

About the Asian Development Bank

The Asian Development Bank (ADB)'s work is aimed at improving the welfare of the people of the Asia and Pacific region, particularly for the 1.9 billion who live on less than \$2 a day. Despite the success stories, Asia and the Pacific remains home to two thirds of the world's poor.

ADB is a multilateral development finance institution owned by 64 members, 46 from the region and 18 from other parts of the globe. ADB's vision is a region free of poverty. Its mission is to help its developing member countries reduce poverty and improve their quality of life.

ADB's main instruments in providing help to its developing member countries are policy dialogues, loans, technical assistance, grants, guarantees, and equity investments. ADB's annual lending volume is typically about \$6 billion, with technical assistance provided usually totaling about \$180 million a year.

ADB's headquarters is in Manila. It has 26 offices around the world. The organization has more than 2,000 employees from over 50 countries.



Strengthening Public Nutrition Planning and Policy in the People's Republic of China

Focused Synopsis of Research and Expert Consultations on Public Nutrition and the PRC's Eleventh Five-year Plan



Asian Development Bank
6 ADB Avenue, Mandaluyong City
P.O. Box 789
0980 Manila, Philippines
<http://www.adb.org/Publications>
<http://www.adb.org/prcm>
Publication Stock No. 111205

Printed in the People's Republic of China

Asian Development Bank (ADB) Technical Assistance
TA 3992-PRC: Strengthening National Public Nutrition Planning

In cooperation with:



Center for Public Nutrition and Development (PNDC)
of the National Development and Reform Commission

unicef 
The United Nations Children's Fund
(UNICEF)



Strengthening Public Nutrition Planning and Policy in the People's Republic of China

Focused Synopsis of Research and Expert Consultations on Public Nutrition and the PRC's Eleventh Five-year Plan

Compiled by:

Dr. Gary R. Gleason, International Nutrition Foundation

Dr. Chris A. Spohr, Asian Development Bank Resident Mission in the People's Republic of China

Prof. Huo Junsheng, Food Fortification Laboratory, China Centers for Disease Control

With substantive inputs from:

- **Center for Public Nutrition and Development of the National Development and Reform Commission;**
- **The United Nations Children's Fund; and**
- **Cross-sectoral Discussants under ADB Technical Assistance TA 3992-PRC: Strengthening National Public Nutrition Planning**

Asian Development Bank (ADB)

Technical Assistance TA 3992-PRC: Strengthening National Public Nutrition Planning

In cooperation with:



**Center for Public Nutrition and Development (PNDC)
of the National Development and Reform Commission**



**The United Nations Children's Fund
(UNICEF)**

This monograph is supported by the Asian Development Bank (ADB). However, the content and any views expressed herein are those of the authors, and do not necessarily reflect the views and policies of the ADB's Board of Governors, or the governments it represents.

2005 Asian Development Bank

All rights reserved. Published 2005.

Printed in the People's Republic of China.

Publication Stock No. 111205

Asian Development Bank

The views expressed in this book are those of the authors and do not necessarily reflect the views and policies of the Asian Development Bank or its Board of Governors or the governments they represent.

The Asian Development Bank does not guarantee the accuracy of the data included in this publication and accepts no responsibility for any consequence of their use.

Use of the term “country” does not imply any judgment by the authors or the Asian Development Bank as to the legal or other status of any territorial entity.



CONTENTS

PREFACE	1
I. INTRODUCTION	5
I.1. THE ROLE OF PUBLIC NUTRITION IN NATIONAL DEVELOPMENT	5
I.2. SUSTAINING ACHIEVEMENTS AND MEETING NEW CHALLENGES	7
I.3. CONTENT AND OUTLINE OF THE FOCUSED SYNOPSIS ON PUBLIC NUTRITION IN THE PRC	10
II. PUBLIC NUTRITION STATUS AND TRENDS IN THE PRC	11
II. 1. PROTEIN ENERGY MALNUTRITION: STUNTING OF CHILDREN STILL A PROBLEM FOR THE RURAL POOR	11
II. 2. "HIDDEN HUNGER" FROM PERVASIVE VITAMIN AND MINERAL DEFICIENCIES AND THEIR IMPACT ON, HEALTH, MENTAL DEVELOPMENT, AND PRODUCTIVITY	12
II. 3. OVERNUTRITION: THE TRANSFORMATION OF THE CHINESE DIET, AND UNBALANCED NUTRITION AS A MAJOR AND GROWING THREAT IN THE PRC	13
II. 4. A POTENTIAL CRISIS OF EXPANSIVE CHRONIC DISEASE	15
III. IMPLICATIONS OF PUBLIC NUTRITION FOR NATIONAL DEVELOPMENT	17
III. 1. THE IMPACT OF NUTRITION ON HEALTH AND SOCIAL ECONOMIC DEVELOPMENT	17
III. 1.1. Progress in PRC Public Health	17
III. 1.2. Nutrition-related Diseases as a Key Constraint to Improving Population Quality	17
III. 1.3. Nutrition as a Potential Achilles Heel Threatening Further Progress	18
III. 2. NUTRITION AND EDUCATION AS JOINT DETERMINANTS OF POPULATION QUALITY	19
III. 2.1. Poor Nutrition as a Mounting Obstacle to National Education Objectives: Are PRC Children Falling Behind? ..	20
III. 3. NUTRITION AS A KEY TO ECONOMIC AND SOCIAL DEVELOPMENT AND POVERTY ALLEVIATION IN THE PRC	21
III. 3.1. The Burdens of Poor Nutrition on PRC Economy and Society	21
III. 3.2. Nutrition and the Campaign to Reduce Poverty	23
III. 4. DEVELOPMENT AND QUALITY CONTROL WITHIN THE NUTRITION INDUSTRY: CHALLENGES TO REALIZING INDUSTRY'S POTENTIAL ROLE AS A DRIVING FORCE IN IMPROVING PUBLIC NUTRITION IN THE PRC	25
III. 4.1. Current Status of the Food Industry of the PRC	25
III. 4.2. Increased Concern for Food Safety and Quality: Growth of "Green" Foods	25
III. 4.3. The Emergence of the Nutrition Industry Sub Sector	26
III. 4.4. Industry's Potential Leading Role in Promoting Improved Public Nutrition	26
IV. PUBLIC NUTRITION POLICY AND NATIONAL DEVELOPMENT: INTERNATIONAL MODELS AND LESSONS LEARNED	28
IV. 1. INSTITUTIONAL MECHANISMS FOR NUTRITION POLICY AND PROGRAMS IN THE USA	28
IV. 1.1. The Role of the US Government in Public Nutrition and Implications for the PRC	29
IV. 2. NUTRITION POLICY AND PROGRAMS IN JAPAN	30
IV. 2.1. Overview of Japanese Nutrition Legislation	30
IV. 2.2. Lessons Learned for the PRC	31
IV. 3. NUTRITION POLICY AND PROGRAMS IN THAILAND	31
IV. 3.1. Overview of Thailand's Nutrition Policies and Implications for the PRC	31
IV.4. SUMMARY OF SELECTED INTERNATIONAL EXPERIENCES IN PUBLIC NUTRITION EXPERIENCE: LESSONS FOR THE PRC	32
V. PUBLIC NUTRITION IS A KEYSTONE TO NATIONAL DEVELOPMENT IN THE PRC: STRENGTHENING POLICY FRAMEWORKS AND PRIORITY ACTIONS	33



Strengthening Public Nutrition Planning and Policy in the People's Republic of China

Focused Synopsis of Research and Expert Consultations on Public Nutrition and the PRC's Eleventh Five-year Plan

V. 1. KEY ELEMENTS OF A PUBLIC NUTRITION POLICY FRAMEWORK FOR THE PRC	33
V. 1.1. <i>The Need for Government Commitment to Guide Planning, Assign Resources, and Develop and Adopt Needed</i>	
<i>Laws and Regulations</i>	33
V. 1.2. <i>The “Lifecycle Approach” as the Basis for Priority Public Nutrition Policy and Interventions</i>	34
V. 1.3. <i>Public Nutrition as Interdependent with National Priorities for Industrial and Technological Advancement across</i>	
<i>Sectors.</i>	35
V. 1.4. <i>Food fortification as a Key Entry Point for Cross-sector, Public-Private Efforts at Improving Public Nutrition.</i> ...	36
V. 1.5. <i>Vitamin and Mineral Supplementation</i>	36
V. 1.6. <i>Targeted, Situation Specific Food Support</i>	37
V. 1.7. <i>Large Scale-Nationwide, and Cross-cutting Public Nutrition Education Program</i>	37
V. 2. EXAMPLES OF PROPOSED PUBLIC NUTRITION INTERVENTIONS FOR DIFFERENT SECTORS	38
V. 2.1. <i>Public Nutrition Program Expansion by the Health Sector</i>	38
V. 2.2. <i>Enhancing Public Nutrition Programs through the Educational Services</i>	40
V. 2.3. <i>Expanded Public Nutrition Interventions within the Agriculture Sector</i>	40
V. 2.4. <i>Promoting the Development of the Nutrition Industry</i>	41
V. 2.5. <i>Public Nutrition as a Component of Poverty Alleviation and Social Security Programs:</i>	41
V. 3. SPECIFIC HEALTH OBJECTIVES OF A NATIONAL POLICY TO IMPROVE PUBLIC NUTRITION	42
V. 4. AN EXPANDED NATIONAL EFFORT TO IMPROVE PUBLIC NUTRITION IN THE PRC: STRUCTURAL	
DIMENSIONS:	42
V. 5. CONCLUSION	43

Lists of Boxes and Charts

Box 1: Commissioned Research Reports and Studies	9
Box 2: Inter-generational and long terms effects of malnutrition	12
Box 3: Iodizing Salt: A National and International Success for the PRC	13
Box 4: Japanese Students Are Now Taller Than Chinese Students and Rank Higher in Growth,	
Development and Physical Conditions	20
Box 5: Examples of Nutrition Policy Intervention Priorities: A Life Cycle Approach	35
Chart 1: Share of PRC Adults Overweight or Obese	14
Chart 2: Increase in Hypertension	14
Chart 3: Estimated Costs for Selected Nutrition-related Conditions	22



PREFACE

The People's Republic of China (PRC) is today unquestionably the world's most dramatic success story in achieving sustained economic development. Starting from sweeping reforms in the late 1970s, per capita gross domestic product (GDP) has climbed from 379 Yuan in 1978 to 10,533 Yuan in 2004, crossing the threshold of US\$1,000 equivalent by 2003. Economic transformation and modernization have made the PRC the world's seventh largest economy, and propelled its ascension in regional and global economic, technology, and policy spheres. Remarkable economic progress has also more broadly advanced the wellbeing of the world's largest population, including reduction of rural absolute poverty (using official estimates) from roughly 250 million people in 1978 to 26.1 million in 2004, expansion of access to basic education, and increases in life expectancy, now nearing 75 in some urban areas.

Nonetheless, on the eve of the period of the Eleventh Five-Year Plan for National Economic and Social Development (11th FYP, 2006-2010), the PRC still faces major challenges in ensuring that all citizens participate and benefit from development, including living healthy and fully productive lives. Balanced and comprehensive social development is needed to address critical gaps and imbalances, including between economic and social development, rural and urban areas, Western and coastal regions, and poor and more affluent populations.

Cognizant of this, the PRC leadership has ascribed increasing importance to more people-centered development, and a new mindset is emerging to address these challenges and usher in a new era of science-based and equitable national development. This is evident in calls from the highest levels of national leadership for establishing a harmonious society and attaining national *xiaokang* targets of a balanced and moderately well-off society by 2020. Greater focus on equity in development is also evident in the new doctrine of establishing a "new socialist rurality", as well as recent efforts to accelerate reduction of absolute poverty and improve the lives of vulnerable low-income groups, innovate and augment urban and rural social safety nets, and tackle emerging issues of urban poverty and migrants' wellbeing. At the same time, as reflected in the concept of national "population quality", the Government and other development stakeholders increasingly view the PRC's citizenry as its strongest asset in advancing its competitiveness in global markets and role on the international stage in the 21st century.

Operationalizing and achieving these broad aims will require clearly identifying priority challenges and developing and effective, cross-cutting, and coordinated interventions. As outlined in this document, there is a growing body of evidence to suggest that public nutrition improvement must be placed high on the PRC's development agenda. Namely, there is an urgent need to address three inter-linked types of malnutrition, which cut across all segments of PRC society, and the challenges they present for continued socioeconomic development.

The first is under-nutrition, characterized by inadequate intake of macro-nutrients (namely calories and protein). This could be termed the "traditional" face of malnutrition in the PRC, and is closely linked to the concept of *wenbao* (ability to obtain minimum food, clothing, and other essential requirements). Despite the PRC's dramatic achievements in reducing absolute poverty, under-nutrition remains a heavy burden, particularly in less-developed rural areas. Recent analysis of the 2002 Survey on the Status of National Nutrition and Health in the Chinese People suggests that amidst overall progress, 14.3% of PRC children under age five have stunted growth, while 7.8% are under-weight. Rates are twice as high in poor rural areas, concentrated in the PRC's Western Region. In addition to the 26.1 million population living below



Strengthening Public Nutrition Planning and Policy in the People's Republic of China

Focused Synopsis of Research and Expert Consultations on Public Nutrition and the PRC's Eleventh Five-year Plan

the official rural poverty line, under-nutrition poses at least a moderate burden and a threat to a roughly two-fold larger “low-income” rural population living at the brink of poverty, the urban-registered poor (estimated to number roughly 14.7 million in 2002), and at least sizeable segments of the PRC’s very roughly 100 million “floating population”. In short, it is clear that the PRC cannot achieve aims of rural development and the goal of a harmonious, *xiaokang* society without continued progress to lift the burden of under-nutrition, which depresses children’s educational attainment, adult productivity, and health and well-being at all stages of the lifecycle.

At the same time, particularly in urban areas, over-nutrition is a rapidly escalating public nutrition problem, principally reflecting shifts in dietary patterns and more sedentary lifestyles. The urgency of this problem is reflected in alarming increases in prevalences of overweight and obesity. In 2002, fully 200 million PRC adults were considered overweight (using national standards), and another 60 million were obese (more than doubling 1992 levels). In turn, despite an expected time lag, this has already manifested itself in spiraling rises in diet-related chronic diseases such as Type II diabetes, hypertension, cardiovascular disease, and several diet-related cancers: in terms of total persons affected, incidences are among the highest in the world. The costs of these chronic diseases have become massive in terms of human suffering, social distress, loss of productivity, and economic burden to the health and health insurance systems. Moreover, skyrocketing rates of overweight and obesity among younger populations—8.1% of youth in the PRC’s large cities are obese, with estimates twice as high in Beijing—suggest that the future toll may be much higher.

Thirdly, in both urban and rural areas, among the rich and the poor, micronutrient deficiencies (inadequate intake of key vitamins and minerals) poses a “hidden hunger” threatening all of PRC society. Its effects are particularly devastating in pregnant women and infants, where the lack of vitamins and minerals results in irreversible impairment to child physical and mental development. Internationally, even moderate iodine deficiency during fetal development and infancy has been shown to depress intelligence quotient (IQ) levels by 10-15 points. Folic acid deficiency is linked to serious birth defects. Inadequate iron affects children’s growth and learning ability, and reduces their ability to concentrate, fully participate in school, and socially interact and develop; it also contributes to maternal mortality and lowered workforce productivity. In the PRC, iron and iodine deficiencies alone are estimated to cause direct economic losses of roughly 0.7% of GDP, with lower productivity upon entering the adult workforce costing an additional 3.8% of GDP. Meanwhile, just as over-nutrition affects chronic diseases, inadequate intake of vitamin A and zinc weakens immunity, undercutting the PRC’s ongoing battle against communicable diseases such as SARS and avian influenza.

