

# **N**utrition Surveys and Surveillance Activities in Russia and the Newly Independent States

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A Review of USAID-Sponsored Activities

INSTITUTE OF MEDICINE

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**Nutrition Surveys and  
Surveillance Activities in Russia and the  
Newly Independent States**

**A Review of USAID-Sponsored Activities**

**Committee on International Nutrition**

**Food and Nutrition Board**

**Board on International Health**

**Institute of Medicine**

**Lindsay H. Allen and Christopher P. Howson, Editors**



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**NOTICE:** The project that is the subject of this report was approved by the Governing Board of the National Research Council, whose members are drawn from the councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The members of the committee responsible for the report were chosen for their special competencies and with regard for appropriate balance. This report has been reviewed by a group other than the authors according to procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

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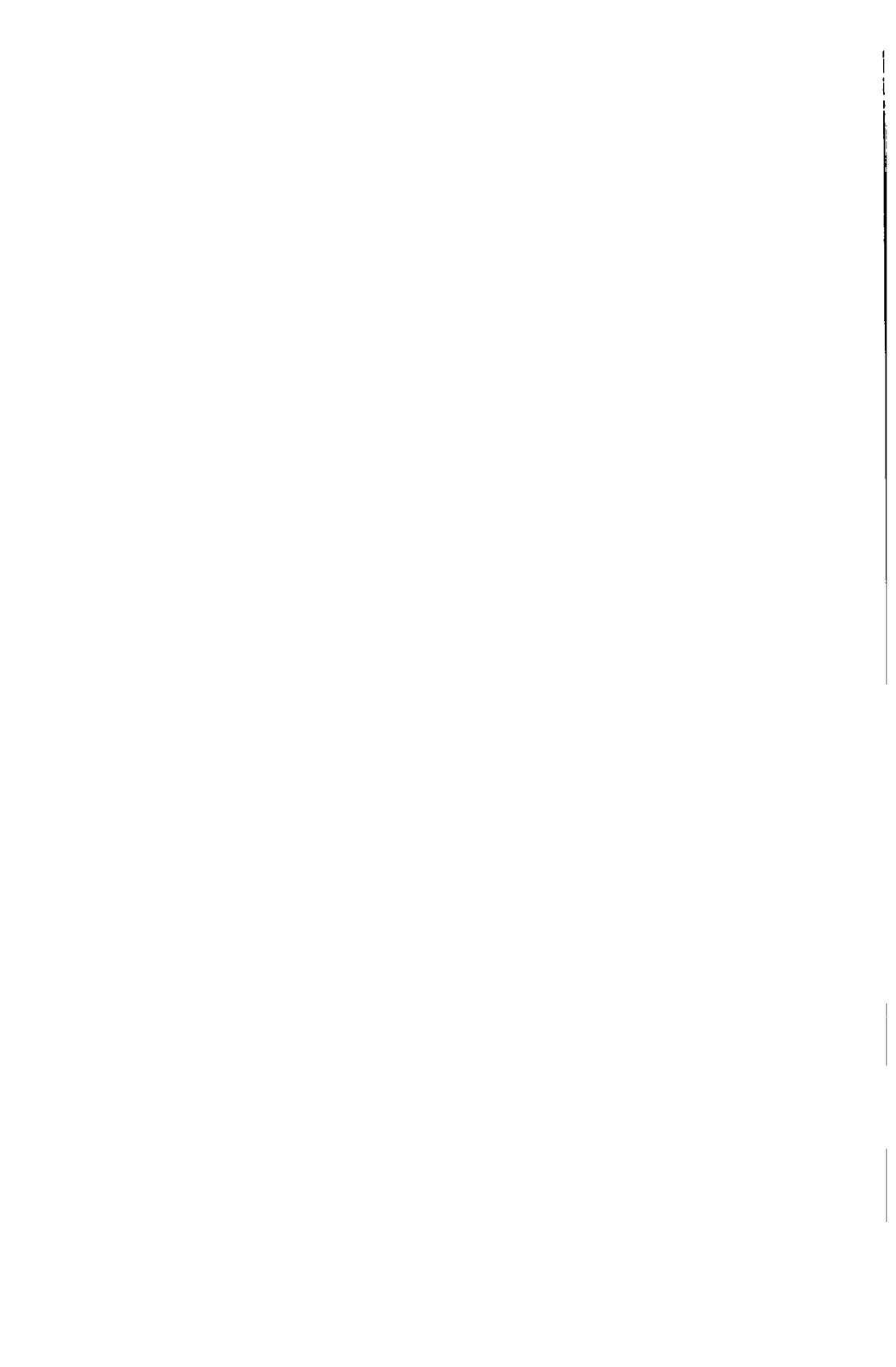
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## Preface

Over the past 2 years, there has been growing awareness of the potential value for the U.S. Agency for International Development (USAID) to have a standing capability in the Institute of Medicine (IOM) for a more flexible, less costly response to agency needs in the areas of nutrition, food, and health science policy. With support from USAID, the IOM responded in October 1993 by establishing the Committee on International Nutrition (CIN) under the aegis of the Food and Nutrition Board (FNB) and the Board on International Health (BIH).

The CIN's mandate is to answer questions of current interest and concern, evaluate current nutrition activities undertaken by the agency, and make recommendations for future activities based on this review. Topics are chosen through systematic consultation with the Office of Nutrition in USAID's Bureau for Research and Development. Representing the areas of human nutrition, maternal and child health, epidemiology, economics, and program design and evaluation, the committee's six members will convene three times to produce brief reports that review specific programs, research projects, or project designs. With an initial project life of 18 months, the study is designed to be flexible (e.g., capable of responding to specific nutrition concerns that arise abruptly) and to provide quick turnaround, with the time from meeting date to document availability being 2 months.

This report derives from the first meeting of the CIN, which was held on 14–15 April 1994. The purpose of the meeting, whose topic was requested by USAID's Offices of Nutrition and of Democratic Initiatives and Health and Humanitarian Resources (DIHHR), was to review the findings of selected USAID-sponsored nutrition surveys and related surveillance activities in the

Newly Independent States (NIS), to assess the nutritional status of populations at risk, to recommend to USAID future survey-surveillance activities to be undertaken in the NIS, and to recommend how the findings could be applied operationally to develop health and nutrition delivery programs to respond to problems in nutritional status in populations at risk. For further background information and details on USAID's request to CIN, see the memoranda to the committee from Samuel Kahn, USAID Office of Nutrition, and Julie Klement, USAID DIHR, respectively, in Appendix A.

### CHARGE TO THE COMMITTEE

During its two-day meeting, the CIN reviewed the findings of five nutrition surveys and related surveillance activities conducted in Russia and the NIS by a variety of organizations, including the U.S. government, universities, and private voluntary organizations (PVOs). These five activities, whose materials were provided by USAID's DIHR in advance of the meeting, included the Russian Longitudinal Monitoring Survey (RLMS); the Cooperative for American Relief Everywhere (CARE) Pensioner Surveys; the CARE Under-Two-Years-of-Age Survey conducted in urban and rural Russia; the Anemia Prevalence Survey in Uzbekistan; and the Health/Nutrition Early Warning System conducted in Russia, Kyrgyzstan, Uzbekistan, and Armenia. In addition to these five activities, the committee also reviewed the following background information provided to it by USAID: Centers for Disease Control and Prevention (CDC) trip reports and USAID Country Health Profiles for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. These materials are described in Chapter 2.

USAID representatives were invited to attend the first day of the meeting to answer questions about specific projects and to provide additional background as needed. The following USAID representatives attended: Samuel G. Kahn and Andrew Swidorski, Office of Nutrition; Kathleen McDonald, Molly Mort, and Petra Reyes, Office of Democratic Initiatives and Health and Humanitarian Resources; and Dennis Culkin, Office of Emergency and Humanitarian Assistance. The CIN thanks these individuals for their important contributions to its review.

On the second day of the meeting, the CIN met in Executive Session to discuss the reviewed projects in depth and to address the following three questions posed to it by USAID:

**Question 1:** On the basis of the projects reviewed, what can be said about the nutritional status and identification of potential issues of at-risk populations in *Russia*, such as pensioners, women, and children?

**Question 2:** What indicators and methodologies would be adequate (minimal safety net) and optimal for conducting nutrition monitoring systems *in the NIS*?

**Question 3:** How can USAID apply the current findings programmatically?

## ORGANIZATION OF THE REPORT

The report contains five chapters and two appendices. Chapter 1 provides a brief executive summary of the report. Chapter 2 offers a detailed description of the five surveys and surveillance activities examined by the committee. Each is reviewed with respect to the project's purpose, characteristics of the population(s) examined, the study methods employed, the quality of the study methods, and the major findings. The additional background information provided to the CIN also is described. Chapter 3 describes the assumptions that guided the committee's review and comments on the activities examined. Chapter 4 presents the findings and conclusions for each of the three questions that the CIN was asked to address. Each is answered in the broader context of the indicators and methodologies used in the surveys, including how the results can be interpreted and what indicators and methods might be used in future studies. Chapter 5 provides general recommendations about the future content and conduct of USAID nutrition surveys and surveillance activities. Although the CIN was not asked specifically to address this issue, it offers these recommendations in the hopes that they may be useful to USAID in its future work in the NIS. Appendix A contains the two USAID memoranda outlining the specific charge for this first CIN meeting. Appendix B offers recommendations for improving the study methods of each of the five survey and surveillance activities reviewed.

## ACKNOWLEDGMENTS

The committee gives special thanks to the USAID staff who graciously made themselves available for questions during the Open Session on 14 April. The committee would also like to express its appreciation to the IOM staff who facilitated the work of the CIN: Christopher P. Howson, study director; Susan M. Wyatt, financial associate; Michael Edington, editor; Judy Grumstrup-Scott, copy editor; Claudia Carl, administrative associate; and Gail Spears, administrative assistant. The committee especially thanks Susan M. Knasiak, project assistant, for her assistance in conducting the first meeting and for her valuable editorial advice in preparing the report draft. Finally, the committee thanks Richard G. Seifman, USAID; Polly Harrison, IOM; and Catherine Woteki, formerly of the FNB, for their vision and hard work in realizing this project and Allison A.

Yates and Bernadette M. Marriott, FNB, for their useful editorial advice and support of the CIN's activities.

Lindsay H. Allen, *Chair*  
Committee on International Nutrition



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**Map of the Newly Independent States (NIS)**

SOURCE: Citizens Democracy Corps, Washington, D.C., 1992.



## Executive Summary

Over the past 2 years, there has been growing awareness of the potential value for the U.S. Agency for International Development (USAID) to have a standing capability in the Institute of Medicine (IOM) for a more flexible, less costly response to agency needs in the areas of nutrition, food, and health science policy. With support from USAID, the IOM responded in October 1993 by establishing the Committee on International Nutrition (CIN) under the aegis of the Food and Nutrition Board (FNB) and the Board on International Health (BIH). The CIN's mandate is to answer questions of current interest and concern, evaluate current nutrition activities undertaken by the agency, and make recommendations for future activities based on this review. Topics are chosen through systematic consultation with the Office of Nutrition in USAID's Bureau for Research and Development.

### **COMMITTEE CHARGE AND DOCUMENTS REVIEWED**

This report derives from the first meeting of the CIN, which was held on 14–15 April 1994. The committee's charge—determined by USAID's Offices of Nutrition and of Democratic Initiatives and Health and Humanitarian Resources (DIHHR)—was to review the findings of five nutrition surveys and related surveillance activities conducted in Russia and the Newly Independent States (NIS) by a variety of organizations, including the U.S. government, universities, and private voluntary organizations (PVOs), in order to answer the following three questions:

**Question 1:** On the basis of the projects reviewed, what can be said about the nutritional status and identification of potential issues of at-risk populations in *Russia*, such as pensioners, women, and children?

**Question 2:** What indicators and methodologies would be adequate (minimal safety net) and optimal for conducting nutrition monitoring systems in *the NIS*?

**Question 3:** How can USAID apply the current findings programmatically?

The five nutrition surveys and related surveillance activities reviewed by the committee included the Russian Longitudinal Monitoring Survey (RLMS); the Cooperative for American Relief Everywhere (CARE) Pensioner Surveys; the CARE Under-Two-Years-of-Age Survey conducted in urban and rural Russia; the Anemia Prevalence Survey in Uzbekistan; and the Health/Nutrition Early Warning System conducted in Russia, Kyrgyzstan, Uzbekistan, and Armenia. In addition to these five activities, the committee also reviewed the following background information provided to it by USAID: Centers for Disease Control and Prevention (CDC) trip reports and USAID Country Health Profiles for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

The committee encountered several difficulties in conducting its review. First, it was not always evident from the documents provided to the committee why the information was being collected. Information verbally provided to the committee by the USAID representatives attending the meeting sometimes conflicted with the written instructions to the CIN. Second, the studies evaluated were diverse in purpose and populations studied; this fact, plus the inconsistent quality of methods across studies, made interpretation of the overall findings difficult. However, many of the studies examined were not yet completed, and thus could not yet provide information that would have been helpful to the committee. Third, because of the sparse information available, a detailed assessment of the nutrition situation in the NIS and an in-depth review of individual programs and projects was not possible, particularly in light of the enormous geographic, ethnic, sociocultural, economic, and political diversity of the NIS and the difficulties in generalizing findings and recommendations for programmatic change. Fourth, most of the documents provided on the nutrition situation in Russia described the situation as of 1992; no data were available on which to base an assessment of the current situation. As a result of these limitations, the CIN was not able to answer the three questions posed to it by USAID to the degree of specificity that it would have liked.

## CONCLUSIONS

The committee's conclusions on the three questions posed follow. It is important to note that the conclusions were based on a relatively small number of studies representing a diverse region (the NIS).

**Question 1: What can be concluded about the nutritional status and identification of potential issues of at-risk populations in Russia—for example, pensioners, women, and children?**

Since almost all surveys in Russia evaluated were conducted prior to or during 1992, the committee's conclusions apply only to the situation up to these times. There were no analyses of longitudinal data from Russia that enabled the committee to evaluate changes in food security or nutritional status during the time periods examined. The CIN made the following conclusions regarding Question 1:

- Due to lack of appropriate qualitative data, it is not certain that the population groups surveyed were those at most risk of food shortage or nutritional problems.

- Based on the available documentation, and taking into consideration the apparently high average Body Mass Index (BMI) of the adult population of the NIS prior to the recent social and economic changes, there appeared to be little evidence of energy deficiency or widespread malnutrition in Russia in 1992. There was a high prevalence of overweight up to this time; however, this finding does not preclude the possibility that a gradual weight loss due to energy shortage is currently occurring.

- In the CARE survey of Russian children under 2 years of age conducted from July to October 1993, there was no evidence of low weight-for-age, height-for-age, or weight-for-height in any age group. Thus, the committee concludes that there was no objective evidence of undernutrition among the Russian children less than 2 years of age who were included in the sample.

- In the RLMS, anthropometric data were aggregated for children 1–17 years of age, which made their interpretation difficult. With this caveat in mind, this group showed little evidence of undernutrition based on weight or height measures.

- No longitudinal data were available from the two CARE surveys or the RLMS, so that it was not possible to conclude whether the food and nutrition situation was getting worse at that time. There were some indications, however, that the food system was under stress in late 1992. About half of the pensioners in the CARE surveys answered affirmatively to a question about whether they had a 5-kg weight loss in the 6 months prior to being surveyed. Although the

validity of the amount of weight loss is questionable, there is clearly a perceived food security problem among this group. Although average BMI was not low at the time of the CARE surveys, the distribution of BMIs was not provided to the committee. These data possibly may have revealed a certain proportion of individuals with energy deficit, although this is speculative. The Goskomstat survey (Volkarev, 1992)<sup>1</sup> reveals reductions in meat, fish, dairy product, vegetable, and fruit consumption between 1991 and 1992.

- Some of the populations surveyed showed evidence of chronic micronutrient deficiencies. Anemia is generally perceived to be a common condition in the region, but the only data available in Russia were from pregnant women (Volkarev, 1992). It is possible that a relatively high percentage of anemia in this group has been exacerbated by recent events, including a shortage of iron supplements. Other chronic micronutrient deficiencies reported in the survey populations included iodine and vitamin D (Volkarev, 1992). Iodine deficiency may be endemic in Russia and the NIS, and iodination of salt may be threatened by new trade barriers and lack of funds to repair equipment. Although the prevalence of mild rickets may be overestimated, there are reasons to believe that women and children are at risk of vitamin D deficiency.

- The relevance to the nutritional situation in Russia of the mortality data presented could not be interpreted, because important potential confounding variables (e.g., availability of medications) were not considered by the researchers.

