

The ILSI SEA Regional Forum and Workshop on recommended dietary allowances: Scientific basis and future directions

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Recommended dietary allowances (RDAs) are widely accepted standards for nutrient (energy, protein and micronutrient) intakes. However, they may differ depending on food culture, age and gender. In times of economic transition, demographic change and cultural diversification, RDAs require review. This has recently been done for the South Eastern countries of Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam and Brunei. The complementary concepts of NOAEL (no observed adverse effect level) and LOAEL (lowest observed adverse effect level) were also considered of particular moment as were discussions about micronutrient requirements in the affluent diet which predisposes to CNCD (chronic non-communicable diseases), and the value of harmonization where possible for purposes of regional education and trade.

Key words: RDAs (recommended dietary allowances), NOAEL (no observed adverse effect level), LOAEL (lowest observed adverse effect level), South East Asia, Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam, Brunei, chronic degenerative diseases, harmonization, economic transition.

Introduction

Recommended dietary allowances (RDAs) are the most common and well accepted standards for nutrient intake because they reflect the best scientific judgement on nutrient allowances for the maintenance of good health. While the basic purpose of the RDA is 'to provide standards to serve as goals for good nutrition', it has been applied to a variety of applications. It has been most commonly used in evaluating diets of population groups, and it has also been used in planning the diets of individuals and population groups. In agriculture planning, the RDA has been applied in estimating national food needs and food supply requirements and in setting food production targets, as well as in evaluating the adequacy of food supplies in meeting national nutritional needs. In nutrition programme planning, the RDA has been useful in establishing standards for food assistance programmes, developing dietary guidelines and food guides, and designing nutrition education programmes. The RDA has also been used by industry as a guide in the development of new food products, and in food fortification and nutrition labelling.

In the developing world, RDAs have traditionally been used to address the problem of dietary deficiencies. In the future, however, with the improvement in economic conditions and the change in lifestyles in many developing countries, RDAs will need to address chronic disease prevention. Because many countries in Southeast Asia are in the process of reviewing and revising existing national RDAs to meet nutrition goals, a regional forum and workshop was organized to contribute towards the understanding of current issues and processes in establishing appropriate dietary requirements for energy and nutrients. Recommendations for harmonization of RDAs within the region will help bridge efforts between government and industry to facilitate con-

sumer education, public health improvement programmes, nutrition labelling, and trade.

This paper summarizes the proceedings of the regional forum and workshop held on March 10–11, 1997, in Singapore, entitled 'Recommended Dietary Allowances: Scientific Basis and Future Directions'. Sponsored and organized by ILSI Southeast Asia with the collaboration of the Food and Nutrition Department of the Ministry of Health, Singapore, the forum attracted 50 experts and participants from Southeast Asia and other parts of the world. The principal objective of the forum/workshop was to review the scientific basis, methodology and the process of developing appropriate RDAs. A review of the current status of RDAs in Southeast Asia was made to identify commonalities and differences as a basis for discussing issues and opportunities for harmonization within the region based on internationally accepted scientific data. Based on these reviews, panel discussions and open forums, recommendations were sought on how to approach harmonization within the region.

The participants were welcomed by Dr Howard Delaney, President of ILSI Southeast Asia, and the forum was formally opened by Dr Lam Sian Lian, Deputy Director of Medical Services (Primary Health), Ministry of Health, Singapore.

Scientific basis of recommended daily allowances

International perspectives

The first session commenced with Dr Paul Lachance of Rutgers, USA, who summarized the basis, need and application of RDAs. Dr Lachance traced the development of RDAs

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from the recognized clinical prevalence of deficiency diseases and in the light of the then recent discovery and commercial availability of key nutrients especially vitamins. The basis for the RDAs was derived from a variety of human and animal data on nutrient requirements, or from customary dietary intake of healthy populations. Classically, two standard deviations above the estimated average requirement (EAR) is taken as the RDA (or recommended daily intake (RDI)), which is intended to ensure that the majority of a population avoids nutrient deficiency. Since the development of RDAs, there has been little change in the assigned values.