Each one of these problems—under-nutrition, over-nutrition, and micronutrient deficiencies—presents complex challenges, while there is growing evidence that they are inextricably linked. For example, inappropriate infant feeding practices (i.e., introduction of low-quality complementary food for infants, replacing exclusive breastfeeding during the first 6 months and continued breastfeeding for the first two years), create risks of under- and over-nutrition for different population groups. In fact, there is reason to believe under-nutrition, over-nutrition, and micronutrient deficiencies should be most tightly interlinked in societies undergoing very rapid development and transition, as in the PRC. The PRC is thus at a critical juncture: the combination of deep poverty in the past and rapid socioeconomic transitions together pose a “time bomb” that threatens to disrupt, if not derail, continued socioeconomic development.

In this context, and building on strong collaboration under a series of three Asian Development Bank (ADB) regional technical assistance (TA) projects, ADB and the United Nations Children’s Fund (UNICEF) provided co-financing for TA 3992-PRC: Strengthening National Public Nutrition, partnering with the Public Nutrition and Development Center (PNDC) under the National Development and Reform Commission



(NDRC). In 2003, working closely with relevant ministries, international organizations, and leading institutions linked to various aspects of public nutrition, the TA launched a major effort at strategic, evidence-based advocacy focused on senior planners and leaders. The main aim of this collaboration was to formulate sound strategies and action plans for national nutrition improvement, and to build consensus and coalition among key champions for public nutrition, with the target of integrating public nutrition into the 11th FYP (to be promulgated by the National People's Congress in March 2006), as well as planning for key sectors.

Meeting the complex and multi-faceted challenges of the PRC's long-standing and newly emergent public nutrition problems poses a daunting task for the PRC. It will require new approaches, strong leadership at all levels of Government and substantially increased resources, and coordination among diverse development stakeholders, including new partnerships and mechanisms to tap efforts from the private sector and civil society. At the same time, recent policy dialogue emerging on the 11th FYP suggests that this will push forward a new paradigm of people-centered development, and this presents an unheralded opportunity to advance comprehensive efforts at public nutrition improvement. Such efforts can draw on the example of the PRC's progress in the last decade toward universalizing iodization of salt, wherein coordinated efforts spanning relevant government agencies, industry, consumer groups, and civil society, along with international support, laid the foundations for a global success story in combating the debilitating effects of iodine deficiency disorders and the burden they have posed, particularly in poor communities. Moreover, it demonstrated that partnerships linking Government, industry, and society can be a "win-win-win", critical to ensuring gains are sustainable.

By compiling evidence (drawn from cross-cutting consultations with national and international experts) on the role of nutrition in the PRC's socioeconomic development, justifications for action, and recommendations for cost-effective new directions, this Focused Synopsis aims at contributing to the process of building a cross-cutting consensus on directions forward. Working alongside the PNDC and other key partners, ADB and UNICEF are proud to support the PRC in its efforts to advance public nutrition, as a keystone to achievement of the Millennium Development Goals and promoting science-based, balanced, and people-centered development and the nation's aims of establishing a harmonious and moderately well-off society by 2020.

Toru Shibuichi
Country Director
ADB Resident Mission in the PRC

Christian Voumard
UNICEF Representative to China

Yu Xiaodong
Director, PNDC



I. INTRODUCTION

The People's Republic of China (PRC) is unquestionably the world's most dramatic success story in achieving sustained economic development starting from the reforms in the late 1970s. Remarkable economic progress has brought gains in terms of broader social development, and the PRC leadership has ascribed increasing importance to more balanced, people-centered development, embedded in the concept of national "population quality"¹

Nonetheless, on the eve of the period of the Eleventh Five-Year Plan for National Economic and Social Development (11th FYP, 2006-2010)², the PRC faces the major challenge of achieving a state where all citizens live healthy, fully productive lives, and (under the concepts of national population quality) become the country's strongest asset in entering the global stage and competing in international markets in the 21st century. Meeting this complex challenge will require substantially greater resources for socially oriented programs at all levels of Government as well as new partnerships and mechanisms to tap efforts from the private sector and society as a whole.

I.1. The Role of Public Nutrition in National Development³

In view of clear scientific evidence, vast international experience, and the PRC's current development context, there is an increasing cognizance among national planners, decision-makers, and technical experts in various sectors and fields that public nutrition is inextricably linked to population quality and broader achievement of national goals for balanced, sustainable, and harmonious socioeconomic development. There is also an increasingly sophisticated understanding of the nature and costs of poor nutrition on PRC society, as well as inter-linkages among nutrition and health, other areas of human development, and broader socioeconomic processes.

At the level of the individual, millions of PRC citizens suffer from the consequences of adverse nutritional status ranging from lowered productivity and resistance to infection, to increased incidence of diet-related chronic diseases like cardiovascular disease, cancer, and diabetes. At the macro-level, poor nutrition poses a serious burden on society and the economy, ranging from increased health care costs to lower economic efficiency.

The PRC is now at a critical juncture in addressing both long-standing and emerging threats (outlined below) associated with public nutrition problems. Increased political commitment and coordinated action is urgently needed to address three major public nutrition problems that simultaneously threaten large portions of the PRC's population.

As detailed in Section II, the first problem, "**under-nutrition**" which is caused by lack of food, poor

¹ "Population quality" refers to an aggregate of intellectual potential, educational achievement, social development, health and productivity of the population as a whole in terms of both personal fulfillment and well being and also in terms of enhancing the nation's ability to achieve sustainable development in all regions and compete effectively as a economic and social leader in the international environment of the 21st Century.

² It is worth noting that the Chinese term corresponding to "Plan" (alternately translated as Program) in the 11th FYP has changed from jihua to guihua, indicative of an overall shift in the role of FYPs in guiding national development.

³ Unless otherwise noted, data presented in this subsection is drawn from the TA supported study, "Nutrition and Realization of Universal Xiao Kang Society," by Prof. Zhou Haichun, 2004.



food security, poor health and infections, and issues related to child care directly affects or threatens roughly 26.1 million rural people still living below the official poverty line in the PRC and, at least to a moderate degree, a much larger low-income population⁴ living at the brink of poverty. To varying degrees, under-nutrition (and especially micronutrient deficiencies noted below) clearly also affects the estimated 14.7 million urban poor living below various local poverty lines in 2002 (4.73% of the population with urban registry) and at least sizeable segments of a “floating population” on the order of 100 million, and generally not included in rural or urban poverty figures.⁵ Poor and low-income families need to be assured of sufficient food to prevent growth retardation among children and better health and productivity throughout their lifecycle. New and improved Government interventions are needed in the form of regional economic development programs, to increase emphasis both on household food security for poor families and on efforts to assure that the diets of poor families are adequate both in the quantity and the diversity needed to assure adequate macro and micro-nutrients.

The second problem is **micronutrient deficiencies**. Better strategies and interventions are needed to eliminate the hidden hunger of vitamin and mineral deficiencies that face not only less developed rural areas and the poor but also sizeable shares of PRC-wide populations at specific life stages at which they are most vulnerable. Lack of essential minerals and vitamins can cause birth defects, poor brain development in the fetus, low birth weight, and higher risk of maternal mortality. Folic acid is needed to better assure normal fetal development, lack of iron permanently affects the cognitive development of infants and young children⁶; zinc deficiency retards growth; and Vitamin A deficiency increases infant mortality. Lack of key vitamins and minerals lowers school performance, reduces productivity in adults, impairs immune systems, and causes major problems in the elderly. Major interventions for groups at high risk to prevent vitamin and mineral deficiencies can range from food fortification and provision of supplements to major nutrition education efforts which advocate a diverse diet.

Thirdly, “**over-nutrition**” is a rapidly escalating public nutrition problem, principally reflecting trends during the past 15 years in the dietary patterns of many PRC residents. Increased consumption of processed foods, a less diverse diet, higher total calorie intake coupled with less physical exercise has led to alarming increases in the prevalence of overweight and obesity in adults and children in both urban and rural areas. Concurrently, chronic diseases such as Type II diabetes, hypertension, cardiovascular disease, and several forms of cancer, linked closely to diet, have risen within the context of the PRC population of 1.3 billion to be among the highest in the world. The costs of these chronic diseases have become massive in terms of human suffering, social distress, loss of productivity, and economic burden to the health and health insurance systems: skyrocketing rates among younger populations (e.g., obesity rates⁷ among youth in major PRC cities reached 8.1% in 2002, while estimates suggest that roughly 1 in 6 primary and secondary school

⁴ In 2004, 49.8 million people were living on per capita income above the austere official poverty line of CNY668, but below the low-income threshold of CNY924 (a level closer to the international \$1 per day standard).

⁵ Spohr, C. and Wu Guobao, Looking Beyond the Numbers: Implications and Emerging Directions in PRC Poverty Reduction. (unpublished presentation to UN Country Team for The PRC, 5 June 2005).

⁶ Red blood cells consist mainly of hemoglobin, which is largely composed of iron and carries oxygen throughout the body nourishing cell function and growth. The iron needs of children during this period are proportionately higher than at any other time of life except pregnancy. Children suffering from iron deficiency and iron deficiency anemia at age 6-24 months have been shown to perform at lower levels than non-iron deficient children on cognitive tests with the effect lasting at least to 18 years of age.

⁷ References to overweight and obesity herein are based on national body mass index (BMI) standards, as described in the National Nutrition and Health Survey summary report, dated 12 October 2004.



students in Beijing was obese in 2003, compared to 1 in 20 students in 1980) suggest the future toll may be much higher. As with under-nutrition and micronutrient and vitamin deficiencies, addressing such problems requires concerted action on multiple fronts to address complex issues, including public education to reverse unhealthy dietary habits.

While all of these nutrition problems are too often overlooked, recently, several senior PRC leaders have identified them to be a “time bomb” endangering the national health status and economic development, a view also borne out by evidence of rising over-nutrition in youth as well as analysis presented in Section II. 4.⁸

The seriousness of these three threats has been clearly spelled out in analyses of 1992 and 2002 Surveys on the Status of National Nutrition and Health in the Chinese People (henceforth National Nutrition and Health Survey), conducted under the joint leadership of the Ministry of Health, Ministry of Science and Technology, and National Bureau of Statistics. The 1992 survey provided data showing that, even by the early 1990s, there were distinct signs of a triple threat in the area of public nutrition. A sizable population group was still suffering from problems related to under-nutrition; a second sizable and overlapping group was suffering from poor dietary diversity with the result being vitamin and mineral deficiencies. A third overlapping group of over-weight and obese persons had formed and they faced greatly increased risks of diet-related chronic disease. The 2002 survey showed that substantial progress had been achieved in alleviating under-nutrition problems in rural areas, especially among children. However, rural nutrition indicators and outcomes still lag seriously behind urban areas, meanwhile the overall burden of public nutrition problems had become far more serious due to continued high levels of vitamin and mineral deficiencies, combined with skyrocketing and **accelerating** rates of overweight and obesity, caused mainly by changes in eating patterns and declining physical activity.

In short, the PRC faces persistent and, particularly in the case of over-nutrition, mounting threats from public nutrition problems. At the same time, if the PRC can successfully address these problems through coordinated efforts, it can reap extensive and long-term benefits in terms of accelerated economic development and achievement of broader socioeconomic targets during the 11th FYP period and beyond.

I.2. Sustaining Achievements and Meeting New Challenges

For over 30 years, the United Nations has spearheaded international efforts to promote and guide the development of national nutrition policies, with many countries making progress toward national policies and programs modeled on local contexts. Progress in the PRC is limited. However, there is now increasing despite recognition that public nutrition is integrally linked with development. Improving public nutrition is now beginning to gain high-level government commitment. But success in measurable terms will require coordinated actions both within and across sectors, including agriculture, public health, and light industry.

For the PRC, such work accelerated following the 1992 World Food Summit which marked a watershed, initiating the PRC's first work toward a national food and nutrition policy. Major policy-related documents since that time included the following:

- In 1997 a National Plan of Action for Nutrition was submitted to the State Council, the PRC's principal legislative body.
- Also in 1997, to address adverse health impacts emerging from rapid changes in dietary patterns and lifestyles, the Chinese Nutrition Society (CNS) developed a revised National Dietary Guidelines⁹ that were disseminated widely as the Food Guide Pagoda for Chinese Residents.

⁸ Statements made in International consultation on Strengthening Nutrition Planning and Policies, November 2003, Beijing.

⁹ This provided a codification for diet structure and guidelines on good dietary practices and healthy lifestyles.



Strengthening Public Nutrition Planning and Policy in the People's Republic of China

Focused Synopsis of Research and Expert Consultations on Public Nutrition and the PRC's Eleventh Five-year Plan

- In 2001, a cross-sector experts group developed a ten year “Plan of Action for Nutrition in the PRC,” also submitted to the State Council-while falling short of a policy, this document has helped guide nutrition program priorities in the Ministry of Health and other agencies.
- The Chinese Guidelines for Overweight and Obesity Prevention and Control for Adults were issued in 2003.

During this period, the PRC has increasingly sought international support and engaged in cooperation to promote better understanding of nutrition at all stages of the lifecycle among both Government leaders and the general population. This included the PRC's participation in three regional technical assistance (TA) activities funded by the Asian Development Bank (ADB), with additional support from the United Nations Children's Fund (UNICEF). These addressed: (i) the nutritional needs of children;¹⁰ (ii) strategies to improve nutrition from youth to old age, in order to raise levels of education and economic contribution of the better nourished labor force;¹¹ and (iii) public-private partnerships to raise population-wide dietary quality via fortification and marketing of high-quality essential foods, such as cereals, salt, cooking oils, and infant foods.¹²

However, all of these domestic and internationally supported initiatives failed to create a critical mass of support or to fully institutionalize public nutrition in national development agendas. For example, while the National Dietary Guidelines are well known throughout the PRC and demonstrate a solid linkage between eating and health, they have not been reviewed and updated. Moreover, they have not been backed up by sustained nationwide information, education, and communication (IEC) efforts to influence public dietary behaviors. Similarly, the Plan of Action has not become the basis for substantial new interventions or for cross-sector collaboration in addressing the key noted public nutrition challenges. Likewise, various programs failed to be fully institutionalized and sustained, backed up by financial and human resources, policies, and broader reforms.

These attempts paved the way, and made clear the need for efforts to elevate public nutrition to the highest levels of national planning and action in order to address serious public nutrition challenges facing the country. Under technical assistance TA 3992-PRC¹³, co-financed by ADB and UNICEF, and working with national partners, in 2003, the Public Nutrition and Development Center (PNDC) under the National Development and Reform Commission (NDRC), in close collaboration with the Ministry of Health and other Ministries launched a major effort at strategic, evidence-based advocacy focused on senior planners and leaders. The main aim of this collaboration was to formulate sound strategies and action plans for national nutrition improvement, and to build consensus and coalition among key champions for public nutrition across concerned Ministries, regulatory agencies, research centers and other organizations, with the target of integrating public nutrition into the 11th FYP (that will be finalized by the NDRC and promulgated by the People's Congress in March 2006) and strengthening and expanding emphasis on improving public nutrition in the plans of key sectors.

¹⁰ ADB. 1996. Regional Technical Assistance to Bangladesh, Cambodia, People's Republic of China, India, Indonesia, Pakistan, Philippines and Sri Lanka for Reducing Child Malnutrition in Eight Asian Countries. Manila.

¹¹ ADB. 1998. Regional Technical Assistance to Bangladesh, Kyrgyz Republic, People's Republic of China, Fiji Islands, Indonesia, Sri Lanka and Viet Nam for Nutrition Trends, Strategies and Policies in Asia and the Pacific. Manila.

¹² ADB. 2000. Regional Technical Assistance for Fiji, India, Indonesia, Kyrgyz Republic, People's Republic of China, Philippines, Thailand and Viet Nam for Regional Initiative to Eliminate Micronutrient Malnutrition in Asia through Public-Private Partnership. Manila.