- Anecdotal evidence suggested that consumption of alcohol in the Russian populations surveyed was rising, but the relevance of this finding to food security or nutritional status was not clear. Future analyses of the RLMS data may shed light on this situation.

### **Question 2: What indicators and methodologies would be adequate (minimal safety net) and optimal for conducting nutrition monitoring systems in the NIS?**

The committee's conclusions on this question were restricted to a large extent by a lack of important information. Information that the committee would have found useful in answering the question includes: the extent to which the current food situation is changing in the NIS and the rapidity of this change, the type and size of role that USAID could play in alleviating any acute or chronic food or nutrition problems, and whether there is concern about collecting information or providing assistance that will improve the sustainability of solutions and monitoring. Based on available evidence, the committee concluded the following:

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<sup>1</sup> M. N. Volkarev, ed. 1992. Nutrition of the Population of Russia. Moscow, Russia: Institute of Nutrition.

- Selection of appropriate indicators and methodologies depends very much on the availability of qualitative information, much of which should be collected locally and in advance of planning. In general, such information should provide a sense of the problems that might exist and their likely causes, whether the problem is likely to be acute or chronic, probable vulnerable groups, options for action, who has need of the information, and how quickly the information is needed.

- At a minimum, specific qualitative measures should be elicited in advance of any survey and should ideally provide information on such items as recent changes in market food supply, usual sources of income and food and the population groups for whom access to these have changed, rising costs of competing necessities, the functionality of existing food and other safety nets, knowledge about how household food strategies might change under stress, and what kinds of interventions might be possible in a given population in a given region (which requires talking directly with the potential decision makers).

- It is important to distinguish between the need for data that are vital for revealing undernutrition (e.g., anthropometry) and lack of food security and the data necessary for interpreting outcomes (e.g., economic data). Data collection will be achieved more rapidly and efficiently if restricted to the minimum information necessary to assess the situation and to make comparisons required for decision making.

- At a minimum, survey measures should include: socioeconomic data, measured weight and height of children (preferably 12–24 months old), BMI of adults, food availability at the household level, and market food security. Optional measures include purchasing power; biochemical analyses including hemoglobin; food intake; prevalence of rickets, goiter, and cretinism; infant feeding practices and availability of appropriate foods for infants and young children; and general indicators of nutritional status and health.

- The minimum essential data to be collected and the analyses to be performed must be carefully defined before data collection. Dummy tables of results should be prepared from the outset of the survey and likely inferences should be made on which further decisions can be based. Steps should then be taken to ensure that these predefined data get priority at all steps of data collection through analysis, so that results can be quickly returned.

- Sample sizes in the high hundreds are often sufficient to detect changes in prevalence of outcomes such as BMI and most other anthropometric measures that are important for the kinds of short-term decisions required. Whether a representative regional survey is needed, rather than one focused on specific population groups or regions, will depend on the initial qualitative information concerning likely vulnerable groups, the universality of the food problem, and possible types of action.

- The need for and timing of repeat surveys depend on the speed with which changes in the situation are likely to evolve.

- A surveillance system requires a minimal lag time between data collection and decision implementation, which should be discussed with decision makers.
- Repeat surveys may benefit from differing sampling frames and changes in the variables collected over time. Decision makers must be identified and involved in the development of any surveillance system for it to achieve effective decisions.
- Links with existing surveys and activities should be considered both to maximize cost-effectiveness and to assist in interpreting findings.
- To detect changes in food or nutrition status, a larger sample size is needed for repeated cross-sectional surveys than for longitudinal surveys (where the same household or individuals are monitored continuously). Longitudinal sampling, however, is often more costly and difficult to implement.
- Criteria must be established to monitor the effectiveness of any surveillance system in terms of information content, timeliness, and usefulness for decision making.
- Chronic preexisting nutrition problems should be identified and monitored, especially if these are likely to be exacerbated by current crises. Examples include anemia and the need for fortification with iodine, vitamin D, and possibly other micronutrients.

### **Question 3: How can USAID programmatically apply the current findings?**

The evidence presented to the committee was too out-dated to permit definitive conclusions regarding the current food supply and nutritional status of vulnerable groups or the causes of food-related problems (e.g., a market food shortage versus inadequate purchasing power). There is, however, suggestive evidence of food insecurity, of infrastructural problems that could precipitate a deterioration in conditions, and of preexisting micronutrient deficiencies. The committee makes the following conclusions regarding Question 3:

- The decision to supply direct food aid should be based on evidence that the national food supply is inadequate. The exception is when direct food aid is carefully targeted to vulnerable groups who consume a relatively small proportion of the total food supply.
- Assistance with local food distribution and transportation problems may reduce market food insecurity.
- The nutritional status of the population may be as affected by problems in the delivery of other services as by changes in food supply and purchasing power. These problems might include failures in the social service network; supplies of necessities such as medicines, vaccines, appropriate infant foods, and nutrient supplements; and fortification of food with specific micronutrients.

- Structural changes are needed that may have longer-term impacts on the micronutrient status of the population. These changes include food fortification.
- There are opportunities for the support of NIS institutions that can take on the task of food and nutrition surveillance. Such support should be achievable at relatively low cost and have a high payoff.
- The currently high level of interest of bilateral and multilateral agencies concerning the NIS means that there are opportunities for USAID to leverage its food and nutrition monitoring assistance and to increase communication about NIS problems with other organizations.





## Documents Reviewed by the Committee

This chapter provides a brief review of the five general nutrition survey-surveillance activities considered by the committee at its 14–15 April 1994 meeting. For each activity, the members reviewed: the purpose of the project, the characteristics of the population(s) examined, the study methods employed, the quality of study methods, and the major findings that derive from the project. Other documents provided to the CIN as background information also are described briefly. These include the U.S. Agency for International Development (USAID) Country Health Profiles for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan, and trip reports by Centers for Disease Control and Prevention (CDC) personnel.

Table 2-1 summarizes essential aspects of the above five nutrition survey-surveillance activities.

### **RUSSIAN LONGITUDINAL MONITORING SURVEY**

#### **Purpose**

The overall goal of this series of extensive community, household, and individual surveys is to assess the effects of the dramatic macroeconomic reforms on household and individual welfare. Household welfare is measured in terms of the effects of economic reforms on income, food security, and health

**TABLE 2-1** Description of Five General Nutrition Surveys-Surveillance Activities in Russia and the Newly Independent States (NIS) Evaluated by the CIN

Study (dates)	Purpose	Sampling Frame and Size	Survey Methods	Data Collected	Major Findings	Comments
Russian Longitudinal Monitoring Survey (1992- )	Assess effects of macro-economic reforms on household and individual welfare.	7,200 households containing 17,179 individuals; nationally-representative sample.	Each household and individual to be interviewed at 3-month intervals over a 2-3 year period.	Household composition, income, food and nonfood expenditures, agricultural production, morbidity patterns, anthropometry, and food intake.	In children, levels of malnutrition modest in comparison with developing countries; energy intake not correlated with household income. In adults, overweight more common than underweight; energy intake increased modestly with increasing household income. In all, food expenditure patterns differed between urban and rural areas, significant proportion of population at or below poverty line.	Interview schedules inconsistent; past problems with quality control now being corrected; these factors, plus lack of data analysis and information on sample sizes, complicate interpretation of study data. Only 1992 data available.
CARE Pensioner Surveys (1992-1993)	Identify 1) high-risk groups of pensioners and risk factors associated with pensioner malnutrition; 2) support systems and coping strategies used	Approximately 2,350 pensioners, ages 70-78 years from primarily urban areas in Russia, Kazakhstan, Uzbekistan, and Armenia. Approximately	Individuals interviewed at home; single contact except for Armenian sample, where a repeat study was conducted; unavailable individuals were	Self-reported food intake, height, weight, weight-loss, and perceived food security.	Pensioners appeared to have more problems with availability of certain foods than with income; reported adequacy of diet appeared to be declining and quality of diets for most pensioners was poor; extended family support had a positive effect; pensioners in	Sampling frame focused on urban dwellers; thus, findings not generalizable to those living in rural areas; self-reported data on weight, height, food consumption, and changes in food consumption difficult to interpret; potential bias

	by pensioners to adjust for decreasing food supplies, and 3) most effective means of coordination and delivery of international food and economic aid.	75% female.	replaced with alternative subjects.		Armenia were much worse off than those in Russia. Reported recent weight loss was substantial.	introduced by replacing losts-to-follow-up with alternate subjects.
CARE Under-Two-Years-of-Age Survey (1993)	Assess current nutritional status of children < 2 years of age and identify groups and geographic areas at risk of malnutrition.	Cluster sample of 2,700 (2,141 examined) children and mothers drawn from clients of polyclinics in three regions of Russia: Moscow, St. Petersburg, and Ekaterinburg.	Interviews of children's parents, anthropometric assessments of the children, and review of medical records for selected data on nutritional status.	Household demographics, socioeconomic status, child feeding history, maternal nutrition knowledge, food security, recent changes in household food consumption, anthropometry, and available data on hemoglobin and red blood cell counts on a subsample.	More than 96% of children were breast-fed, but median duration was only 4 months; 43% of households, 27% of mothers, and 13% of children perceived themselves to be in food need according to Cornell Food Security Index; 38% of mothers reported worsening food consumption patterns; however, no objective evidence of child undernutrition was found; children's weight-for-height slightly higher than international reference populations.	Only 2,141 participants of the 2,700 sampled were interviewed, inconsistent data collection procedures over time, lack of validated analysis of food intake data, and the uncertain quality of the hemoglobin assays diminished confidence in the findings. Mothers highly educated.

*Continued*

TABLE 2-1 *Continued*

Study (dates)	Purpose	Sampling Frame and Size	Survey Methods	Data Collected	Major Findings	Comments
Anemia Prevalence Survey in Uzbekistan (1993)	Determine the prevalence of anemia and identify potential risk factors for low hemoglobin levels.	1,887 persons (1,414 examined) > 6 months of age in the Muynak District of Karakalpakistan. The district was selected because previous surveys had detected high rates of anemia and because of concerns about extensive environmental contamination with substances that may interfere with normal hematopoiesis.	Physical exams for all persons; interviews and health histories for women and children < 5 years of age; venous blood samples for 1,250 individuals.	Interview data on demographics, socioeconomic status, and dietary habits; height and weight measured; hemoglobin, hematocrit, red blood cell indices, and leukocyte count from blood sample.	Moderately high rates of stunting in infants < 1 year (17%), at 1-3 years (32%), and in preschoolers (32%). Rates in older children declined (12%); 64.5% of children and 36.5% of adults were anemic; 52.6% of adult females were anemic versus 20.2% of males. There was little difference in eating patterns between anemic and nonanemic individuals and by age.	Only 1,414 of the 1,887 subjects were actually examined and there was no discussion of potential selection biases; anthropometry could not be evaluated because of examiners' failure to control for such details as removal of shoes during exam; dietary questionnaire elicited information only on foods consumed the previous day; not all laboratory results could be linked with survey information on possible risk factors for anemia.

Health/ Nutrition Early Warning System (1992)	Strengthen epidemiologic information systems so there will be timely warning of disease outbreaks. The Russian component was to establish timely nutritional surveillance of infants, preschoolers, and pregnant women.	Pilot study.	Data were to be collected by clinic personnel.	On children 0– 15 years, birthweight, infant feeding status, hemoglobin, evidence of rickets, and demographic data; on pregnant women, age, parity, weight, hemoglobin, history of smoking, and prenatal supplement intake.	Not provided.	CIN could not ascertain what specific data on food and nutrition status would be available on a routine basis apart from infant feeding practices and prevalence of anemia.
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NOTE: Eleven USAID Country Health Profiles, prepared in 1992, were also reviewed by the CIN. The brief summaries of the food and nutrition situation in each NIS profile was consistent with more recent information from field surveys. See Table 2-2 and narrative in Chapter 2 for more information on the Country Health Profiles.

and nutritional status. USAID and the government are also interested in the effects of structural adjustment on agricultural production, employment, and labor markets.

The background document for this project indicates that "it is expected that in many sectors, rapid changes in productivity will result in significant improvements in the quality of life." Thus, there is the explicit assumption that the series of economic reforms will result in productivity gains that will lead to growth in national income, and in many cases, in household income. However, it is also clear from the materials presented that there is an equally explicit assumption that some individuals and households might be negatively affected in the short to medium term. These adverse effects are assumed to be mediated, in large part, by decreasing real income, caused in part by escalating food prices and removal of broad subsidies on energy and housing. Some publicly provided health services have also been curtailed.

USAID and the government of Russia wanted a monitoring system that could identify groups and individuals likely to be affected negatively by structural adjustment in order to design effective "safety net" programs. To this end, an equally important articulated goal of this project is to upgrade efforts of the Russian government to provide a more effective monitoring and surveillance system. The two primary government groups involved in the monitoring effort include the Russian State Statistical Bureau (Goskomstat) and the All-Russian Center for Preventative Medicine. Beginning in the fifth round, there were also plans for the Institute of Nutrition, Russian Academy of Medical Science, to participate in this consortium.

### **Characteristics of the Study Population(s)**

The Russian Longitudinal Monitoring Survey (RLMS) is the first nationally representative survey in Russia with the first data gathered July to October 1992. A good deal of attention was paid to the sampling frame, although because of time, cost, and infrastructural constraints, it is a clustered sample. The authors point out that many of the census statistics that Western samplers take for granted were inaccessible or nonexistent in Russia.

A three-staged sampling approach was used to draw the sample. Primary sampling units were chosen in stage one; 2,335 official regions were stratified according to 10 quality-of-life regions and the percentage of the area defined as urban. The populations of each were weighted and combined to form primary sampling units (PSU). In stage two, voting districts within each PSU were ordered according to size; from this, 10 districts within each PSU were selected to form 200 secondary sampling units (SSU).

Finally, a list of all household addresses was compiled in each SSU from which 36 households were chosen. This method resulted in a final sample of 7,200 households containing 17,179 individuals. Worth noting is the fact that of

these 17,179 individuals, 24 percent, or 4,148 individuals, were over 55 years of age.

Of the total sample of households, 27.8 percent fell below 100 percent of the Russian poverty line, and 53.7 percent fell below 150 percent of the poverty line.

### **Study Methods**

The primary emphasis in the study is on households and individual members of those households. At the household level, data are collected on household composition, income, food and nonfood expenditures, and agricultural production. For individuals aged 14 years and older, data are collected on time use, employment patterns, migration history, health service and medical service utilization, morbidity patterns, and nutritional status using a variety of anthropometric measures. For women, information is also obtained on fertility patterns and history of abortion. For children under age 14 years, information on child care is collected. A 24-hour recall is used to obtain information on the dietary intake of all household members.

Each household and individual was to be interviewed every 3 months over a 2- to 3-year period. This schedule has been modified somewhat given that it has been difficult to maintain this intensive data collection effort. Thus, the timing on some of the rounds has deviated from the original schedule.

Other problems identified after the first few rounds caused additional modifications in the study protocol. Tracking individual identification numbers from one survey round to the next proved difficult. Enhanced quality control measures were, therefore, developed.

The extensive individual dietary intake data were to be entered directly in the field to expedite processing and ensure rapid analyses. The researchers found this process produced numerous data entry errors, and an appropriate level of quality control was not possible. Procedures for handling the dietary data were modified, and manual editing and coding of all dietary data is now being done.

Given the detailed, multilevel information collected and the lack of funding directed to the rapid analysis of information, it may not be surprising that processing and release of the data has been delayed. Only the data collected from Round One of the survey in July to October 1992 were available at the time of this review.

### **Quality of Methods**

The sheer magnitude of the data collected has created problems for data quality and processing. It was predictably difficult to link an individual's data from one round to the next. This may compromise one objective of the RLMS,

which was to document the effects of structural adjustment policies on an individual's health and nutritional status over time. Additionally, data entry and subsequently data processing have been difficult, and data handling procedures in the field have had to be revised.

### Major Findings

The report contains only descriptive tables with no accompanying text for interpretation. Thus, any conclusions presented here are those drawn by the CIN. The data presented are difficult to interpret, not simply because of lack of interpretation by the study investigators but also because of lack of essential information. None of the tables provided any significance testing of data, nor was sample size information provided. Therefore, obvious anomalies in the data could not be resolved. For example, there were large variations in anthropometric data across and within regions. In one region, 50 percent of female children had weight-for-height Z scores  $< -2.0$  while zero percent of male children in this same region fell below  $-2.0$ . This finding may simply be an artifact of small sample sizes, but a final resolution of this issue was not possible because of the paucity of information provided.

