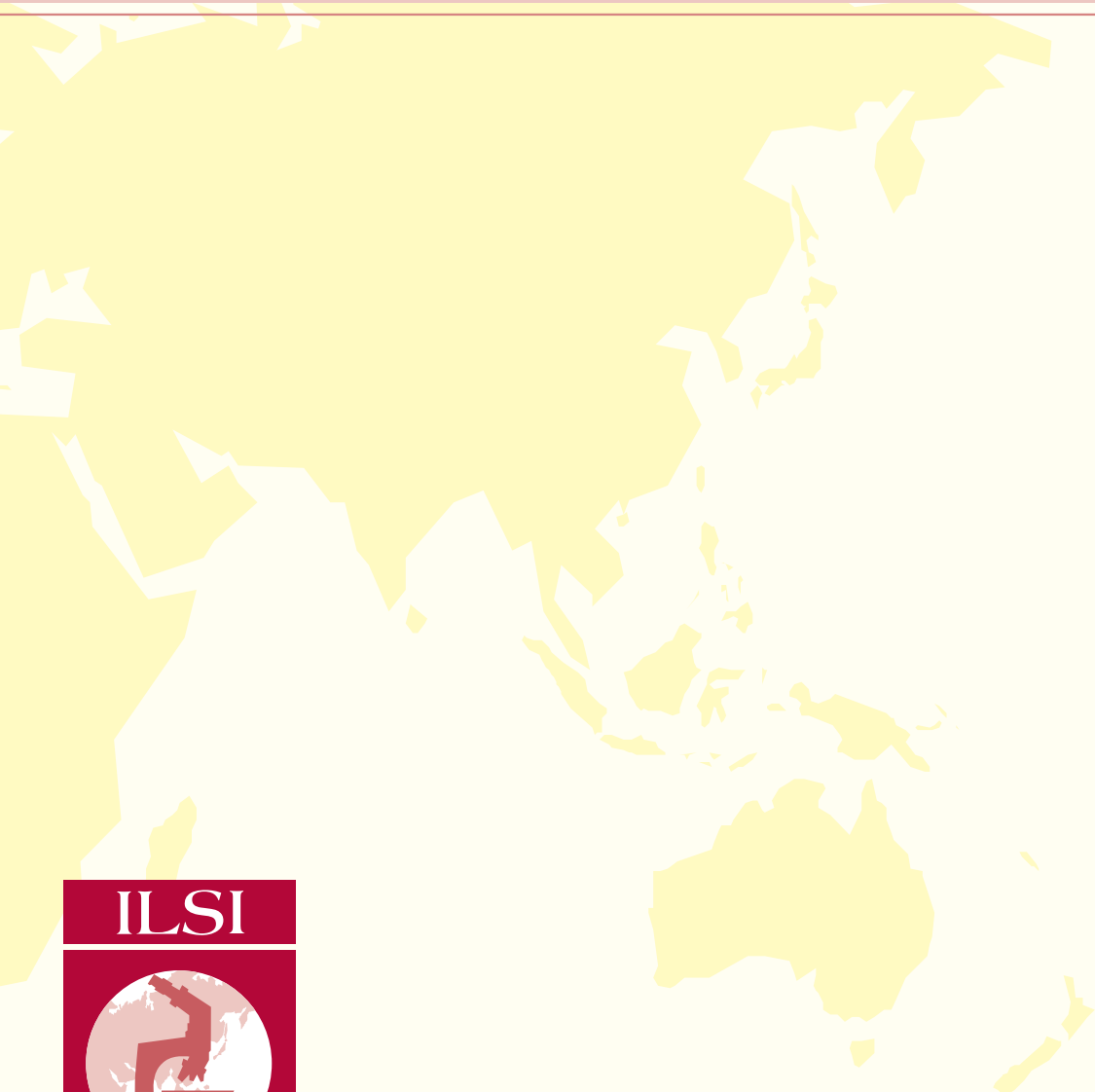


RECOMMENDED DIETARY ALLOWANCES:

HARMONIZATION IN SOUTHEAST ASIA



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Southeast Asia Region

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This publication is made possible with the support of the ILSI SEA Region Micronutrients and Food Fortification Task Force and its members. The Task Force has worked closely with scientific institutions and regulatory agencies in the region to review current national recommended dietary allowances (RDAs) and to develop a set of harmonized RDAs for Southeast Asia. The Task Force will continue to develop and promote appropriate technologies, standards and regulatory guidelines for the fortification of selected staples, complementary foods and condiments to reduce micronutrient deficiencies in the region.

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RECOMMENDED DIETARY ALLOWANCES: HARMONIZATION IN SOUTHEAST ASIA

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International Life Sciences Institute (ILSI)
Southeast Asia Region

Monograph Series

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FOREWORD

Recommended Dietary Allowances (RDAs) are the most common and well-accepted standards among nutrition experts for nutrient intake. RDAs reflect current scientific judgment on nutrient allowances for growth of children and maintenance of good health for all. New scientific knowledge on nutrient needs to prevent chronic diseases and promote optimal health, and recent developments in national food labeling regulations have spurred the review of current RDAs in the Southeast Asian region.

