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SUSTAINABLE FOOD FORTIFICATION IN CENTRAL ASIA AND MONGOLIA

(Financed by the Japan Fund for Poverty Reduction)

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Asian Development Bank

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RUSSIAN FEDERATION
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KYRGYZ REPUBLIC
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PEOPLE'S REPUBLIC OF CHINA
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Olgiy
Hovd
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Sevrey
0 100 200 300 400
Kilometers
National Capital
City/Town
River
International Boundary
Boundaries are not necessarily authoritative.

Abbreviations and Acronyms

ADB	–	Asian Development Bank
CIP	–	Country Investment Plan
CPO	–	Country Project Office
DMC	–	Developing Member States
EA	–	Executing Agency
IDA	–	Iron Deficiency Anemia
IDD	–	Iodine Deficiency Disorders
IMR	–	Infant Mortality Rate
JFPR	–	Japan Fund For Poverty Reduction
KAN	–	Kazakh Academy of Nutrition
MDG	–	Millennium Development Goal
MMR	–	Maternal Mortality Ratio
MOH	–	Ministry of Health
NGO	–	Nongovernmental Organization
PHC	–	Primary Health Care
RCAO	–	Regional Coordination And Administration Office
SC	–	Steering Committee
SES	–	Sanitary Epidemiological Services
TA	–	Technical Assistance
UNICEF	–	United Nations Children’s Fund
USI	–	Universal Salt Iodization

NOTE

In this report, “$” refers to US dollars.

Background

1. The importance of community nutrition status is now recognized by many bilateral and multilateral agencies. Of the eight Millennium Development Goals (MDGs), the second target for the first goal (proportion of people suffering from hunger) is directly related to nutrition. Two others (under-five mortality rate and maternal mortality ratio) can only be achieved with strong nutrition inputs, and the 10th target (drinking water and sanitation) also has a nutrition impact. With several nutrition components reflected in the MDGs, it is important to help various Development Member States (DMCs) review their progress on the MDGs.

2. The major forms of micronutrient malnutrition are: iron deficiency anemia (IDA), vitamin A deficiency, and iodine deficiency disorder (IDD). According to current global statistics, more than 3 billion people in the world (about 50%) are malnourished, and among them, around 2 billion are micronutrient malnourished. An estimated 39% of preschool children are anemic as are 52% of pregnant women. Lack of quality foods, together with blood loss from hookworm transmitted through substandard sanitation, is the leading cause of iron deficiency anemia in most areas of the world. Inadequate dietary intakes of iron are seen most often in premenopausal women, infants (particularly premature or low-birth-weight), children, and adolescents (especially girls).

3. Vitamin A, iodine, and iron deficiencies continue to affect large numbers of people in most parts of the developing world. More than 40% of women in developing countries are reported to be anemic, nearly 20% of people in the developing world suffer from iodine deficiency, and approximately 25% of children in low-income countries are estimated to have marginal deficiencies of vitamin A. The prevalence rates for micronutrient – vitamin and mineral – deficiencies are highest for Asian countries. In South Asia alone, 36% of children are estimated to have subclinical deficiency in vitamin A, 25% are estimated to have iodine deficiency, and 53% of preschool children are estimated to be anemic. The extent of multiple deficiencies in preschool children is estimated at 27 to 36% (49–60 million) in South Asia. While prevalence rates are lower in the East Asia and Pacific regions (in many cases half that of South Asia or less), the problem of micronutrient deficiencies is nevertheless still severe; in East Asia/Pacific 18% of children are estimated to be marginally deficient in vitamin A, another18% to have deficiencies in iodine, and 14% to be anemic[1].

4. The effects of these deficiencies of vitamins and minerals can be extensive, affecting health, fitness, cognitive development, and behavior in individuals, and reducing national productivity and socioeconomic development in country. The consequences include increased morbidity and mortality risks, poor neuro-developmental outcomes, reduced strength and work capacity, and increased risk of chronic diseases in adulthood. Moreover, IDD can seriously damage the brain, slowing mental responses and impairing intelligence levels. Even moderate IDD can decrease the IQ level by 10 to 20 points, thus children with IDD suffer most; they are slower and less intelligent, resulting in poor attainment in school. As adults they are weaker, less productive, and earn lower incomes. Iron deficiency is also a major factor that contributes for maternal mortality. Folate deficiency, also prevalent in these countries, causes neurotube defects in infants. These deficiencies have a major impact on the educability and productivity of large segments of the countries' populations, straining education and health systems, lowering productivity, and raising levels of sustained poverty. Reducing infant malnutrition, especially in girls, weakens one of the strongest links in the intergenerational transmission of poverty.

5. These deficiencies are more common in Central Asia than in many other developing countries. According to WHO/UNICEF assessments of the population affected by the iodine deficiency, the data varied from 6.6% (1.1 million people) in Kazakhstan to 57.8% (3.5 million people) in Tajikistan; in Kyrgyz Republic – 26.6% (1.3 million people), in Uzbekistan – 45.0% (11.2 million people).

[1] Micronutrient Initiative and UNICEF, 2004. *A global Damage Assessment Report.*

6. The prevalence of anemia among women in reproductive age in Kazakhstan and Uzbekistan in 2004 exceeded the 40% cut-off suggested by the World Health Organization, UNICEF and United Nations University, thus indicating that anemia was still a public health priority for these countries. Anemia prevalence among women was characterized by significant differences in countries as well: 57.5% in Kazakhstan, 51.3% in Uzbekistan, 33.3% in The Kyrgyz Republic and Tajikistan, and 10% in Mongolia. The levels of anemia prevalence among women in the Kyrgyz Republic and Tajikistan place these countries in the medium-to-high risk and in Mongolia – mild-to medium risk categories. The levels of anemia prevalence among children in Kazakhstan and Tajikistan in 2004 place these countries in the medium-to-high risk and in The Kyrgyz Republic, Mongolia and Uzbekistan – mild-to medium risk categories. Mild anemia was a prevalent form both among children and women in all the countries in 2004. Severe anemia was not found at all, and moderate anemia was found only in 3.8% of the children in Kazakhstan and Tajikistan[2].