Recently, however, the concepts of recommending RDAs to include the prevention of chronic disease and to providing 'upper safe limits' have been advanced.^{1,2} The concept of upper safe levels is currently being explored by the US RDA committee. An approach to this area is illustrated in Table 1. Determination of the 'no observed adverse effect level' (NOAEL) and the 'lowest observed adverse effect level' (LOAEL) can assist in the identification of intake levels with adequate evidence of safety.

The goal for the future must be to provide estimates of dietary allowances that afford both freedom from clinical deficiency and prevention of chronic degenerative disease. One of the key areas for future research is the estimation of nutrient requirements for the elderly. The link between folic acid and neural tube defect, the protective role of antioxidants and role of micronutrients, in combination with calcium, in enhancing mineral density are examples of recent advances in knowledge which will drive the re-evaluation of RDA values.

Process and development

Dr Allison A. Yates, Director, Food and Nutrition Board, National Academy of Sciences, USA, discussed the current issues on RDAs in her paper 'Dietary Reference Intakes (RDI): the RDAs of Tomorrow'. After reviewing the origin and development of the US RDAs, Dr Yates summarized the areas where the RDA has been applied. They are currently used as a guide for procuring food supplies for groups of healthy people and in supplemental feeding programmes for at risk groups; in planning meals for groups; as reference points for evaluating the dietary intake of population subgroups; as the scientific basis for food and nutrition education programmes (such as the Food Pyramid Guide in Sweden, Australia and the US), and as reference points for nutrition labelling of food and dietary supplements.

Dr Yates then presented key questions with regard to the review of RDAs in the United States:³

- (i) What factors limit the use of the present RDAs?
- (ii) What new information exists that argues for a change from present values?
- (iii) Should concepts of disease prevention be included in the RDAs?
- (iv) How should recommended levels be expressed?
- (v) Should the RDAs deal with nutrient-nutrient relationships?
- (vi) Are there new food components that should be considered?

As the result of these review processes, an expanded framework for the developing dietary recommendations was developed which incorporated the concept of risk reduction for