Recognizing the need to harmonize RDAs in Southeast Asia, the International Life Sciences Institute (ILSI) Southeast Asia Region (ILSI SEA Region) has, with support from the Food and Agriculture Organization (FAO) of the United Nations, organized a total of 6 workshops and 1 working group meeting between 1997 and 2003. The meetings aimed to help countries and government agencies to update national RDAs based on the latest science and the utilization of national data. The objective was to facilitate consumer education, public health improvement and trade. The participants included country representatives from Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam, as well as other international and regional nutrition experts and regulators. The meetings provided a platform for the development of a harmonized set of RDAs which can be used as references by the Southeast Asian countries.

This Monograph documents the process of developing and establishing the harmonized RDAs. It also comprises state-of-the-art papers on 14 selected core nutrients prepared by several country representatives. This Monograph will serve as a working document and reference for countries in the region that are formulating or revising their national RDAs.

Many have contributed to the successful completion of RDA harmonization, as well as the publication of this Monograph. Firstly, we would like to express our sincere appreciation to all the Authors of the state-of-art papers. The Editors of this Monograph, Dr E-Siong Tee and Dr Rodolfo F. Florentino, worked tirelessly to fine tune and perfect all the papers. ILSI SEA Region is indebted to the Editors for their guidance and excellent work. We also thank the Chairperson of the Southeast Asia Recommended Dietary Allowances Harmonization Steering Committee (SEA-RDA Committee), Dr Corazon VC Barba and the Head of the Secretariat, Ms Ma. Isabel Z. Cabrera, both from the Food and Nutrition Research Institute of the Philippines, for their leadership in facilitating the discussion and preparation of the state-of-art papers.

Several international and regional nutrition experts have assisted and offered their expertise to the SEA-RDA Committee. Special thanks are due to Dr Biplab Nandi of FAO, Dr Paul Lachance of Rutgers University, USA, Dr Allison Yates of the University of Southern Mississippi, USA, Dr Geoffrey Marks of the University of Queensland, Australia, Dr Normasa Hosaya of University of Tokyo, Japan, Dr Denise Bienz and Dr B.H. Lim of Roche Vitamin Ltd and the late Dr Vernon Young of the Massachusetts Institute of Technology, USA. ILSI SEA Region also gratefully acknowledges the valuable contributions made by all workshop participants. Last but not least, special thanks to Ms Pauline Chan, Senior Program Manager and Task Force Coordinator of ILSI SEA Region, who has worked closely with all parties concerned to bring this Monograph to fruition.

We are confident that this Monograph will provide useful and up-to-date information on nutrient intakes to the regional and global scientific community, health professionals and industry.

Yeong Boon Yee

Executive Director, ILSI SEA Region

April 2005

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SUMMARY TABLE OF RECOMMENDED RDAs FOR SOUTHEAST ASIA

1. INTRODUCTION

1.1 Background

In March 1997, the International Life Sciences Institute Southeast Asia Region (ILSI SEA Region) held the first Regional Forum and Workshop on Recommended Dietary Allowances (RDAs) in Singapore (1st RDA Workshop) to exchange information on the status of RDAs in Southeast Asia. Attended by food and nutrition scientists and other participants from countries in the region such as Indonesia, Malaysia, Philippines, Thailand and Vietnam, discussions focused on the scientific basis for RDAs, identifying research needs and setting future directions. It was also recognized that there was a need for regional collaboration and harmonization of RDAs. Such collaboration and harmonization would provide a common framework that can help countries and governments in formulating their own standards. A consensus was then reached for a follow-up workshop to be organized, and participants would work towards achieving agreement on areas such as common approaches in the development of RDA; concepts and terminologies; application and uses; framework (age groupings, reference body weights, core nutrients etc) and research agenda applicable throughout the region.

During the 2nd RDA Workshop held in July 1998 in Kuala Lumpur, Malaysia, a framework for RDA harmonization was agreed upon. The initial agreements and recommendations that were reached included the purpose and definition of harmonization as *“the consensus on certain elements of the RDA for the purpose of obtaining a better understanding not only of the RDAs in various countries but also of their application and use as practiced there at”*. The sharing of resources (manpower and materials) through training visits and analysis of food and biological samples was identified as one strategy to facilitate the setting up of a regional RDA database. To this end, a Southeast Asia Recommended Dietary Allowances Harmonization Steering Committee (the SEA-RDA Committee) was formed, consisting of representatives from local/national RDA Committees of the participating Southeast Asian countries, namely, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. It was agreed that an inventory survey of the countries' expertise and resources for RDA formulation would be conducted to serve as a basis for identifying Country Focal Points and for drawing up a Plan of Action for regional collaboration towards RDA harmonization. Results of the survey showed that there were similarities in certain areas that could forge immediate harmonization or even alignment. There were, however, also differences that may be resolved in due time with proper research and development.

