nutrients or individual foods. FBDG are based on the principle that various dietary patterns can be consistent with good health. Each Member country should target to develop FBDG prioritizing by target populations. These should be developed in cultural contexts, recognizing the social, economic and environmental aspects of foods and eating patterns. The FBDG should be based on sound scientific principles and knowledge of local conditions. The FBDG should relate to particular public health concerns and acknowledge excess, deficiency or a combination of these issues in food intake. Since dietary patterns and public health issues vary among population groups, different guidelines may also be required for different geographic regions or socio-economic groups within the same country. Development of general FBDG need to take into account the problem of intra-family food distribution and specifically address the needs of vulnerable groups.

95. Nutrition and food safety during emergency situations and for people affected by HIV/AIDS is an essential national agenda to reduce mortality and longer-term morbidity.

96. Improving water resources and sanitation should be an integral component of nutrition and food safety programmes.

97. Community empowerment through participation should be the vital component of all programmes for achievement and sustainability.

5.5 Promotion of sustainable micronutrient deficiency control and elimination programmes

98. Micronutrient deficiencies such as Vitamin A deficiency (VAD), iodine deficiency disorders (IDD), and iron deficiency anaemia (IDA) affects large numbers of people in Asia. Deficiency control and elimination programmes — notably high-dose vitamin A capsules — six monthly for children, universal salt iodization and iron supplementation for pregnant women, preschool children, and adolescent girls need to be strengthened, sustained and made universal. Food-based approaches like fortification and dietary diversification are important long-term solutions and should be researched thoroughly and implemented. Collaboration should be fostered with the food industry, civil society and communities. Capacity-building for the range of actions for controlling deficiencies should also be undertaken (66).

99. Fortifying foods and providing vitamin and mineral supplements are cost-effective ways to address the widespread problem of micronutrient malnutrition. These methods can improve economic productivity and economic growth, enhance child and maternal survival, and improve the mental development of children (10).

5.6 Strengthening regulatory action and mechanisms

100. Enforcing regulation for Universal Salt Iodization-USI (70). This involves the iodization of all human and livestock salt, including salt used in the food industry. Adequate iodization of all salt will deliver iodine in the required quantities to the population on a continuous and self-sustaining basis. There should be a monitoring system for USI with particular reference to: Key process indicators from importation and production to the household; criteria by which to determine if programme activities are working and identify constraints; and procedures for data collection and analysis and use to improve programme performance.

101. Enforcing Code for marketing of breast-milk substitutes: Unnecessary and improper use of breast-milk substitutes is detrimental to the health of infants and children. While governments are urged to implement the International Code and relevant World Health Assembly resolutions, companies are called upon to abide by the Code. The accurate collection and reporting of cases of violations is essential to stop irresponsible marketing practices. (71).

102. Enforcing Codex Alimentarius: Regulatory action is required to ensure that food manufacturers adhere to Codex Alimentarius or national food standards and to prohibit the use of misleading nutritional and health claims made on foods. Ethical marketing and advertising practices should be promoted. Regulation of street food is also an important need. National guidelines for consumer protection and education should be developed.

5.7 Promotion of optimum nutrition and food safety

103. Key messages for optimum nutrition and food safety should be developed, built on consensus and made widely known. Wide and sustained dissemination of the key messages through IEC programmes to cover all target stakeholders — the media, doctors, health and nutrition parishioners and families — should be made. These messages should be integrated into school curriculums and the curriculums for health and nutrition workers.

104. Behaviour change communication (BCC) is a multi-level tool for promoting and sustaining risk-reducing behaviour change in individuals and communities by distributing tailored health messages in a variety of communication channels. BCC is listening, understanding, and then negotiating with individuals and communities for long-term positive health behaviours (68). Successful programme models to mainstream behaviour

change communication methodologies for improving breastfeeding, complementary feeding, and maternal nutrition have been developed (69). Using the lessons learned in other countries, countries in the Region should incorporate the BCC approach into their nutrition programmes for improving dietary practices across the life cycle.