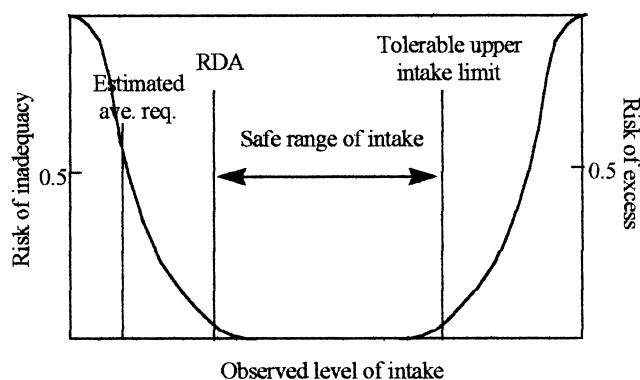


Fig. 1 Model for dietary reference intakes

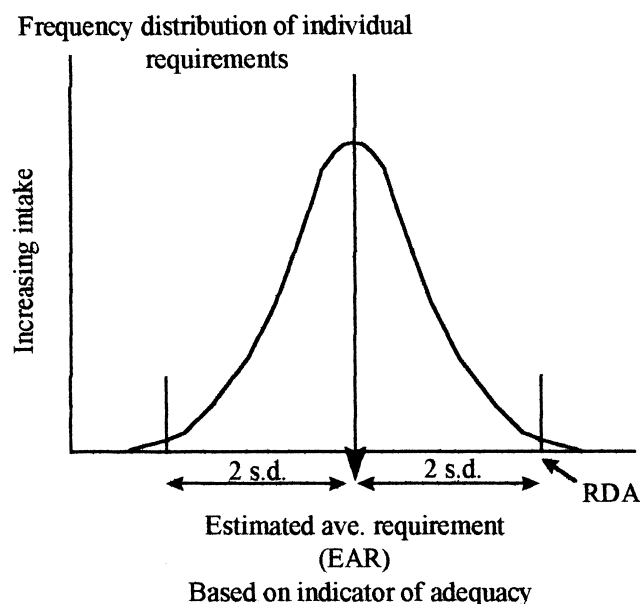


Fig. 2 Model for dietary reference values

chronic diseases where sufficient data for efficacy and safety existed. Consideration will be given to a revised format for future US RDA reports. Furthermore, multiple reference points (instead of one number for each nutrient) will be considered. These reference points may include EAR, RDA and upper limit of intake (UL). Figure 1 shows a model for dietary reference intakes, and Fig. 2 shows a model for dietary reference values. Under the expanded framework and with representation from Canadian scientists, the first set of dietary reference intakes should be completed by late spring 1997.

Current status of recommended daily allowances in Southeast Asia

A regional overview

The second session of the forum/workshop was a discussion of the current status of RDAs in Southeast Asia. Dr Tee E-Siong, Head, Nutrition Division, Institute of Medical Research in Kuala Lumpur, Malaysia, gave an overview of the current RDAs in use in six Southeast Asian countries; namely, Indonesia,⁴ Malaysia,⁵ Philippines,⁶ Singapore,⁷ Thailand,⁸ and Vietnam.⁹ Brunei Darussalam uses a combination of several RDAs, especially the Malaysian and UK RDAs.

Table 1 Vitamin and mineral safety*

Nutrient	Unit	No observed adverse effect level**	Lowest observed adverse effect level***
Vitamin A	IU	10 000 (3000 µg RE)	21 300 (6500 µg RE)
Beta-carotene	mg	25	None established
Vitamin D	IU	800 (20 µg)	2000 (50 µg)
Vitamin E	IU	1200 (800 Mg α-TE)	None established
Vitamin K (Phylloquinone)	mg	30	None established
Vitamin C	mg	More than 1000	None established
Thiamine	mg	50	None established
Riboflavin	mg	200	None established
Nicotinic Acid	mg	500 (250SR)	1000 (500SR)
Nicotinamide	mg	1500	3000
Pyridoxine	mg	200	500
Folic Acid	µg	1000	None established
Vitamin B ₁₂	µg	3000	None established
Biotin	µg	2500	None established
Pantothenic Acid	mg	1000	None established
Calcium	mg	1500	More than 2500
Phosphorus	mg	1500	More than 2500
Magnesium	mg	700	None established
Copper	mg	9	None established
Chromium (III)	µg	1000	None established
Iodine	µg	1000	None established
Iron	mg	65	100
Manganese	mg	10	None established
Molybdenum	µg	350	None established
Selenium	µg	200	910
Zinc	mg	30	60

* The no observed adverse effect level (NOAEL) identifies intake levels with adequate evidence of safety, and the LOAEL identifies intakes that have been reported to cause adverse effects.

** NOAEL, a level that should be considered safe and requires no application of a safety factor to determine safe intake.

*** Lowest observed adverse effect level (LOAEL), a level that should not be considered safe for everyone and may require application of a safety factor to calculate a safe intake.

Source: Hathcock, JN (1986) *Council for Responsible Nutrition*, Washington DC.

Dr Tee reported that the various RDAs in the region differ; however, the core group of nutrients are similar. The most commonly used RDAs are energy, protein, calcium, iron, thiamine, riboflavin, niacin, vitamin A, folate, vitamin B₁₂, and ascorbic acid. Thailand also provides recommendations for several other micronutrients.

The various country RDAs also specify different age groupings, especially in adult categories. Indonesia, Malaysia, Philippines and Thailand consider adults to be aged 20 years and over, while Singapore and Vietnam use 18 years. In Indonesia separate RDAs for females over 50 years are given, while the age groupings used to designate distinct RDAs for the elderly Indonesian male, and for both genders in Singapore, Thailand and Vietnam is over 60 years of age. In Malaysia and the Philippines, a cut-off of more than 70 years is used.

In all countries except Malaysia and the Philippines, the median weight and height for each age group in the RDAs are given. Comparison of the RDAs is further complicated due to countries using different reference body weights.