In the course of a series of 6 RDA Workshops and 1 working group meeting, held between 1997 and 2003, organized by ILSI SEA Region and supported by the Food and Agriculture Organization of the United Nations (FAO), consensus has been reached in several key areas, including:

1. Definition of RDAs for the Southeast Asia region
2. Minimum list of core nutrients to be included
3. Population groupings
4. Reference body weights

It was further agreed that state-of-the-art papers will be prepared to serve as working documents for formulating the RDAs for the Southeast Asian population.

1.2 Development of Recommended RDAs for Southeast Asia

The formulation of the recommended RDAs for Southeast Asia (SEA-RDAs) was undertaken by the SEA-RDA Committee, comprised of country representatives who are either members of their national RDA committees or are involved in the review and revision of their respective country's RDAs as data generators or users. Initial agreements were reached on the purpose of harmonization and the goal of the harmonized RDAs. "RDA" was taken to mean the levels of intake of energy and nutrients which are considered adequate for the maintenance of health and well-being for nearly all healthy persons in the population.

Most participating countries felt that they were not ready for multiple reference values such as adequate intake (AI) and tolerable upper intake level (UL). There is insufficient data in the region on health outcomes arising from intakes greater than the RDAs. The move to incorporate the concept of risk reduction of chronic degenerative diseases, such as cardiovascular disease, would mean doing an extensive review of scientific literature in and outside the region, and may also require primary research on health outcomes at various levels of intakes among the Asian population. The SEA-RDA Committee therefore agreed to expand its goals to include reducing the risk of chronic diseases and the attainment of optimum health in the future. In the meantime, it was agreed that a single level be used and that the term "RDA" be retained. However, it was also agreed that national committees reviewing their RDAs could start working towards establishing AIs and ULs for their respective countries.

The SEA-RDA Committee agreed on the framework of the harmonized SEA-RDAs, as well as their applications and uses. It was also agreed that the population groupings would be consistent with, where possible, the groupings used in the 2002 FAO/WHO Expert Consultation Report on Recommended Nutrient Intakes (RNIs) for Vitamins and Minerals (2002 FAO/WHO Report). The SEA-RDA Committee also set sub-categories for adolescent and adult groupings in consideration of energy and protein requirements. The SEA-RDA Committee agreed on the list of nutrients, known as "core nutrients", to be included in the SEA-RDAs, and which could serve as the SEA-RDA Committee's immediate target. The nutrients to be included are those considered to be of nutritional importance to the populations in the region. Other nutrients may be added to national RDA tables.

Reference body weights for each population group were agreed upon. However, each country may also use, if available, national data derived from national surveys to incorporate trends in body weight within the country. Thus, for adults, the use of local national averages was recommended, but for children, "ideal" body weights using reliable and more recent local data was agreed upon. In the absence of national data on reference body weights, the US National Center for Health Statistics (NCHS) references may be used.

After agreements were reached on the framework of the harmonized SEA-RDAs, the SEA-RDA Committee members were each assigned to prepare state-of-the-art papers on specific core nutrients. Each of the papers outlined the characteristics and functions of the specific core nutrient; absorption, utilization and excretion; effects of deficiency and excess; food sources and usual intakes; factors affecting requirements; estimating requirements and recommended intakes; current RDAs for the nutrient in Southeast Asia; the SEA-RDA Committee's proposed SEA-RDAs; and research recommendations. The preparation of the papers was viewed by the SEA-RDA Committee Members as an excellent collaborative activity to jointly review the current concepts of RDA development; to share knowledge on the use of newer concepts; to initiate the practice of sharing databases, building upon what was available at the national/regional level and to discuss possible future cooperative efforts.

In view of the limited studies done in most Southeast Asian countries, the SEA-RDA Committee members drew heavily on the following sources in preparing their papers: the report of the 2002 FAO/WHO Expert Consultation on RNIs for Vitamins and Minerals; the 1985 FAO/WHO/UNU report on Energy and Protein Requirements; the 2004 FAO/WHO/UNU report on Energy Requirements; and the reports of the US Institute of Medicine (IOM), Food and Nutrition Board (IOM, 1997, 1998, 2000, 2001 and 2002). Databases used by these organizations together with other relevant studies; meta-analyses published in refereed and non-refereed journals; and unpublished data, particularly on nutrient requirements and bioavailability, nutritional status assessment and supplementation studies in the region were also examined. Findings of studies done in the Southeast Asian countries or in the region, which demonstrated commonalities in many aspects, were given precedence, followed by the recommendations of FAO/WHO and other foreign organizations.

The papers were then circulated to the other members of the SEA-RDA Committee and then presented and discussed during the SEA-RDA Committee's follow-up meetings, where consensus was reached on the SEA-RDAs for the various nutrients.

The finalized papers and the SEA-RDAs recommended by the SEA-RDA Committee are published as this Monograph. This Monograph begins with an introduction on the need for harmonization of RDAs within the Southeast Asian region and the efforts of the SEA-RDA Committee to achieve this objective. Next, the concepts and general principles employed by the SEA-RDA Committee in arriving at the SEA-RDAs are set out. This is followed by chapters on each of the specific core nutrients included in the framework of the SEA-RDAs. This Monograph ends with a conclusion on the recommendations of the SEA-RDA Committee.

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