7. In the last decade, the governments of most developing nations responded to the declared goals of the World Summit for Children by making a commitment to major reductions in micronutrient deficiencies - especially in vitamin A and iodine deficiencies, for which 'virtual' elimination was the aim; smaller but substantial reductions in iron deficiency were also agreed upon. In an effort to meet the commitment, the years following the summit saw increased commitment to preparation and implementation of micronutrient-deficiency control measures in developing countries.

8. The Japan Fund for Poverty Reduction (JFPR) 9005 Regional Project[3] (2001-2004) has focused support on six Central Asian countries in economic transition: Azerbaijan, Kazakhstan, Kyrgyz Republic, Mongolia, Tajikistan and Uzbekistan. JFPR 9005 aimed to mitigate IDD and IDA through salt and wheat flour fortification. Most of the activities were focused on a few pilot provinces in each country. Due to the direct and catalytic effects of JFPR 9005, these countries have moved toward universal salt iodization (USI) and begun fortifying wheat flour. After a decade of limited success in attempts to iodize salt, and reduce iron and folate deficiencies, JFPR 9005 created an environment of national commitment and focused its activities on these key nutritional issues. As a result, substantial increases in iodized salt production and the passage of supporting legislation were achieved in all participating countries. Only the Kyrgyz Republic and Azerbaijan had USI legislation at the beginning of JFPR 9005, Tajikistan enacted USI legislation in 2002, followed by Kazakhstan and Mongolia in 2003. Uzbekistan adopted the USI law in May 2007. The iodization level has been adjusted to the world standard, and most of the salt industries have made significant progress in making arrangements for self-procurement of potassium iodate. Each country was able to obtain the necessary regulations that allowed fortification equipment and fortificants to be brought in and for fortified flour to be produced and sold. The JFPR 9005 experience has helped the governments, and private sector identify steps required for sustainable food fortification, and clarify further developments/actions.

9. By 2003, micronutrient deficiencies had appeared in a list of priority health concerns for national governments of Central Asia and the governments of Kazakhstan, Kyrgyz Republic, Mongolia, Tajikistan, and Uzbekistan demonstrated the political will to eliminate IDD and reduce IDA and folic acid deficiency. By 2005 almost all project countries adopted national policies and implemented national programs to address the captured micronutrient deficiencies. Iodine deficiency is clearly decreasing dramatically, largely as a result of the unprecedented achievement of iodizing the world's salt supply. Anemia prevention programs are based on supplementation, pilot food fortification and some other new approaches.

10. Most of the project countries have implemented health and nutrition surveys (mostly supported by the international agencies) which allowed drawing of some conclusions on program effectiveness, although rigorous evaluation is desirable. Survey data on iodine and iron-deficiency anemia are available for Uzbekistan (DHS, 2002; NNS, 2005); Tajikistan (NS, 2003); Mongolia (NS, 2003).

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[2] Kazakh Academy of Nutrition, 2007. *Final Report on Sentinel Studies.*
[3] ADB, 2001. *Improving Nutrition for Poor mothers and Children in Asian Countries in Transition*.

Multiple rounds of sentinel survey data have assessed the on iron, folic acid, and iodine status of selected groups of families in which the population was expected to have access to iodized salt and fortified wheat flour: 2002-2003 (6 countries); 2004 (5 countries) and in 2006-2007 (4 countries).

11. Most nutrition interventions have been consistently evaluated as being cost effective, and many have very low unit cost, which can be borne almost entirely by the consumer. In ranking health investments using cost per disability-adjusted life year (DALY), nutrition improvement compares favorably with other types of health and poverty interventions in most regions of the world. The World Bank stated that micronutrient programs are among the most cost effective of all health interventions[4]. Most micronutrient programs cost less than $50 per DALY gained. Deficiencies of just iron, iodine, and vitamin A could waste as much as 5% of GDP, but addressing them comprehensively and sustainably costs less than 0.3% of GDP.

12. To enhance and standardize estimates illustrating the impact of micronutrient malnutrition as a function of GDP, a computer program called the Profiles model was developed[5]. It has been used in 25 countries worldwide and continuously updated. Enhancement to and implementation of Profiles have been funded by a number of international agencies, including USAID, UNICEF, ADB, the World Bank, the Micronutrient Initiative (MI), and governments of implementing countries.

Table 1 Consequences of Micronutrient Malnutrition, Calculated Using the Profiles Model (per Participating DMCs)

Country	Total Value of Lost Productivity Each Year (iodine + iron) (as % of GDP)	Total Value of Lost Productivity Each Year (vitamin A) (as % of GDP)	Total Impact on GDP (%)
Kyrgyz Republic	0.9	0.0	0.9
Mongolia	0.7	0.1	0.8
Tajikistan	0.9	0.05	1.0
Uzbekistan	1.1	0.08	1.2

Source: Asian Development Bank, 2005

13. Poverty reduction and strengthening of health care systems alone cannot solve micronutrient deficiency problems. Among other things, micronutrient deficiency is due to the hidden property of the micronutrient content of foods. Consumers do not automatically demand micronutrient-rich foods with increased income. Hence, food and agricultural policies need to watch over the quantity and quality of food supply, and promote the production, marketing, and consumption of micronutrient-rich foods. Safety-net programs, including refugee feeding, must also respond to the total nutrition needs of target groups, and not be limited to calorie needs only. Therefore, close collaboration between the public and private sector, as well as civil society, is essential.

14. In July 2004, the Asian Development Bank (ADB) approved US$2 million grant assistance under JFPR 9052 regional project[6] for five Asian Countries in Transition (ACT)[7]. The goal of TA 9005-REG was to reduce the prevalence of iodine deficiency disorders and iron deficiency anemia in ACT, thus reducing the prevalence of poverty through raised intelligence, improved learning, and greater productivity. TA 9052-REG is a continuation of TA 9005-REG, and aims to build the capacity of salt

[4] The World Bank, 1993. *World Development Report.*
[5] This model was originally developed by the Academy for Educational Development (AED) in 1993.
[6] ADB, 2004. *JFPR 9052 – Sustainable Food Fortification in Central Asia and Mongolia*, Project Paper.
[7] Republic of Kazakhstan, Kyrgyz Republic, Mongolia, Republic of Tajikistan, and the Republic of Uzbekistan.

industries and flourmills required for food fortification, and government capacity to develop and strengthen the implementation of food fortification legislation and regulations.