The RDA values in various nutrients vary between countries. In some cases, a country lists an exceptionally high or low RDA for a specific sub-group, for country-specific reasons. Energy requirements for various age groups are similar throughout the region, especially when expressed in terms of kilocalorie per kg body weight. However, slightly higher levels are given in Vietnam while lower energy requirement levels are found in Malaysia and the Philippines.

All countries list protein requirements after adjustment for protein quality. Most Southeast Asian countries use a protein quality (or NPU) of 70. When based on body weight, the recommended requirements for protein are similar among the countries studied.

Recommendations for calcium are generally higher in Thailand than in other countries studied. In the case of iron, recommendations for Indonesia, Malaysia, Philippines and Vietnam are higher than those for the other countries. Considerable differences in recommendations for vitamin A, especially during pregnancy and lactation, were observed. For all the other vitamins, the regional RDAs are not significantly different.

Although documentation is incomplete in most cases, it appears that RDAs for the majority of countries have not been established based on sufficient local experimental data.

According to the review, there is a great deal of scope for collaboration among countries in the region in the development of more well-defined RDAs to meet the various population needs. With rapidly changing nutrition conditions in the region, countries also need to regularly review the suitability of their RDAs.

Country updates

Participants from Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam summarized recent developments and future plans with regards to their country's RDA.

Dr Muhilal, Director of the Nutrition Research and Development Centre, in Bogor, Indonesia, stated that the last review of Indonesian RDA was conducted in 1993, with the next being done in early 1998. During the 1993 review, possible modifications based on newly available data on requirements of certain nutrients were discussed. For example, the RDAs for energy and protein were based on studies conducted among the Indonesian population, but those for vitamins and minerals were mostly based on international publications with corrections for body size and for lower nutrient absorption due to cereal-based diets.

Dr Mohd Ismail Noor, Deputy Dean of the Faculty of Allied Health Sciences, University Kebangsaan, Malaysia, reported that following the establishment of the National Coordinating Committee on Food and Nutrition in January 1995, three Technical Working Groups (TWG) were formed in January 1996. The TWG on Nutritional Guidelines was given the mandate to revise the 20-year-old recommendations. The Working Group have agreed to the formation of four sub-groups to look into requirements of: (i) energy and protein, (ii) water-soluble vitamins, (iii) fat-soluble vitamins and (iv) minerals and trace elements. It is expected that the revised recommendations will use energy expenditure values from Malaysian subjects compiled over recent years, as well as published recommendations from countries in this region

and worldwide, which are considered relevant to the Malaysian population.

Ms Isabel Z. Cabrera, Supervising Science Research Specialist of the Food and Nutrition Research Institute, Metro Manila, traced the development of the Philippine RDA in 1939 and its subsequent revisions. Since the last revision in 1989, new growth reference values for children have been developed. The findings of the national nutrition surveys (1987 and 1993 and the survey planned for 1998) will provide new information on dietary intakes of the population. Recent local data from energy requirement studies of pregnant and lactating women, together with studies on protein and riboflavin requirements of children and the elderly, will serve as input in the next revision expected to be completed by the year 2000.

Dr Mabel Yap, Deputy Director, Food and Nutrition Department, Singapore, stated that the first set of unofficial RDA for Singapore was formulated in the early 1970s based entirely on WHO recommendations adjusted for the body structure of the population. This was revised in the early 1980s, but it was only in 1989 when the first official set of RDAs was adopted by the National Advisory Committee on Food and Nutrition. Future review and revision of the RDA will consider local data on food consumption trends, nutrient requirements and anthropometric data, in addition to relevant data from other countries. In future revisions, consideration will be given to addressing the emerging problem of nutrition-related chronic degenerative diseases, multiple level RDAs, expression of RDAs in terms of nutrient density, and revised ways of presenting RDA.

Dr Prapaisri Sirichakwal, Head, Nutrition Division, Institute of Nutrition, Mahidol University, Bangkok, traced the development of the first set of Thai RDAs prepared by the Nutrition Division, Department of Health, in 1968. Since then, many research studies on nutrient requirements of the Thai population have been carried out. In 1987, an Ad Hoc Committee on RDAs drafted the current RDAs based on four main sources of data: the US RDAs of 1980, the FAO/WHO/UNU recommendations, the 1986 Thailand national nutrition survey data, and existing research data on the Thai population. In 1995, the RDI for adults and for children over 6 years of age were established based on the Thai RDAs and other international recommended values.