With such preliminary data, the committee was necessarily cautious in interpreting the results. With this caveat in mind, the following six general conclusions emerged:

1. In children, the levels of malnutrition, either short term (as measured by weight-for-height Z score  $< -2.0$ ) or long term (as measured by height-for-age Z score  $< -2.0$ ), were modest in comparison to most developing countries.

2. In adults, overweight as measured by body mass index  $> 25$  is more common than underweight ( $< 18.5$ ).

3. In adults, energy intake increased modestly with increasing household income. However, with the data provided, it is not possible to ascertain whether this trend was statistically significant.

4. In contrast to adults, children's energy intake did not show a strong response to increasing household income.

5. Food expenditure patterns between urban and rural areas differed for a number of key food groups. For example, 23.5 percent of total food expenditures in the rural areas were for foods in the bread, cereals, and grains category compared to 9.6 percent of expenditures for urban households. These differences in food expenditures are important in predicting the household's response to escalating food prices.

6. A significant proportion of the population was below or near the poverty line, and thus there is concern about falling incomes and their potential adverse effects on food security.

## CARE PENSIONER SURVEYS

### Purpose

The four objectives of these surveys were to (1) identify high-risk groups of pensioners, (2) identify risk factors associated with pensioner malnutrition, (3) assess main aid support systems and other coping strategies used by pensioners to adjust for decreasing food supplies, and (4) identify the most effective means of coordination and delivery of international food and economic aid.<sup>2</sup>

### Characteristics of the Study Population(s)

The approximately 2,350 pensioners examined were primarily from urban areas. The surveys were conducted in five Russian cities (Moscow, Yekaterinburg, St. Petersburg, Irkutsk, and Gagarin) and in Kazakhstan, Uzbekistan, and Armenia. Mean age at the time of first interview ranged from 70 to 78 years across surveys. Approximately three-quarters of those surveyed were female, and a similar percentage of respondents lived in private dwellings.

### Study Methods

The pensioners were surveyed from April 1992 to April 1993. The only repeat study provided to the CIN was that in Armenia (May 1992 and August 1992). Interviews were conducted by survey teams at the home of the pensioner. If, after a certain number of tries (usually three), a pensioner could not be interviewed, another candidate was interviewed in his or her place.

### Quality of Methods

As noted, the sampling frame was limited to pensioners in urban areas; thus, information on pensioners living in rural areas was not available. Another concern with the sampling frame is the potential bias created by replacing people who were lost to follow-up with alternative subjects.

Weights and heights, and weight loss, were self-reported. Reported weight loss information may reflect perceived food insecurity, although it is impossible to be certain of this.

The self-reported information on food and food changes is difficult to interpret unless one knows whether or not respondents bias their answers to

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<sup>2</sup> The committee believes this goal was unlikely to be achieved given the nature of the CARE Pensioner Surveys. Also, the means of linking the survey findings to decision making were not made clear to the committee.

appear needy. However, some of the data gave insights as to the respondents' perception about food availability and their household food security.

### **Major Findings**

Life was getting harder for the pensioners. There appears to have been more problems with market availability of certain foods than with income, and the quality of diet was poor, based on the types of foods reported to be consumed. The adequacy of diet for most pensioners appears to have deteriorated, although this finding is hard to interpret given the concerns about the validity and accuracy of household self-reports.

Some regions had enormous amounts of food aid while others did not.

It was difficult to assess income and its sources because of the state of the ruble. The official social support system did not appear to work very well because of its failure to adjust salaries and supplies with inflation. There was a coupon system in place in some areas that appeared to work well, but it was overloaded. To remain in this system, pensioners needed to fight for coupons every month. Trade unions may have provided a very good support system, but this finding was difficult to assess because it was not assessed across different areas.

However, extended family support did seem to be effective for many. An exception was widows who were Russian-nationals living in other NIS, who live without these supports, and who appear to be a high-risk group.

Pensioners in Armenia were considerably worse off than those in Russia. Two problems were identified: the transportation of goods in and out of Armenia and the availability of pension funds. The pensioners in Armenia are more likely to be solitary and living in special homes.

## **CARE UNDER-TWO-YEARS-OF-AGE SURVEY**

### **Purpose**

Studies were carried out from August to October 1993 in three regions of Russia to assess the current nutritional status of children < 2 years of age and identify groups of individuals and geographic areas at particularly high risk of malnutrition. The report, in draft form, was provided to USAID just one month after data collection ended.

### **Characteristics of the Study Population(s)**

A representative three-stage cluster sample of 2,700 children and mothers was drawn from clients of polyclinics in three regions (oblasts) of the country: Moscow, St. Petersburg, and Ekaterinburg. Two subdomains, the capital city

and the surrounding countryside, were examined in each region. The report made available to the committee contained results of 2,141 examinations (79 percent of the sample). It is not clear if the data analyzed represent all regions and subdomains or whether results from selected areas were analyzed preferentially.

The group of women studied was highly educated (26 percent completed secondary education or less, 42 percent attended technical college, and 32 percent attended university) and 68 percent were employed, as were 86 percent of their spouses. The mean per capita income was 15,000 rubles, whereas the poverty level was defined as 10,100 rubles as of April 1993. The women had an average of 1.3 pregnancies per woman during the ages 15–19 years and 4.3 pregnancies per woman during ages > 40 years. A total of 49.5 percent of women had at least one abortion (mean + SD =  $1.9 \pm 1.4$  abortions per woman). An estimated child mortality rate of 21 per 1,000 births was reported, but the age of death was not stated. Thus it is uncertain whether this figure represents an infant or child mortality rate.

### **Study Methods**

The survey consisted of interviews of the children's parents, anthropometric assessments of the children themselves, and a review of their medical records for selected data on nutritional status. The interviews included questions on household demographics (including maternal fertility and estimated infant mortality) and socioeconomic status, child feeding history, maternal nutrition knowledge, and food security and recent changes in household food consumption. The children's body weights were measured, and previously obtained weights and heights were transcribed from clinic records. Finally, results of previous analyses of hemoglobin and red blood cell counts were recorded from a subsample of children for whom these data were available in the polyclinics.

### **Quality of Methods**

Results of the food frequency questionnaire could not be interpreted because the method of analyzing and expressing the data has not been validated. Likewise, the questions on maternal nutrition knowledge do not seem useful because some definitions of adequate knowledge that were applied do not conform with current scientific consensus.

The anthropometric assessments were completed with appropriate standardization procedures, and "acceptable" precision and accuracy were apparently achieved. Interpretable historical records were available for 96 percent of children, with an average of 6.8 records per child. Eighteen percent of the

children's data was excluded because of implausible outliers or missing information.

### Major Findings

More than 96 percent of the children had ever been breast-fed, but the median duration of breast-feeding was only 4 months. Other liquids and foods were introduced earlier than is currently recommended in the United States. For example, water was usually given by 1 month, fruit juices by 1–2 months, and eggs and cheese by 3–4 months. Less than 4 percent of infants were still being exclusively breast-fed at 4 months, and 82 percent of infants 0–5 months of age had received bottles of milk or formula.

The questions on food security indicated that 43 percent of households, 27 percent of mothers, and 13 percent of children perceived themselves to be in need of food, as indicated by a positive response to two of four items in the Cornell Food Security Index. Thirty-eight percent of the families described their food consumption as worse than the previous year, 47 percent as the same, and 15 percent as better. Those who felt their situation was worse cited less consumption of fruit, vegetables, meat, and milk due to lack of financial resources. Because there are no historical data for comparison with these results, the interpretation of these findings is problematic.

The children's current weight-for-age distributions were slightly higher than the international reference population. Retrospective information provided generally similar results, with only a small magnitude of change over time. Nevertheless, because of inconsistent age patterns and concerns about consistency of data collection procedures over time, it is difficult to interpret any possible time trends. The mean  $\pm$  SD birth weights were  $3,316 \pm 501$  grams, and only 4.8 percent were less than 2,500 grams.

The hematologic assays are of uncertain quality and results were available for only 51 percent of children since January 1993. The mean hemoglobin concentration was 124 g/liter, and 12.4 percent of children had a concentration  $< 110$  g/liter.

In conclusion, this survey was conducted in a well-educated population with reasonably high rates of employment. Nevertheless, per capita income was marginal in relation to the cutoff used for establishing poverty levels. There was a very high abortion rate, and abortion apparently is used as a major form of contraception. Infant mortality rates were uncertain. Although there were high rates of initiation of breast-feeding, it was of relatively short duration, and there was virtually no exclusive breast-feeding.

A sizable proportion of the families studied reported perceived food insecurity and worsening food consumption patterns, apparently because of lack of purchasing power. However, there was no objective evidence of child

undernutrition by anthropometry. Although there were slightly elevated rates of anemia of undetermined etiology, it is unknown whether this is a chronic problem or a recent phenomenon. More analyses of these findings by specific risk factors, such as urban-rural residence, employment status, and so on, would be useful.

## **ANEMIA PREVALENCE SURVEY IN UZBEKISTAN**

### **Purpose**

To understand the extent and etiology of anemia in the NIS, the USAID Office of Nutrition funded anemia surveys in Uzbekistan, Russia, and Kazakhstan using micronutrient funds designated for the NIS. Preliminary data were available from the Uzbekistan survey, but the surveys in Russia and Kazakhstan are in the preliminary stage.

The Uzbekistan survey was conducted in the Muynak District of Karakalpakistan, Uzbekistan, from 17 May through 24 June 1993 to determine the prevalence of anemia and to identify potential risk factors for low hemoglobin concentrations. This district was selected because previous assessments had apparently detected high rates of anemia and because of concerns about extensive environmental contamination with substances that may interfere with normal hematopoiesis.

### **Characteristics of the Study Population(s)**

A total of 1,887 individuals greater than 6 months of age was selected from the district's household registry of 27,000 residents for inclusion in the study. Of these, 1,414 subjects were actually examined at the Central District Hospital (76.7 percent recruitment rate). No discussion was provided regarding possible selection biases. At the time of preparation of the report that was provided to the committee, laboratory results were available from 1,250 of the subjects.

Interviews were conducted on the subjects' demographics, socioeconomic characteristics, and dietary habits. Health histories were recorded for children < 5 years of age and for women, and physical examinations were completed for all study participants. The subjects' weight and height were measured, but the specific measurement procedures were not described in the report. A venous blood sample was obtained for hematologic studies (hemoglobin, hematocrit, red blood cell indices, and leukocyte count by Coulter counter), and samples of blood serum or plasma (it was unspecified as to which were used) were saved for future biochemical analyses. The methods of handling and processing of the samples and the proposed future analyses were not described in the reports presented to the committee.

### Quality of Methods

Concerns were raised by the committee about the quality of the anthropometric data because of the examiners' failure to control such details as removal of shoes and possibly other articles of clothing before the examinations.

The questionnaire on dietary habits elicited information on consumption of selected foods on the previous day. The results were expressed as any consumption of a food from individual food groups. Although this information may be a useful indicator of food availability-accessibility, it is of limited value in nutritional terms.

### Major Findings

Information was provided on the children's birth weights, but the source of these data was not indicated. The mean  $\pm$  SD birth weights were  $3,359 \pm 498$  grams; 2.5 percent males and 7.1 percent females had birth weights  $< 2,500$  grams. The anthropometric data indicated that there were moderately high rates of stunting (defined as height  $< -2$  SD with respect to international reference data) among infants aged  $< 1$  year (17 percent), toddlers aged 1–3 years (32 percent), and preschoolers (32 percent). The rates of stunting declined in older children (12 percent). It is not certain whether these age-related differences reflect temporal trends in the population's nutritional well-being, age-specific differences in nutritional status, or methodological problems. There was no evidence of wasting in any age group.

Results of the hematologic survey were presented in terms of prevalence of anemia, but definitions of anemia for each age group and trimester of pregnancy were not provided in the report. Accepting the authors' unstated definitions, 64.5 percent of children and 36.5 percent of adults were apparently anemic. There were no sex-specific differences in prevalence rates among the children, but the rates in adult females (52.6 percent) were significantly greater than in adult males (20.2 percent). Adult females were not disaggregated by pregnancy or lactation.

Because of problems with record identification, not all laboratory results could be linked with survey information pertaining to possible risk factors for anemia. Among the available complete records, there was little difference in the eating patterns of anemic and nonanemic individuals, except perhaps among the elderly. It is notable that a number of high-quality foods, including milk and meat, are being consumed by a large proportion of individuals, although the amounts consumed are unknown.

There were few age-related differences in food consumption patterns for children beyond infancy and adults. A high proportion of individuals (85–100 percent) consumed cereal or tuber staples, milk, meat, fats, and sweets on the previous day; relatively few consumed vegetables (40 percent) or fruits (20

percent). It is unknown whether these consumption patterns have changed or are the same as historical ones. Eighty-five percent of the children less than 42 months of age had ever been breast-fed. The median duration of nursing was approximately 18–23 months. Most infants received water (90 percent), tea (72 percent), milk (17 percent), or fruit juice (8 percent) by 3 months of age.

### HEALTH/NUTRITION EARLY WARNING SYSTEM

The CIN was provided only with brief reports by CDC personnel involved in or planning Emergency Public Health Information Surveillance System (EPHISS) activities. No results were available and thus the following description only summarizes the intent of the activities.

#### Purpose

This early warning system was initiated in the NIS as an Interagency Agreement with the CDC's EPHISS to assist health officials in Russia, Kyrgyzstan, and Uzbekistan. The purpose was to strengthen epidemiological information systems so that there will be timely warning of disease outbreaks. In Russia there were plans to include a longitudinal survey on nutritional status, food consumption patterns, and purchasing power. Due to delays and failure of the Russian government to respond, the food surveillance component was not achieved. Nutrition assessments were conducted in Russia and Kyrgyzstan. In 1992, EPHISS activity was started in Armenia, which was the only such activity that had a pediatric and elderly nutrition monitoring component.<sup>3</sup>

#### Methods

The plan in Russia (and apparently in other NIS) was to implement the nutrition surveillance system in three phases over a 3-year contract period starting in 1993. The purpose was to establish timely nutritional surveillance of infants, preschoolers, and pregnant women in order to enable decision makers to protect the nutritional status of these groups. A pilot project was established in Yekaterinburg with the Nutrition Institute, Ministry of Health, and the Yekaterinburg Sanitary Epidemiological and Surveillance (SES) group. The pilot phase included the development of forms, procedures for data collection,

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<sup>3</sup> Preliminary results of this survey were published in the Armenian Monthly Public Health Report, 14 November 1993, which was made available to the CIN at the end of its meeting. This survey describes a relatively high prevalence of stunting in infants 12–24 months of age, a gradual loss in BMI in 100 pensioners between June and December 1993, and evidence of sharp increases in food prices.

and standard tables for data analysis. In the second phase, pediatric nutrition surveillance was to be instituted in four oblasts. In the third phase, surveillance extended to all oblasts.

Infant data were to be collected from polyclinics (pediatric clinics) that serve children 0–15 years of age. These data include birthweight, infant feeding status, sex, date of birth, weight, height, hemoglobin (at 3–4 months, 12 months, then yearly), and evidence of rickets. Data on pregnant women were to be collected after updating the pregnancy nutrition surveillance system, and they focused on age, parity, prepregnancy under- and overweight, hemoglobin, smoking, and prenatal supplement intake. Clinic personnel were trained, and a data entry and dissemination system was developed. Data quality is being assessed systematically.

### Findings

Because data were not presented to the committee, no review could be performed.

## OTHER DOCUMENTS PROVIDED AS BACKGROUND

### Country Health Profiles

As background, the CIN reviewed 11 USAID Health Profile Desk Studies on the NIS prepared in April 1992. For the most part, the brief summaries of the nutrition and food situation provided in the NIS health profiles were consistent with more recent information provided in the field surveys. In a few cases, they alerted the CIN to issues related to nutrition that did not surface in other documentation. In addition, the basic demographic data (based on U.S. Bureau of the Census analyses) in the health profiles allowed a minimal level of cross-country comparison (Table 2-2).

### *Comments Concerning Nutrition Situation from Country Profiles*

The following are some of the specific food and nutrition situation assessments obtained from the health profiles that the CIN found to be of particular interest.

*Kazakhstan* Anemia prevalence among pregnant women was reported to be 50–75 percent. The consequences that are noted were not, however, the usual primary concerns related to maternal anemia. The report mentions lactation failure, infection, and cancer as the main consequences. Child malnutrition was not reported to be a problem as of early 1992, although 20–40 percent of children were reported to be anemic.