Linkage to ADB Health and Nutrition Strategy and ADB-Financed Operations in Central Asia

15. Nutrition consideration is a priority in many ADB-supported or initiated projects and programs, both within and outside the health and nutrition sector. In numerous projects ADB shows clear and strong support for specific nutrition interventions, such as nutrition education, curbing micronutrient deficiencies, basic nutrition for women, food fortification, and early childhood development. In the other projects ADB's support for nutrition is either integrated with or treated as spin-offs of support for other sectors, such as livelihood and water resources, health (especially public health programs, such as maternal and child heath), education, governance, and gender.

16. The poverty assessments of Country Strategy and Program Updates (CSPUs) in DMCs analyzed the immediate and underlying causes of malnutrition and constraints to implementing strong nutrition programs. Poverty was a common underlying cause. Similar to the poverty assessments, the CSPUs conclude that the most common immediate causes of malnutrition are poor access to safe water and sanitation and gender inequality. Only one country (beyond the Central Asia) mentioned diet habits and inadequate food intake as immediate causes. The major constraints include (i) poor or declining state of health services, (ii) lack of poverty and nutrition data, (iii) low priority given to health and education in resource allocation, (iv) lack of capacity for adequate and appropriate health and nutrition communication, (v) weak governance, and (vi) absence of mechanisms for well-meaning community participation (see **table 2**). Other constraints include (i) geophysical factors; (ii) uneven development between the center and the periphery; (iii) inherent inequality in sociopolitical structures; (iv) low access to mass media; and (v) weak coordination among international development partners[8].

17. Improving the monitoring and risk management capacity of the participating DMCs in TA 9005-REG in 2001-2004 has allowed their governments to make quick managerial decisions that enable increased coverage and focus on delivery of fortified foods consumed by the poor. Identifying new technologies and facilitating transfer of these technologies to governments, NGOs, food industries, and consumer groups - thus facilitate resources and synergies of the public-private sector and civil society - to ensure successful and sustainable fortification programs. ADB has the role of a catalyst in mobilizing other development partner assistance for food fortification in Central Asia.

18. Beyond the scope of TA 9005-REG Project, in Kazakhstan the proposed involvement falls within ADB's gender and development (GAD) policy, which focuses on mainstreaming as the key strategy to promote gender equity in all aspects of ADB operations. Through the proposed second rural water supply and sanitation sector project, households headed by poor women will have equal access to potable water. In Kyrgyz Republic health components feature in an ongoing social services delivery and finance project and an Early Childhood Development project (assistance was approved in 2003). The strategy suggests making education a better tool for poverty reduction by better tackling key issues, such as public health. In Mongolia JFPR-funded project on micronutrients is implemented in partnership with UNICEF targeting universal salt iodization, reduction of the micronutrient deficiency and thus improving maternal health. In Tajikistan the concept paper for a PPTA on a social sector development project aims to improve nutrition among mothers and children from vulnerable families by strengthening the quality of primary health care facilities and identification of high-risk groups. One of its expected outcomes is more efficient supply of drugs and good nutrition. In Uzbekistan Involvement in the health sector responds to the priority accorded to addressing women's and child's care (WCH) by addressing morbidity and mortality issues and concerns in the Government's health care reform

[8] ADB, 2005. *Nutrition and Food Fortification*.

program. It will also address the potable water supply and sanitation needs of the rural population, particularly the poor.

Table 2 Causes of Malnutrition, Constraints and Enabling Factors to Nutrition in Country Strategy and Program Updates (per Participating DMCs)

Country	Immediate Causes of Malnutrition	Constraints to Nutrition	Enabling Factors
Kazakhstan	• poor access to water and sanitation; • gender disparity	• declining quality of primary health care and basic education; • poor access to essential services like health and education; • lack of clear target or consensus for reducing nutrition-based problems	• intersectoral approach addressing the immediate causes of malnutrition; • gender and development, national poverty reduction efforts; • free and compulsory basic education; • presence of a strong network of NGOs; • presence of several development partners supportive of nutrition.
Kyrgyz Republic	• poor access to water and sanitation; • gender disparity	• declining quality of primary health care and basic education; • poor access to essential services like health and education	• gender and development, national poverty reduction efforts; • free and compulsory basic education; • presence of a strong network of NGOs; • presence of several development partners supportive of nutrition.
Mongolia	• poor access to water and sanitation	• declining quality of primary health care and basic education; • poor access to essential services like health and education	• deliberate government efforts in the fields of nutrition, water, and sanitation; • national poverty reduction efforts; • free and compulsory basic education; • presence of a strong network of NGOs; • presence of several development partners supportive of nutrition.
Tajikistan	• poor access to water and sanitation; • gender disparity	• weak capacity to generate statistics on poverty and nutrition-related information	• gender and development, national poverty reduction efforts; • free and compulsory basic education; • presence of a strong network of NGOs; • presence of several development partners supportive of nutrition.
Uzbekistan	• poor access to water and sanitation; • gender disparity	• declining quality of primary health care and basic education; • weak capacity to generate statistics on poverty and nutrition-related information	• intersectoral approach addressing the immediate causes of malnutrition; • gender and development, national poverty reduction efforts; • free and compulsory basic education; • presence of several development partners supportive of nutrition.

Source: Asian Development Bank, CSPU, 2002-2005

Grant Development Objectives and Scope

19. The goal of the Project is to reinforce and sustain the reduction of IDD, IDA and folic acid deficiency among poor children and women in Central Asia through paying special attention to supply (production and distribution); demand (public awareness and demand creation); and regulation (quality control, implementation of regulations and legislation, and trade facilitation). The specific objectives are to: (i) obtain and sustain use of iodized salt by 90% of households; (ii) sustain fortification of at least one third of the wheat flour consumed domestically; (iii) enable the private and public sectors to produce quality fortified food; develop regulatory institutions or incentive schemes to facilitate fortification, and ensure the trade of quality fortified food among Central Asian countries; and (v) build awareness of consumers about IDD/IDA prevention, and the benefits of micronutrient-enriched food.

20. The JFPR Project has four major components: (i) strengthening of salt industry and flour mill capacities; (ii) strengthening of Government capacities; (iii) social mobilization and poverty targeting; and (iv) project management, monitoring, and evaluation.