¹³ ADB. 2003. Technical Assistance to People's Republic of China for Strengthening National Planning for Public Nutrition. Manila.222



Under overall guidance from a cross-sectoral Steering Committee which additionally provided an ongoing forum for review and key contributions by senior PRC public nutrition specialists the TA activities (coordinated by PNDC) included:

(1) Research, primarily in the form of reviews of existing information and studies aimed at: drawing out the data needed for evidence-based advocacy with senior leaders and to better inform Government ministries and the public about major public nutrition problems and their human, social, and economic impact;

(2) Resources to support consultations and technical meetings necessary to bring sector stakeholders and technical experts together for this effort; and,

(3) Support for national and international technical expertise, including development by teams of national experts (with some international input) of a series of twelve papers (see Box 1). analyzing national and international contexts, and making technical and institutional recommendations for the PRC in a series of key dimensions of public nutrition.

This work generated a comprehensive information base on public nutrition, drawing from and complementing existing and ongoing research, expert consultations, and reviews of lessons learned from other countries. This pool of evidence and information (a selective synopsis of which is presented herein) in turn underpinned strategic, evidence-based advocacy activities aimed at convincing national planners and leaders that public nutrition should become a national priority, to be explicitly noted in the 11th FYP.

Box 1: Commissioned Research Reports and Studies

The TA funded a series of studies and reviews, completed during 2005, that brought together, updated and summarized existing national and international information on the scope and magnitude of public nutrition problems and the scope and potential of the major public nutrition programs in the country. These comprised three subsets of studies, to be disseminated as a separate compilation:

1. Analysis of Linkages between Public Nutrition and Health, Education, Poverty Alleviation and Broader Development.
 Nutrition and Education Jointly Determining Population Quality and Capacity. By Prof. Hu Chengkang
 Nutrition and Poverty Alleviation, Nutrition and Development in Western Regions. By Prof. Weinong
 Nutrition and Realization of Universal Education. By Prof. Zhou Haichun
 The Harmfulness of Malnutrition (To Human and Economy). By PNDC.
2. The PRC's Public Nutrition and Nutrition Development.
3. Comparative Studies on the Development and Characteristics of National Public Nutrition Policy Frameworks of Japan, Thailand and The United States, Drawing Implications for the PRC by Prof. Zeng Hongying
4. A review of current components of public nutrition in the PRC
 Development of National Level Nutrition Education and Nutrition.
 National Coordination and Management for Development.
 Nutrition Related Law, Regulation and Policy Development.
 The Development of Nutrition Industry.

In addition, other key documents supported under the framework of the TA included:

Proposed Outline of the Public Nutrition Policy Framework for the PRC based on two national meetings of national and international nutrition specialists and Government officials. Specialists from the China Nutrition Society played a key role and the outcomes were compiled by UNICEF consultant Dr. Roger Shrimpton.

Proposal on integrating improvement of public nutrition into the 11th year plan, developed by PNDC with input from national and international specialists.

All of the reviews and studies give priority to the relationship between nutrition and the national objective of achieving an overall improvement in population quality and xiaokang (balanced and moderately well-off).



I. 3. Content and Outline of the Focused Synopsis on Public Nutrition in the PRC

This document synthesizes this pool of analytical work, drawing on TA-funded and broader research. It is intended to serve as stand-alone material for broad distribution to national stakeholders and the international community, providing a comprehensive overview of key trends, issues, and challenges in PRC nutrition, identifying clear priorities across key sectors, and presenting forward-looking recommendations.

In addition to incorporating salient, priority findings from the 12 research studies noted in Box 1 and from other TA-supported analysis, the document draws on broader analytical work, in particular, early analysis of the 2002 National Nutrition and Health Survey and a summary consensus document on a proposed Strategic Framework for Improving Public Nutrition.

The main focus of each section is as follows:

Section II: Current public nutrition status, trends and problems.

Section III: Reviews of key public nutrition issues and challenges, in terms of their impact on health, education, productivity, and long-term economic measures.

Section IV: Summary of important lessons learned from other countries which relate to the formation and impact of national nutrition policies.

Section V: A concluding section provides some recommended characteristics of a national public nutrition policy in the PRC and initial actions needed to begin to operationalize and coordinate needed action.



II. PUBLIC NUTRITION STATUS AND TRENDS IN THE PRC

This section focuses on the substantial public nutrition problems that face significant numbers of the population and that will need to be overcome in order for the country to move steadily on a path of improving the health, intellectual development, and productivity of the full population in the environment of the new century. These include remaining and persistent problems of under nutrition, mainly among children of the rural poor, micronutrient deficiency diseases in groups at vulnerable life stages throughout the country and the major problems associated with poor dietary habits and “over nutrition” that place enormous burdens on the health system and, as chronic diseases, afflict many adults. There are rich data on each of these problems because the status and trends in public nutrition in the PRC are well documented through a series of decadal national nutrition and health surveys and regular nutrition surveillance. National data collection is supplemented by frequent sub-national studies focusing on specific nutritional issues ranging from infant feeding and child growth to the prevalence of vitamin and mineral deficiencies and diet-related chronic diseases.

II. 1. Protein Energy Malnutrition: Stunting of Children still a Problem for the Rural Poor¹⁴

From the 1950s through the mid-1970s, entry of nutrition in PRC policy dialogue was typically confined to issues of inadequate agricultural output and poor distribution of food stores. By the 1980s, as agricultural productivity increased, food distribution expanded rapidly, and domestic economic indicators began to rise—largely reflecting the PRC’s moves to adopt “open door” policies, market principles, and various agriculture and land use reforms—adequacy of food became less pressing in policy discussions. By the early 1990s, the PRC had virtually eliminated the specter of famine and the most obvious forms of nutritional deficit.¹⁵

The 2002 National Health and Nutrition Survey¹⁶ showed the dietary pattern of rural residents had become more reasonable. For example, good quality protein as part of total protein intake has increased from 17% in 1992 to 31% per cent in 2002. The energy contribution from fat increased from 19% to 28% and that from carbohydrates decreased from 70% to 61%. The prevalence of underweight children declined 57% between 1990 and 2002 to 7.8%; and stunting decreased from 33.4% to 14.3% during the same period.¹⁷

¹⁴ Unless otherwise noted, information for this section draws primarily from the Preliminary Findings of the 2002 Survey on the Status of National Nutrition and Health in the Chinese People, conducted by the Ministry of Health, Ministry of Science and Technology, and National Bureau of Statistics.

¹⁵ There continue to be small but non-negligible shares of PRC children suffering from stunting, a sign of poor overall nutrition, mainly in less developed rural counties. In a population of 1.3 billion, even small percentages are substantial, and throughout the 1990s and early 2000s, large scale poverty reduction programs include increasingly refined mechanisms aimed at assuring adequate food to the rural poor.

¹⁶ The 2002 National Health and Nutrition Survey covered the mainland's 31 provinces, autonomous regions, and municipalities (Hong Kong, Macao and Taiwan were not included). The samples from 132 counties included 71,971 households, 24,034 urban and 47,937 rural. 272,023 people are covered by the survey that included a questionnaire, health examination, laboratory tests, and dietary surveys. (from the PRC Daily “Assessing status of nation's health,” Zhang Feng, October 12, 2004)

¹⁷ Ministry of Health, National Nutritional Surveillance System and 2002 National Nutrition Survey. Underweight and stunting is measured by <-2 SD weight and height for age. See also Chen Chunming et al. 2004. Ten-Year Tracking Nutritional Status in China. Beijing: People's Medical Publishing House.



These improvements should not mask the continued problem of malnutrition in rural areas where such occurrences are two to three times greater than in urban areas. For example, more than 29% of children born in poor rural areas (disproportionately located in the PRC's Western Region¹⁸) are mildly or moderately stunted.¹⁹

The average heights of male and female children (3-18 years) in urban areas are 4.9 and 4.2 centimeters greater than boys and girls in rural parts of the country. This disparity can be principally attributed to differences in child nutrition. In rural areas, growth retardation at one year of age was found in 20.9 per cent of children on average, and in poverty-stricken areas, it reached 34.6 per cent. Poor breastfeeding practices, mainly inadequate duration of exclusive breastfeeding, and improper use of complementary foods in rural areas exacerbate these problems.

The impact on children of malnutrition due to lack of protein energy is irreversible, negatively affecting their physique, intellect, and lifelong productivity. Under-nutrition thus links to poverty in a vicious cycle: poverty is a major cause for malnutrition, and the lower lifelong productivity of those who are malnourished leads to further poverty. Ironically, malnourished PRC children suffer "at both ends of the lifecycle": research shows that stunted children are more likely to become overweight adults (See Box 2 and Section II. 4).

This relationship between inadequate nutrition and poor child development and its consequences underscores the need to match major poverty alleviation and development programs with interventions aimed at systematically addressing public nutrition problems.

II. 2. "Hidden Hunger" From Pervasive Vitamin and Mineral Deficiencies and their Impact on, Health, Mental Development, and Productivity

Although PEM remains an important challenge, nutrition scientists have learned that micronutrient deficiencies have many more adverse effects on human health and function than were well known previously. Compared to the elimination of the "obvious hunger" of widespread protein-energy malnutrition, progress has been slower in the PRC in addressing "hidden hunger" of mineral and vitamin deficiencies. Both rural and urban areas exhibit substantial incidences of debilitating deficiencies that strike at specific stages of the lifecycle.

Iodine deficiency disorders are moving toward elimination in the PRC, which is one of only four

Box 2: Inter-generational and long term effects of malnutrition

Supported by an increasing body of evidence, the Barker or Fetal Origins Hypothesis submits that poor maternal nutrition may cause permanent changes in the embryo/fetus and infancy, which influence not only the potential intelligence of the child but cause also a predisposition to cardiovascular and other diseases including obesity during adulthood. This underscores the importance of ensuring good nutrition for women before and throughout pregnancy, as well as for infants.

Box 3: Iodizing Salt: A National and International Success for the PRC

The PRC's national success in virtually eliminating iodine deficiency through a national effort to iodize all salt is an internationally recognized achievement. The well planned effort began with senior leadership commitment in the 1990s and led to reform and modernization of the salt industry. Among school children, access to and use of iodized salt* rose from 23% to nearly 95%, over the period 1995 to 2003.

*Iodized salt coverage is estimated using a cut off point for iodine concentration in salt of greater than 5 parts per million (PPM).

¹⁸ The Western Region comprises six provinces, five autonomous regions, and Chongqing Municipality plus three specially designated prefectures, and together accounts for the key counties working on poverty alleviation and development (henceforth "poverty counties").

¹⁹ Ministry of Health National Nutrition Surveillance system.



countries globally to basically achieve Universal Salt Iodization (USI) by 2005. (See Box 3) This achievement is important because iodine deficiency is the main single cause of preventable brain damage and mental retardation in childhood. However, sustaining gains and reaching 100% coverage will require additional effort. Some provinces²⁰ such as Tibet, Qinghai, Xinjiang, and Henan still have rates of iodized salt usage well below the national level and the total population still not having access to iodized salt is estimated to be 65 million

a globally significant number.

Iron deficiency anemia remains pervasive in the PRC and causes health problems and increased mortality among pregnant women. It impairs brain development in young children, retards cognitive performance in schools and causes ill health and lower productivity among adults. In 2002, anemia was present in 21.5% of PRC women of childbearing age, in 24.2% of children under 2 years of age, and in 20.6% of people over 60.²¹

Vitamin A deficiency increases child mortality and night blindness. The prevalence of vitamin A deficiency in children living in urban conditions was only 3.0% but the prevalence was 11.2% among children living in rural areas.

Folic acid deficiency is common in women and, if present during early pregnancy, increases the rate of serious birth defects. Folate deficiency is viewed as responsible for an extremely high level of neural tube birth defects of 19 per 1,000 births in Shanxi province. There is epidemiological evidence that after folic acid was added to wheat flour in the United States in the 1900s the rates of stroke and ischemic heart disease became lower in the United States.²²

Vitamin D deficiency is found in many children and causes rickets. Calcium intake among adults is below recommended levels.

II. 3. Overnutrition: the Transformation of the Chinese Diet, and Unbalanced Nutrition as a Major and Growing Threat in the PRC

In developing countries, economic prosperity generally has a positive impact on improved nutrition. However, sustained growth in the PRC has brought with it a relatively new and extremely threatening nutritional problem.

Beginning in the 1990s, lifestyle changes, increased consumption of processed foods, more oils, and fast food. Many diets, especially of those who use wheat as the staple cereal, have also shifted away from coarser whole grain flour toward greater consumption more refined cereal flour with little fiber. Along with changes in diet, physical activity has decreased for many youth and adults, particularly in urban areas and especially among those working doing “white collar work.” For many, access to and the affordability of technology has reduced their physical activity. The use of feet and bicycle as transportation have shifted to the bus or car, stairs have been replaced by lifts and clothes washing is now to machine. In total, more refined foods and calories are consumed while less physical energy is expended. Such factors have resulted

²⁰ For simplicity, herein the term province is used to refer to areas designated as provinces as well as all province-level autonomous regions and municipalities, unless otherwise noted.

²¹ Ministry of Health National Health and Nutrition Survey, 2002. (summary story from the PRC Daily “Assessing status of nation's health,” Zhang Unless otherwise noted, information for this section draws primarily from the Feng, October 12, 2004

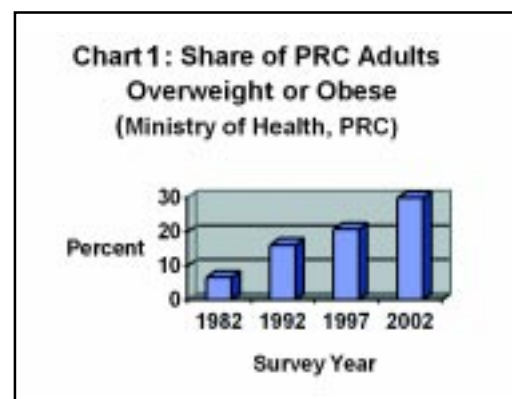
²² Press release of the 4th Annual Conference on Cardiovascular Disease Epidemiology and Prevention, San Francisco, CA, Mar 3-6, 2004, <http://www.americanheart.org>



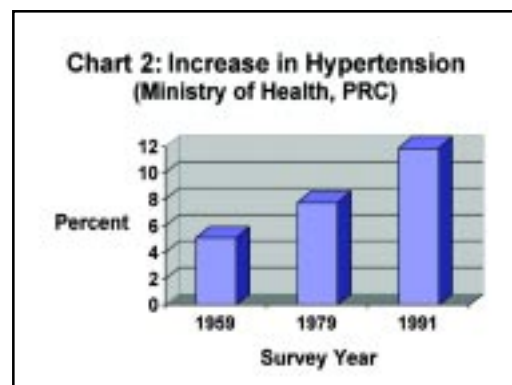
in “**over-nutrition**” and “**unbalanced nutrition**” that reflected rapidly rising levels of overweight and obese adults and children.

Compared to more traditional Chinese diets, today’s diets for many PRC residents include processed foods containing high levels of sodium and high caloric density. The new diets are higher in sugar and saturated fats, and often lack fiber, vitamins and minerals. Those who have shifted to this type of diet are at high risk of developing chronic diseases, mainly during adulthood: hypertension, type II diabetes, cardiovascular disease, and various cancers are **diet related** and correlate with changes in the dietary choices and lifestyles of many PRC citizens.

Rates of **overweight** and **obesity** are accelerating. The 2002 National Nutrition and Health Survey found the prevalence of overweight in PRC adults was 22.8%, with the figure rising as high as 30% in some cities. Similarly, the prevalence of obesity in adults (using PRC standards) was another 7.1% nationally, and 12.3% in large cities. Some 200 million people are affected by overweight and some 60 million by obesity.²³ (See Chart 1). Rapidly growing public nutrition problems of overweight and obesity in the PRC are linked to the incidences of some of the world’s highest nutrition-related chronic diseases, as noted below. Another alarming dimension of the problem is skyrocketing incidence rates of overweight and obesity among younger populations (e.g., incidence of obesity among youth in major PRC cities reached 8.1% in 2002, while estimates for primary and secondary school students in Beijing are estimated to have risen from roughly 5% in 1980 to roughly 16.8% in 2003), an early indicator of a rising future toll, unless trends can be reversed.