**TABLE 2-2** Comparison of Indicators from Country Health Profiles of the Newly Independent States (1992 Report)

Country	Population (millions)	Life Expectancy		IMR (1990 adjusted)	MMR (1989)	TFR (1990 adjusted)
		Males	Females			
Armenia	3.3	69	74.7	35	34.6	2.7
Azerbaijan	7.1	67	74	44	29	2.8
Georgia	5.5	68.1	75.7	33.4	54.9	2.2
Kazakhstan	16.4	63.9	73.1	44	53.1	2.9
Kyrgyzstan	4.4	64.3	72.4	54.2	42.6	3.9
Moldova	4.4	65.5	72.3	33.9	34.1	2.5
Russia	148	64.2	74.5	22.1	49	2.0
Tajikistan	5.3	66.8	71.7	72	38.9	5.2
Turkmenistan	3.6	61.8	68.4	94	55.2	4.4
Ukraine	51.8	66.1	75.2	22.1	32.7	2.0
Uzbekistan	20	66	72.1	64	42	4.1

NOTE: IMR, Infant Mortality Rate; MMR, Maternal Mortality Ratio; TFR, Total Fertility Rate

*Kyrgyzstan* Prior to 1992 childhood malnutrition was reported by fieldshers<sup>4</sup> to be 10 percent (no specific criteria mentioned). The profile predicted that as early as late 1992, childhood malnutrition rates could increase significantly due to the combined effects of rising food prices, declining purchasing power, and the decline in the number of milk kitchens and school feeding programs. Iron deficiency was reported to be common among infants and pregnant women.

*Russia* Anemia prevalence among pregnant women was reported to be 20–25 percent and as high as 30–35 percent in Siberia and northern Russia. The profile suggested that as of 1992, protein-energy malnutrition had not been seen to any significant extent in Russia, but that micronutrient deficiencies were fairly widespread due to poor dietary patterns. For example, animal products were becoming scarce and expensive, vegetables were scarce, and fruits had never been a big part of the Russian diet. Iodine deficiency disorders were reported to be prevalent in parts of Russia and a number of other NIS. Constraints to iodination of salt were reported to include the use of older, less-stable methods and the use of old, outdated equipment.

*Tajikistan* Micronutrient deficiencies were reported to be a significant problem. Goiter had been noted, particularly in remote, mountainous areas. The

<sup>4</sup> According to Webster's Ninth New Collegiate Dictionary, a fieldsher is "a medical or surgical practitioner without full professional qualifications or status in some east European countries and esp[ecially] Russia" (1984, Merriam-Webster, Inc., Springfield, MA, p. 455).

prevalence of anemia among women was officially reported to be 20–30 percent, although informal estimates were much higher (e.g., 60–70 percent). Protein-energy malnutrition among children (second- and third-degree malnutrition) was reported to be 10–12 percent, and the median length of breast-feeding was 12 months.

*Turkmenistan* As of 1992, meat, rice, flour, and sugar were rationed. Vegetables were very expensive. Anemia was listed as one of the four major health problems, along with diarrheal diseases, hepatitis, and tuberculosis. Breast-feeding was reported to be declining, but no prevalence levels of nutritional deficiencies were reported.

*Ukraine* It was reported that both health officials and the public were concerned about breast-milk being contaminated due to the Chernobyl accident. As a result considerable effort had gone into development and improvement of infant formula. No breast-feeding data were reported. Food supply in 1992 was said to be better than in other NIS. Intake of cereals, potatoes, meat, dairy products, and sugar was good, but consumption of fruits and vegetables was very low and was reported to have decreased by 20–30 percent between 1990 and 1991.

*Uzbekistan* Food shortages were not yet as severe in 1992 in Uzbekistan as in a number of other NIS because it had a relatively good agricultural base. When it was part of the Soviet Union, Uzbekistan was the main exporter of fruits and vegetables to the rest of the union. Anemia prevalence among pregnant women was reported to be 70 percent on average and higher in rural areas.

### CDC Trip Reports

The committee also reviewed two trip reports by CDC personnel. The first included reports by the Institute of Nutrition in Moscow. Among these was a position paper on *Nutrition of the Population of Russia*—edited by M. N. Volgarev and published in 1992—containing the following: nutrition data from the previous 4 years; a report on plasma micronutrient values with data from convenience samples of about 25,220 adults in different regions of Russia from 1983–1992, 100 school children in four regions, and 100 infants between 1989–1991 in polyclinics in Volga and northern Siberia; and data from the Russian State Committee on Statistics (Goskomstat) Family Food Consumption Survey that has been continued for 4 decades and now includes 49,000 Russian families. These data include food production and consumption by households and were available through 1991–1992 (Volgarev, 1992). A separate CDC report of a trip to Kyrgyzstan in September 1993 provided a review of more current data on the nutrition situation.



## Framework for Discussion

The Committee on International Nutrition (CIN) reviewed the reports of the five nutrition survey-surveillance activities provided by the U.S. Agency for International Development (USAID) from the perspective of how the survey findings could be utilized by USAID in decision making. The committee did this with regard to nutrition monitoring and programming in the Newly Independent States (NIS).

The CIN made three assumptions concerning the timeliness with which information from surveys was needed, USAID's role in NIS institution building, and causes of future changes in the food and nutrition situation. These are described below and guided the comments and suggestions that follow. These assumptions were necessary for several reasons. First, it was not always evident from the documents available to the committee why the information was being collected or for what purpose it would be used. Information verbally provided to the committee by the USAID representatives attending the first day of the meeting sometimes conflicted with the written instructions to the CIN in the memoranda in Appendix A—for example, with respect to the proposed time frame of USAID's involvement in the NIS. Second, the studies evaluated were diverse in purpose and populations studied; this fact, plus the inconsistent quality of methods across studies, made interpretation of the overall findings difficult. The committee wishes to note in this context, however, that many of the studies examined were in a pilot, preanalysis, or draft phase, and thus had not yet generated the types of data that would have been helpful to the committee. Third, it was not possible to provide the committee with all the background information needed to make a detailed assessment of the nutrition situation in the NIS or to

conduct an in-depth review of individual programs and projects. This task was complicated by the enormous geographic, ethnic, sociocultural, economic, and political diversity of the NIS and the difficulties in generalizing findings and recommendations for programmatic change on the basis of a few geographically limited studies. Fourth, the documents provided on the nutrition situation in Russia described the situation as of, or prior to, 1992 (except for the Cooperative for American Relief Everywhere [CARE] survey on children under 2 years of age in Russia, conducted in 1993); no data were available on which to base an assessment of the current situation. As a result of these limitations, the CIN was not able to answer the three questions posed to it by USAID to the degree of specificity that it would have liked.

### TIME FRAME DEFINITION

There are three time frames within which food and nutrition information might be needed in a situation where there is the potential for food or nutrition problems:

1. An intervention might be needed immediately, due to short-term food or nutrition emergencies caused by the dislocations resulting from liberalization of the market of the former Soviet Union and the development of the NIS. In this case, a *short-term single survey* is required to provide an alert and from which necessary information must be available within a few months. The CARE Pensioner Surveys provide such an example of a rapid turnaround approach. The information required should, however, be linked to potential programmatic solutions, and the committee could not discern the extent to which this was done in the CARE surveys.

2. If there is a longer-term concern, wherein decisions have to be made within approximately 6–12 months, then *surveillance* should be instituted. In this report, the word “surveillance” is used only when monitoring activities are linked to the decision-making process.<sup>5</sup> This internationally recognized convention was not followed systematically in the documents given to the committee. Although this surveillance can be done by external agencies, it is best achieved by setting up an indigenous system that makes *repeated short-term surveys*.

3. If the period of concern is at least 1–2 years, then *indigenous longer-term surveillance* activities such as the Russian Longitudinal Monitoring Survey (RLMS) are appropriate. Again, links to decision making are essential. The CIN believes that a longitudinal survey such as the RLMS should also be able to produce timely information that could be useful for assessing the acute impact of the current situation on the nutritional status of populations in Russia and the NIS. In order for a survey to be useful as an alert to emergencies, as well as

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<sup>5</sup> J. B. Mason, J-P. Habicht, H. Tabatabai, and V. Valverde. 1984. Nutritional Surveillance. World Health Organization, Geneva, Switzerland.

providing information for surveillance, the essential data for detecting an emergency situation must have priority at all stages, including data analysis and reporting.

It was not clear to the committee which of the above time frames is most important to USAID or to those who will use the information. The committee believes that collecting information during all three time frames is important but assumed in its review that the USAID requires this information from the NIS primarily as an alert to food and nutrition emergencies. Chronic, preexisting problems with the quality or quantity of food or with micronutrient deficiencies create a different level of concern and require different actions. Nevertheless, these problems are also noted in this report.

### **INSTITUTION BUILDING AS A PRIORITY**

The committee was informed verbally that USAID is not currently planning to provide major support for institution building in the NIS, and it assumed this viewpoint in its review. It should be noted, however, that a letter to the committee from the Chief of Health Programs at USAID indicates that their Office of Democratic Initiatives and Health and Humanitarian Resources (DIHHR) is responsible for longer-term health programs that focus on institutional development (see Klement memo, Appendix A). A major objective of the RLMS appears originally to have been to train and empower Russian institutions to monitor their own food, nutrition, health, and economic situation.

### **CAUSES FOR FUTURE CHANGES**

Changes observed in the health and nutrition situation in Russia and the other NIS could be explained by several causes that differ in their implications for interventions and changes in policy. These include: changes in the food system (food availability); diminished consumer purchasing power, which denies households access to food despite availability in the market place; failure of social networks and government safety nets; and lack of medicines and nutrient supplements.

Working within the framework of these assumptions, the CIN reviewed the information provided, with the aim not only of summarizing what was known about the food and nutrition situation *in Russia* in 1992–1993 (see USAID's Question 1 to CIN), but also of evaluating the methodologies that have been used and suggesting approaches for future surveillance activities.





## Findings and Conclusions

This chapter presents a discussion of the relevant data and the committee's conclusions concerning each of the three questions posed to the CIN by USAID. With respect to the latter, the committee would like to stress again that its conclusions were based on a relatively small number of studies and problems described in the previous chapters. Nonetheless, the committee hopes that the findings and conclusions presented in this chapter will be helpful to USAID and other decision makers in their work in the NIS and in other regions of the world with similar populations.

**QUESTION 1: What can be concluded about the nutritional status and identification of potential issues of at-risk populations in Russia—for example, pensioners, women, and children?**

The committee approached this question by searching for evidence of an emerging food crisis *in Russia* at the time of the surveys (1992) or of chronic nutrition problems that existed prior to the surveys and that may still be occurring. The committee's primary goals were to understand the food and nutrition situation in Russia at the time and to examine the methods of data collection for the projects reviewed. The CIN was not asked to critique the specific studies in detail, nor could this be achieved with the information, process, or time available to the committee. In addressing this question, the committee also reviewed data from studies conducted outside of Russia (e.g., the 1993 Anemia

Prevalence Survey in Uzbekistan) to identify issues of at-risk populations that could bear on the situation in Russia.

### **Potential Indicators of an Emerging Crisis in Food and Nutritional Status in Russia**

Three categories of information are useful for assessing whether there is an emerging, acute food and nutrition problem in Russia that represents a deterioration from the previous situation. These are:

1. changes in the prevalence of malnutrition (i.e., poor nutritional status) based on anthropometric, hematological, or biochemical data;
2. evidence of new constraints in the population's ability to purchase food or of new shortages in the food supply; and
3. indications of changes in market food security.

This information must be linked to the options that are available to improve the situation.

#### *Changes in the Prevalence of Malnutrition*

The committee defines malnutrition as evidence that an inadequate food supply has had an adverse impact on the anthropometry, hematology, or blood nutrient concentrations of any population group within Russia. Evidence of malnutrition could reflect a preexisting, chronic problem with purchasing power or with the quantity or quality of the food supply, rather than a current, acute crisis. Because the appropriate action would differ depending on whether the problem were acute or chronic, this distinction should be borne in mind throughout the following description of the nutritional situation. Actions to improve the situation will be required not only when there is evidence of malnutrition, but also if nutritional status has worsened between surveys. An example in the Russian population of this latter case would be an observed reduction in body weight even if the population was previously overweight and was still not underweight at the time of the last survey.

In the RLMS, longitudinal data include weight, length or height, arm and head circumference, and midarm skinfold measurements from individuals in 7,200 randomly selected households. Although data were to be collected three times per year, only data for the 17,179 individuals included in Round One (July to October 1992) were provided to the committee. As described in more detail in Chapter 2, the RLMS results must be accepted with caution, because of obvious anomalies in the data and the lack of rigorous statistical analysis or information on sample sizes in the categories presented. Furthermore, it was not possible for the committee to evaluate the anthropometry of infants or young

children (whose anthropometry is usually more sensitive to food shortage) separately, because these were combined for all persons 1–17 years of age.

With these caveats in mind, the general conclusions of the committee concerning Round One of the RLMS were that, for children aged 1–17 years, there was little evidence of acute, short-term malnutrition (weight or height Z scores  $\leq -2$ ) or chronic malnutrition (height-for-age Z scores  $\leq -2$ ).<sup>6</sup> Anthropometric values of the Russian children were similar to those in most developed countries.

The CARE surveys on representative samples of children under 2 years of age, conducted from August to October 1993 in three regions of Russia, showed that current height, weight, and weight-for-age distributions were slightly higher than the international reference population. Retrospective clinic records on the same children produced similar distributions, although the representativeness of the sample, accuracy of these data, and consistency of methods are always of concern in a retrospective study. Mean birthweights were  $3,316 \pm 501$  (SD) g, and only 4.8 percent were  $< 2,500$  g.

Data on birth weight and infant anthropometry were also collected by the Institute of Nutrition in Moscow (Volkarev, 1992), and they are consistent with the RLMS data for children. Prevalence of low birth weight ( $< 2,500$  g) was underestimated to a certain extent, because until 1993, data from nonviable infants weighing  $< 1$  kg were excluded. However, prevalences of low birth weight of 5.8 percent in 1990, 5.9 percent in 1991, and 6.5 percent in 1992 do not suggest either a high or a marked increase in such a prevalence.

With respect to Russian adults, the RLMS data indicate that they tended to be overweight based on their body mass index (BMI,  $\text{weight}/\text{height}^2$ ). In most regions, 50–60 percent of individuals aged 35–50 years had a BMI over 25, indicating overweight. Few were underweight; about 1–2 percent had a BMI below 18.5.

These data can only be used to reflect the long-term, chronic food situation in Russia as of 1992. The committee saw no data that were useful for evaluating recent *changes* in anthropometry (i.e., recent changes in the energy supply) because comparative data from subsequent rounds of the RLMS (planned to be repeated every 4 months) were not available.

Measures of micronutrient status have been collected by the Institute of Nutrition in Moscow between 1983 and 1992 (Volkarev, 1992). The Institute has used small (40–200), nonrandom (convenience) samples of adults (workers from different socioeconomic groups and blood donors), children aged 10–15 years (attending schools in four regions), and infants (attending polyclinics in the Volga and northern Siberian regions). Results of biochemical, but not hemoglobin, measurements are available on the adult sample. On average, plasma

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<sup>6</sup> A Z score is a standard unit deviation from the international reference value for a child of the same age.

concentrations of vitamin C and B vitamins were low. However, the validity of these prevalence data is currently in doubt for the following reasons: nonrandomness of samples; possible inadequacies in the methods used for sample collection, storage, and analysis; seasonal variability in sampling; criteria used for defining deficiency; and whether reference samples were used. There was no obvious decreasing trend for the biochemical values since 1983, although the number sampled each year was small. No analyses of biochemical measures from children were presented. Data were, however, available for infants. Using a relatively low cutoff for anemia (hemoglobin < 10.2 g/dl compared to the CDC's recommended cutoff of 11 g/dl), this condition was found in 11 percent of infants in the 1989–1991 Institute of Nutrition surveys in Volga and northern Siberia.

Anemia is generally perceived to be a common condition, but no data were available from the Institute of Nutrition surveys on either anemia or iron status of adults, with the exception of pregnant women. Some data for pregnant women suggested a substantial increase in latent iron deficiency using a (serum ferritin cutoff < 20 µg/liter, substantially higher than the usually accepted cutoff for deficiency of 10–12 µg/liter) in the second and third (but not first) trimester of pregnancy during 1989–1991, but the number of subjects surveyed and the sample were not described. An increase in the prevalence of anemia during that time might be due to a lack of available iron supplements, or to a lack of meat intake of this population in 1992, but this is speculation on the part of the committee.

The CIN was also provided with data from the 1993 Anemia Prevalence Survey in children from Uzbekistan. The prevalence of stunting (height-for-age Z scores  $\leq -2$ ) was 16 percent in infants, 32 percent in toddlers, 22 percent in older preschoolers, and 13 percent in school-aged children. The rates of wasting (low weight-for-height) were similar to those expected in the reference population and do not indicate any new, emergency situation with regard to food availability. Because of the cross-sectional nature of the survey, however, it is impossible to determine whether the greater rates of stunting in these Uzbekistani toddlers indicate a recent deterioration in nutritional conditions.