Regional Conferences and Workshops

21. The goals of JFPR Projects (TA 9005-REG and TA 9052-REG) were to raise awareness of micronutrient deficiency as a public policy problem for Central Asia countries, and to link appropriate strategies and resource mobilization for its solution. The overall aim was to strengthen country-level nutrition policy formulation, as well as identify core interventions and strategies to expand ADB's nutrition program. The project designed and conducted the set of the regional workshops[9]. They were facilitated by international consultants and were followed by country workshops where policy papers were delivered, country investment plans (for fortification were discussed, and national consensus building took place. The follow-up was conducted at regional mid-tern review workshop. Part of the regional networking process was to involve other bilateral and multilateral agencies as well as develop public-private partnerships with the UNICEF, World Bank, Global Alliance for Improving Nutrition (GAIN), Flour Fortification Initiative (FFI) and International Association of the Operative Millers (IAOM). This in turn helped DMCs to develop comprehensive community nutrition intervention strategies based on best practices of effective nutrition interventions for the current stage of development, and for emerging problems in a more urbanized and aging population.

Table 3 Participating to the Regional Workshops (per DMCs)

Countries	Kazakhstan		Kyrgyz Republic		Mongolia		Tajikistan		Uzbekistan		International Agencies / Partners	
	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007
DMCs in total	**51**	**65**	**52**	**28**	**43**	**24**	**36**	**25**	**50**	**43**	**186**	**132**
Flour Millers	5	35	4	9	4	4	1	4	2	5		
Salt Producers	1	6	3	6	1	2		7	3	17		
Ministry of Health	16	10	18	10	15	7	14	7	12	13		
Standard Agency		3	1		2				1			
Customs Committee		1										
Government	12	3	11	1	7	3	9	4	2	1		
Parliament	4	1	2		1	2		1				
NGO	4		1	2					1	2		
Observers	9	6	12		13	6	12	2	29	5	186	132

Source: Workshop Reports, 2002-2007

[9] The workshop reports can be obtained from ADB on request or accessed at the project Web-site.

22. One of the visible achievements of the project implementation was the establishment of the regional conferences on food fortification to review on the regular basis the progress by the Government, the private sector, and the civil society and accumulated knowledge and experience. The round-table conferences[10] were held in Almaty in 2001, 2004 and 2007 and became the known regular forums for the Governments, food industry captains and civil society groups combating the problem of the micronutrient deficiency. Strengthening commitment to tackling malnutrition and forging new partnerships to do so are critical to making progress - partnerships between governments, communities, and nongovernmental organizations; between governments and the development partner community; and between governments and the corporate sector, whose role in fortifying food and in taking responsibility for the nutritional content of snacks and fast food will be central.

23. The Regional Coordination and Administration Office (RCAO) conducted a regional information meeting on communication strategy and project management in Bishkek, Kyrgyz Republic, on 22-24 August 2005. Country Project Offices (CPOs) presented their country communication strategies and the outlines of communication/social mobilization plans. International consultants facilitated the information meeting and shared an overview of successful communication/social mobilization strategies on nutrition/food fortification. The importance of a well-considered management plan for a communication strategy was stressed. The management plan should also include a component for monitoring the implementation of activities to see how well they are working, and how to use feedback from audiences to make adjustments on subsequent rounds of messages and activities in support of fortified food products. The participants discussed the issues related to food fortification advocacy, and the effectiveness of various communication messages and its delivery to target groups. It was noted that the prevalence of IDA, IDD, folic acid deficiency, group B vitamins and zinc deficiency is still high in the Central Asian countries; current food product technologies are micronutrient depleting and good quality food products are still not available to the majority of the population. At the same time food fortification is not a priority for the food industry as there was no visible shift in consumer's demands. The meeting defined and revised the country's communication strategy goals, and listed the criteria for the selection of local communication consultants, involvement of efficient NGOs, communication campaign monitoring, and Project website improvements.

24. The second conference of salt producers on sustainable quality iodization in Central Asia and Mongolia was held in Tashkent, Uzbekistan, on 22-24 November 2005. The conference had three objectives: (i) to improve the capacity of salt industries in Central Asia through the increased production of improved quality iodized salt, thus helping to sustain the elimination of iodine deficiency disorders in the region; (ii) to provide an opportunity to regional producers of salt, fortificant and equipment to present their products, knowledge and services; and (iii) to establish networks between the salt producers and suppliers of potassium iodate and equipment. The workshop brought together 64 participants from the five participating countries. The Salt Producers Associations and the leading salt companies shared experiences of quality iodized salt production and presented their vision of the necessary activities needed in order to ensure sustainable quality salt iodization in Central Asia and Mongolia. The JFPR project teams presented an overview of project contributions to USI in the participating countries. Suppliers of iodization equipment (SERRA), salt test kits (MBI), and potassium iodate (Ajay-SQM, L-Pharma, and Iodobrom), as well as representatives from the UNICEF Supply Division made presentations on potassium iodate production and terms of supply, and participated in an interactive trade show with country groups, associations, and individual salt industries. The issues addressed during the sessions included product quality assurance management and procedures; product marketing and promotion; input procurement; import/export tariffs, rules and regulations; and joint collaborative efforts in National Food Fortification Alliances (NFAs).

25. The participants agreed that a framework for regional cooperation is essential in achieving the goals of USI, and also agreed to continued dialogue between the salt producers/salt associations in the region and the NFAs. The NFAs were urged to take a lead in partnership development with the

[10] The statements and other forums' documents can be obtained from the ADB Web-site http://www.adb.org/Projects/sustainable-food-fortification/default.asp

private sector and civil society; more effectively combine tax policy support for flour milling industries; and to efficiently combine the broad communication and education programs for the general public. During the final session, a final statement was discussed and amended. Special external sessions were devoted to the issues of project management and reporting. Grant implementation procedures regarding procurement, the engagement of consultants, auditing, and Project website development were reviewed in order to establish a set of recommendations for program improvement.