Hypertension afflicts 18.8% of people over 18 years of age, generating an estimate of more than 160 million with the illness in the PRC. Its prevalence increased by 31% since 1991, with more than 70 million new hypertension cases and there is no significant difference between urban and rural areas. Based on 2002 survey data, only about 30% of those with hypertension are aware they have the illness, and only 24.7% get necessary medical treatment. (See Chart 2). An increase of 135% occurred in the number of patients suffering from hypertension between 1950 and 1990 in the PRC.



Diabetes prevalence in the PRC population over the age of 18 is 2.6%. This means that there are more than 20 million diabetic patients in the country with the incidence being much higher in urban areas. By 2003 those affected by diabetes had become five times greater than in the 1980s. Officials from the Ministry of Health and China CDC report that the PRC is in a period of diabetes outbreak, with some 1.2 million people become new diabetic patients each year. With an equivalent of

²³ The incidence rate for obesity rose 97% during 1992-2002, more than doubling the total number of obese adults, according to Ministry of Health, 2002 National Nutrition and Health Survey (from the PRC Daily “Assessing the Status of the Nation’s Health,” Zhang Feng, October 12, 2004)



some 3,000 per day, the number of diabetes patients in the PRC exceeds the U.S. (16 million), Russia (9.7 million), and Japan (6.7 million). Complications from diabetes include coronary heart disease, atherosclerosis, cerebral thrombosis, hypertension, fatty liver, cataract, kidney diseases, bladder diseases, and other inflammations. Half of the people with this illness in the PRC are unaware that they are diabetic.

Cerebral and cardiovascular diseases account for 12% of all mortalities among urban residents, according to Ministry of Health statistics. In 2002, coronary heart disease patients accounted for 58% of all hospitalized heart disease patients and for 25% of all mortalities from heart diseases. Incidences of coronary heart disease in males rose from 21.6 per 100 thousand in 1974 to 47.9 in 2000, with the average annual increase in myocardial infarctions reaching 4.32%. The situation is similar to the U. S. in the 1940s, when diet structure changed significantly, causing coronary mortality rates to increase from 259.5 per 100,000 in 1950 to 336.5 in 1968. Body mass index (BMI) is the best predictor of coronary mortality and is closely related to the prevalence of coronary heart diseases.

Fatty liver disease, which was previously associated primarily with serious nutrient deficiency “and was confined to older ages is becoming the second major liver disease (viral hepatitis is the first), threatening the life and health of the PRC’s population. A fatty liver prevalence survey among male office workers 30-45 years of age in the PRC found rates as high as 12.9%. Fatty liver is now occurring in much younger age groups, with patients as young as age 14. A study of 40 children suffering from simple obesity found 38% had fatty liver.

Certain **Cancers** have shown a major rise and are taking a mounting toll on the PRC economy and society, evidenced by a 33% increase in deaths from malignant cancers during the past 30 years. The Ministry of Health has pointed to the trend toward unhealthy transformation of diet structure and lifestyle over the past 20 years as a major contributor to this trend. Overweight and obesity relate closely to breast cancer and colorectal cancer. Insufficient intake of fruits and vegetables relates to colorectal, gastric, breast, and esophageal cancers. In the PRC 1.5 million people become new cancer patients and more than 800,000 people die of cancer annually. Diet related cancers amount to an estimated 60% of all cancers, resulting in some 1,050,000 new diet-related cancer patients each year in the PRC. Some 560,000 of them will die of these diseases.

II. 4. A Potential Crisis of Expansive Chronic Disease

It was noted above that, in the absence of decisive action, the alarming rise of over-nutrition among youth and young adults would portend a rising toll of chronic disease on PRC economy and society in the near future. Before concluding this section, it is important to stress another critical reason for giving greater prominence to this issue and taking much more comprehensive actions on public nutrition.

It has been noted that in the last three decades, the PRC has undergone a globally unprecedented transition. However, it is precisely because of this progress that the problems of undernutrition, micronutrient deficiencies, and overnutrition noted above are so integrally linked in the country. This linkage is quite plausible, and to a degree that has not yet been observed globally. This final subsection considers one such linkage that suggests the PRC sits at a critical stage and that in addressing public nutrition problems it will avert a potential time bomb that has already begun to show itself in the form of rising chronic disease.

As noted in Box 2, there is an increasing array of international evidence²⁴ to support the Barker

²⁴ Evidence on the impact of fetal nutrition is especially strong. For a broad review, see Bihl, G. R., 2003. “Intrauterine Growth and Disease in Later Life (online at <http://www.medscape.com/viewarticle/453242>).



hypothesis, and more broadly that under-nutrition during fetal development and early in life permanently affects metabolic physiology such that:

- individuals who are **undernourished** at critical early development stages-especially during fetal development through early childhood-suffer a pre-disposition towards diseases of **over-nutrition** if they take on more affluent diets later in life: Therefore, compared to individuals consuming those same diets but who were not malnourished early in life, those who were undernourished face greater risks of conditions like obesity, hypertension, heart disease, and certain cancers.

To demonstrate the significance of this in the PRC context, a useful starting point is the official estimate of rural poverty at the onset of the PRC's reforms in 1978, the first year. For 1978 official figures state that roughly 250 million or 31 % of the PRC's rural population lived under per capita incomes of 100 RMB per year, the national poverty line that was loosely linked to the concept of "*wenbao*" (ability to obtain minimum food, clothing, and other essential requirements). By international standards, that poverty line is considered to have been austere and it is highly likely that a sizeable share of the urban population also faced diet inadequacies and other harsh living conditions, but were not officially recognized as poor, because the definition was restricted to rural areas.

Using a very simple conservative estimate based on these figures, in 1978 at least one-fourth of the PRC's pregnant women and infants and children aged 0-5 were living in poor families. This is likely a major understatement of the share of the population that suffered the effects of malnutrition during their critical development stages because a large portion of the population has lived on the brink of poverty (with incomes just above the official poverty line), and that there is considerable transience of low-income families into and out of absolute poverty.²⁵

Looking to the present day, the conservative estimate based on 1978 official poverty figures, implies, that **at least one quarter of adults now reaching their 30s suffered effects from malnutrition during critical fetal development through early childhood and this predisposes them to certain chronic diseases.**²⁶

This is the same population cohort that is increasingly upwardly mobile, adopting urban lifestyles, and consuming more affluent diets. International evidence would suggest that this situation poses a time bomb that will manifest itself in still further increases in obesity and chronic diseases as this population cohort ages.

If this scenario occurs, the PRC faces a specter of spiraling chronic disease and increasing burdens on the health sector and economy. However, it also underscores the need for the PRC to act boldly, taking decisive and coordinated multi-sector action in order to radically decrease the burden of diet-related chronic disease in the coming years. These actions need to include public education targeted at the adult population on the chronic disease risks associated with unbalanced nutrition as part of comprehensive public nutrition efforts under Government policy guidance.

²⁵ See, for example, ADB. 2004. Poverty Profile of the People's Republic of China. Manila.

²⁶ The share of PRC residents now reaching their 40s and 50s would clearly be much greater.



III. IMPLICATIONS OF PUBLIC NUTRITION FOR NATIONAL DEVELOPMENT

As outlined in the previous section, while the PRC's sustained economic development has brought improvements in some facets of the population's nutrition status, considerable challenges remain. Problems of under-nutrition, micronutrient malnutrition, and over-nutrition are both important and complex. They are interlinked with other development challenges and the substantial burdens they impose on the PRC society and economy which cut across population groups and sectors, hence addressing these problems will require coordinated cross-sector responses.

Illustrative of this, the following subsections draw heavily on the 12 studies noted in Box 1, and look at the interrelationship between nutrition and several development pillars that must underpin achievement of national targets for a broadly well-off, high quality population and harmonious society.

III. 1. The Impact of Nutrition on Health and Social Economic Development²⁷

III. 1.1. Progress in PRC Public Health

Health is at the core of human development and overall population quality in the 21st Century and nutrition is a primary foundation for good health. Public health and nutrition are closely linked with the PRC's economic development, its progress in terms of social civilization and its ability to compete internationally in the world of the 21st Century. Since 1949, the PRC has made giant strides in improving the health of the urban and rural population. Maternal mortality has been reduced from 1,500 per 100,000 births in the 1950s to less than 43 per 100,000 births in 2002. Many acute and chronic diseases including smallpox, plague, cholera, malaria, and several endemic diseases have been effectively controlled. Ministry of Health statistics on 26 contagious diseases show the total prevalence rates declined from approximately 8,700 per 10,000 in 1957 to less than 193 per 100,000 in 2003. In 1988 the PRC reached the goal of a minimum immunization target of 85% in all provinces in 1988 and in all counties by 1990. Contagious diseases, prevalent through the 1970s, are no longer the principal threats to the health of the country's urban and rural populations.

These achievements helped lower infant mortality from 200 deaths per 1,000 live births before 1950 to 32 deaths per 1,000 live births in 2004. This rate is similar to the international average of middle income countries. Average life expectancy of urban residents increased from 35 years before 1950 to 57 years in 1957 and to 71.4 years in 2000. Life expectancy in Beijing is 76.4 years.

III. 1.2. Nutrition-related Diseases as a Key Constraint to Improving Population Quality

Many nutrition-related diseases affect growth, development, and intellect in a permanent way with physiological and pathological impacts ranging from damage to the immune system and organ lesions, to disability, lost productivity, cognitive impairment, and a shortened life span.

Nutrition-related diseases of the urban and rural populations in the PRC fall into three major categories. The first is malnutrition caused by insufficient intake of energy and protein. This type of malnutrition is

²⁷ Unless otherwise noted the data for this subsection came primarily from the review paper, "Nutrition and realization of Universal Xiao Kang Society," by Prof. Zhou Heichun, supported by the TA, 2004



most often linked to poverty and inability to achieve sufficient nutritious food and household food security. However, low awareness among consumers about nutrition is also important, while inadequate or inaccurate labeling and even adulterated foods (e.g., the widely publicized 2004 case of fatal under-nourishment of babies in Anhui from fake milk powder noted in Section III. 4.2) can also be factors.

A second type of malnutrition is often referred to as “hidden hunger” resulting from insufficient intake of certain vitamins and minerals causing birth defects, diseases such as anemia, night blindness, and osteoporosis, as well as lowered immunity, impaired cognitive development, poor mental performance, and lowered productivity. This type of malnutrition is complicated by the fact that there are often no overt signs of the deficiency, while human needs for many essential micronutrients change at different periods during the lifecycle. As shown by the PRC’s 2002 National Nutrition and Health Survey and detailed in the Introduction, while rural areas typically suffer the heaviest burden, various debilitating vitamin and mineral deficiencies are prevalent throughout the PRC, and require significantly enhanced efforts that cut across health and other sectors. Programs such as micronutrient fortification of staple foods and condiments, provision of micronutrient supplements for vulnerable groups (e.g., pregnant women, young children, and older adults), and effective nutrition education promoting a varied diet of vitamin and mineral rich foods all need to be substantially strengthened and expanded in the PRC.

The third major type of malnutrition relates to a poor balance and/or excess intake of energy, harmful fats, and cholesterol. This type is manifested by obesity, renal and liver diseases, high blood pressure, diabetes, atherosclerosis, and coronary heart disease, related to the excess of multiple nutrients. In addition, imbalanced intake of certain nutrients such as fat and dietary fiber over the long term may lead to even more serious diet related diseases such as colon cancer, breast cancer, and liver cancer. The unprecedented increase in the prevalence of these nutrition-related diseases in the PRC and other countries is linked more to nutrition excess or imbalance in the abundance of food rather than from food shortage. They can strike all populations, rich or poor, urban or rural, young and old; along with some genetic factors, insufficient knowledge and attention to diet structure and nutrition are key causes.

III. 1 .3. Nutrition as a Potential Achilles Heel Threatening Further Progress

Much of the overall health status improvement in PRC is a result of improving living standards brought about by sustained social and economic development, especially since broad reforms and opening up to the outside world in the late 1970s.²⁸ The PRC is at a crucial stage of economic development. On one hand urban areas and some rural/peripheral areas of eastern provinces have witnessed a dramatic transition in living standards, moving well beyond bare subsistence. At the same time, as noted above and in Section III. 3. 2, the Government is stepping up efforts to address persistent problems of rural and urban poverty, and increasingly to meet the needs of the so called “low-income” population just above the rural absolute poverty line, migrants, etc.

Although the urban and rural residents have largely broken free from the threat of acute and chronic contagious diseases, no significant improvement is found in their physical constitutions. The steady growth of the economy has brought the urban and rural residents more disposable income and a greater variety of food in their market basket. As noted in other sections, with neither a solid system of nutrition education nor the necessary mediation of a strong nutrition policy, malnutrition; nutrition imbalance, and chronic diseases

²⁸ The PRC’s per capita GDP has grown from 379 Yuan in 1978 to 10,533 Yuan in 2004, crossing the threshold of US\$ 1,000 equivalent by 2003.



related to nutrition excess are rapidly increasing among the urban and rural populations each year. Found in all age groups from infants, toddlers, young children, adolescents, middle aged up to the elderly, nutrition-related diseases are occurring at a younger age, and are fast becoming the major threat to the health and wellbeing of both urban and rural people. Chronic diseases, such as obesity, high blood pressure and diabetes, are spreading as a trend from the high-income group down to the middle and lower income groups.

Ministry of Health statistics show as many as 15,000 people dying each day from chronic diseases. Malignant tumors, cerebral vascular disease, and heart disease ranked among the top five causes of death in some cities in 2000, accounting for 63.40% of all disease related mortalities. These chronic diseases, primarily the result of poor diet structure and lifestyle, have replaced contagious diseases as the greatest enemies threatening the life and health of the urban and rural population. Prevalence rates of nutrition-related chronic diseases, including obesity, high blood pressure, cerebral cardiovascular diseases, diabetes and 60% of tumors, are increasing faster than in developed western countries during their transitional period.

In this crucial period of development, the diseases of over-nutrition, coupled with micronutrient deficiencies and some pockets of inadequate nutrition among poor/vulnerable groups, are now major risk factors affecting the population's health. They also pose major constraints on labor capacity and productivity forces, and impede the development of cognitive capacity, in turn depressing development of the knowledge economy in the PRC, long-term growth, and achievement of a harmonious, balanced, and well-off society. Additionally, as highlighted in Section III, 3.1, nutrition-related diseases already place major social and economic burdens on families and the public health sector, and projected costs and the burden on the health system if current trends continue unabated are enormous.

III. 2. Nutrition and Education as Joint Determinants of Population Quality²⁹

With a per capita GDP over US\$ 1,000 and an Engel Index below 50%, the PRC has entered an era of a well-off society. The PRC now prioritizes improvement of comprehensive "population quality", needed to be internationally competitive and integrated in the global economy of the 21st century. Achieving these aims will require urgent investment in public education and major new policies and programs to improve public nutrition.

Nutrition and education both co-determine full human-capacity development and are interrelated wherein nutritional status affects learning capacity and educational achievement affects nutritional choices for the individual and her family. Nutrients play a major role in health and intellectual development while education brings culture, knowledge and skills.³⁰ A lifecycle approach to nutrition (fetal, infant, child, adolescent, young adult, adult, and elderly), and a lifetime approach to education (infant stimulation, early childhood, adolescent and young adult, adult, and elderly) are inter-related co-determinants of an individual's well-rounded development and overall productivity. A population's quality, in terms of the intelligence, creativity, and innovative ability of its citizens will better a nation's fortune more than simple possession of natural resources in the 21st Century.

²⁹ Unless otherwise noted the data for this subsection came primarily from the review paper, "Nutrition and Education Jointly Determine Population Quality and Capacity," by Prof. Hu Chengkang, supported by the TA. 2004

³⁰ Nutrition problems in early childhood, may lead to permanent cognitive impairment and a productivity loss of 10% when the children become adults. A 27-year nutrition program in Guatemala from 1969 to 1997 showed long term improvement in children's learning capacity in numeracy, vocabulary, reading, and knowledge levels. Even when the intervention was only energy and micronutrient supplementation for children below 3 years of age, the effects lasted into adulthood.