During the Institute of Nutrition inspections and checkups, about 40–50 percent of children were diagnosed as having mild rickets. However, no data on vitamin D status were reported, and the September 1993 CDC Kyrgyzstan Trip Report suggested that the diagnostic criteria used would substantially overestimate the prevalence of rickets. Nevertheless, the northern latitude, possible recent lack of cod liver oil supplements to infants and children (reported in Kyrgyzstan), lack of food fortification with vitamin D, and historical concern about rickets suggest that this condition should be monitored closely.

*Household Food Availability and Purchasing*

In general, if energy intake correlates positively with income, this may mean that income is limiting food purchasing ability. Upon inspecting the tabular data from the RLMS presented to the committee, there did appear to be a modest, positive relationship between income and energy intake for adults, but not for children. However, no statistical analysis of this relationship was presented. Data on the adequacy of dietary energy intake by adults and children are difficult to interpret; however, on average, intakes do not appear to be constrained. In addition, as discussed above, more than half the adults in 1992 had an overweight problem.

According to the RLMS, the poorest households (< 50 percent of poverty line) spent about 60 percent of their income on food compared to 52 percent for the wealthiest (> 200 percent above poverty line). This difference was mostly explained by a slightly lower proportion (but presumably a substantially lower amount) of income spent on meat and dairy products. Rural households spent a larger percentage of their food expenditures on cheaper foods such as breads, cereals, and grains and a smaller percentage on meat and milk, compared to their urban counterparts.

Other data from the RLMS on income distribution provide an insight into the magnitude of the problem; 28 percent of the households had incomes below the Russian poverty line as defined in the RLMS, and an additional 54 percent had incomes less than 150 percent of the poverty line. Real incomes may be decreasing for many households in the short- to medium-term, perhaps because of the elimination of food subsidies and escalating food prices. This finding suggested to the committee that a significant proportion of households may be at risk of household food insecurity. One very valuable aspect of the RLMS, provided it is carried out on a regular basis, will be the ability to track households over time to assess the effects of structural adjustment on household food security.

In the CARE surveys on pensioners in Russia, about half of the pensioners surveyed perceived a lack of food security based on their responses to questions such as whether they always have enough money to buy food or their self-perceived weight loss. Reported milk and meat intakes were relatively low for this group in the view of the committee, although the possibility of underreporting must be considered. Some regions received large amounts of food aid (such as dried milk and cereals) in 1992, while others did not. The reasons for these differences could not be discerned from the information provided to the CIN. In the CARE study of Armenian pensioners in Yerevan, these pensioners appeared to be considerably worse off than pensioners in Russia. In part, this was caused by a shortage of food resulting from the blockade and war with Azerbaijan, as well as low pensions, according to the CARE survey.

In the CARE Pensioner Surveys, about half of the respondents reported a weight loss of more than 5 kg in the past 6 months. Although the accuracy of this self-reported weight loss is dubious, it is, nonetheless, indicative of a fairly widespread belief that the food supply was less adequate than it had been previously.

The Goskomstat ongoing survey of 49,000 Russian families showed a decrease in the consumption of meat, fish, dairy products, vegetables, and fruit between 1991 and 1992, which ranged from about 10–30 percent among these food groups. There was no change in bread, oil, or fat intake, but there was a slight increase in sugar intake. A shortage of infant formulas, perhaps to the extent that only half of the demand was met, was mentioned briefly in the Institute of Nutrition report and was attributed to a shortage of quality raw materials (Volkarev, 1992).

Data on the frequency of consumption of foods from five food groups (dairy, fruits, vegetables, grains, meats) were collected during the CARE survey of children less than 2 years of age in Russia, which was conducted from July to October 1993. However, no frequency data were available in the draft report provided to the committee. The information presented was analyzed in terms of an unvalidated “mean adequacy ratio,” which attempted to convert food frequency data into risk of specific nutrient deficiencies. For this reason, this report could not be used to assess food availability.

### *Market Food Security*

Market food security refers to the presence of enough food in the market at usual (reasonable) prices. This is also information that is well-understood by most decision makers and may be more likely to trigger action than perceptions of household food insecurity or measurements of changes in food consumption. Extensive data on various aspects of market food security were collected during the RLMS, but they were not presented in the Round One report provided to the committee.

The 1993 Anemia Prevalence Survey in Uzbekistan, which was completed during June and July 1993 and in which a high rate of stunting in growth was noted in children (see previous section), also contained information on the consumption of specific foods during the previous 24 hours. The data were presented as percentage of individuals from each age group who consumed any food from each of eight food groups. No quantitative information on food consumption was obtained. Of the adults studied, approximately 100 percent had consumed staples; 90 percent consumed meats, dairy products, fats or oils, and sweets; 40 percent consumed vegetables; and 20 percent consumed fruits and nuts. Except for the infants, the consumption patterns did not vary substantially by age group. The results are notable in the context of understanding the etiology of anemia because of the high frequency of meat and dairy product

consumption and relatively low rates of fruit and vegetable consumption. Because of the nature of the questions in this cross-sectional survey, it is impossible to determine whether these patterns represent a change from former eating habits.

There is certainly evidence that the nutritional conditions of infants and toddlers could be improved, possibly by provision of enhanced complementary foods or education on the preparation of these foods from available ingredients, appropriate fortification of existing complementary foods, control of common childhood infections, or some combination of these approaches.

### **Ability of the Institutional and Social Support Network to Maintain Nutrition**

Beyond the disruption of food trade, food price subsidies, and the availability of food and medicines that have resulted from the breakup of the Soviet Union and the implementation of economic reforms, it appears that there have been disruptions that affect food fortification with nutrients and nutrient supplementation of vulnerable groups. The committee is very concerned, for example, by anecdotal reports that salt iodination is limited or nonexistent because the importation of iodized salt has been affected by trade barriers and because of a lack of funds to repair iodination equipment. Most of the NIS have endemic iodine deficiency, with historically high rates of cretinism and other consequences of this deficiency.<sup>7</sup> Failure to ensure iodination of the salt supply could result in serious, long-term health problems, even in the absence of a general shortage of food. Monitoring of the iodination situation must, therefore, be a high priority and can be conducted independently of food and nutrition surveys.

The committee had similar concerns regarding the availability of iron supplements to women and children. Supplements appear to have been used as treatments for anemia, rather than as a preventive measure. Isolated reports of an increasing prevalence of iron deficiency (Vulgarev, 1992), and of an inadequate supply of iron supplements, are disturbing. According to the CDC Kyrgyzstan Trip Report of September 1993, there was a general concern about rickets and a statement that cod liver oil was unavailable. Again, a failure in the system that provides these important micronutrients through supplements could have serious health and nutrition consequences that would not necessarily be detected through traditional food consumption surveys.

An additional problem is that the social safety net that contributed directly to maintaining adequate health and nutrition in certain dependent population groups (e.g., orphans and the elderly or disabled who live alone or in public

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<sup>7</sup> Iodine Deficiency Disorders in Eastern Europe. 1992. Report of the International Council for the Control of Iodine Deficiency Disorders (ICCIDD). UNICEF/WHO.

homes) may have been severely weakened and in some cases may have ceased to function altogether.

Based on the contextual information available to the committee, the evidence was strongest concerning the nutritional risk faced by elderly pensioners as a result of the disintegrating social safety net. In most large Russian cities, there has been a program run by the Department of Social Assistance (a division of SOBES, the Department of Social Welfare) through which social workers provide special assistance to pensioners who live alone, invalids, single mothers, and others who are considered needy (CARE Pensioner Surveys). One important form of assistance has been visits to homebound individuals to help with personal care, shopping, and food preparation.

The CARE Pensioner Surveys highlight the importance of monitoring the level of assistance through the Department of Social Assistance by making it clear what a central role this program has played in protecting the health and nutritional status of dependent pensioners. Although, the surveys did not present direct evidence of deterioration in these services, it seems logical to assume that declining public resources may cause some social workers to lose their jobs, while the erosion of the value of salaries will cause others to seek secondary forms of income generation. Either scenario would lead to less assistance for those who have been dependent on public assistance and would likely exacerbate the nutritional risks directly associated with the declining value of their pensions.

### **Effectiveness of Economic Structures to Maintain Nutrition**

The macroeconomic reforms that have been implemented throughout the NIS are intended to stabilize the economy and, ultimately, to enhance economic growth and alleviate poverty. A basic assumption in this process is that economic growth at the national level translates into improved incomes at the household level. The committee expects that improved incomes will enhance food security, as well as improve health and nutritional status. However, even where macroeconomic reforms result in higher incomes, there is a lag time for this to occur. During this lag time between the initiation of reforms and a newly established equilibrium, certain subgroups of the population may be unable to adapt to structural adjustment, at least in the short- to medium-term. It is, therefore, important to identify those households and individuals that are likely to be affected adversely by structural adjustment and to maintain or initiate appropriate types of safety net programs that could buffer adverse effects of economic constraints on health and nutrition during the transition period.

### Conclusions

It should be noted that all surveys in Russia were conducted prior to or during 1992, except for the 1993 CARE study on children under 2 years of age. Thus, the committee's conclusions apply only to the situation up to these times. There were no analyses of longitudinal data from Russia that enabled the committee to evaluate changes in food security or nutritional status during the time periods examined. The CIN made the following conclusions regarding Question 1:

- Due to lack of appropriate qualitative data, it is not certain that the population groups surveyed were those at most risk of food shortage or nutritional problems.

- Based on the available documentation, and taking into consideration the apparently high average BMI of the adult population of the NIS prior to the recent social and economic changes, there appeared to be little evidence of energy deficiency or widespread malnutrition in Russia at the time the surveys were conducted (1992). There was a high prevalence of overweight up to this time; however, this finding does not preclude the possibility that a gradual weight loss due to energy shortage is currently occurring.

- In the CARE survey of Russian children under 2 years of age conducted from July to October 1993, there was no evidence of low weight-for-age, height-for-age, or weight-for-height in any age group. Thus, the committee concludes that there was no objective evidence of undernutrition among the Russian children less than 2 years of age who were included in the sample.

- In the RLMS, anthropometric data were aggregated for children 1-17 years of age, which made their interpretation difficult. With this caveat in mind, this group showed little evidence of undernutrition based on weight or height measures.

- No longitudinal data were available from the CARE or RLMS surveys, so that it was not possible to conclude whether the food and nutrition situation was getting worse at that time. There were some indications, however, that the food system was under stress in late 1992. About half of the pensioners in the CARE surveys answered affirmatively to a question about whether they had a 5-kg weight loss in the 6 months prior to being surveyed. Although the validity of the amount of weight loss is questionable, there is clearly a perceived food security problem among this group. Although average BMI was not low at the time of the CARE surveys, the distribution of BMIs was not provided to the committee. These data possibly may have revealed a certain proportion of individuals with energy deficit, although this is speculative. The 1992 report by Volgarev reveals reductions in meat, fish, dairy product, vegetable, and fruit consumption between 1991 and 1992.

- Some of the populations surveyed showed evidence of chronic micronutrient deficiencies. Anemia is generally perceived to be a common condition in the region, but the only data available in Russia were from pregnant women. It is possible that a relatively high percentage of anemia in this group has been exacerbated by recent events, including a shortage of iron supplements. Other chronic micronutrient deficiencies reported in the survey populations included iodine and vitamin D. Iodine deficiency may be endemic in Russia and the NIS, and iodination of salt may be threatened by new trade barriers and lack of funds to repair equipment. Although the prevalence of mild rickets may be overestimated, there are reasons to believe that women and children are at risk of vitamin D deficiency.

- The relevance to the nutritional situation in Russia of the mortality data presented could not be interpreted, because important potential confounding variables (e.g., availability of medications) were not considered by the researchers.

- Anecdotal evidence suggested that consumption of alcohol in the Russian populations surveyed was rising, but the relevance of this finding to food security or nutritional status was not clear. Future analyses of the RLMS data may shed light on this situation.

**QUESTION 2: What indicators and methodologies would be adequate (minimal safety net) and optimal for conducting nutrition monitoring systems in the NIS?**

The committee first offers a number of suggestions to guide the *process* that should be used to design and implement future food and nutrition surveys in the NIS. These are followed by a list of specific *measures* that might be included. Because of the CIN's assumptions (see Chapter 3), these comments relate, above all, to information gathering about a relatively rapidly evolving food crisis.

**Suggestions to Guide the Process**

*Decide on the Types and Timeliness of Information Needed*

To be useful, the information to be generated from a nutrition monitoring system must give timely and adequate guidance that enables a quick and accurate decision to be made about some course of action. To begin with, one needs to know:

- Whether or not there is an emerging problem with respect to nutritional status about which one should be concerned. This requires knowledge about which problems are usual (chronic) and which are new or changed.

- Some information about the causes of the problem, especially those etiologic factors—be they nutritional or programmatic—that interventions can address.

- Which population groups are likely to be most affected. This means understanding causality well enough to know what households are most vulnerable and how the households allocate the deprivation within the household.

- Options for action. These options define the need for other information especially relative to targeting interventions, monitoring their implementation, and assuring that the chain of causality is affected as presumed. Identifying options for action also permits identification of mechanisms for making decisions about the options, which relates to the next point.

- Who decides on the options of action and how to structure the information generation and communication so that the decision makers are properly informed in a timely fashion.

It is imperative that the courses of action, and the lead times for their implementation, be understood during the design of information generation systems for rapid assessment of emerging situations. In situations of rapid change, decisions about how to proceed are often made from afar or even outside the country or continent. This is also true for deciding how surveys will be conducted. This tendency should be avoided.

### *Collect Qualitative Information about Changes that Threaten Nutrition*

Qualitative information is available locally that can give insight into all five of the above points, and it is better suited for this purpose than quantitative data alone (i.e., data without the qualitative context). Previously collected quantitative data, if available, are useful to substantiate insights derived from qualitative data, but they are not essential. Insights are essential for designing a quantitative survey that can be conducted efficiently and interpreted with confidence. This qualitative information can be used to address changes that threaten nutrition, to understand coping strategies, and to discuss intervention options and who will determine them. It may be obtained from interviews with national/regional/local decision makers, key informants, frontline service staff, researchers, and others with an informed interest or stake in the outcome.

The following six questions are designed to elicit information that can inform decision makers about current or potential adverse changes in the nutritional status of the population.

1. What changes in market food supply have occurred that are of concern?

This question refers not only to reasons for overall food shortages, but also to shortages of specific kinds of foods, such as fortified products intended to prevent previously prevalent micronutrient deficiencies. Information should be obtained on perceptions of dietary changes that may occur or that have occurred as a result of economic stress. It is necessary to know why these changes have occurred and whether they can be reversed to the extent that they affect the food supply and food prices in local markets. This information on market (local) food security predicts where it is important to target further information gathering.

2. What were the usual sources of income and food in this population? What population groups have lost direct access to food and now receive less income relative to food prices?

This information defines the vulnerable groups in the population that should be targeted for further information gathering. In most situations of nutritional stress, the most vulnerable groups are assumed to be women (especially during pregnancy and lactation), infants, and young children. This assumption is based on the higher nutrient requirements of these groups and the potential for malnutrition to cause irreversible harm to the fetus or child. Another potential at-risk group is the elderly because of their fixed incomes that are vulnerable to depreciation during inflation; health problems that affect food purchasing, intake, or utilization; and social problems such as living alone or dependency on others. Although these population groups were sampled in the NIS surveys supported by USAID, the committee felt that the usual assumptions about vulnerability should be reexamined in the context of the NIS. For example, although children may suffer more than adults as a result of chronic or acute food shortage in developing countries, a recent crisis in a previously well-fed population such as the NIS might result in parents going without food in order to feed their children adequately. Unemployment and other stresses caused by worsening economic and changing social conditions may result in alcoholism, anorexia, and generally poor eating habits in both male and female adults. The CARE surveys showed that female Russian pensioners living in NIS other than Russia appeared to be at particular risk, because they were less likely to have relatives nearby and, perhaps, were victims of rising ethnic tensions. Small communities had a higher proportion of elderly, and a higher proportion of them were living alone.

To acquire the necessary qualitative insights into who the probable vulnerable groups are, information must be collected about how food was previously and is now distributed to schools and other institutions; to workers and the unemployed; and to individuals such as pensioners, children, infants, and orphans. The committee feels that this information is best acquired by interviews with key informants.