26. The regional conference on quality wheat flour fortification in Central Asia and Mongolia was held in Almaty, Kazakhstan, on 7-9 February 2006. The objectives of the conference were: (i) to improve the capacities of flour milling industries in Central Asia and Mongolia to produce quality fortified wheat flour to mitigate iron deficiency anemia, folic acid deficiency, and other micronutrient deficiencies; (ii) to provide an opportunity for regional wheat grain and flour suppliers to present their products, knowledge, and services; and (iii) to establish networks between flour millers and suppliers of premix and equipment. The workshop brought together 127 participants from five participating countries. Participants included flour millers, international suppliers, international organizations, the International Association of Operative Millers, food quality-control assurance experts and nutritional researchers from different countries. The suppliers of premix and equipment, and the partners of flour milling and bakery industries, exhibited their products and activities to participants and possible purchasers, and attended the plenary sessions and panel presentations. Grant implementation procedures regarding project implementation monitoring, auditing services, and annual country evaluation workshops were reviewed to establish a set of recommendations for program improvement.

27. The meeting reviewed the overall progress of flour fortification in the project countries and discussed urgent issues such as premix procurement and the quality assurance of fortified foods. KAN, RCAO, and the country teams presented the status of IDA and the results of the sentinel study. Flour mill associations presented their vision on wheat flour fortification, and the obstacles that operative flour mills in the region were facing. The issues addressed during the sessions included product quality assurance management and procedures; product marketing and promotion; input procurement; import/export tariffs, rules and regulations; and joint collaborative efforts in NFAs. Dialogue between the international suppliers and the flour mills has been successfully established. Issues of regional cooperation and trade were discussed, and perspectives for strengthening regional activities were highlighted. The meeting indicated an important need for information and technical assistance exchange at the regional level. The harmonization of legislation and trade procedures would require additional efforts and high-level advocacy, and for that purpose a continuous partnership with international development would be needed. During the final session, a conference statement was discussed and amended.

28. The regional Mid-Term Review Workshop was held from 11 to 14 September 2006 in Cholpon-Ata, Kyrgyz Republic. The purpose of the MTR Workshop was to jointly examine the progress and analyze the obstacles toward achieving the JFPR 9052 project, with the view to identify and discuss key strategic actions to be undertaken in each country and by RCAO and KAN during the remaining project period. As preparation for the Workshop, the CPO of each country was requested to outline a summary of achievements and lessons learned during the previous JFPR9052 period, and the proposed actions and their expected outcomes to achieve the country-specific JFPR objectives. In addition, each CPO prepared summaries of the national progress in salt iodization, wheat flour fortification and public policy development, as well as the utilization of consultant services and conducting conferences, seminars and trainings, against a background summary of the baseline micronutrient deficiency situation in the country. The core element in the agenda were the countries presentations, each consisting of a focused explanation on the progress made in the project implementation, followed by an analysis of the constraints encountered and the barriers foreseen for the remaining project period, and ending with a short outline of the major elements and/or revisions of the CIP agreed upon at the start of the project. Each country's presentation was followed by a discussion addressing specific questions and providing clarification of details upon request from the audience.

29. The Third Almaty Forum on Food Fortification was held from 29 to 30 October 2007 in Almaty. About 100 participants from Governments, the food industry and civil society groups reviewed the progress made so far in the fight against malnutrition, review achievements combating the problem in other parts of the world and to set new goals to move forward. The representatives of UNICEF, CDC, GAIN, IAOM and FFI took active part in discussions of the achievements and lessons learned of the ADB/JFPR Project. To reach the goals, it was hoped that the countries would develop standardized methods of fortification (and levels of fortificants), regulation, tax and tariff exemptions for fortificants and fortification equipment, surveillance, quality control system, and populations' demand for fortified food. One of the main achievements has been that all of the countries have adopted laws that require salt manufacturers to add iodine to the product before it is sold. Strengthening commitment to tackling malnutrition and forging new partnerships to do so are critical to making progress - partnerships between governments, communities, and nongovernmental organizations; between governments and the development partner community; and between governments and the corporate sector, whose role in fortifying food and in taking responsibility for the nutritional content of snacks and fast food will be central.

30. The Forum reviewed the visible achievements by the Government, the private sector, and the civil society and accumulated knowledge and overwhelming experience, especially in universal salt iodization. Still the continuous efforts will be required to sustain salt and wheat flour fortification and tackle the problem of micronutrient deficiency. Only few participating countries have considered the comprehensive and well-resourced nutrition policies. The Forum stressed the importance of the effective cooperation by the development agencies by helping participating countries develop a consensus on what needs to be done, how, and by whom, and then by providing financial and other assistance. During the final day the consolidated opinions and recommendations were incorporated in the forum Statement, which is hoped to serve to the governments, food producers and civil society in the region to strengthen and sustain the efforts ion targeting the micronutrient deficiencies and thus eradicating the poverty.

31. National workshops were organized for different purposes across countries, but always provided a mechanism for a collaborative meeting involving government steering committees members, representatives from the private sector, academic community and NGOs. Sometimes the meetings were used to increase awareness of micronutrient-deficiency disorders and to promote provisional methods for their prevention. At other times, the workshops served as a mobilization meeting in which the national policy on iodized salt was shaped (Civil Society Forum in Tajikistan) or by which the national USI legislation was prepared for official launching (Uzbekistan).

Strengthening the Capacities of the Food Industry

Quality Wheat Flour Fortification

32. The wheat flour is the main food staple for all countries of Central Asia, but only Kazakhstan has the capacity to produce wheat grain and wheat flour for domestic consumption and export (see **table A1.1**.) Fortifying wheat flour with deficient vitamins and minerals was one of the key project components, and the highly ambitious goal was to fortify one-third of the suitable flour consumed in the region (two-thirds for Kazakhstan). Contrary to universal salt iodization and Vitamin A supplies, wheat flour fortification was a new strategy for Central Asian countries[11], but the piloting results of the initial wheat flour fortification in 2002-2004 (TA 9005-REG) were quite promising.

[11] In 1996-98 UNICEF supported the pilot wheat flour fortification with ferrous sulfate at selected flour mills in Kyrgyz Republic. Also a few flour mills in participating countries could recall the previous soviet program of flour fortification with vitamins in mid 80-s.