Strengthening Public Nutrition Planning and Policy in the People's Republic of China

Focused Synopsis of Research and Expert Consultations on Public Nutrition and the PRC's Eleventh Five-year Plan

Under the PRC Government's guidelines of "education for all" and "all people caring about education", education in the PRC took unprecedented strides. By the end of 2004, areas that had essentially universalized 9-year compulsory education comprised 93.6% of the PRC population, with illiteracy rate among youth and middle-aged populations falling to roughly 4%.³¹ While indicators of scientific and cultural knowledge among PRC students continue to rise, skills levels and overall quality remain significantly lower than students in Japan and the USA (See Box 4.)

To further improve, the Ministry of Education is implementing a "Plan of Action for the Rejuvenation of Education for the 21st Century", and the Party Central Committee promulgated the "Decision on Deepening Education Reform and Full Promotion of Quality Oriented Education".

As noted below, however, there are signs that education policies and programs are increasingly being undercut by serious underlying problems of students' nutrition.

Box 4: Japanese Students Are Now Taller Than Chinese Students and Rank Higher in Growth, Development and Physical Conditions

Overall among 18-year-olds, Japanese are 1.3 cm taller than PRC residents of the same age and Japanese students rank at the top of international comparisons for growth, development indicators and physical constitution. Japanese students surpass PRC students on nutrition indicators and the overall average IQ among Japanese is now 115.

Japan provides valuable lessons learned for the PRC in terms of the linkage of nutrition and education. National legislation in the late 1940s linked education and nutrition and the popularization of a comprehensive school nutrition program in Japan began in the early 1950s. The country gives joint priority to developing school education and assuring good nutrition through provision of in-school meals, exercise programs and nutrition education.

III. 2.1. Poor Nutrition as a Mounting Obstacle to National Education Objectives: Are PRC Children Falling Behind?

A major constraint on more rapid and further educational improvement (as enrollment has reached near universal levels over the past 20 years) is an overall decline in students' health status in several key dimensions noted below. Inadequate nutrition, vitamin and mineral deficiencies, and over-nutrition are all contributing factors to student health and to student cognitive and physical abilities.

Children's growth patterns are a sensitive indicator of overall nutrition improvement, and while each ten year cohort of children in the PRC has grown taller than the one before it, this growth is not as significant as it could be. Studies show that good nutrition does have an impact on growth and on prevention of obesity in students. Height increases of 2-3 cm were found among both primary and secondary level students in Beijing, Shanghai and Hangzhou where nutritionally-balanced meals were provided in schools.

International research has conclusively found that nutrition problems in infancy, childhood and adolescence are related to later health problems that were previously associated with hereditary or nutritional problems around the age of disease onset. Diseases in these categories include obesity, high blood pressure, diabetes, cardio-cerebral vascular diseases, osteoporosis and diet related cancers (gastric, intestinal, colonic and breast cancer).

As noted earlier, obesity in school-aged children has risen dramatically. By some estimates, the prevalence of obesity in Beijing's primary and secondary schools now exceeds 20% (versus only 5% in 1980), with one of three students being overweight. The obesity rate in schools without the nutrition-bal-

³¹ Source: Ministry of Education statistics posted at <http://www.jxgdw.com/jxgd/news/gnxw/userobject/1ai517430.htm>.



anced meals is 15% higher than those with nutritionally balanced programs. A study of 3,260 students found that malnourished and obese students were seldom able to perform as well as well nourished students in skills class and were less interested in the more complicated class handicraft projects. Another study in the PRC found that stunted and obese students have substantially higher rates of moodiness, self blame, depression, and other psychological disorders (17.5%) compared to students with normal nutrition status (11.5%).³²

Nutrition problems among students in the PRC also impair physical capacity. A 31 province survey conducted by 11 departments including the State Sports Bureau, Ministry of Education and Ministry of Health, found declines in students' vital capacity, speed, endurance, flexibility, explosive force and strength.

A study of 36,100 students in pilot schools of the student milk project and soybean project and others where nutritious meals are provided showed these students to have far better cognitive abilities, responses, study efficiency and grades and fewer common colds than in schools without these nutrition interventions.³³

III. 3. Nutrition as a Key to Economic and Social Development and Poverty Alleviation in the PRC³⁴

The linkage of public nutrition to a population's overall health among all major age groups and to educational achievements result in a direct and obvious corollary to overall economic and social development. Recent data is clarifying the size and nature of the impact of public nutrition on overall national development of the PRC.

III. 3.1. The Burdens of Poor Nutrition on PRC Economy and Society

At the macroeconomic level, international cross-sectional and time series data show per capita GDP and economic growth to be strongly correlated with national nutrition status, and it is clear that the causality works in both directions (i.e., nutrition and growth form a virtuous cycle).

In 1997, the PRC accomplished its grand objective of redoubling 1980 per capita GNP, three years ahead of schedule. In 2003 the per capita GNP amounted to \$1,090, crossing the threshold of US\$1,000 equivalent. Meanwhile, the share of food in total consumer expenditures (the Engel Coefficient) had fallen from 57.5% to 37.1% from 1978-2003 in urban areas and from 67.7% to 45.6% in rural areas.

Set against this growth, however, it is clear that health (including adverse conditions caused directly and indirectly by poor nutrition) take a heavy toll. While it is difficult to assess the share of such losses attributable to nutrition, according to data released by the Ministry of Health, economic damages caused by diseases, injuries and early mortalities amount to up to 8.2% of per capita GDP, and the relevant cost of medical resources amounts to 6.5% of the GDP. Available data give a still clearer picture of the toll of poor nutrition at the household level: estimates of the per patient medical costs of nutrition-related diseases common from age 50 to 80,

³² "Nutrition and Education Jointly Determine Population Quality and Capacity" by, Prof. Hu Chengkang, Review supported by the TA, 2004.

³³ In another study aimed at better understanding the characteristics and changes in physical constitution of students in the PRC, the Ministry of Education, Ministry of Health and State General Administration jointly conduct a survey every 5 years. The survey includes measurement of activities including a 50-meter run, standing long jump, boys' pull-ups, and side pull-ups, girls' push-ups, and standing trunk flexation. The results of these surveys have shown better comprehensive physical fitness among those students with good nutrition compared to those who are malnourished and those who are obese.

³⁴ Unless otherwise noted the data for this subsection came primarily from the review paper, "Nutrition and Poverty Alleviation, and development of the Western Regions," by Prof. Wang Weinong, supported by the TA. 2004.



excluding emergency hospital treatment, are as follows:

- Hypertension - 15,000 to 70,000 Yuan,
- Diabetes - 25,000 to 130,000 Yuan,
- Cardiovascular diseases - 50,000 to 300,000 Yuan,
- Osteoporosis - 30,000 to 150,000 Yuan,
- Obesity - 75,000 to 250,000 Yuan, and
- Gout - 55,000 to 160,000 Yuan.

The high medical costs of cancer are beyond reasonable estimation, but available figures give some rough picture of their enormity.

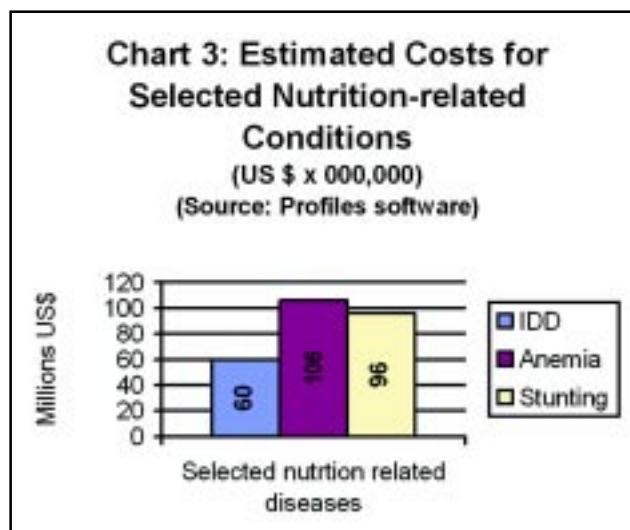
Statistics from some Asian countries place the cost of childhood malnutrition at 2-5% of national income. For the PRC, if the annual cost of treating one obese patient is around 5,000 Yuan, treating the current 50 million patients will cost 250 billion Yuan or 2.1% of the PRC's GDP in 2003. Similarly, the cost of hypertension treatment at 1,000 Yuan per patient for 128 million people yields 128 billion Yuan (1.10% of GDP) and for diabetes patients at 3,400 Yuan each the amount is 83.3 billion Yuan for the 238 million people affected (equal to 0.71% of GDP).

A conservative estimate using the PROFILES computer modeling software³⁵ shows the annual costs related to nutrition in the PRC as follows:

- Iodine deficiency - US\$ 160 million,
- Anemia - US\$ 106 million, and
- Stunting - US\$ 96 million

These estimates do not include treatment for nutrition-related cancers such as esophagus cancer, colon cancer and breast cancer, which account for 70% of all cancers.

The costs of nutrition-related chronic degenerative diseases (hypertension, diabetes, and cerebral-and cardio vascular diseases) in 2003 accounted for 30% of the total cost of health resources, or 650 billion Yuan, compared to the costs of disease and injury related damages estimated at 800 billion Yuan. These expenses in 2003 were five times those of 10 years earlier. But these medical care expenditures mask a much larger social and economic cost. For example, while it is impossible to place a figure on the tragic death and permanent impairment of "big head babies" afflicted by the milk powder scandal in Anhui in 2004, as noted in Section III. 4. 2, childhood malnutrition has been estimated to depress the PRC's GDP by 2-5%, or on the order of 220 to 550 million Yuan. These amounts come into sharper focus when compared to major national investments. For example, the "Three Gorges Dam" project is estimated to cost 200 billion Yuan spread over 15 years, and the construction cost of hosting the 2008 Olympics will be just below 280 million Yuan.



³⁵ PROFILES is computer program that uses spreadsheets and graphs to graphically demonstrate the cost to current nutritional problems to society and government, the potential benefit of addressing these problems and the impact of various nutrition programs.



Research during the 9th Five Year Plan period indicated that a one Yuan investment in disease prevention results in a cost savings of 85 Yuan in terms of medical expenses and 100 Yuan spent on emergency rescue. It is difficult to disentangle the exact share of nutrition-related chronic disease from such figures, but it is clear from such figures that a strong, cross-sector prevention effort is a well justified strategy to help address nutrition-related diseases including hypertension, diabetes, cerebral- and cardiovascular diseases.

III. 3.2. Nutrition and the Campaign to Reduce Poverty

Malnutrition is both a sign of poverty and one of its leading causes. The United Nations Development Program (UNDP) defines poverty not only as insufficient income, but as the exclusion of opportunities and the right to choose opportunity essential for human development. Such opportunities and rights to choices lead people to prolonged, healthy, and creative lives, benefiting their dignity, freedom, self-esteem, and respect.

Poverty thus extends well beyond income alone, as increasingly recognized in PRC policies and programs for poverty reduction.³⁶ It includes the lack of human capacity due to inadequate educational opportunities as well as nutrition. International research on development demonstrates that poverty cannot be eliminated through economic development alone, a point also reflected in the PRC's new doctrines of science-based development and human-centered development³⁷.

Estimates and evidence compiled via a series of Asian Development Bank regional technical assistance-funded studies (see Section 1.2) indicate that (i) nutrition-related losses from lower productivity alone is on the order of 2-3% of GDP in some countries; (ii) there is a strong correlation between height and a person's productivity, with a one percent decrease in height associated with a 1.4% loss in agricultural income in the Philippines; and (iii) iron deficiency anemia is associated with a 20% reduction in productivity among sampled groups of physical laborers in Indonesia. In the PRC, Professor Chen Junshi has pointed out that "some nutrition-related problems are occurring in much younger age groups and affecting a large number of people in the labor force. This has become a great constraint to productivity rate and economic development."³⁸

In 2004, 26.1 million rural PRC residents lived on incomes below the official poverty line of 668 Yuan, many of whom are in the PRC's Western Region and in ethnic minority areas emphasized in recent national poverty alleviation campaigns under the National Seven-Year Priority Poverty Alleviation Program and its successor, the China Rural Poverty Alleviation and Development Framework (2001-2010). Many of the rural poor suffer from poor environmental conditions, insufficient education and health care, and inadequate nutrition³⁹, resulting in lower than average physical growth and intellectual development.

³⁶ See, for example, remarks by Liu Jian, head of State Council Leading Group Office of Poverty Alleviation and Development, published in the People's Daily October 21, 2004.

³⁷ Premier Wen Jiabao's March 2005 Report on the Work of the Government highlighted plans to address major challenges in restructuring the economy to diminish the state sector and expand the private sector, while maintaining "financial" security and building up "natural and human resource security."

³⁸ Geographic study of mortality, biochemistry, diet and lifestyle in rural China (Surveys in 1983, 1989 and 1993 of biochemistry, diet and lifestyle in 69 nationally representative rural counties, and correlations with cause-specific death rates in those counties in 1973-75 and 1986-88), Principal investigators: Chen Junshi, Chinese Academy of Preventive Medicine., <http://www.ctsu.ox.ac.uk/~china/monograph/Intro.htm>

³⁹ Inadequate nutrition," refers to inadequate diets in terms of protein and energy or micronutrient deficiencies which are widespread in these areas.



In recent years, national poverty alleviation programs and strategies have been primarily development- and production-oriented, giving priority to agriculture (planting and breeding and processing industries) and it is intended to result in improvements to the affected population's basic needs which include nutrition. However, evidence suggests that the efficacy of growing resources devoted to poverty alleviation is declining.⁴⁰ This reflects, in part, the shifting nature of poverty in the PRC, and the Government increasingly recognizes the need for better targeted, innovative approaches to simultaneously address (i) persistent absolute poverty, which increasingly is concentrated in remote communities and hard-to-reach groups, such as the elderly and disabled; and (ii) the vulnerability of a much larger low-income population living at the brink of poverty.

At the same time, it is also clear that national poverty alleviation efforts and the poverty-reducing effects of macroeconomic growth are undermined by the large numbers of people who suffer from various forms of malnutrition. As argued in Section II.1, a new mindset is thus needed: poverty reduction will require ending the vicious cycle of malnutrition and poverty, which simultaneously depresses population quality and broader economic development.

Public nutrition must be a key component to addressing the PRC's rural poverty, which is increasingly confined to hard-to-reach groups such as ecologically fragile areas of the Western Region, remote minority communities, the elderly, disabled, and female-headed households. At the same time, in addition to the 26.1 million rural poor living below 668 Yuan per day in 2004, the Government increasingly recognizes the need to meet the needs of still larger populations, including

- another 49.8 million people living at the brink of poverty, below the low-income threshold of 924 Yuan (a level closer to the international \$1 per day standard) in 2004;
- an estimated 14.7 million urban poor living below various local poverty lines in 2002 (4.73% of the population with urban registry); and
- A "floating population" on the order of 100 million, generally not captured in rural or urban poverty figures (although this is expected to change).⁴¹

To varying degrees, malnutrition (especially micronutrient deficiencies) is believed to threaten at least sizeable segments of these populations; hence nutrition should be a key thrust of growing efforts aimed at ensuring the wellbeing of these groups and their inclusion in harmonious societal development.

⁴⁰ ADB. 2003. *Technical Assistance to the People's Republic of China for Policy Study on Poverty Reduction Strategy: Trends, Challenges, and Future Directions*. Manila.

⁴¹ Source: Spohr and Wu, op. cit.



III .4. Development and Quality Control within the Nutrition Industry: Challenges to Realizing Industry's Potential Role as a Driving Force in Improving Public Nutrition in the PRC⁴²

III. 4.1. Current Status of the Food Industry of the PRC

The PRC Food Industry grew rapidly from 1980 making it a pillar industry of the national economy. By 2000 the output value was over 840.4 billion RMB.⁴³ In the first half of 2004⁴⁴ the food industry, grew by more than 25 per cent and sustained a consistent growth of over 20% through the rest of 2004 and the first half of 2005. In 2004 this sector generated an estimated industrial value of over 1,400 billion RMB, close to 10 per cent of the country's total. The industry's performance has been based on national efforts to expand the agricultural sector with emphasis on food processors, as well as growing domestic demand for processed foods.