3. Are there increases in nonfood expenditures that threaten food purchasing power?

The problem of expenditures threatening food purchasing power may occur when costs of other basic needs besides food, such as medicines or housing, are excessive. This information can be obtained by interviewing officials responsible for these human needs (e.g., officials in health or welfare departments).

4. What mechanisms previously prevented destitution and malnutrition, and how are they supposed to be implemented?

Normative information (i.e., on what should be happening) should be obtained from senior informants in ministries and other agencies. However, questions about the actual situation (e.g., "Are those who are supposed to be implementing the activities at the front line still able to do so?") should also be asked of those implementing activities directly who may be suffering a range of stresses. They may, for example, have to travel long distances or have to repair critical machinery (e.g., for iodine fortification) under circumstances where money or time may be limited. Such questions may help to determine vulnerable areas or if services are failing for certain groups, thus increasing their vulnerability.

5. Are there changes in determinants of nutrition besides food availability?

Examples of changes in non-food determinants of nutrition include the loss of the social system that supplied help for food purchasing and preparation among the elderly, or the lack of medicines or supplements. The information described under Question 2 will usually give an indication about those stresses that need to be mentioned.

6. Have new interventions been implemented?

It is necessary to know what is supposed to be implemented (this can be learned from senior officials) as well as whether it is actually being implemented and whether the effects are what were expected (best learned from frontline implementors).

The following two categories of qualitative information can provide added useful information to decision makers.

1. Understand coping strategies.

Under food stress, old food strategies are expanded and new ones developed. These coping strategies need to be identified to develop measures of their use and success. Of particular concern is identifying behavior that was previously present, but only becomes a nutrition coping behavior under food stress. Determining the prevalence of such behavior may be meaningless; only changes in prevalence may be informative. For instance, it is hard to judge the relevance of the prevalence of gardening as an indicator of food need (a question asked in the CARE Pensioner Surveys), if it was previously a widespread recreational activity.

## 2. Discuss intervention options and who will decide them.

For information to be useful to decision makers, it must be relevant to the decisions to be made—both in terms of whether an intervention is needed and how it should be implemented. This requires knowledge about what kinds of interventions are possible. The CIN assumes that USAID's role in Russia and the other NIS is facilitatory, with the major responsibility for the resources and administration of interventions falling to the respective NIS governments. Key decision makers who might be involved should be identified early on, before a quantitative survey is designed. Long experience using surveillance shows that, for information transfer and use to be timely and efficient, the decision makers must be involved in deciding what information is useful, when it is needed, and how data should be interpreted. In the committee's experience, it is unusual for decision makers to be involved in considerations of study design, and a special effort may be needed to make them or their staff perceive this task as a priority.

### *Decide on the Quantitative Information Required*

The above qualitative information provides guidance about what quantitative information to gather and from whom. The following three items are examples of quantitative information that should be considered in designing and conducting surveys and surveillance.

#### 1. Sampling frame.

After the vulnerable areas and groups have been identified by the above information, the appropriate sampling frame must be identified. In the surveys reviewed by the CIN, the selection and implementation of sampling frames seemed appropriate except where noted, but this observation requires further investigation to ensure that high-risk groups were not excluded (e.g., lists of recipients of social services may not include recent immigrants). Inspection of the qualitative data described above could be useful to determine whether food problems are relatively universal or more concentrated in specific population groups or regions and, hence, whether widespread or more focused surveys are needed.

#### 2. Review possibilities for data collection, including existing surveys or activities.

In reviewing possible sample frames for data collection, one should consider the possibility of using different surveys for different target populations or individuals. One reason is that a survey in one vulnerable group (e.g., the elderly) may have a different sampling strategy and require collection of different data from a survey in another vulnerable group (e.g., young children). Another reason is that it may be more efficient to introduce nutritional and food security considerations into other kinds of surveys (e.g., health, welfare) that are almost certain to be considered for implementation in these kinds of situations

and, if combined with a nutrition survey, can permit more informed decisions about integrated interventions. Such surveys may already exist, or be planned or on-going and need little modification. Certain activities that are not surveys also afford opportunities for data collection because they sample the right individuals (e.g., immunization of children in vulnerable age groups).

These piggyback mechanisms should be considered before mounting stand-alone nutrition surveys. Focused nutrition surveys may still be necessary to assess vulnerable groups not adequately sampled by the above surveys, but a new survey to address nutritional concerns is usually uninterpretable if health considerations (especially among infants, toddlers, and the elderly) are not also considered.

### 3. Kinds of data.

It is important to differentiate between data that are vital for revealing outcomes of concern (e.g., malnutrition discerned by anthropometry, household food security, or perceptions of change for the worse) from data that illuminate the causes of these outcomes (e.g., economic status or lack of iron supplements). Data needed for interpreting outcomes will determine the way the outcomes are presented by providing the categories for comparisons. For example, if weight loss data are presented by employment category, it may be possible to infer which groups are at greatest risk. These comparisons must produce meaningful information that relates to the interventions that can be instituted. Sometimes they require comparison to outside standards. This is especially true when one is concerned with prevalence, because these are only interpretable if they are based on widely accepted criteria (e.g., BMI < 18.5 for adults or height-for-age Z scores of -2 or -3 for children).

Data collection, and especially data analysis, is much more efficient if the data are restricted to the minimum necessary to make the comparisons required for action. If other data are to be collected, the reasons for their collection need to be clearly stated. For example, certain data may be needed to plan responsive short-term actions, other data may be needed to design longer-term actions to deal with chronic nutrition problems, and still other data may be needed to obtain knowledge that has wider applicability (scientific information). When data are collected for different purposes, an important principle is that the analyses must be carefully defined to meet the short-term needs before the data are collected. Adhering to this principle will ensure that essential data get priority in data management (e.g., coding, cleaning, and compiling), so that these data may be quickly analyzed and interpreted.

### *Calculate Sample Size Necessary*

Power analyses should be done to ensure that a large enough sample of households or individuals is included in the survey and that the sample is not excessive. In general, power analyses should be based on the magnitude of

change that must be identified. In the committee's opinion, sample sizes in the high hundreds are often sufficient to detect changes important for the kinds of short-term decisions required.

### *When Necessary, Conduct Nutrition Monitoring Through Repeated Surveys*

The qualitative information collected will give an idea about the speed with which the emerging situation is likely to evolve. On that basis, monthly information is probably needed in Armenia due to the rapidly changing situation (and is apparently being collected by the government), but in Russia less frequent monitoring might be appropriate. From other sources, one should also have an idea about the relevant actions that might be envisaged to deal with the emerging situation. There is a lag time between availability of information and the decisions to take action; there is also a lag time for decisions to be implemented. Part of the purpose of setting up surveillance (see "Institute Surveillance" below) is to shorten that decision time.

Information from previous surveys, coupled with continuing qualitative information gathering, may indicate a need to monitor the nutrition situation and the evolution of its determinants in a subgroup of the population. It is important that both the sampling frame and the reduced number of variables to be collected be thought through afresh. One approach is to conduct repeated cross-sectional surveys that do not necessarily include the same households or individuals, such as was done in the CARE Pensioner Surveys. These surveys require larger sample sizes to identify changes than do longitudinal surveys of the same individuals. However, longitudinal surveys such as the RLMS are more demanding because of the expense and difficulty of remeasuring a high proportion of the same individuals from survey to survey. Another problem with longitudinal surveys is that the cohort measured often becomes unrepresentative of the population of concern. This problem can be caused by such factors as the increasing age of individuals or change in employment status.

### *Institute Surveillance*

Surveillance is a system that effectively links the data generated for decision making with the actual decision-making process. Again, this process involves knowing and working with those who make the decisions for specific interventions. The committee could not ascertain who the decision makers were for the studies reviewed; the exception was the Armenian government in the case of their ongoing surveillance system.

In considering the cost and utility of a survey, it is important to define the specific information that will be generated. The most appropriate method to accomplish this is to prepare dummy tables of results prepared from Day 1 of the

project, and predict likely inferences from these tables related to food and nutrition policy decisions that will need to be made. Another important issue is the timeliness of information generation and how long it takes to transfer the information to decision makers. Unless the decisions that are going to be made on the basis of information generated from future surveys are directly relevant to interventions or policies and are predefined (a prerequisite for developing the dummy tables and predefining the analysis), and unless the decision makers are identified and involved in the development of the surveillance system, the committee strongly advises against any further surveys or monitoring, unless their purpose is limited to validating assumptions about causality and vulnerable groups.

#### *Monitor the Effectiveness of Surveillance*

If surveillance is to be undertaken for any length of time, it is essential that criteria be established to judge its effectiveness and that these criteria be used to evaluate and thus improve the surveillance. These criteria should include both the content of the information (of which data quality is a small but essential part) and the timeliness of its transfer to decision makers. The mechanism to monitor surveillance needs to involve those who use the information to make decisions (i.e., those who would use the information if it were useful and timely).

#### *Validate Assumptions about Causality and Vulnerable Groups*

There is also a need to understand what is going on in the NIS in order to validate assumptions made about mechanisms of, and responses to, change in nutritional status, and to validate who the vulnerable groups are. The committee felt that this information is important not only to understand the situation as it evolves in the near future, but also in the longer term. This tactic requires information gathering that need not be so well predefined or so timely. However, the design of data collection methods and analyses must meet higher criteria of scientific validity relative to causality for the results to be interpretable than is required for the decision making described above. Some present and proposed data collection activities are in this category (e.g., parts of the RLMS that go beyond the purposes mentioned above) and need to be considered on the basis of their scientific, rather than their immediate, decision-making merit. Scientific quality is important because the data obtained must be valid. The best way of assuring this scientific quality is through critical peer review.

*Address Chronic Nutritional Problems that May Have Preceded the Present Crisis*

The above considerations relate to gathering information that will enable decisions to be made to mitigate or reverse the ill effects on nutrition of socio-economic dislocations in relatively well-off populations. The more chronic issues of anemia, childhood undernutrition in some of the NIS, alcoholism, and iodine and vitamin D deficiencies also need to be addressed.

**Specific Measures that Might Be Included in Surveys**

Much information can be collected by methods other than quantitative household surveys. It is important to be sure that quantitative data from surveys are really necessary to take action. For example, if it is clear that distribution problems are causing local market food insecurity, these problems can be dealt with without quantitative information from household food surveys.

The specific information to be collected should depend on current circumstances and the possible actions that might be taken. The qualitative information described above must first be collected in the field before the specific study design and appropriate variables are decided upon. With this caveat, the CIN proposes the following three levels of information.

*Minimum Measures*

In addition to the preliminary qualitative information described above, the following kinds of socioeconomic, anthropometric, and household food availability information should be collected in a representative, cross-sectional survey. This type of survey should be able to detect a food crisis, or at least a growing risk of one, and determine why it is occurring (e.g., shortage of food in the market and economic problems).

*Socioeconomic Data* Information should be collected on household demographics, employment, income, ethnicity, language, and other characteristics that are likely to be associated with increased risk of food insecurity and deteriorating or poor nutrition. This information should permit construction of a vulnerability classification that is useful to decision making and decision makers. These characteristics should have been identified by the preceding qualitative data collection.

*Measured (not Reported) Weight and Height of Young Children* It is usually assumed that children are a vulnerable group, although this must be confirmed based on qualitative or other information. In many situations, the 12- to 24-month age group is most revealing of change in the general nutritional

situation in the past year, because growth faltering usually occurs between the ages of 3 and 18 months. Older children can be included to increase sample size, but there is a strong risk that their growth-faltering occurred some years before. Height is more sensitive to growth faltering than weight. The prevalence of height Z scores  $\leq -2$  and  $\leq -3$  should be calculated; any evidence of height Z scores  $< -3$  indicates a serious situation. It is now accepted that weight-for-height of children between about 6 months and 24 months is usually low only in situations of very severe starvation, but it might be useful to monitor changes in the prevalence of weight-for-height Z scores  $\leq -2$ . In all cases, the distribution of Z scores must be presented to permit determination of the prevalence of low values and, if repeated, changes in the distribution over time.

*Body Mass Index of Adults* Weight and height should be measured and used to calculate BMI in  $\text{kg}/\text{m}^2$ . The World Health Organization now accepts a BMI  $< 18.5$  to be an indicator of inadequate energy intake. Thus, the distribution of BMIs must be presented.

*Food Availability at the Household Level* One of the earliest signs of major changes in food availability or in purchasing power is that households and individuals perceive feeling insecure about their food supply. Culturally appropriate questions about these perceptions can be based on examples in the Cornell Hunger Scale,<sup>7</sup> with the caveat that the scale was developed in the context of a stable economy where most people felt secure about food. Therefore, questions must be designed based on the understanding of recent changes in the food supply and of coping strategies used by specific population groups that were obtained, often quantitatively, before the study is designed. Efforts should be taken to minimize purposeful misreporting to demonstrate neediness (e.g., by careful wording of questions and appropriate training of interviewers), and to maximize the face validity of the indicators in the eyes of decision makers. Extended durations of breast-feeding is another possible indicator of food insecurity that can be elicited easily through interviews.

It may be useful to ask whether there are any backup food stores in the house, or whether there is only food available for that day. In the United States, where food is generally purchased once a week, a lack of food stores indicates an acute food shortage. In the NIS this may not be the case. Therefore, qualitative, cultural information should be collected prior to designing the question. Staples are usually bought over a longer-term period and low stores of these items may be more serious. When possible, visual inspection of food stores is advised to validate respondents' statements.

### *Optimal Measures*

***Purchasing Power*** Obtaining quantitative information about purchasing power requires an expenditure survey such as that in the RLMS. These types of surveys should be avoided when information is needed rapidly, because collecting data on expenditures can slow down the timely flow of information. Questions about perceived economic resources to purchase food may be more practical.

***Biochemical Analyses*** These methods are expensive and require careful standardization across laboratories in order to be interpretable. They are not useful for short-term surveillance. Hemoglobin concentrations can be measured with a portable monitor if information on anemia is desirable (e.g., in population groups with a suspected high prevalence) or if iron supplementation is possible. Accompanying qualitative information should be collected on possible causes of anemia or changes in its prevalence, especially on iron supplementation practices.

***Food Intake*** If repeated surveys are anticipated in order to monitor changes in the amounts and types of foods consumed over time, information should be collected on one 24-hour recall of foods consumed by the target individuals. This information should be semiquantitative (i.e., include reported amounts of each food consumed). Conversion of food intake data to nutrient intakes is not particularly useful if the purpose is to detect food emergencies.

***Prevalence of Rickets, Goiter, and Cretinism*** Rickets, goiter, and cretinism will increase if there is failure to provide supplements of vitamin D and iodized salt. These conditions represent a serious threat to the long-term health of the population, but they may not, of themselves, indicate a food shortage. Trends in prevalence may be available from national surveys, health practitioners, or clinics. However, the number of individuals affected needs to be sufficiently large if trends in prevalence are to be detected through nutrition surveys.

***Infant Feeding Practices and Food Availability*** These measures include the duration of breast-feeding and the availability of nutritionally adequate, complementary, and weaning foods.

### *General Indicators of Nutritional Status and Health*

Other kinds of information are also useful as general indicators of the health and nutritional status of the population. These may reflect changes in the health system more than changes in the food supply. Examples include the prevalence

of maternal-infant problems, such as percent low birth weight (< 2,500 g) and infant mortality, and mortality rates of other population groups.

### Conclusions

Information that the committee would have found useful in answering Question 2 includes: the extent to which the current food situation is changing in the NIS and the rapidity of this change, the type and size of role that USAID could play in alleviating any acute or chronic food or nutrition problems, and whether there is concern about collecting information or providing assistance that will improve the sustainability of solutions and monitoring. Given the available information, the committee concluded the following:

- Selection of appropriate indicators and methodologies depends very much on the availability of qualitative information, much of which should be collected locally and in advance of planning. In general, such information should provide a sense of the problems that might exist and their likely causes, whether the problem is likely to be acute or chronic, probable vulnerable groups, options for action, who has need of the information, and how quickly the information is needed.

- At a minimum, specific qualitative measures should be elicited in advance of any survey and should ideally provide information on such items as recent changes in market food supply, usual sources of income and food and the population groups for whom access to these have changed, rising costs of competing necessities, the functionality of existing food and other safety nets, knowledge about how household food strategies might change under stress, and what kinds of interventions might be possible in a given population in a given region (which requires talking directly with the potential decision makers).

- It is important to distinguish between the need for data that are vital for revealing undernutrition (e.g., anthropometry) and lack of food security and the data necessary for interpreting outcomes (e.g., economic data). Data collection will be achieved more rapidly and efficiently if restricted to the minimum information necessary to assess the situation and to make comparisons required for decision making.