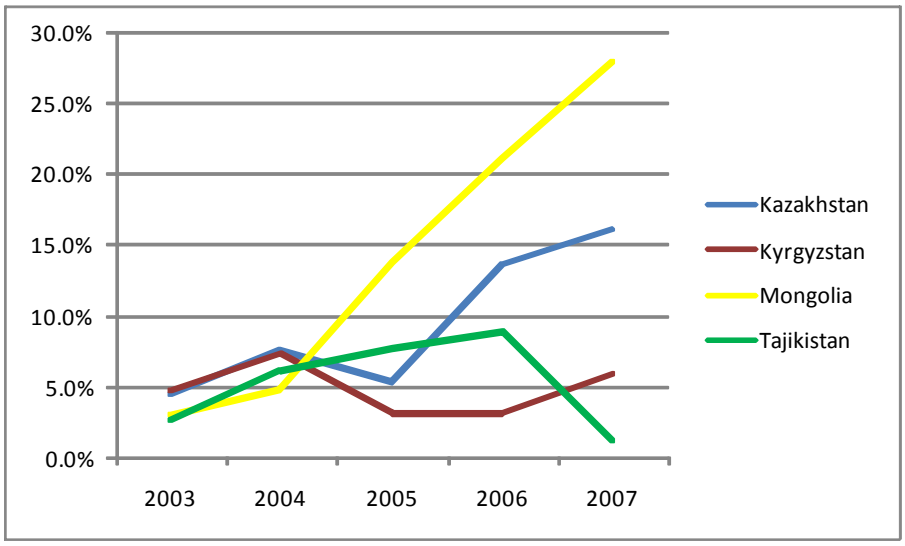
33. All participating countries currently implement wheat flour fortification (except Tajikistan), but the degree to which these programs are governed by legislation varies across countries. Although most project countries have adopted the unified premix formulation (KAP-1 Premix) and common standards on fortified wheat flour and bakery products, none of the countries has enacted the mandatory wheat flour fortification. Uzbekistan formerly had a nationwide Presidential Decree for wheat flour fortification of the premium and first grade flour which is limited by five-year period and based on JFPR (TA-9005-REG) and GAIN assistance. Kazakhstan has adopted the mandatory wheat flour fortification as part of the Food Quality and Safety Law in 2004, but the legislation was subsequently rescinded in 2007 due to formal reason of contradiction to WTO requirements. The Governments of the Kyrgyz Republic, Mongolia and Tajikistan designed and submitted the draft laws for consideration by the Parliaments in coming months. In Kazakhstan the Ministry of Health in cooperation with the League of Grain Processors and Bakers of Kazakhstan is currently working on the draft law on prevention of the IDA which incorporates an article on mandatory wheat flour fortification of premium and first grade flour (see **Table A3.3**).

34. The project continued on the achievements and lessons learned from the JFPR-9005 Project. The general directions were the following: (i) to ensure that at least one third of the wheat flour consumed domestically would be fortified; (ii) to strengthen (and establish in some countries) the quality assurance and control and industrial sites and distribution networks; and (iii) to promote quality fortified flour consumption by poor families.

Fortified Wheat Flour Production and Distribution

35. The JFPR support through the TA 9005-REG Project in 2001-2004 had contributed greatly to the establishment of the wheat flour fortification in participating countries. Although the production of the fortified wheat flour only in Mongolia has reached the targeted amounts, fortified wheat flour production and consumption has been increased in Kazakhstan, and continued in Kyrgyz Republic and Tajikistan (see **Figure 1** and **Table A1.2** for details). The national wheat flour fortification program in Uzbekistan increased the number of participating mills and used the common procedures in wheat flour fortification, premix formulation and quality assurance and control.

Figure 1. Annual Fortified Wheat Flour Production in Central Asia and Mongolia in 2003-2007 (% to annual wheat flour consumption)



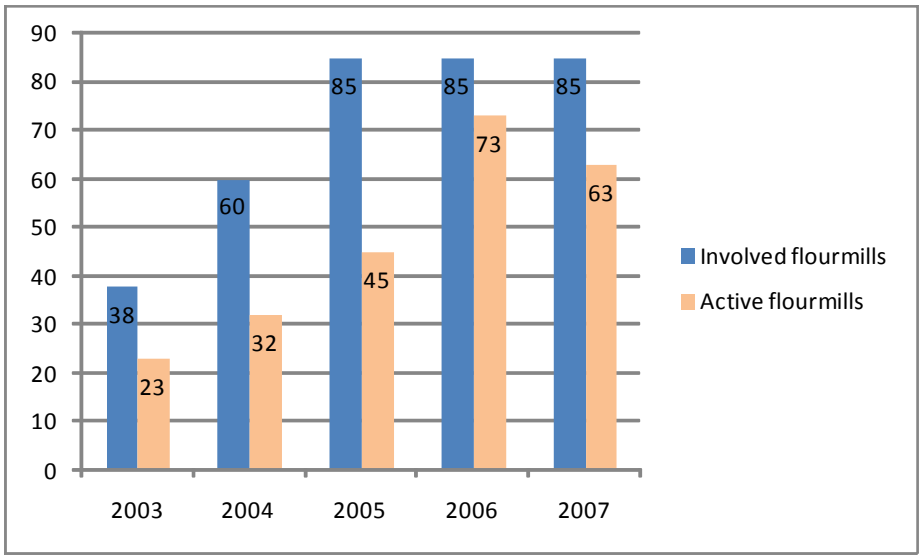
Note: The calculation is based on the annual consumption amount of wheat flour in 2005

Source: Country Project Reports, 2003-2007

36. In cooperation with UNICEF project piloted the wheat flour fortification at small/medium size flour mills in Kyrgyz Republic, Mongolia and Tajikistan to ensure the accessibility to fortified wheat flour in rural areas. While the technical feasibility of flour fortification was limited to the flour mills with capacity of 20 MT, the comparative amounts of produced fortified wheat flour (**Table A1.3**) were quite optimistic. The high percentage of fortified wheat flour at small/medium size flour mills in Kyrgyz Republic was inspired by the quite low amount of production at large-scale mills.

37. In spite of the constraints with legislation on mandatory wheat flour fortification, shortage of wheat grain (Kyrgyz Republic, Mongolia and Tajikistan) and low consumers' demand, the number of involved industries has been stabilized by 2005 (see **Figure 2**). The transfers of equipment because of failure of the specific industry became single cases.