5.9 Assure adequate funding on a sustained basis

105. International agencies, national governments, donors, and the private sector should work together to assure the adequate funding for nutrition and food safety programmes.

6. Actions ahead

106. After considering the magnitude of the burden of nutritional disorders and unsafe food, and evidence of the causal factors of the problems and after setting up the strategic priorities, Member countries and the WHO Regional Office for South-East Asia foresee the following actions to ensure appropriate and safe nutrition for women and children.

6.1 Role and responsibilities of Member States

- **Review/revise or develop as necessary, national policy and plans of action for nutrition and food safety, to focus on integrated actions emphasizing multisectoral effort and sector-wise approach, ensuring incorporation of appropriate nutrition and food safety for all segments of the population with special emphasis on women and children, based on the right to food guidelines ensuring follow-up and implementation of relevant World Health Assembly and Regional Committee resolutions, according to global and regional strategic guidelines, taking into account the current status with respect to MDGs, to ensure timely implementation of national plans of action.**

107. Countries in the Region should review/revise or develop national nutrition and food safety policy and plans of action mainstreaming nutrition into the development agenda. The national nutrition and food safety policies should be comprehensive, integrated and multisectoral with specific nutritional goals. They should address the issue of the double burden of malnutrition and food safety as the common agenda, focusing on the lifecycle approach with special emphasis on women and children. Sectors which directly or indirectly impact nutrition and food safety should be identified. Plans of action should provide a framework for implementation of the multisectoral strategy.

- **Initiate and support action-oriented research and studies to further strengthen evidence-based programme development and implementation in nutrition and food safety.**

108. The assessment of the unsolved or persisting as well as the emerging problems related to nutrition and food safety, and an analysis of the causal factors is important for effective programme action.

- **Establish/strengthen and utilize monitoring and/or surveillance systems that focus on diet, nutrition and food safety.**

109. The Food and nutrition surveillance system to assess food security, food safety and nutritional status, should be integrated with programme monitoring and management support (performance monitoring) which complement each other to plan and adjust the programmes as necessary.

- **Prioritize, revitalize and/or strengthen community-based programmes based on the primary health care approach to ensure appropriate and adequate nutrition and safe food, including safe water and sanitation for all, especially women and children throughout their life course.**

110. Member countries should identify priority actions and strengthen community-based programmes based on the primary health care approach. In identifying priority actions, countries should focus to fill the gaps in promoting appropriate and adequate nutrition and safe food including safe water and sanitation for all, especially women and children throughout the life course as it should be the priority agenda for national health, nutrition and food safety plans.

- **Strengthen and sustain prevention, control and elimination of micronutrient deficiency disorders as appropriate.**

111. Most Member countries have programmes for control of micronutrient deficiency disorders in place. Implementation however is effected by several problems. To achieve the goals and sustainability, countries should set up strong monitoring mechanisms to strengthen the quality of implementation.

- **Strengthen regulatory action and mechanisms to enforce regulations for universal salt iodization and code for marketing of breast-milk substitutes, to follow Codex standard and guidelines as appropriate and to develop national guidelines for consumer protection and education.**

112. Member countries should monitor and enforce regulations to ensure universal salt iodization, compliance with the International Code for Breast-milk Substitutes, follow Codex standard and guidelines as appropriate and develop national guidelines for consumer protection and education.

- **Implement health promotion strategy in education on appropriate nutrition and safe food for appropriate target groups and stake holders.**

113. Countries in the Region should launch health promotion programmes to educate the community and the food industry in appropriate and safe food and adequate level of nutrition. Programmes should develop, build consensus for and make widely known, the key messages for optimum nutrition and food safety, including healthy dietary practices and lifestyles. Wide and sustained dissemination of the key messages through IEC programmes is essential to cover all target stakeholders; media, doctors, health and nutrition parishioners and families. These messages should be integrated into school curricula and curricula for health and nutrition workers.