- At a minimum, survey measures should include: socioeconomic data, measured weight and height of children (preferably 12–24 months old), BMI of adults, food availability at the household level, and market food security. Optional measures include purchasing power; biochemical analyses including hemoglobin; food intake; prevalence of rickets, goiter, and cretinism; infant feeding practices and availability of appropriate foods for infants and young children; and general indicators of nutritional status and health.

- The minimum essential data to be collected and the analyses to be performed must be carefully defined before data collection. Dummy tables of

results should be prepared from the outset of the survey and likely inferences should be made on which further decisions can be based. Steps should then be taken to ensure that these predefined data get priority at all steps of data collection through analysis, so that results can be quickly returned.

- Sample sizes in the high hundreds are often sufficient to detect changes in prevalence of outcomes such as BMI and most other anthropometric measures that are important for the kinds of short-term decisions required. Whether a representative regional survey is needed, rather than one focused on specific population groups or regions, will depend on the initial qualitative information concerning likely vulnerable groups, the universality of the food problem, and possible types of action.

- The need for and timing of repeat surveys depend on the speed with which changes in the situation are likely to evolve.

- A surveillance system requires a minimal lag time between data collection and decision implementation, which should be discussed with decision makers.

- Repeat surveys may benefit from differing sampling frames and changes in the variables collected over time. Decision makers must be identified and involved in the development of any surveillance system for it to achieve effective decisions.

- Links with existing surveys and activities should be considered both to maximize cost-effectiveness and to assist in interpreting findings.

- To detect changes in food or nutrition status, a larger sample size is needed for repeated cross-sectional surveys than for longitudinal surveys (where the same household or individuals are monitored continuously). Longitudinal sampling, however, is often more costly and difficult to implement.

- Criteria must be established to monitor the effectiveness of any surveillance system in terms of information content, timeliness, and usefulness for decision making.

- Chronic preexisting nutrition problems should be identified and monitored, especially if these are likely to be exacerbated by current crises. Examples include anemia and the need for fortification with iodine, vitamin D, and possibly other micronutrients.

### **QUESTION 3: How can USAID programmatically apply the current findings?**

As noted earlier, evidence available from the surveys examined does not permit definitive conclusions regarding the impact of the current political dislocations in the NIS on the food supply or nutritional status of vulnerable groups. In part, this gap exists because the surveys did not allow the committee to determine which are the most vulnerable population groups or to understand the causes of any food-related problems. In addition, the committee was provided

with little information about what strategies might be programmatically feasible for USAID or other funding agencies, and therefore its considerations about how the information could be used programmatically were limited. Also, the committee was uncertain how the health policymakers in the NIS view, or are involved in, the USAID decision-making process. Thus, the committee's specific programmatic recommendations to USAID are made cautiously.

It is clear, nonetheless, that certain population groups lacked food security and that there was evidence of infrastructural problems that could precipitate a worsening situation. In addition, there was evidence of preexisting micronutrient deficiencies that will worsen if food fortification and supplementation are jeopardized by the current turmoil. These problems are sufficient to suggest specific actions that should be considered by USAID. These include determination of the most appropriate intervention strategy in each instance, provision of needed foods and food fortification, institution building, and collaboration with, and building upon, other activities in the region that foster population health and well-being.

#### **Determination of the Most Appropriate Intervention Strategy**

Several important issues must be considered when designing the appropriate intervention strategy. First, is food lacking nationally or locally, or are the means to purchase food lacking? When food is lacking locally (market food insecurity), food prices rise relative to other goods. Even if foods are found in the market, they are sold at exorbitant prices. High food prices may also be explained by overall inflation. However, some households, whose income does not rise with inflation or who lose their purchasing power, may suffer household insecurity even though there is no market food insecurity. Therefore, household food insecurity can arise from market insecurity and/or from inadequate household food purchasing power.

Direct food aid from the United States to assure market food security should only be considered when the national food supply is inadequate (although this is a complex issue for which political, economic, programmatic, contractual, and diplomatic variables need to be considered). Otherwise, importation will cause a fall in food prices, have a negative impact on agricultural and home food production, and create certain expectations at a household or programmatic level that are difficult to change later. A possible exception is when food is carefully targeted to vulnerable groups who do not consume a major proportion of the food supply. Often the market food insecurity arises because of transportation and distribution problems. Provision by the United States of assistance to alleviate these problems can be more helpful than direct food assistance.

The nutritional status of the NIS population—and of particular population groups such as the elderly, pregnant women, and infants—was formerly strongly dependent on the social service network. Attention should be paid to the extent to which deterioration in this system could explain any deterioration in nutritional status and to the potential benefits of protecting specific services. Similarly, there was strong anecdotal evidence for lack of medical supplies such as vaccines, of nutrient supplements such as iron and vitamin D, of fortified foods such as iodized salt, and of appropriate infant foods. If true, this lack may explain a significant part of any increased prevalence of mortality, morbidity, anemia, and micronutrient deficiency diseases, such as goiter and rickets, and infant growth faltering.

### **Provision of Specific Foods and the Need for Nutrient Fortification**

It is the committee's understanding that food assistance is currently being provided by donor agencies to Armenia, Azerbaijan, Tajikistan, and Georgia in the form of commodity grains, vegetable oils, dry milk, and a small amount of blended foods. Such assistance was of value in the short term, given the evidence from the CARE Pensioner Surveys in 1992 that this food reached a high proportion of the elderly, at least in some regions. In the longer term, USAID should explore the possibilities of collaborating with other U.S. groups such as the Food and Drug Administration (FDA) to provide assistance in bringing about structural changes that might have longer-term impact. For example, the examined reports suggest a high prevalence of marginal vitamin D deficiency (an observation that needs to be confirmed), which should be preventable by proper fortification of foods such as milk. The FDA can use its expertise in the food fortification area to assist in implementation of appropriate fortification measures in the NIS. Where such fortification is not possible or sustainable, USAID should provide assistance in facilitating the importation of appropriate fortified foods or supplements for vulnerable groups.

### **Opportunities for Institution Building**

Unlike USAID policy in Africa, Asia, and Latin America, the Bureau of Europe and the NIS indicated during the committee's deliberations (continuing the policy of the earlier NIS Task Force) that long-term development is not a primary goal for the agency in Russia or elsewhere in the NIS. However, in a March 1994 memo to the CIN, USAID's chief of health programs states that "as USAID shifts focus away from short-term emergency responses to health and nutrition problems, the Office of Democratic Initiatives and Health and Humanitarian Resources (DIHHR) is responsible for longer term health

programs which focus on institutional development" (see Appendix A for the complete memorandum).

In view of this conflicting information, the committee based its recommendations on two assumptions. First, the most likely time frame for continuing USAID assistance in the region is another 3–5 years—perhaps through the end of this decade, but not beyond. Second, the primary goal of the agency is to assist in averting food and nutrition emergencies in order to protect the health and welfare of the population and to contribute to social and political stability.

Nonetheless, the committee wishes to express its view that institutional support and institutional development are important goals that should be kept in mind, even within the relatively short time frame and limited mandate that the USAID has established for itself in the region. Given the relatively high level of professional training in the population, the relatively well-developed food processing industry, and the well-developed social support infrastructure in Russia and many of the other NIS prior to 1990, institutional support and development in the area of food and nutrition would not require the same investment in basic training and basic infrastructure that would be required in most other regions where USAID is actively involved in providing assistance. Therefore, while USAID provides short-term assistance to nutrition and health monitoring and surveillance, there will be many opportunities wherein a small amount of additional effort will make an important contribution to leaving behind strengthened institutions without seriously competing with more short-term emergency related goals. These additional efforts might include systematic technical training with detailed written protocols, copying and sharing of recent relevant academic papers and reports, widespread discussion and interpretation of surveillance and monitoring data within an explicit conceptual framework, and the purchasing of equipment that will remain on site.

### **USAID's Leveraging Opportunities**

USAID should make every attempt to leverage other programmatic resources in the region to promote population health and well-being. The preexisting nutrition and food-related social programs and industries in Russia and the other NIS, and the high level of current bilateral and multilateral interest in the region, provide opportunities for USAID to leverage its food and nutrition monitoring assistance. Where milk kitchens, school lunch programs, and the Department of Social Assistance visits to shut-ins continue to function, USAID-assisted nutrition monitoring may provide helpful information for targeting the limited resources of these programs to those populations most in need.

United Nations Children's Fund (UNICEF) is establishing representatives in several NIS. Given UNICEF's commitment to child welfare and its capacity to marshal resources for child survival and development in places where

USAID-assisted nutrition monitoring and surveillance identifies a substantial risk among infants and preschool children, it may be possible to work jointly with UNICEF to design and implement appropriate interventions. Given its commitment to promotion of breast-feeding, UNICEF may also be an appropriate and willing collaborator in studies of possible breast milk contamination in populations exposed to the Chernobyl disaster or other environmental contaminants and in the provision of appropriate education to mothers. This issue is important in that a decline in breast-feeding in a population is not easily reversed when a food crisis arises, which puts infants in that population at greater risk of inadequate feeding and of infection.

As a member of the U.N.'s Administrative Committee on Coordination-Subcommittee on Nutrition (ACC/SCN), USAID could exchange information about their food surveillance and monitoring activities, which would help to coordinate their efforts not only with United Nations' agencies, but across bilateral agencies as well. USAID should investigate which agencies have most leverage in terms of food and nutrition activities in the NIS. This coordination would also be important if USAID is considering a cut or halt in funding of food and nutrition activities.

The World Bank has already shown considerable interest in the value of nutrition monitoring and surveillance data through its initial role in the design and financing of the RLMS and its current support for a similar survey in Kyrgyzstan. Given that the World Bank usually has well-established lines of communication with ministries of finance and planning, as well as health and agriculture, it may be in a particularly good position to encourage adjustments in economic policy to prevent nutritional deterioration during this period of rapid economic adjustment.

### Conclusions

The evidence presented to the committee was too out-dated to permit definitive conclusions regarding the current food supply and nutritional status of vulnerable groups or the causes of food-related problems (e.g., a market food shortage versus inadequate purchasing power). There is, however, suggestive evidence of food insecurity, of infrastructural problems that could precipitate a deterioration in conditions, and of preexisting micronutrient deficiencies. The committee makes the following conclusions regarding Question 3:

- The decision to supply direct food aid should be based on evidence that the national food supply is inadequate. The exception is when direct food aid is carefully targeted to vulnerable groups who consume a relatively small proportion of the total food supply.
- Assistance with local food distribution and transportation problems may reduce market food insecurity.

- The nutritional status of the population may be as affected by problems in the delivery of other services as by changes in food supply and purchasing power. These problems might include failures in the social service network; supplies of necessities such as medicines, vaccines, appropriate infant foods, and nutrient supplements; and fortification of food with specific micronutrients.

- Structural changes are needed that may have longer-term impacts on the micronutrient status of the population. These changes include food fortification.

- There are opportunities for the support of NIS institutions that can take on the task of food and nutrition surveillance. Such support should be achievable at relatively low cost and have a high payoff.

- The currently high level of interest of bilateral and multilateral agencies concerning the NIS means that there are opportunities for USAID to leverage its food and nutrition monitoring assistance and to increase communication about NIS problems with other organizations.





## Considerations for Future Activities

This chapter provides suggestions for the future content and conduct of USAID nutrition surveys and surveillance activities. The committee offers these in the hopes that they will be of use to USAID in its future work in the NIS.

- To the extent that there are ongoing changes in the NIS that threaten market and household food security and the quality of the food supply, the food and nutrition situation in the NIS should continue to be monitored. Suggested minimal and optimal measures have been described in the report.

- In future surveys and surveillance activities, attention should be paid to obtaining qualitative information prior to study design.

- Study methods, content, and analysis should be designed with the outcome in mind: enhanced decision making, particularly by health policymakers in the NIS. These activities should be designed considering the ethnic and sociocultural characteristics of their target populations and in consultation with national/regional/local decision makers, key informants, frontline service staff, researchers, and others with an interest in these activities. More attention should be paid to tailoring monitoring systems accordingly.

The committee believes that the three previous suggestions will help minimize problems that have occurred in some past surveys. These problems have resulted, in many cases, in a relatively small amount of available information useful for decision making, a lack of useful current information, and an uneven quality across surveys.

### ADDITIONAL AREAS TO PURSUE

Assistance should be provided to implement food fortification programs in order to reduce the problems of rickets, goiter, and anemia, to the extent that these problems are documented. Evidence of decreasing iodine intake or increased rates of goiter or rickets should be viewed as an emergency. In some areas or population groups, there may be a need to investigate further the causes of anemia, including the potential role of environmental pollution. To reduce the prevalence of micronutrient deficiencies in the population, a combination of assistance from the FDA to establish standards for processed food composition and micronutrient fortification and from the private food-processing industry in techniques for food fortification would be extremely desirable in ensuring that the food-processing sector makes as rapid and widespread a contribution as possible.

Additional opportunities for joint participation in, and coordination of, activities with other bilateral and multilateral organizations should be explored and defined.

Evaluation of the situation in the NIS differs from the assessment of a chronically malnourished population, which is the more usual situation, and for which accepted survey methods have been developed. There is, therefore, a need to develop new methods to detect "hunger" in generally (or previously) well-nourished populations such as most of those in the NIS. Declines in nutritional status in such populations, especially in the short-term, may be more difficult to detect reliably than a simple determination of nutritional status at a given point in time.

The committee suggests that USAID consider the formation of an advisory group, whose function would be to expand upon, coordinate and advise on the many qualitative activities described in the report; coordinate and, perhaps, standardize future survey and surveillance activities; and help interpret, disseminate, and follow up on results and on surveillance activities in general.

Emergency feeding in the form of direct feeding programs should be based on evidence of food shortage, rather than a lack of purchasing power. One exception is the careful targeting of vulnerable groups who consume a relatively small proportion of the food supply. These vulnerable groups may differ from those usually targeted in developing countries.

Based on evidence that women of reproductive age have a high risk of morbidity and mortality due to a high prevalence of anemia and high rates of abortion, consideration should be given to ways of increasing nutrient supplementation to this group (perhaps through UNICEF), as well as enhancing access to contraceptive technology.

In no document was consideration given to food rationing. If food availability is scarce, this programmatic action may be helpful. Any decision of

this type should be made by the appropriate policymakers in the NIS, taking into account the serious political implications.

### **SPECIFIC SUGGESTIONS REGARDING ON-GOING NUTRITION SURVEYS**

The RLMS is potentially a very informative survey. The CIN's recommendations on how to proceed with the RLMS are provided in Appendix B and are summarized as follows:

- The first recommendation for the RLMS is to identify focused policy questions that the current protocol was intended to address and the specific data that are required to answer these questions. This task should involve decision makers from USAID and appropriate counterparts in the NIS. Dummy tables can then be drawn up and analyses produced as soon as possible. This process will enable all parties to review the usefulness and timeliness of data collection.
- It is also recommended that a solid scientific review of the RLMS be undertaken after the above analyses are available. The committee did not have the necessary information or time to perform this service. The review will take experts several days to accomplish.
- Based on the former two activities and qualitative evidence of food insecurity in Russia, USAID and NIS counterparts will be able to develop a core group of essential indicators for monitoring the ongoing effects of economic reforms. These indicators should take priority in collection and analysis and be sustainable within the current Russian infrastructure. The purpose of collecting additional data needs to be articulated and justified.

Finally, due to the rapid decline in meat, fish, dairy product, vegetable, and fruit consumption in 49,000 Russian families between 1991 and 1992 reported in the Goskomstat survey (Volkarev, 1992), a detailed evaluation of the methodology and the suitability of the data for surveillance should be undertaken.



# Appendix A

## USAID's Request to the Committee

### MEMORANDUM FROM SAMUEL G. KAHN DATED 17 MARCH 1994

To: NAS/IOM/BIH, Christopher P. Howson  
From: USAID/G/RD/N, Samuel G. Kahn  
Subject: Committee on International Nutrition

The first meeting of the CIN is scheduled to take place this April 14 and 15. The topic is "Nutrition Surveys and Surveillance Activities in Russia and the Newly Independent States (NIS)." Accompanying this memorandum are background documents and information which are submitted to assist the Committee in addressing the proposed issues. Included are a memorandum (Klement to IOM, through G/N) which concisely describes USAID's nutrition efforts in the NIS, and four loose-leaf binders containing protocols, questionnaires, instructional manuals, trip reports, country profiles, other information, and an index to the loose-leaf binders. (Note: additional documents are forthcoming on the anemia studies in Kazakhstan and Russia, Binder III, Section B.)