Dr Do Thi Kim Lien, Head, Department of Basic Nutrition, National Institute of Nutrition in Hanoi, stated that until recently, Vietnam only had provisional RDAs. In 1995, an expert group to develop the Vietnamese RDAs was formed. The group based their work on results of research studies conducted in Vietnam as well as international recommendations of FAO/WHO. The draft RDA was submitted to and adopted by an inter-ministerial scientific council and was approved by the Minister of Public Health as the official document for health care and nutrition programmes in the country.

Overview of key nutrients

Energy and macronutrients

The third session of the forum/workshop opened with a paper of Dr Allison Yates on 'Overview of Key Nutrients — Energy and Macronutrient Aspects'. Dietary allowances for macronutrients have been based on estimates of requirements and their variabilities, and then modified based on bioavail-

ability and quality of the diet. In many instances, however, little information has been available on actual human requirements, so other data, such as typical intakes of healthy individuals, have been used to develop dietary allowances. Dr Allison discussed the development process for RDAs and identified ways in which new information may result in the re-evaluation of recommendations. The need to develop RDAs for components of dietary fat, such as $\omega 3$ and $\omega 6$ fatty acids, classes of carbohydrates, etc., was discussed and new functional indicators that may be useful in defining requirements of calcium, phosphorus, magnesium and electrolytes were reviewed.

Micronutrients

Dr Paul Lachance, in an overview of the recommendations for micronutrients, emphasized the need to consider the interdependent role of micro- and macronutrients in metabolism and in the pathogenesis of chronic degenerative diseases. He presented estimates of safe and usual intake for some vitamins and minerals; namely, vitamin A, carotene, vitamin E, vitamin K, ascorbic acid, thiamine, riboflavin, folate, vitamin B₁₂, biotin, pantothenic acid, calcium and selenium. After reviewing existing RDAs in the region, Dr Lachance concluded that uniformity in the nutrient candidates for RDAs should be possible, and that harmonization of values may be useful for the purposes of common labelling, fortification practices and commercial trade.

Future Directions

Regulatory perspectives

Dr Rodolfo Florentino, President of the Philippine Association of Nutrition and former director of the Food and Nutrition Research Institute in the Philippines, expressed the view that RDAs are fundamental instruments of national food and nutrition policy. Firstly, RDAs may be considered as an expression of the country's nutrition, health policies and goals as occurs when RDAs of energy and nutrients are set on the goals of a country's health policy, whether these goals are simply to prevent nutritional deficiencies or to reduce the risk of nutrient-related chronic diseases. Secondly, RDAs may be considered as an expression of the country's food supply goals and policies (as happens, for example, when RDAs are used in food and agriculture planning). Thirdly, RDAs serve as the basis for the formulation of the country's dietary guidelines and food guides, since these are essentially translations of the RDAs into practical recommendations on food intake. Finally, RDAs serve as a useful tool for the food industry in the development of new products and as the basis for product promotion and nutrition labelling. Dr Florentino pointed out the importance of considering this perspective in future revisions of RDAs by the countries in the region, because of the potential implications for RDAs in steering the nutritional agenda of the 21st century.

Industry perspectives

Dr Marilyn Schorin, Group Manager, Nutrition & Regulatory Affairs, PepsiCo International, discussed the various ways in which the food industry has used RDAs, including the formulation of new products to meet the health considerations of specific groups of consumers and for marketing and advertising purposes. The food industry attempts to merge the dis-

parate consumer demand for nutrients for chronic disease reduction, deficiency prevention, and for 'an extra bit of protection'. For this reason, it would be beneficial if RDAs were expressed as a range, encompassing both minimal and upper limits of nutrient intake, since the 'optimal' intake varies with individual needs. Finally, Dr Schorin emphasized the need for partnership among industry, government and academic nutrition scientists in formulating dietary allowances and recommendations.