The PRC is both a major producer and consumer of food and food ingredients but there remains a greater demand for food-related products and than the domestic market can supply. Demands for new and more processed foods have steadily increased due to the country's high economic growth rates and related gains in living standards. The demand for imported finished food products continues to rise with increasing emphasis on foods more common in the West. Because the PRC's food and nutrition industries demonstrate high demand for new, advanced food technologies, there is large commercial interest in direct investment, strategic alliances, joint ventures, technology transfer, and the direct purchase of food and advanced ingredients from the government, and from food and food ingredient manufacturers. This interest also extends to modernization of food plants, giving major opportunities for domestic and foreign manufacturers of food production equipment.

This major sector has several potential linkages to better public nutrition. These range from new agricultural product development such as biofortified varieties of staples, such as rice and wheat, to improved self regulation of pesticides and chemical use and to better standards of hygiene in many areas of food processing and storage. Particularly where the food production and processing industry lacks market incentives and/or capacity for effective self-regulation, a stronger system of Government standards, regulations and enforcement is required.

III. 4.2. Increased Concern for Food Safety and Quality: Growth of "Green" Foods

Over the past year food producers and processors have greatly increased their concern for, and emphasis on, food safety and nutrition, based in part upon new consumer demands following the food poisoning cases in 2004 and the fake milk powder scandal that led to 13 deaths and the malnutrition of 189 babies in Anhui Province.

A recent increase in "green" foods has emerged with annual production of Green food products by 2003 at a level of 15 million tons, or three percent of the food market. This level is well below potential demand as increased per capita income has changed demand with more people caring about their nutrition and health and understanding that green foods are produced without pollutants and under better quality control. The average income of the PRC's urban and rural residents increased from 904 Yuan (109 U.S. dollars) in 1990 to 1,571 Yuan (190 U.S. dollars) in 1999.

⁴² Unless otherwise noted the data for this subsection came primarily from the review paper, "Development of the Nutrition Industry" by Dr. Zhou Haichun, supported by the TA. 2004.

⁴³ Yang Ruoqian, 2003, People's Daily, <http://english.people.com.cn>

⁴⁴ China Daily, June 2005. Wang Wenzhe, President of the China National Food Industry Association.



Strengthening Public Nutrition Planning and Policy in the People's Republic of China

Focused Synopsis of Research and Expert Consultations on Public Nutrition and the PRC's Eleventh Five-year Plan

As the Engel coefficient (the proportion of food expenditure in overall consumer expenditure), dropped from 60.3 % in 1990 to 49.3 % in 1999 there was a corresponding rapid growth of green food with more than 1,300 farm products being categorized as green in 1999, compared with 127 in 1990.⁴⁵

Food trade is also critical for the PRC with 2004 exports of food products reaching approximately US\$ 18 billion while imports reached record amounts that yielded an overall trade deficit for the sector.

III. 4.3. The Emergence of the Nutrition Industry Sub Sector

Although growing rapidly, the nutrition industry subsector of the PRC is only in its initial stage of development when compared with Western countries. Most companies are small-scale with outdated technology, produce only a small variety of products, and operate without or outside guidance from Government regulations.

As defined by USA standards, the nutrition industry focuses on production and marketing of dietary supplements, functional foods, natural/organic foods and personal care products. Dietary supplement sales internationally have an impact on the nutrition industry in the PRC because many raw ingredients come from this country at low prices. DSM (formerly Roche) is the largest vitamin producer with 40% of global market share. BASF is the second largest with 21% of the world market, followed by producers in The PRC.

Enhanced public nutrition programs in the PRC will likely include as priorities both vitamin and mineral supplementation for large population groups at risk for deficiencies and larger programs for fortifying staple foods with vitamins and minerals.

Micronutrient minerals for which there are large population groups at risk from deficiencies, include iron, calcium, iodine, magnesium, selenium and zinc. Important micronutrient Vitamins include Vitamin A, the B Vitamins (especially folic acid and niacin), Vitamin C, Vitamin D, and Vitamin E. The Nutrition Industry of the PRC has already demonstrated its technological prowess in producing many of these vitamins and minerals at high quality and at low cost. Domestic vitamin and mineral premix manufacturer are already developing and producing high quality formulas for fortifying products ranging from milk powder to soy sauce and wheat flour. The domestic market for these supplies will continue to increase and the major international export market for both food grade vitamins and minerals and for food fortification premixes can open major opportunities for PRC manufacturers provided prices are kept low and quality high⁴⁶.

III. 4.4. Industry's Potential Leading Role in Promoting Improved Public Nutrition

A key role of the nutrition industry in improving public nutrition will be for industry leaders to take a proactive role in food fortification with those vitamins and minerals for which deficiencies are common in various population groups. The PRC's Salt Industry became a global example in the 1990s by making the addition of iodine a standard practice for all salt for human consumption. Some large companies in the Soy Sauce industry are now adding iron to their product to help prevent anemia, and major efforts are underway to add key vitamins and minerals to wheat flour, cooking and salad oils, rice and milk among other staples. Throughout Central and South America staple food processors have led the movement in improving staples by adding micronutrients. In other countries, Government has taken the lead through regulations and legislation.

⁴⁵ China Daily, 4 October 2002. China Green Food Development Center (CGFDC).

⁴⁶ The production of vitamins by PRC companies in 2001 included 48,700 mt of vitamin C, 40% of world production; 12,000 mt of vitamin E, 30% of world production, and 3,000 mt of vitamin A, 10% of world production.



The Nutrition Industry of the PRC has a major opportunity to play a leading role in improving public nutrition. Key actions where leadership and action is needed include food fortification, food safety, nutrition labeling of all processed foods and major nutrition education efforts to help prevent dietary practices that lead to obesity and diet related chronic diseases. There is also an urgent need for the industry to increase research and development on new, more healthy food products that capture consumer demand and more widely distributed and marketed products that bring important macro and micronutrients to groups at high risk such young children, pregnant women and the elderly in BOTH urban and rural areas.

One demonstration of the potential for generating rapid growth in a nutritionally important food production and processing industry has been that of dairy products. Pro-dairy production policies led to a rapid increase in domestic dairy production and milk consumption. Between 1998 and 2002, total milk production increased 16.7% and among urban residents consumption of liquid milk rose from 7.88 kg per capita/year; in 1999 to 15.72 kg per capita /year, in 2002, an annual growth rate of 26%. Milk consumption, which provides both protein and a high level of calcium, has also been boosted through the large School Milk Program of the Ministry of Agriculture and Ministry of Education. However, there remains major room for improvement in areas of quality. The production methods remain underdeveloped with most milk coming from individual farmers with small numbers of cows (5-10) and problems of quality control and environment pollution. Several milk poisoning incidences among children in the “School Milk Program” had a negative impact on its implementation and further development of a dairy market.

This industrial subsector will be a key element in a national strategy to improve public nutrition on a population wide basis in the PRC and should have special attention from Government to encourage and support its development. The proposal for a special “Nutrition Industry” development park with a package of incentives and Government support may be an effective and leading strategy toward rapidly boosting the size and strength of the Nutrition Industry and assuring that is it guided in both socially responsible and market responsive directions.



IV. PUBLIC NUTRITION POLICY AND NATIONAL DEVELOPMENT: INTERNATIONAL MODELS AND LESSONS LEARNED⁴⁷

Despite the pivotal role of public nutrition for PRC development, as outlined above, a key challenge to date and obstacle looking ahead has been that the PRC has not had a legislation-based systematic nutrition policy. Similarly, decision-makers have often tended to view nutrition problems narrowly, commissioning multi-sector groups to do national reviews and guidance reports but leaving actions to improve nutrition and the resources needed to carry them out to the responsibility of separate sectors: mainly health, agriculture, light industry and to a lesser extent, education. Regulatory responsibilities and quality standards related to nutrition are also relatively diffused among different agencies. By contrast, most developed countries have well-defined, systematic national nutrition policies, pay attention to nutrition work, and provide major financial support to this area. Experience from both developed and some developing countries demonstrates that public nutrition improvement at the citizen level is a complex cycle requiring both policy reinforcement and economic growth.

This section briefly highlights the main characteristics of public nutrition policy, legislation, and programs in two very advanced nations (the US and Japan), as well as Thailand, a middle-income Asian country that has faced similar challenges in many respects to the PRC. While approaches in these nations have responded to varied contexts, they commonly serve to highlight the explicit commitment of national leaders, cross sector linkage and coordination of major programs and mechanisms for ongoing review and adjustment to nutrition programs and dietary guidelines based on their achievements and changes in the status of major nutrition problems among the population.

IV. 1. Institutional Mechanisms for Nutrition Policy and Programs in the USA

Generally speaking, nutrition policy in the USA pays major attention to the interactions and balance among nutrition policy, industrial policy and commercial policies regarding food products. It includes four main components:

- National nutrition monitoring carried out by the Centers for Disease Control and Prevention (US CDC) which is under the Department of Health and Human Services.
- Nutrition and quality monitoring of each food by the Food and Drug Administration (FDA), Environment Protection Bureau and the Department of Agriculture.
- Nutrition intervention projects (mainly in food) led by the Department of Agriculture.
- Projects of nutrition education supported by the Department of Education and Department of Agriculture and carried out by schools, social organizations and research institutions.

The main objectives of the US food and nutrition strategy for 2002 - 2007 are (1) to create international opportunities for primary producers, including expanding international markets, supporting international commerce, and providing US farmers with risk management and financial support and (2) to support

⁴⁷ Unless otherwise noted the data for this section came primarily from the review paper, “*Comparative Studies on the Development and Characteristics of National Public Nutrition Policy Frameworks of Japan, Thailand and The United States, Drawing Implications for the PRC*” by Prof. Zeng Hongying, supported by the TA. 2004..



rural economic development and improve the quality of rural life, including two main projects which focus on financial support for new economic opportunities for farmers and to support improved life quality with support for housing and modern infrastructure.

The targets of the strategy are as follows:

- Strengthen protection of national agriculture and the safety of the food supply,
- Control the incidence of diseases relative to meat, birds, eggs and other primary products;
- Control the spread and quantity of pests and diseases to minimize their damage.
- Improve the nutrition and health of people, including their shopping habits and awareness of nutritious food; advocate healthier dietary habits and lifestyles; and improve the management of nutrition projects and the efficacy of customer services.
- Protect and strengthen national natural resources and environment construction.

The four major US laws relevant to nutrition are (1) the National School Lunch Act (1946), (2) the Children Nutrition Act (1966). (3) The Nutrition Label and Education Act (1990) and (4) the Meal Complement Hygiene and Education Act (1994)

Two of these laws focus in guaranteeing nutrition for children while they are growing and two focuses on food standards and the handling of nutrition products by the food industry with special attention to food labeling, authenticity and transparency.

The three major food and nutrition programs of the USA are as follows:

- The Food Stamp Program (FSP) that began in 1969 and initially had 2,878,000 participants and a cost of US\$ 250 million.
- The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) that began in 1974 and initially had 88,000 beneficiaries and cost US\$ 10 million
- The National School Lunch Program⁴⁸ that began in 1969, with a federal expenditure of US\$ 582.5 million.

In 2003, federal government expenditure for the three projects was US\$ 37.253 million, with 21.260 million people receiving food stamps and 7.630 million benefiting from school food programs.

IV. 1.1. The Role of the US Government in Public Nutrition and Implications for the PRC

The federal government Department of Health and Human Services and the Department of Agriculture carry out and supervise the organization of national nutrition policy. There are nutrition experts among the US President's cabinet advisors who put forward suggestions to the president. The FDA with more than 10,500 employees and an annual budget of over US\$ 1.7 billion (2003) is responsible for the security of food. Among its responsibilities the CDC with more than 8,500 employees and a budget of over US\$ 6.8 billion (2003) monitors hygiene and the promotion of more nutritious foods including fortified staples.

US Department of Agriculture and Department of Health and Human Services are mandated by law to develop and revise the US Dietary Guidelines every five years and assist in a national education effort to promote healthy diets and exercise based on each version of the guidelines. Each of the 50 US states also

⁴⁸ This program includes school lunches, breakfasts, students' milk projects, and some food certificates, and goods assistance.



launches versions of the national guidelines: propagation of good nutrition, education and training. All states have nutrition departments in their state governments to carry out monitoring of the nutrition status of the people and to assist with nutrition education. National nutrition surveys have been carried out regularly in the USA since the 1940s and are coordinated by the US CDC. Health care units send the CDC data monthly on nutrition monitoring which allows for ongoing detection of changes which provide feedback for nutrition program work and funding.

Many of these structures and organizational functions, as well as the overall national and state commitments to assuring and monitoring basic nutrition for vulnerable groups can serve as models to be adapted by the PRC as the commitment to public nutrition is strengthened, policy is formed, legislation passed and national program are planned, funded and put into operation.

IV. 2. Nutrition Policy and Programs in Japan

Despite the national economy being at the edge of collapse after WW II, the government of Japan made protecting the people's health a central concept. A government policy to improve all aspects of nutritional quality for people was the focus of a series of legislative acts. Nutrition monitoring has been systematic in Japan since 1959. The Nutritionist Act of 1947 prescribed basic skill requirements of nutritionists and served as the core of a strategy that places nutrition education as the most basic element in improving nutrition status. As a result, Japan has over 200,000 nutritionists responsible for national nutrition education.

Japan's health targets for 2010 are to reduce the burden of social medical treatment caused by illness and disability, prolong people's health longevity and build an active sustainable society. This policy promotes people paying attention to nutrition and healthy life styles. The strategies to achieve these objectives are professional education and social popularization. A measure of the success of this approach that may be useful for the PRC is found by comparing the relatively low cost of efforts for nutrition projects in Japan with those in the USA, which have yielded a considerably longer, healthy life in Japan than in the USA. The Japanese life expectancy is the longest in the world.

IV. 2.1. Overview of Japanese Nutrition Legislation

In Japan, the Ministries of Health, Labor, and Welfare, local governors and superintendents of health care are responsible for the Food Hygiene Law and Basic Nutrition Law. A Food Security Council operates in the cabinet office and is responsible to the Prime Minister.

The "Gastrologist Act" sets criteria for certification and testing of cooks for schools including an experience requirement of at least two years. The "National School Lunch Act" (1954) requires nutritious lunches in middle and primary schools that "promote the body and mind of the students to develop in an all-round way, and improve the life of people at the same time." "Every school leader must implement nutritious school lunches." These clear legal requirements have raised attention to nutrition to a high level throughout the educational system. Implementation rates of nutritious lunches for Japanese pupils are over 99% at primary level and 82.2% in middle schools (1998). Clear operating and hygiene standards for management of food in the school have also been set by the Ministry of Education.

Health care laws for the mother and child were set up in Japan in 1965 which stipulate that mother and child health centers provide necessary aid on nutrition absorption for pregnant and lying-in women and for babies who are younger than one year. The Ministry of Health, Labor, and Welfare carries out annual national nutrition investigations. Local hygiene departments have nutrition investigators appointed by the country. There are nutritionists in every health center and each has responsibility for 20 families.



IV. 2.2. Lessons Learned for the PRC

60 years after Japan made a major commitment to improving nutrition; its population has the longest life span in the world and leads the world in every health index. Unlike in Japan, too few primary and secondary students in the PRC are provided with a nutritious lunch. Most students must either bring something from home or use money brought from home to find food of questionable nutritional quality from small vendors. The obvious benefits to Japanese children from their school provided meals serve as a guide for Government at all levels in the PRC and to motivate parents to understand and to cooperate.