Figure 2. **Activity of the Participating Flour Mills in Central Asia and Mongolia in 2003-2007** (total number and data on operative flour mills)



Source: Country Project Reports, 2003-2007

38. In Kazakhstan the annual demand of wheat flour is more than 1,600,000 tons. The League of Grain Processors and Bakers of Kazakhstan (LGBK) considered that the elimination of the article on mandatory wheat flour fortification in the revised Food Security Law almost broke the flour fortification. However most of participating flour mills (14 of 16) continued fortified flour production, though the amounts were far from desired.

39. In Kyrgyz Republic the annual demand of wheat flour is 420,000 tons. The whole flour milling industry is comprised of 35 large and medium-size flour mills and 3,143 small-size flour mills. The JFPR's technical assistance was provided to 5 large-size flour mills and 17 medium/small-size flour mills. The estimated annual capacity of the involved flour mills is 68,000 tons of fortified wheat flour. However, the actual production of fortified wheat flour in 2007 was 25,827 tons.

40. In Mongolia the annual demand of wheat flour is about 240,000 tons, and the Mongolian Flour Mills Association (MFMA) estimates the annual domestic production as of 79,000 tons. Wheat flour production is heavily import dependant, as domestic wheat grain production covers only one-third of the demand. The shortage of wheat grain and the negative impact of transition to the market economy affected the production of wheat flour at a majority of the flour mills. MFMA estimates the import of wheat flour as 60-70% of annual demand. The lack of turnover funds at small-scale flour mills and their seasonal work contributes to lower wheat flour production.

41. In Tajikistan the annual demand of wheat flour is about 950,000 tons. JFPR's technical assistance was provided to 6 large-size flour mills and 12 medium/small-size flour mills. The estimated annual capacity of the involved flour mills is 145,000 tons of fortified wheat flour. However, the actual production of fortified wheat flour has been stopped since April 2007 due to the lack of the premix. The flour mills informed that the lack of turnover funds did not allowed it to advance funds for preliminary negotiated contract with vendor from India. The Association of the Flour Millers and Salt Producers considers that only the adoption of the legislation on mandatory wheat flour fortification could secure the ongoing wheat flour fortification in Tajikistan.

Capacity-Building of the Flour Mills

42. KAN, with the help of nutritionists from the participating countries and JFPR consultants, formulated a unique premix (KAP Komplex-1). Electrolytic elemental iron was specified as a source of iron. This is the form of iron that is currently understood to have the best stability in flour with the highest bioavailability; that is, the ability to be absorbed and utilized by the body. It is the form of elemental iron recommended by the WHO, PAHO and a panel of nutrition experts convened by SUSTAIN, providing that the level added be twice that if ferrous sulfate is used. The reason this is called KAP Komplex1 is that it was expected that additional formulations would be developed depending on specific needs[12].

Table 4 KAP Komplex 1 Composition

Micronutrient	Source	% nutrient in premix	ppm added at 150 g/MT
Thiamin	Mono nitrate	1.33	2.0
Riboflavin	Riboflavin	2.00	3.0
Folic Acid	Folic Acid	1.00	1.5
Niacin	Niacin amide	6.66	10.0
Iron	Electrolytic iron	33.30	50.0
Zinc	Zinc Oxide	14.70	22.0

Source: Kazakh Academy of Nutrition, 2002

43. In 2002-2003 the JFPR (TA-9005-REG) provided feeders and adequate start-up amount of premix (biannual demand) to the selected largest mills in all countries, mainly those with milling capacities greater than 200 MT/day. This was to optimize the amount of flour that would be fortified with are limited resources for equipment, as well as to increase the chances that the participating mills could produce a quality product, thinking that the larger mills would be more technically advanced. Some of these mills were gradually being replaced by smaller, more efficient mills with newer equipment. Many of these mills are well suited for fortification, but because of their smaller size many were omitted from the first phase of the project. In addition in 2004-2005 ADB agreed to support the procurement and installation of feeders at 17 small/medium size mills in Kyrgyz Republic, 20 – in Mongolia and 15 – in Tajikistan.

[12] In 2006-2007 KAN has designed the KAP-2 and KAP-3 formulations shaped for the specific objectives and country-specific needs; and also the recommendations on premix dilution for medium-size flour mills.

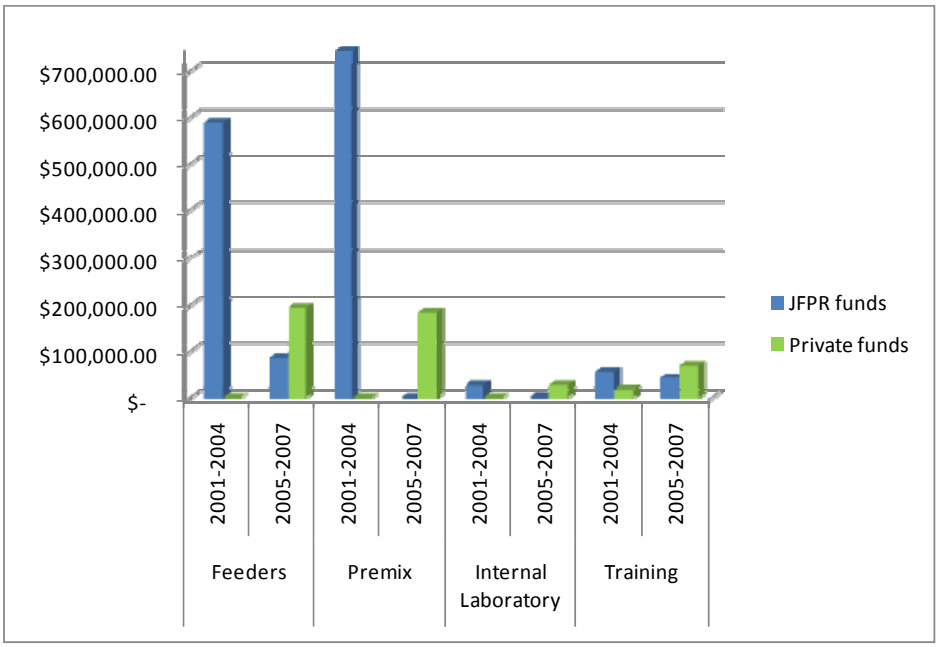
Table 5. JFPR Initial Support to Beneficiary Flour Mills