Nutrition practitioners' perspectives

Mrs Anna Jacob, Director, Food and Nutrition Specialists Pte Ltd, Singapore, discussed the nutrition practitioners' perspectives of the RDA. The key areas where nutrition practitioners use RDAs are in research, setting of policy in the development of dietary guidelines and food guides, public education, diet assessment, diet counselling, diet planning, food product development, nutritional marketing and nutrition labelling. As such, nutrition practitioners need to keep abreast of current knowledge, revisions of the RDAs and their appropriate uses. Knowledge, training and skill are essential for the effective use of RDAs by nutrition practitioners especially in distinguishing between facts and unsubstantiated claims.

Harmonization of RDAs

Dr Biplab K. Nandi, Regional Food and Nutrition Officer, FAO Regional Office for Asia and the Pacific, called for harmonization of RDAs in the region where possible and assured FAO's commitment to assist in the process. Recommendations for harmonization of RDAs at the regional level would need to take into consideration factors such as body weight of individuals, energy allowances, protein allowances, fat requirement, and requirement of minerals and vitamins on an individual country basis. He noted that it should be possible to formulate a guideline to ensure a certain degree of commonality among the countries in the region and also address issues and opportunities aimed at improving the nutritional well-being of the various populations.

Identifying research needs and setting future directions: Summary of panel discussion

The issue of minimum requirements vs optimum health and whether there should be an average requirement for preventing frank deficiency and an average requirement for optimum health was discussed by Dr Yates. She proposed two numbers: one being the average requirement to prevent frank deficiency and the other being an average requirement for decreasing risk of chronic diseases. There is, however, the difficult question of defining optimum health. The issue is perhaps a policy decision in each country.

Dr Muhilal suggested performing a meta-analysis on nutrient requirement studies, which have been done in Asian countries. Dr Yates agreed that this may be possible, and could be started by a collaborative group identifying the criteria to use when selecting studies to be incorporated in the meta-analysis.

Dr Noor raised the need to define 'optimum health' in formulating the RDA. Dr Yates responded that the term 'optimum health' was not used in the USA. Each expert panel has to define the criteria for adequacy for each nutrient based upon available scientific data.

Dr Florentino suggested establishing a table of minimum requirements in addition to RDAs which could be used in defining food thresholds and poverty levels. Dr Yates cautioned the need to define the exact meaning of such figures; are they levels to prevent deficiency among the whole population (in which case they will probably be close to RDAs), or only among identified segments of the population?

Dr M. Yap suggested setting optimal levels to prevent chronic degenerative diseases. Dr Lachance noted that the term 'optimal' is not used in the UK. For certain nutrients, such as vitamin C, it may be possible to define the tissue saturation point, but for others, it could become complicated. Other factors need to be considered such as nutrient losses in food preparation. Dr Yates warned that tissue saturation may not be a good marker or indicator for the prevention of chronic disease. In any event, Dr Tee pointed out the importance of setting levels not only in preventing deficiencies but also in preventing chronic diseases which are becoming more prominent in this region.

On the issue of RDAs for specific population groups, (ethnic groups, smokers, etc.), there was consensus that there was no need for separate RDAs for these groups (apart from the different age and physiologic groups), although it is important to take cognizance of their differences. Dr Muhilal suggested that such differences be included in the dietary guidelines rather than having separate RDAs for such groups.

Dr Lachance gave a brief review of the role of non-nutrients, particularly anti-oxidants, in the prevention of chronic disease. He warned, however, that marketing is so far ahead of science in this area that there is an acute need for science to provide proper balance. Many international studies are underway in this area and Ms Yeong, Executive Director, ILSI SEA, mentioned the interest of ILSI in functional foods. ILSI SEA organized the First International East-West Conference on Functional Foods in 1997. Dr Yates mentioned that the USA has organized a panel to look at other food components in formulating the future US RDAs. In this regard, Dr Tee mentioned the need to emphasize natural foods rather than supplements.