The nutritionist system of Japan is a good example for the PRC. Nutritionists work in hospitals and school refectories and also take charge of nutrition education for ordinary people. They are expected to popularize nutrition knowledge by personal example as well as instruction. The PRC lacks qualified nutritionists and a system of nutrition promotion to arrest the major trend toward unhealthy diets and lifestyles and to assist in assuring food safety and hygiene.

Japan's nutritional success in providing a long and high quality of life for the elderly can also serve as an example in the PRC, including their system of home visits to the elderly which include advice on how to improve their nutrition conditions.

IV. 3. Nutrition Policy and Programs in Thailand

IV. 3.1. Overview of Thailand's Nutrition Policies and Implications for the PRC

The Thailand Government does not view nutrition programs as an economic burden but rather as important mechanisms for national economic improvement and an improved society. The nutrition status of Thai people is high among developing countries and their approach to public nutrition focuses on active programs more than legislation.

Organization of Nutrition Programs in Thailand

The highest level of organization for food and nutrition in Thailand is the National Food and Nutrition Committee. This Committee's president is the Vice Prime Minister and it is regarded as second only to the Committee of National Economy and Social Development. Members of the National Food and Nutrition Committee include chief leaders in the Ministry of Public Health, Ministry of Education, Ministry of Internal Affairs, Department of Commerce, the Ministry of Agriculture, the Directorate of Budgets (the Ministry of Finance), the Institute of Ministry of Civil Affairs, the Ministry of Science and Technology, the Nutrition and Food Research Institute and the National Economy and Social Development Committee. This creates a governmental foundation for nutrition with high level project management and allows overall coordination.

For program implementation and coordination this Committee has similarly structured organizational units at both province and local government levels. The National Food and Nutrition project also has linkages with relevant international organizations and technical departments.

National food and nutrition programs are linked to Thailand's Five-year Plans of National Economy and Social Development and to sub-sector programs. The targets of the first national food and nutrition program were to (1) advance human capability, (2) prolong effective working hours, and (3) reduce the incidence of diseases and the death rate. Programs focused on the linkage between nutrition and specific development areas:

- Assistance to the poor,
- Rural infrastructure construction,
- Medical treatment and health protection,
- Area development.



With nutrition policy viewed as an important component of overall public policy, the Thailand Government tries to harmonize linkages among nutrition, public sanitation, health care, medical treatment, education, industry policy, social development targets, and other aspects of national development.

IV. 4. Summary of Selected International Experiences in Public Nutrition Experience: Lessons for the PRC

While the country programs above reflect different approaches to respond to varying public nutrition priorities, development stages and environments, and institutional factors, the three case studies all underscore the importance of a strong national commitment, including guiding, funding, and coordinating multi-sectoral, multi-level efforts.

In the USA, the central government exerts a major role in several aspects of public nutrition, ranging from major nutrition intervention projects targeting vulnerable groups, to population-wide food safety, including labeling and assuring transparency, and accuracy in nutrition claims. These programs also link to improvement of trade of US food products. Japan pays greater attention to the function of nutrition education, through trained nutritionists with local governments taking greater responsibility for financing their work and to well organize school meals programs. As a developing country, Thailand deals with nutrition as a basic measure of economic and social development rather than in isolation or as an issue related mainly to health.

In all of these countries, national policies have a legislative basis to guarantee that nutrition work has the necessary human and financial resources to be effective. International experience also demonstrates the importance of coordination among industrial, education, and national hygiene policies and programs. Policy to improve public nutrition can not be isolated from other major developmental objectives. The USA links nutrition policy with expanding domestic demands and strengthening agricultural competitiveness. Japan links the concept of healthy nutrition and nutrition education to all aspects of education and has obtained satisfying results with a relatively low national level of investment. Thailand views public nutrition both as a foundation and guarantee of health, thus it strategically invests in nutrition as a means of reducing inputs into national medical costs and medical care insurance. These positions make national nutrition policy advocacy easier and policy formulation process more feasible.

Experience from other countries clearly shows that good public nutrition involves more than addressing problems of special groups and special social strata. Nutrition policy is as integral to development and growth as industrial policy.

In sum, international experience shows that improving nutrition nationally requires a foundation at the highest level of policy and organizational control and active participation by many departments, with coordination mechanisms established and authority provided by the supreme administrative organ(s) of government. For example, there are basic nutrition laws at federal as well as state levels in the USA, and a nutrition advisor serves as a policy advisor to the President. In Japan, more than ten relevant laws have been issued since World War II, and a Food Security Council was set up in 2003. Thailand raised the status of work and resources for public nutrition by listing food and nutrition programming in its Fourth Economic and Social Development Plan. This proved critical to ensuring a commitment of resources for linked interventions spanning key agencies.



V. PUBLIC NUTRITION IS A KEYSTONE TO NATIONAL DEVELOPMENT IN THE PRC: STRENGTHENING POLICY FRAMEWORKS AND PRIORITY ACTIONS

Public nutrition should be among the important components of Government policy integrated into mid and long term planning and annual plans. The population's quality of life and health levels will be enhanced by a substantially greater commitment to public nutrition, manifested through a well managed system with adequate resources. This will facilitate the overall development of people, strengthening the PRC's human resources, and support progress toward a balanced, harmonious, and well-off society.

Currently, the country's public nutrition status and trends are not in concert with social and economic objectives. Serious problems include continued under nutrition among the poor, vitamin and minor deficiencies among those vulnerable at specific life stages, and unbalanced and over nutrition among large numbers of both adults and children, especially in better off and urban areas. Taken in total, clear and definable evidence shows a substantial negative impact of these on health, intellectual development and performance, and educational achievement. They are also adding major burdens to the nation's health sector resources, productivity, and efforts to alleviate poverty.

National specialists in the PRC have found useful and adaptable lessons learned and experience from other countries that could be applied to a more systematic approach to public nutrition in terms of national policy formation, coordinated action, models of resource generation and allocation, and sectoral and intersectoral intervention program design. Both national and international expertise are available to strengthen the public nutrition system.

This section provides an initial outline of priorities and principles for a more systematic approach based on existing national public nutrition recommendations and information, models, and lessons learned internationally. The recommendations come from national and international experts working to strengthen public nutrition planning and policy in the PRC. Some examples of priority actions are suggested for various sectors along with a number of cross cutting recommendations.⁴⁹

V. 1. Key Elements of a Public Nutrition Policy Framework for the PRC

Extensive international experience, dialogue with leading and national and international experts, and cross-cutting analysis of the PRC context suggest the need for nutrition improvement to be guided by three overarching principles. These principles in turn form a basis for priority interventions, as outlined below.

V. 1.1. The Need for Government Commitment to Guide Planning, Assign Resources, and Develop and Adopt Needed Laws and Regulations

The first principle is that public nutrition improvement requires government planning and budget commitment. Public nutrition improvement is one of the government's major responsibilities (public goods and

⁴⁹ This subsection draws from a draft strategic framework paper developed and reviewed via key discussions held within the framework of TA 3992 at the International Consultation Meeting on Public Nutrition in the PRC held in November 2003 and the Technical Steering Committee Meeting held in March 2004. Based on discussions with national and international nutrition researchers and policy specialists the original paper was drafted by Dr. Roger Shrimpton, who is currently the Secretary of the United Nations Standing Committee on Nutrition.



public service), and this can not be left to depend on the market to obtain the critically important results of better health and development for the young, and a reduction of chronic disease among older citizens. Government guidance needs to be bolstered by adoption of legislation needed to support public nutrition and new and stronger regulations to assure compliance and the safety of the consumer. Examples of urgently needed legislation are:

- Required employment and use of professional nutritionists and dieticians in defined roles within the health services, food service industry, and institutions providing food to large numbers of people (hospitals, prisons, large schools, etc.).
- Strengthened legislation (and enforcement) of the International Code for the Marketing of Breastmilk Substitutes.
- Nutrition value labeling of all processed foods
- Stronger food safety regulations

V. 1. 2. The “Lifecycle Approach” as the Basis for Priority Public Nutrition Policy and Interventions

The second core principle is based on strong consensus among national and international public nutrition specialists. This states that major public nutrition interventions be conceptualized and well organized in the context of nutritional needs across the full lifecycle and across generations. This approach addresses nutritional needs and the importance of good early childhood care practice for young children⁵⁰ and the different nutritional needs at each stage of life as well as maternal nutrition's impact on fetal development and the early physical and cognitive development of young children. This approach allows public nutrition planners to assign a measure of vulnerability to population groups at each lifecycle stage based on well known nutrition-related threats related to growth and infectious disease, physical and cognitive development, physical and intellectual productivity, and risk of chronic diseases in later life. A simple matrix developed by national and international specialists illustrates major life stages and examples of major public nutrition interventions appropriate for each. (See Box 5.) on the following page

A powerful example of the interlinkage of life stages is relationship of the mother's nutrition during pregnancy and lactation with the growth and development of the foetus and infant which in turn are critical for defining the life course. The adequacy of fetal and infant growth depends heavily on both the nutrition of the mother and her knowledge and ability to give correct nutrition and care to the infant. Poor optimal nutrition during fetal and infant growth is associated with stunting and the impact at later life stages includes impaired resistance to infectious diseases, reduced intelligence and cognitive function, lower school achievement, diminished physical work capacity, and increased risk of degenerative diseases (high blood pressure, coronary heart disease, diabetes, and obesity). Both the specific nutritional needs of each life stage and the impact of optimal nutrition at one stage on productivity, health, and lowering chronic disease risk in later life, make the lifecycle approach important in organizing public nutrition priorities and major interventions.

⁵⁰ Care practices are well recognized as a key determinant of child survival, growth and development, and the promotion of appropriate family and community care practices to enhance child well being is now a key part of nutrition interventions.



Box 5: Examples of Nutrition Policy Intervention Priorities: A Life Cycle Approach
 (Darker shading indicates life stages with higher priority for interventions listed as examples)

Targeted interventions/Life Cycle	Pregnant/ lactating women	Infants/ young children	School-aged children	Youth	Non-pregnant women	Adult men	Elderly
Good early childhood care practice							
Prevent vitamin/ mineral deficiencies;							
Promote healthy diets and lifestyles							
Fortify staples/condiments							
Advocate and promote breastfeeding							
Supplement high risk/high need groups*							
Promote food security and adequate nutrition for marginalized populations*							
Reduce over-nutrition							
Enhance emergency preparedness							

* These areas of intervention are mostly relevant in areas where there are high levels of poverty and in situations of emergency.

V. 1.3. Public Nutrition as Interdependent with National Priorities for Industrial and Technological Advancement across Sectors.

The third overarching principle is that public nutrition is not merely an issue for the planning and policy of public health or broader social development. Public nutrition is integrally linked to industrial modernization and technological advancement in an array of sectors of vital importance to the continuing development of the PRC. It should be factored into macro-level planning, strategic guidance, and decision making, including setting standards and assuring appropriate regulatory conditions for various industries that play major roles in production, processing, and marketing of food for national consumption and international trade. Development of foods and agriculture products that support improved public nutrition should also be promoted through appropriate policy and regulation. High levels of quality assurance and food safety as well as comprehensive and transparent regulations on food labeling should be further developed in collaboration with the appropriate sectors and industries with both public monitoring and active self regulation and quality control by the producing enterprises. This combination will quicken the development of a high quality nutrition and food industry in the PRC and strengthen its position for international trade. Affected sectors include agriculture, food, light manufacturing and food processing, raw materials, pharmaceuticals, and chemicals.

Under the framework anchored in these principles, the remainder of this subsection focuses on key policy areas and interventions proven critical to improving public nutrition in a range of countries and appropriate to the PRC context.



V. 1.4. Food fortification as a Key Entry Point for Cross-sector, Public-Private Efforts at Improving Public Nutrition.

Fortification of foods for the general population and targeted fortification of foods for specific groups with special vitamin and minerals needs should also be built into the national public nutrition policy framework.

During early childhood, use of fortified cereals has proven effective in providing vitamin and mineral requirements including the high levels of iron needed to assure unimpaired neuro-cognitive development. During school age, fortification of in-school meals or milk can ensure children receive needed vitamins, minerals, and protein needed for full physical and mental development. In most industrialized countries milk is fortified with vitamin D, and several countries have fortified milk with iron. International regulations provide guidance on the levels of fortification appropriate for supplementary foods provided to women during pregnancy and lactation in areas of extreme poverty and in situations of emergency.

Foods suitable for cost-effective fortification with vitamins and minerals needed by large population groups at various life stages include centrally processed salt (fortified with iodine), wheat flour, cooking oil, milk, sugar, soy sauce, and rice. Drinking water is also suitable for fortification and the addition of fluoride in many industrialized countries has been effective in reducing the prevalence of dental cavities.

A food fortification policy for targeted groups will facilitate research as will private sector development and expanded marketing of fortified complementary foods and products for in-home fortification of complementary foods for infants and young children that are affordable to the overall population.

Fortification of appropriate foods should be promulgated through national policies and legislation which follow the successful example of the PRC's efforts towards universal fortification of salt with iodine. The addition of key minerals and vitamins to appropriate foods should be expanded to key staples including wheat flour, vegetable oils, sugar, and dairy products. Fortification of commonly used condiments such as soy sauce should be further promoted and encouraged.

Among nutrition practitioners and policy experts, there are increasing calls for the PRC to establish legislation to make fortification of wheat flour and specified staples mandatory. This will be key to "level the field" for all large manufacturers in terms of costs, although implementation of such legislation should be a collaboration among the producers, Government officials and others working to improve public nutrition.

V. 1. 5. Vitamin and Mineral Supplementation

Only during specific periods of life do people need micronutrient supplementation. For most people a balanced diet following the guidelines of the Food Pagoda principles should provide all the nutrients needed. Supplements are generally called for only during illness and times of extra vitamin and mineral needs that are difficult to obtain through a good diet (such as the rapid growth periods of pregnancy and early childhood). Supplements may also be needed in the short term by those too poor to afford good quality diets. Public nutrition policy and programs need to promote wider access to and appropriate use of low cost, high quality vitamin and mineral supplements. Alternatives are needed to commercially marketed supplements which are most often too expensive for widespread purchase by many of those at greatest risk. Pilot programs in the PRC and in other countries in which micronutrient supplements are delivered through the health system and through schools to school-age children should be evaluated, adapted as appropriate and scaled up.



V. 1.6. Targeted, Situation Specific Food Support

Food supplementation is the provision of food to families or individuals at subsidized or no cost. Programs which address rural and urban poverty and provide related support to low-income and other disadvantaged groups should consider specific risk factors in setting priorities for nutrition interventions including:

- Food supplements for pregnant and lactating women to help prevent low birth weight in areas with high low-birth-weight rates,⁵¹
- Supplementary food as needed to the lactating mother (infants from 0-6 months should receive only breast milk, except in special circumstances),
- Provision of fortified food for infants and young children (6-24 months), through programs targeted at poor/low-income groups that provide either products for in-home fortification of complementary foods or commercially fortified cereals for complementary feeding.
- Provision of food for special groups, such as the poorest of the poor in poverty-stricken areas, such as under the PRC's food/cash-for-work programs.
- Provision of food supplements or cash support for food during old age for those no longer able to care for themselves.
- Food supplementation to the general population when necessary in situations of emergency as a component an emergency nutrition plan in Provincial Emergency Preparedness Planning.

V. 1.7. Large Scale-Nationwide, and Cross-cutting Public Nutrition Education Program

As emphasized above, poor awareness of nutrition-related issues and threats poses a formidable obstacle to public nutrition improvement, ranging from awareness among government decision-makers to awareness of consumers and the general public on how to improve family and individual diets and lifestyles. Targeted at these varied audiences, enhanced and sustained communication efforts are needed to advance understanding of public nutrition and its importance for human development and broader national social and economic development.

At the level of nutrition education and promotion of behavioral change, a sustained national effort is needed to address a lack of sufficient knowledge among most members of the general population about nutritional risks and how to reduce them. National public nutrition promotion strategies will also need to include activities and messages that effectively motivate people make needed changes in their diets and lifestyles. Nutrition education and promotion for dietary change is required at all stages of the lifecycle, addressing risks of under-nutrition, vitamin and mineral deficiencies, over-nutrition, and other related factors such as infections and poor sanitation and hygiene, along with lack of physical activity.