Based on the background information, documents, and the knowledge of individual members, the Committee is requested to make recommendations as to:

- interpretation of nutritional status and identification of potential issues of at-risk populations in Russia;
- indicators and methodologies that would be adequate and optimal for conducting nutrition monitoring systems in the NIS; and
- how USAID may programmatically apply the current findings.

**MEMORANDUM FROM JULIE KLEMENT  
DATED 14 MARCH 1994**

To: Committee on International Nutrition/Institute of Medicine  
Through: USAID/Office of Nutrition  
From: Julie Klement, USAID/ENI/NIS/DIHHR, Chief of Health Programs  
Subject: USAID's Nutrition Survey and Surveillance Activities in Russia and the Newly Independent States (NIS)

**Background**

As part of the United States government's effort to work with the Newly Independent States (NIS) of the former Soviet Union as they make the transition to democracy and a free market economy, the U.S. Agency for International Development (USAID) established a Task Force in April 1992. In late 1993, as the emergency reaction to the break-up of the Soviet Union lessened, the Task Force merged with the Europe Bureau in an effort to streamline the Agency. However, it is clear that the 15 republics of the NIS continue to be in a state of social, political, and economic upheaval. Concerns are increasing regarding worsening health and living conditions; four of the republics are in a state of civil conflict.

The USAID/NIS Office of Emergency and Humanitarian Assistance (EHA) is responsible for coordinating emergency food and medical activities. To date, nutrition activities supported by USAID in the NIS have been initiated primarily by EHA, thus focusing on emergency health conditions and immediate food security problems. However, as USAID shifts focus away from short-term emergency responses to health and nutrition problems, the Office of Democratic Initiatives and Health and Humanitarian Resources (DIHHR) is responsible for longer term health programs which focus on institutional development. The strategic objectives of DIHHR's program include: promoting vaccine and pharmaceutical security; supporting health care financing and service delivery system reform; strengthening health information and response capabilities; supporting women's reproductive health; and addressing selected critical country- or regional-specific health problems.

**Description**

*Health/Nutrition Early Warning System*

USAID initiated early warning systems in the NIS to help monitor health and nutritional deterioration as a result of the increasingly precarious country situations. In September 1992, USAID entered into an Interagency Agreement (IAA) with the Centers for Disease Control and Prevention's (CDC) Emergency

Public Health Information Surveillance System (EPHISS) program to provide assistance to health officials in three of the NIS Countries (Kyrgyzstan, Russia, and Uzbekistan). The purpose of the IAA was to strengthen their epidemiological information systems and provide timely warning of disease outbreaks. The system in Russia was initially designed to include a longitudinal survey on nutritional status, food consumption patterns, and purchasing power of the Russian population. However, due to project delays and lack of response from the government of Russia, the food surveillance component of the system was never achieved. Instead CDC conducted nutrition assessments in Russia and Kyrgyzstan. (The results of these assessments are included in the accompanying documents.)

In December 1992, an EPHISS activity was started in Armenia. It is the only EPHISS in the NIS that includes pediatric and elderly nutrition monitoring. An output of this activity in Armenia is the monthly publication of a public health bulletin and supplemental bulletins that report longitudinal trends for specific indicators (e.g., pediatric nutrition). (Selected bulletins and reports of the Armenian EPHISS are included in the document for review.)

### *Nutrition Surveillance*

As an emergency effort to assist in stabilizing the immediate food security problems throughout the NIS, particularly of vulnerable population, to date, USAID has provided \$45 million in food commodities in the NIS. As part of this effort, CARE was awarded a grant to distribute and monitor U.S. government commodities and coordinate with other U.S. PVOs. In addition, CARE was responsible for monitoring food security among certain vulnerable population groups and collecting quantitative and qualitative information which was not available from any other source in the NIS. This information was thought to help in the development of early warning indicators regarding future food security for certain target groups. CARE conducted survey on pensioners in four of the republics and a survey on children under two years of age and mothers in Russia. (Description of these surveys are provided.)

*CARE Pensioner Surveys* CARE surveyed pensioners twice (at 6-month to 1-year intervals) in five Russian cities (Moscow, Yekaterinburg, St. Petersburg, Irkutsk, and Gargarin), Kazakhstan, Uzbekistan, and Armenia from April 1992 to April 1993. The objectives of the pensioner survey were to: (1) identify high-risk groups of pensioners; (2) identify risk factors associated with pensioner malnutrition; (3) assess main aid support systems and other coping strategies used by pensioners to adjust for decreasing food supplies; and, (4) identify the most effective means of coordination and delivery of international food and economic aid.

*CARE Under Two-Years-of-Age Survey* In April 1993, CARE conducted a survey of children under two-years of age in three Russian cities and outlying rural areas (Moscow, St. Petersburg, and Yekaterinburg). The survey's objective was to determine the nutritional status of young children and mothers and their "perceived hunger." (Preliminary results are available on the urban sample and are included in the documents for review.)

### *Anemia Surveys*

High rates of anemia among women and children have been reported throughout the NIS; however, the etiology and extent of anemia in the NIS is largely unknown. The USAID office of Nutrition funded anemia studies in Uzbekistan, Kazakhstan, and Russia using micronutrient funds designated for the NIS region. These studies examine the prevalence of anemia and investigate the etiology of the disease. Preliminary results are available from the Uzbekistan survey and are included in the review documents. The two other surveys, Russia and Kazakhstan, are in their preliminary stages; scopes of work/protocols for these two surveys are included in the review documents.

### *Russian Longitudinal Monitoring Survey*

In 1992, the University of North Carolina began the Russian Longitudinal Monitoring Survey (RLMS) to establish a baseline and monitoring system of a wide-range of health, nutrition, and economic indicators which would aid in monitoring the health and nutrition status of a representative national sample. The project was launched with initial funding from the World Bank as well as the Russian government. USAID provided bridge funding from April 1993 through June 1994. Additional funding for the RLMS is currently being considered.

### **Rationale**

As a result of these various nutrition-related activities carried out by a variety of organizations (e.g., U.S. government, universities, and PVOs) using varied protocols and procedures, DIHR has requested assistance from the Office of Nutrition to convene a meeting of experts through the Committee on International Nutrition (CIN)/Institute of Medicine (IOM) to review selected nutrition surveys and related surveillance activities in the NIS. The purpose of this meeting is to review the findings of the various surveys with regards to the nutritional status of populations at risk, to recommend future survey/surveillance activities to be undertaken in the NIS and to recommend operational application of these findings to develop health and nutrition delivery programs which address the problems.

**Issues**

USAID requests the CIN/IOM to review the accompanying background documents and make recommendations as to:

- the nutritional status and identification of potential issues of at-risk populations in Russia (e.g., pensioners, women, and children);
- indicators and methodologies that would be adequate (minimal safety net) and optimal for conducting nutrition monitoring systems in the NIS; and,
- how can USAID programmatically apply the current findings.

## Appendix B



### Recommendations for the Survey-Surveillance Activities Reviewed by the Committee

The committee offers the following recommendations for improving the study methods of each of the five nutrition survey-surveillance activities that the committee reviewed.

#### **RUSSIAN LONGITUDINAL MONITORING SURVEY**

With the wealth of information collected in this multilevel survey, it is frustrating that very little could be said about the effects of macroeconomic reforms, based on the available data. The surveys as designed were intended to provide a rapid-response monitoring system that could provide critical data for policy formulation. What became clear from the documents provided was that local-level collaborators did not have the capacity to implement such a complicated and extensive survey and still provide the rapid analysis and interpretation of data. Therefore the review team felt strongly that there were four steps that should be taken to ensure that the current data, and any data collected in the future, are more useful for decision making. Specifically:

1. The CIN perceives that more information has been collected in the RLMS than is essential to monitor macroeconomic reform in Russia. The utility of the various parts of the massive sets of questions for a monitoring system cannot be determined without some articulation of the policy questions that are meant to be addressed. Therefore, the first recommendation is that the RLMS research team identify the series of policy questions that the current survey is meant to address.

2. Based on this series of focused policy questions, dummy tables should be developed that indicate how the data from the various parts of the questionnaire will be analyzed and presented. This step is critical because as the CIN observed from the extensive number of tables already presented, few if any were presented in a way that is useful for decision makers.

3. The CIN believes that adoption of Recommendations 1 and 2 will result in a more focused study. A direct result will be the identification of a core group of essential indicators for monitoring the ongoing effects of economic reforms in Russia. The resulting set of essential indicators will in most likelihood be sustainable within the current institutional infrastructure in Russia.

4. There may be longer-term goals for which a more detailed survey protocol can be justified. Again, however, they are not clear from the current survey. Therefore, the CIN suggests that the RLMS research team articulate a potentially larger set of research-policy questions that justify additional data collection procedures above and beyond the essential set of indicators identified. The CIN does not believe that more data are necessarily more policy relevant. Indeed, considerable time was spent discussing the enormous respondent burden that is inherent in the current multitiered survey. The CIN decided against identifying specific sections of the questionnaires that could be eliminated or specific questions that seemed superfluous. However, the relevance of many of the detailed questions on tangential issues was questioned. Ideally, each of the individual questions should be linked to a policy question and a specific analysis plan.

### CARE PENSIONER SURVEYS

In future studies, weight and height should be measured, not self-reported. It is also important to identify where and with whom pensioners live in order to determine what kind of social support system they have (e.g., a family-based support system).

Other questions to consider are the following: Are there intrinsic issues or characteristics about the pensioners that prevent them from using these social support systems? How serious is the food shortage among pensioners, and what is the situation of their personal food stock? What are some coping strategies by which pensioners can maintain their health and diet in light of these shortages? How do pensioners supplement their income? How much international food aid has been delivered, and what are the most useful forms of food aid to pensioners?

Surveys of pensioners living in rural areas should be undertaken to determine the extent of their well-being. Contrary to the usual presumption, other data available to the CIN appear to show that pensioners in small communities tended to live alone more.

Social welfare programs should be monitored directly, particularly in Armenia where the health status of pensioners appears to be more grave.

### **CARE UNDER-TWO-YEARS-OF-AGE SURVEY**

The committee hopes that the full data set will be analyzed and that possible risk factors for perceived changes in food consumption will be studied. Additional attention should be given to the analysis of food intake data, as the analyses provided were not easily interpretable. In addition, the purpose for which the food intake data will be used needs to be made clear.

Questions on perceived changes in food availability-accessibility should be validated and related to other objective measures of nutritional status. It is conceivable that these subjective responses may indicate some breakdown in food production, distribution, or accessibility that could be a forerunner of a larger food problem.

Additional information on the rates and etiology of anemia is needed, although this is probably a chronic, rather than emergent, problem—except if there is a current problem with availability of iron supplements.

Other longer-term issues that need attention are availability of modern family planning services and promotion of optimal infant feeding practices. Whether any changes in maternal employment patterns have been a recent factor undermining optimal breast-feeding practices should be explored.

### **ANEMIA PREVALENCE SURVEY IN UZBEKISTAN**

Although there appear to be extremely high rates of anemia in all age groups, the application of appropriate age group-specific and physiologic group-specific definitions of anemia must be confirmed. These observations should be followed up with investigation of the etiology of anemia in each age group. Available serum plasma samples should be analyzed for iron, total iron binding capacity, and ferritin as well as other micronutrients (and toxins) such as retinol, folate, vitamin B<sub>12</sub>, riboflavin, zinc, and possibly others including lead and other heavy metals.

The etiology of the anemia and growth stunting is not yet understood, but poor diet seems unlikely to be the only cause, although this was difficult to discern based on the information provided to the committee. More analysis is needed on relationships such as that between anemia and tea drinking or between anemia and the use of iron pots.

It is also conceivable that the observed age-related differences in rates of stunting are due to methodological problems, such as failure to control for removal of shoes and inconsistent measurement of recumbent length versus stature. These alternative explanations could possibly be explored by examining age-related patterns of stunting in historical data, if available, and by examining

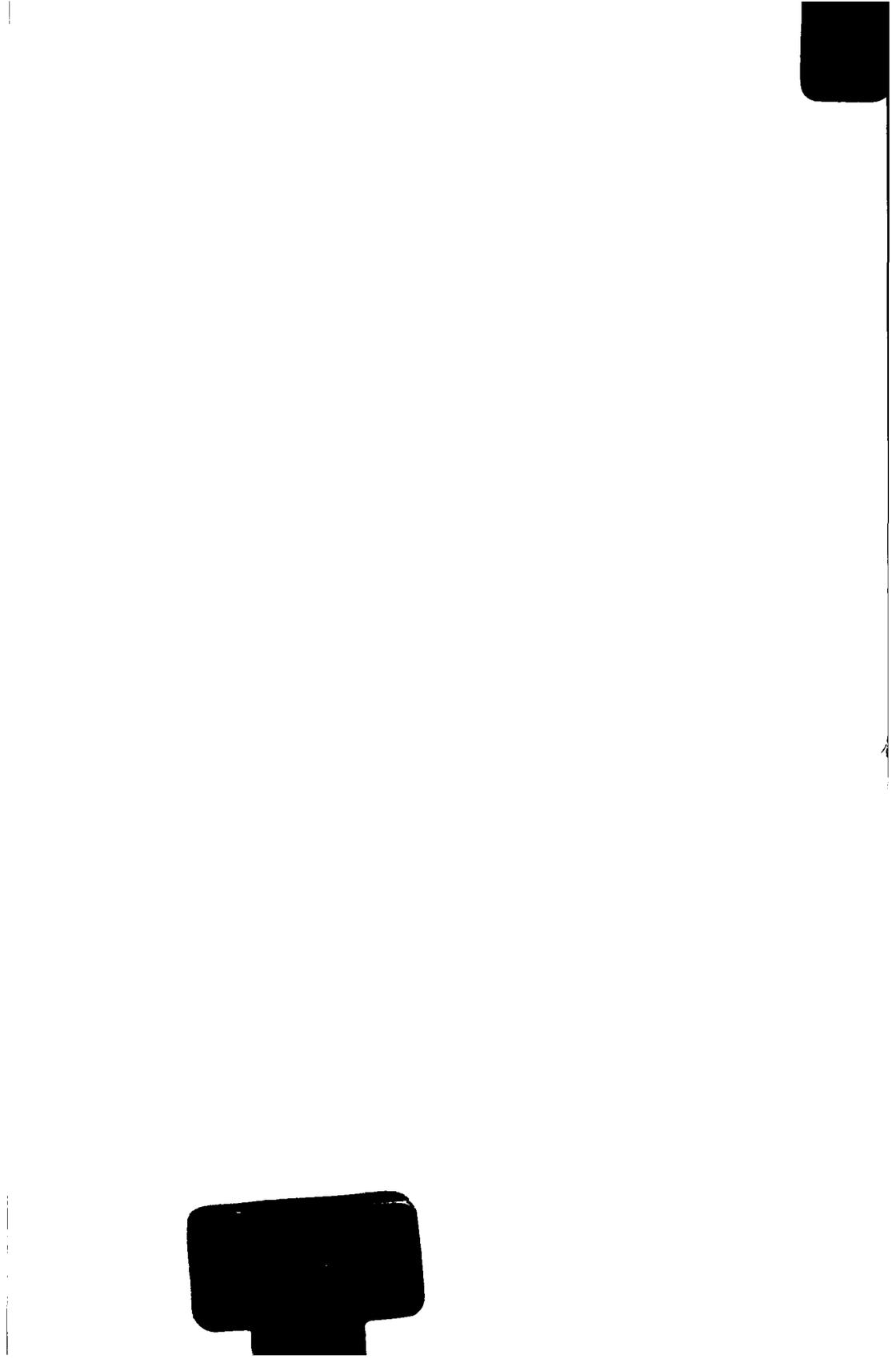
distributions of weight-for-height separately for children of different age groups in the current study population.

### **HEALTH/NUTRITION EARLY WARNING SYSTEM**

Because data were not presented to the committee, no review could be performed. However, the committee feels that the use of the existing medical facilities and data collection systems appears to be an efficient and effective way of monitoring the health situation. The system also assists in institution building. As in all surveys, the data to be collected need to be clearly linked to possible interventions.

The committee could not ascertain what specific data would be available on a routine basis regarding the food and nutrition situation in the NIS apart from infant feeding practices (where the reliability of the data is doubtful) and anemia (which may increase due to lack of supplements rather than poor diet). In Armenia during January through April 1992, the EPHISS collected, jointly with the Red Cross, food security data on refugees. In a follow-on survey of a former CARE Pensioner Survey of April 1992, 347 pensioners were surveyed in August 1992 for assessment of nutritional risk based on food security.

The monthly public health bulletins provided a much-needed way to improve communication both within the NIS as well as between the NIS and international agencies involved in assistance for health and nutrition surveillance. This activity should be continued.



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