Dr Nandi discussed the importance of monitoring, evaluating and reviewing the harmonization process. A sound scientific database system is required for the development of RDAs and dietary guidelines. This includes data on food consumption, food composition, food quality and safety, non-nutrients, and nutritional status including data on over- and undernutrition. Dr Saldanha, Kellogg Company, posed a question regarding the funding of such databases, the planning for which should be included in the country's Plan of Action for Nutrition. Dr Nandi mentioned that the FAO tries to provide modest financial support depending on the country's need, but it can also provide indirect assistance in areas such as the organization of workshops, for example. Dr Schorin and Dr Florentino proposed that the initial focus for harmonization in SE Asian RDAs should be on key nutrients, rather than looking at the entire array of nutrients and non-nutrients.

Turning to the application of RDAs in meeting nutritional goals, Dr Mabel Yap emphasized the need for each country, and for the region, to decide on specific nutritional goals (e.g. improving nutritional status, reducing undernutrition and specific nutritional deficiencies, or reducing the risk to diet-related health problems). In order to achieve these goals,

RDAs need to be applied in four main areas: planning of policies, food supply, and nutrition programmes; evaluating diets of populations; formulating diets and food products; and educating the public on proper nutrition including the use of nutrition labelling.

Related to issue of nutrition labelling and its implication for trade, Ms Howden, Nutrimark (Asia), enquired about the availability of reference daily values in Codex, which could perhaps address the need for common RDAs across the region for trade purposes. Dr Nandi replied that while the question is being considered by Codex, the data has to be generated at the country of origin. At the level of Codex, it is difficult to generalize as it varies from commodity to commodity.

Dr Saldanha discussed the issue of harmonization, in particular for purposes of nutrition labelling in relation to international trade and made the plea for one common set of numbers to be used by the countries in the region. The 1993 Codex Nutrient Reference Values (NRV) may be appropriate. From the consumer's point of view, consistency in nutrition labelling would be advantageous. From the industry point of view, the benefits would be enormous. Dr Muhilal supported the idea of harmonization considering the upcoming free market for ASEAN by the year 2003. The difficulty of having an NRV for nutrition labelling and an RDA for policy and education was raised due to the confusion this will entail for consumers. This will require much public information and education. The question of using actual amounts instead of daily value or percentage of daily value will have to be resolved.

To conclude the panel discussion, Ms Yeong proposed a recommendation from the workshop to consider the development of a framework with which the countries in the region could start the task of harmonization. Dr Tee stated that while countries may not agree on the elements of the framework at this time, they may be able to agree to meet again to discuss the mechanics of harmonization. It was agreed that such discussions should include Singapore and Australia even though they are outside the FAO-RAPA area. There was a suggestion to start the process with countries in the region that have commonalities in terms of culture, body size, etc. Ms Yeong expressed the willingness of ILSI to help in the follow-up activities. It was further agreed to ask FAO to provide the platform for discussion at the 6th ASEAN Food Conference which was held in Singapore in November 1997. Dr Florentino and Dr Tee were suggested as the coordinators.

Closing and synthesis

The synthesis and recommendations arising from the forum and workshop were given by Dr Florentino. Consensus was reached on the need for regional collaboration and harmonization of RDAs in the region. Some areas for possible harmonization in the development of revised RDAs were identified. These included goals and objectives, application and uses, framework and form such as age groupings, reference body weight, core nutrients to be included, and manner of quantitative expression of the recommendations. Agreement on the research agenda to be pursued should be sought and collaborative research conducted on such areas as BMR of population groups, physical activity levels, bioavailability of nutrients from common foods, definition of minimum requirements, role on non-nutrients and their synergy with nutrients, and the use of common biomarkers in research. The generation of scientific data for monitoring, evaluating and reviewing RDAs, such as food availability, consumption, composition and food quality, should be among the priorities. It was agreed that in the near future, a workshop should be convened to agree on common approaches, concepts and terminologies in the development of revised RDAs. It was proposed that FAO, through its regional office, with the collaboration of ILSI SEA, organize a facilitation workshop among the countries in the region within the next 6–12 months for this purpose.

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