Science and evidence from national and international research should guide a national public nutrition promotion program. Based on current evidence of nutritional problems in the PRC some key points need to include

- promotion of breastfeeding and education concerning the dangers of using bottles and breastmilk substitutes,

⁵¹ Even in the USA 11% of pregnant women get food supplements provided through a food stamp scheme under WIC programme. In the UK all women of unemployed families get free milk.



- promotion of eating a variety of vegetables and fruits and other healthy components of traditional Chinese diets,
- Public education on avoiding high intake of fat and the need for physical exercise throughout the lifecycle.

The guidelines represented by the Food Pagoda provide the foundation for national nutrition and education promotion programs. Each province will need to develop nutrition education activities targeting all age groups, as will groups at county level. Education and motivational strategies require local development, in local dialects and relevant to local contexts (e.g., locally available foods and dietary habits)...

Improving dietary practice requires many channels for disseminating nutrition knowledge and for motivating people to appropriate actions. Face to face communication is generally needed to reinforce media channels to achieve behavior change. An effective national program of nutrition education and promotion needs to be developed on a multi-sector, multi level platform that uses all available media, group and interpersonal channels to educate the public on the importance of a well-balanced diet. It will need to be multifaceted, well resourced and coordinated over several years. Active participation will be needed from:

- Relevant Government sectors;
- Government-supported institutions, ranging from health education centers under the Chinese Center for Disease Prevention and Control system to community schools;
- Nongovernmental and community-based organizations, ranging from formal “NGOs” to village and street committees, and
- The private sector, including companies that produce, process, and market foods, as well as companies and organizations that benefit from a healthier workforce.

V. 2. Examples of Proposed Public Nutrition Interventions for Different Sectors

All sectors are affected by the status of public nutrition and several have key roles in developing and implementing interventions needed to have an overall population with good nutrition. Some major examples of existing sectoral responsibilities and recommended areas of expansion or improvement have been provided by national and international specialists. For simplicity, these are outlined below as independent sets of interventions. However, it is important to emphasize that cross-cutting efforts should be strategically coordinated under a common framework aimed at promoting a common set of objectives.

V. 2.1. Public Nutrition Program Expansion by the Health Sector

Prevention and management of infections

- Undernutrition is not just a function of food but also of health and early childhood care practices. Unless health services for the young are further improved and sustained including immunization, control of acute respiratory infections and control of diarrheal diseases the well documented cycle of infection-malnutrition-infection-malnutrition will continue to threaten the survival of children in poor families.
- Similarly, promotion and, where necessary, training on early childhood care practices are key elements to prevention of infection and good nutrition.



Vitamin and Mineral Supplementation

- Testing of women during pregnancy and lactation, with those found to be anemic receiving iron/folate tablets prescribed for the course of pregnancy and lactation.⁵²
- Provision of a massive dose of vitamin A to mothers should also be given when their children are born in areas where vitamin A deficiency is a problem.
- Micronutrient supplements during infancy and young childhood to treat anemia and various illnesses.⁵³
- Vitamin A capsules provided twice a year to children who are 6 to 59 months of age in areas where the infant mortality rates are greater than 50/1000 live births,
- Expansion of programs to assure good iron and folate nutrition among adolescents, especially girls, who are at special risk of developing anemia, and for young women, as they prepare for pregnancy.⁵⁴
- Work on strategies to promote supplements for elderly people who are at risk of vitamin and mineral deficiencies because of their reduced calorie diets. Delivery through formal health services is difficult and alternatives need to be developed.

Public Nutrition Education and Promotion

- Enhanced policies, mechanisms, and incentives to ensure that health service providers deliver essential nutrition information and work to promote appropriate behaviors and lifestyles to target groups at various lifecycle stages.

For mothers:

- Dietary counseling during pregnancy and lactation, on what they should eat, and how much weight they should gain during pregnancy (based on their current weight and nutrition status),
- Counseling on how to breastfeed after birth, and the importance of exclusive breastfeeding. Each mother should receive a pamphlet with this dietary advice, together with other health and hygiene advice.
- Nutrition counseling through child health clinics (IMCI) on how to breastfeed exclusively to 6 months of age and how to provide adequate complementary food from 6 months onwards, and to gradually introduce food from the family pot.

For adolescents and young adults (particularly women in/nearing childbearing age):

- Dietary counseling as appropriate if they get sick or are considered to have poor dietary habits.
- Counseling on dietary regimes for those overweight and enrollment in exercise programs.
- Counseling for women wanting to have a child regarding appropriate diet and avoiding smoking and drinking alcohol.

⁵² WHO recommends that in areas where more than 30% of mothers are anemic (comprising most rural areas in the PRC) all women should receive iron/folate supplements during pregnancy.

⁵³ WHO recommends zinc supplementation for children suffering chronic or persistent diarrhea and massive dose vitamin A for those with measles receive a massive dose vitamin A.

⁵⁴ Weekly iron supplements can cure anemia before pregnancy, but not afterwards.



For the elderly

- Full integration of nutrition information into areas of care for the elderly.

V. 2.2. Enhancing Public Nutrition Programs through the Educational Services

Vitamin and Mineral Supplementation:

- Treatment with iron supplements if students are anemic, because anemia negatively affects learning and vitality.
- Development of programs to promote or deliver weekly iron supplements to prevent anemia where there are no appropriate school feeding programs and the local diet is poor in iron.⁵⁵ Such programs should be coupled with six-monthly de-worming of all students where intestinal parasites are common.

Nutrition Education and Promotion

- Nutrition education incorporated into the curriculum teaching what an adequate diet is at each stage of the life cycle following the Food Pagoda.

School Feeding and Exercise

- Substantial expansion of programs to provide free school meals (ranging from milk to full breakfast and/or lunch) that consist of wholesome foods, in accordance with the food pagoda principles.⁵⁶
- Exercise in school to control obesity, prevent cardiovascular disease, and ensure healthy physical development.
- Planning for school gardens should be around safe, nutritious foods and be linked to nutrition education promoting the Food Pagoda dietary structure and goals.

V. 2.3. Expanded Public Nutrition Interventions within the Agriculture Sector

- Respond to higher consumer demand for nutrition value, safety and diversity of agricultural products, as the foundation for development of the food and nutrition industries.
- Guide agricultural structural adjustment through a balance of market requirements and science to better meet the food and nutrition demands and needs of consumers throughout the PRC.
- Support and promote development of high quality, nutritious agricultural products that give the public greater access and more options in choosing a balanced diet.
- Carefully review information provided in the National Nutrition and Health Survey and promote the production of nutritious (especially micronutrient rich) products, high quality meat and poultry, soybean products, dairy products, and low calorie/low fat products.
- Promote a new quality control system to assess agricultural products which includes nutritional values as important criteria and leads in a national process of clear and transparent branding and nutrition value labeling for processed agricultural products.

⁵⁵A weekly iron supplementation schedule maintained for one term each year should be adequate for prevention.

⁵⁶International evidence shows that school feeding programs can improve attendance and completion rates in areas with a substantial number of poor families and/or where school attendance is low, and also contribute to improving household food security.



- Adopt priorities for agricultural production similar to developed countries and focus on improving quality, increasing variety, ensuring safety and promoting the nutrition values of agricultural products.
- Increase investment in science and technology with high priority on nutritionally balanced products, new technology, and innovative products.
- Promote, evaluate and monitor agricultural production methods to avoid environmental degradation, especially in the poorest counties and where environments are fragile.

V. 2.4. Promoting the Development of the Nutrition Industry

To improve public nutrition in the PRC, the need for changes in products as diet patterns change requires not only nutrition education but an urgent need to boost the growth of the nutrition industry. New food products have to be developed to replace the current products with their high fat and high calories but low nutrient levels and too often, poor quality.

In addition to producers, nutrition education, assessment, and certification need to be targeted at food service providers. Compared with international standards, the nutrition industry in the PRC is small in scale, backward in technology, and limited in product variety, unable to meet the market demand needed for a high quality society.

Therefore, planning and policies for public nutrition improvement should explicitly emphasize the necessary development of relevant legislation, laws and regulations. At the same time the participation of the industry is also important and companies have a significant opportunity to take a leadership role in many of the areas needed such as self regulation and higher quality standards. More detailed recommendations for promoting public nutrition via nutrition industry development are being developed with support from ADB and UNICEF, and are expected to be released soon.

V. 2.5. Public Nutrition as a Component of Poverty Alleviation and Social Security Programs:

Poverty reduction strategies

- Engage the poor in the production of foods that will contribute to improving the quality of the food available for local consumption by the local population in the poorest counties. Where there is food production, supporting guidelines should promote producing fruits and vegetables in the local market as opposed to only “export oriented” agriculture aimed at increasing local wealth.

The role of the women in the production of food.

- Linkage between of the role of women in food production in the poorest rural areas and their pivotal roles in child nutrition and child care requires consideration.
- Agricultural extension workers should promote the need for rest during pregnancy and the provision of childcare facilities for female agricultural workers which are closely linked to good nutrition for their young children.
- Local community groups and local government can also play a role in reviewing family and community access to nutritious foods and look for ways to increase knowledge about and access to such items.



V. 3. Specific Health Objectives of a National Policy to Improve Public Nutrition

Nationally developed nutrition action plans and consensus recommendations from national and international specialists reviewing and promoting improved public nutrition for the PRC have recommended initial high priority targets requiring enhanced sectoral and cross sectoral efforts.

- Increase the proportion of counties that have at least 90% of houses consuming adequately iodized salt to 95% by 2010 (as per national goal).
- Reduce low birth weight rates by 50% to less than 10% in all counties of all provinces by 2010.
- Reduce stunting in children under two (the under-five standard does not make much sense, although it is still widely used) by fifty percent or to less than 10%, whichever is greater, in all provinces by 2010.
- Reduce obesity in all school aged children (6-14 years) to less than 10% (this level depends on level found in 2002 survey) in all provinces (or maybe limited to urban areas) by 2010.
- Change the “breastfeeding” target to ‘exclusive breastfeeding’ to 6 months.
- Make adequate complementary feeding a specific target for 6-11 month-old children.
- Integrate nutrition targets into birth planning, ensuring that all women planning to get pregnant are not anemic and have a BMI >18.5 and <27.5 prior to pregnancy, and have a weight gain during pregnancy appropriate for their BMI.

V. 4. An Expanded National Effort to Improve Public Nutrition in the PRC: Structural Dimensions:

As emphasized throughout this synopsis document, cross sector, public nutrition policy and program development and coordination are required at national and lower levels to substantially strengthen and expand program planning and actions toward substantially improved public nutrition. At the national level, a public nutrition framework (which can draw on the precepts outlined herein) needs to be developed in a coordinated way and have sufficient flexibility to allow provincial plans based on local circumstances. For example, policy and programs to nutrition education must necessarily include the Ministries of Education, Health and Agriculture, each level of administration, and the media.

A policy area related to micronutrient supplementation may be dealt with primarily in the Ministry of Health, with additional roles for private industry (new supplement manufacture), the media, and other departments needed to expand supplement distribution and promotional activities needed for broad scale compliance. Food processing and food fortification policies need to involve Government organizations involved in light industry, including the State Food and Drug Administration, State Administration on Quality Supervision Inspection and Quarantine, Ministry of Industry and Commerce, the State Bureau for Grain and Oil, and others who will form the major stakeholders in setting standards, in production, in quality control and in promoting the use of fortified foods. Food production policies involve the Ministries of Agriculture and Rural Development/Environment and/or their equivalents. Intra-governmental leading groups (particularly on poverty and development and guiding efforts to develop the Western and Northeastern Regions) can also play an instrumental role in ensuring integration, coordination, and funding for key nutrition components of cross-sectoral efforts, increasing their overall efficacy.



To move in this direction, a high-level national nutrition working commission and related functional organizations are needed to lead and effectively coordinate public nutrition across relevant sectors. Comprised of leaders from all relevant ministries/agencies and leading institutions, this commission should take charge of developing and overseeing medium and long-term nutrition improvement strategy, and coordinate cross-sector public nutrition initiatives. Among deliverables of such commission, the following are likely to be included:

- Defined professional roles and capabilities,
- An agenda that includes creation of inter-sector and public-private cooperation mechanisms,
- A public nutrition capacity building program with short and longer term goals,
- A legislative agenda focusing on key laws needed to support public nutrition.
- A budgetary plan and identifying mechanisms through which to obtain the necessary resources for expanding and initiating major programs,
- An overall national public nutrition promotion and education strategy to serve as an adaptable model for sectoral activities in nutrition education,
- A system to monitor public nutrition objectives and to assist in ongoing program improvements.

Clear, measurable objectives and an implementation plan will be needed for each policy that operationally defines program areas, inputs needed; outputs expected required budgets and proposed funding sources.

Based initially on national policy priorities, each province will require a different plan of action for public nutrition based on an assessment of the local situation. In the western provinces at least, these activities could be undertaken as part of the poverty reduction strategies, and needed resources linked to them.

Monitoring and evaluation mechanisms for national and provincial public nutrition policies in the PRC can use a number of established mechanisms as well as new ones. They will also need coordination and require adequate public funding. Regular surveys and surveillance studies and systems can continue to measure nutritional status (obesity, stunting, diabetes, blood pressure, etc), but more robust measures will be needed with regard to nutrition education and promotion of dietary change, broader use of micronutrient supplementation and food supplementation, strengthened regulation and standards for food processing and fortification, and greater nutritional emphasis in food production at national and province levels.⁵⁷ Systematic collection of population-based survey data should also help guide public nutrition, research efforts and help build the evidence base needed to better guide further public nutrition policy development.

V. 5. Conclusion

Improvement of public nutrition is a strategic task, critical to achievement of national objectives of sustainable, harmonious, and balanced development and the PRC's ascendancy onto the global stage and international markets. Moreover, public nutrition is a "public good". Namely, im-

⁵⁷Governments across the world are increasingly adopting the use of periodic cluster surveys such as MICS and DHS to measure progress in social development. Nutrition indicators are already central to these methodologies and provide a means of periodically evaluating the progress of the public nutrition programs.



Strengthening Public Nutrition Planning and Policy in the People's Republic of China

Focused Synopsis of Research and Expert Consultations on Public Nutrition and the PRC's Eleventh Five-year Plan

provements in the nutrition status of any individual (or conversely the costs of poor nutrition) extend well beyond that individual: they multiply into broader economic and social gains, ranging from heightened productivity, to lower burdens on the health system, to the cross-generational linkage between maternal nutrition and child development. In light of this, as with other public goods like compulsory education, there are strong justifications for the Government to play a guiding, funding/supportive, and coordinative role.

Public nutrition depends upon and has direct implications for many sectors such as planning, finance, development in the western and northeastern regions, poverty alleviation, health and medicine, education, science and technology, communication, industry and commerce, and standards and quality control, etc. Nutrition improvement thus requires close cooperation and integrated, coordinated efforts of actors spanning various sectors, none of which can accomplish this task acting alone. In view of this, international evidence and the PRC's own success with universalizing salt iodization suggest the need for the PRC Government to play a central guiding, role, establishing legislation and policy and mobilizing its departments and agencies, scientific and technological institutions, social service units, entities in industry and commerce, civil society organizations, and consumers to become involved.

Successful experiences in the US, Japan, and other countries also demonstrate that improvement of public nutrition requires a sustained commitment and initiative, systematic efforts requiring both secure financial support from the state, and comprehensive construction in policy, regulations, planning, standards and systems, etc. These need to be reviewed periodically, to respond to a changing national development context.

In short, as a keystone of national development in the PRC, it is imperative to integrate public nutrition into national planning as a national priority, and to ensure that this translates into concerted, coordinated, and effective action involving diverse partners in Government, industry, and the general public. It is hoped that this synopsis document, which surveys the situation of public nutrition in the PRC and presents recommendations to address emerging challenges, can contribute to this critical national policy dialogue.