- **Develop preparedness plan on nutrition and food safety in response to natural and manmade emergency.**

114. Countries in the Region should develop a preparedness plan on nutrition and food safety in response to natural and manmade emergency. The plan should assist the poor households and communities in securing access to adequate nutrition and safe food and to improve their dietary intakes and nutritional status, while reducing food insecurity and poverty.

- **Combat emerging issues such as over-nutrition and nutrition in HIV/AIDS by determining prevalence and to undertake actions.**

115. Countries in the Region are encouraged to draw up and implement national dietary guidelines, taking account of evidence from national and international sources. Such guidelines should advise national nutrition policy, nutrition education, other public health interventions focusing on healthy diets. There should be dissemination of appropriate and effective messages about healthy diets to the public. Countries should make nutrition an integral part of their response to HIV/AIDS by identifying nutrition interventions for immediate integration into HIV/AIDS programming, They should estimate the prevalence of under-nutrition in HIV/AIDS patients.

- **Ensure adequate resources for sustaining nutrition and food safety programmes**

116. Despite the impact of all forms of malnutrition on mortality, morbidity and national economies, only 1.8% of the total resources for health-related development assistance are allocated to nutrition. Only 1.7% of the World Bank's total assistance to developing countries is for nutrition and food security. Adequate funds should be allocated for programme implementation including capacity building and monitoring. Sustainability of the nutrition and food safety programme should also receive priority in funding allocation. In order to improve nutrition and food safety throughout the life course, a strong political commitment and sufficient allocation of financial and human resources is required.

6.2 Role and responsibilities of WHO

- Provide support and technical leadership to Member countries for development of national policy and plans of action for nutrition and food safety and to ensure effective programming as the follow-up of relevant World Health Assembly and Regional Committee resolutions.
- Assist Member States in developing evidence-based programme actions, assessment, monitoring and surveillance of problems and programmes on nutrition and food safety, through information sharing, consultation and training.
- Provide assistance to Member countries in estimating the economic burden caused by malnutrition and food-borne diseases to encourage policy development on nutrition and food safety.
- Establish an information networking and sharing mechanism on nutrition and food safety in the Region through SEA Nutrition Research-Cum Action Network and INFOSAN, by working closely with international, inter-sectoral and other partners.
- Support, and obtain assistance from, global development of evidence-based standards, norms and guidelines for appropriate diet, nutrition and food safety.
- Assist and support Member countries to ensure adequate resources for sustainable nutrition and food safety programmes through programme planning, budgeting, and proposal preparation in collaboration with HQ and potential donors.
- Monitor and report on progress of implementation and status trends in the Region.

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Acronyms

BCC	Behaviour Change Communication
BFHI	Baby-friendly Hospital Initiative
DPM	Director, Programme Planning and Management
ENA	Essential Nutrition Action
FAO	Food and Agriculture Organization
FBDG	Food-based National Dietary Guidelines
FCH	Family and Community Health Department
GEMS/FCMAP	Global Environment Monitoring System/Food Contamination Monitoring and Assessment Programme
IDA	Iron Deficiency Anaemia
IDD	Iodine Deficiency Disorders
IMR	Infant Mortality Rate
INFOSAN	International Food Safety Authorities Network
MDG	Millennium Development Goals
MTSP	Medium Term Strategic Plan
NHP	Nutrition for Health and Development
RC	Regional Committee
SEARO	South East Regional Organization
SO	Strategic Objectives
SWAp	Sector Wide Approach
TDS	Total Diet Studies
U5MR	Under Five Mortality Rate
UNICEF	United Nations Children’s Fund
USI	Universal Salt Iodization
VAD	Vitamin A Deficiency
WHA	World Health Assembly
WHO	World Health Organization
WTO-SPS	World Trade Organization-Sanitary and Phyto Sanitary



**World Health
Organization**

Regional Office for South-East Asia