Country	KAP-1 Premix (MT)	Feeders for mills with 50-200 MT capacity (units)	Feeders for mills with 20-50 MT capacity (units)
Kazakhstan	95.0	30	-
Kyrgyz Republic	15.0	7	17
Mongolia	8.0	6	20
Tajikistan	22.0	2	15
Uzbekistan	89.0	38	-

Source: Country Project Reports, 2002-2005

44. Since 2005 the project started partial self-procurement of flour fortification equipment and premix. These arrangements were established by Kazakhstan and Mongolia from 2005. The project provided support to the First Meeting of Flour Millers of Central Asia (Almaty, 2005), where the issues of supplies of premix and equipment were discussed directly between flour milling industry and vendors. In 2005 Altan Taria Company (Mongolia) started regular self-procurement of the premix from US. The League of Grain Processors and Bakers of Kazakhstan assisted to 7 flour mills in selecting the feeders, and in 2007 signed the contract on regular supplies of premix from EU (one hundred tons per year). In 2004-2007 the participating flour millers increased the sharing of costs of fortified flour production not only in processing and packaging/labeling, but also in strengthening of the internal laboratories, training and social marketing. These ongoing contributions of the private industry (see **Figure 3** and **Table A1.4** for details) justify the commitment to sustainable wheat flour fortification.

Figure 3. Share of Grant and Private Costs on Fortified Wheat Flour Production in Central Asia and Mongolia in 2001-2007 (US dollars, two project stages)

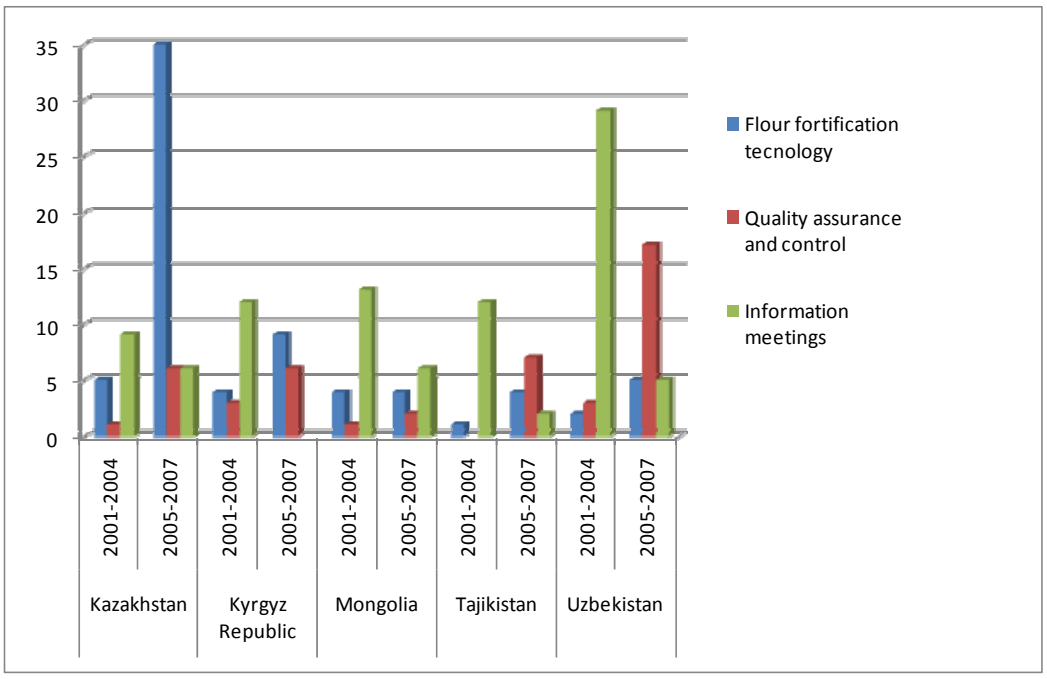


Source: Country Project Reports, 2002-2007

45. In Kazakhstan and Mongolia the project benefited from partnering the existing associations of flour millers, which were very cooperative in design and advocating the advantages of the fortified food, training of the technology engineers and laboratory technicians of the flour milling industries. In Kyrgyz Republic and Tajikistan the project assisted to the newly established National Flour Millers' Associations. In all project countries the associations were helpful in providing of technical assistance to flour millers, identifying the constraints and discussion the possible solutions with the Governments and donor community. They were implementing the installation of feeders and establishment of the internal quality control, and took leading role in design and lobbying the legislation, regulations and standards. In Kazakhstan and Mongolia the associations initiated the procurement of premix and feeders to flour mills. One of the important undertakings of the Salt Association was technical assistance for the salt industries on technology issues of quality iodized salt production and strengthening the internal laboratory control. In Tajikistan the Association made two innovative creations: experimental micro feeder for small/medium size flour mills, and mobile laboratory for rapid spot tests of iron content of flour samples. In Kazakhstan and Kyrgyz Republic the associations designed the recommendations on premix dilution in order to ensure quality fortification at flour mills facing the technical problems with adequacy of mixing. In Kazakhstan the League initiated the process of domestic premix production which resulted in pilot production of KAP-1 Premix and diluted mixtures at National Biotechnology Centre.

46. The JFPR Project ensured the adequate training on the flour fortification for flour industries technologists and laboratory technicians. While the regional trainings facilitated the access of participants to the global experience and best practice of the participating countries, the national and local trainings provided practical guidance on the national legislation and regulations and technical issues of wheat flour fortification. The technologists and laboratory technicians were encouraged to provide comments on practical implementation of the existing and desired regulations and monitoring procedures. **Figure 4** and **Table A1.5** provide overview of the training events and capacity-building for the flour milling industry in participating countries. In addition UNICEF in cooperation with IAOM, CDC and Flour Fortification Initiative also conducted regular trainings on quality assurance and monitoring on the fortified flour in all countries throughout regional IAOM meetings and national workshops.

Figure 4. Training of Flour Mills Engineers and Laboratory Technicians in Central Asia and Mongolia in 2003-2007 (persons, two project stages)



Source: Country Project Reports, 2003-2007

Incentives for Flour Millers

47. Already launching discussions at Almaty Forum 2001 and further meetings the flour millers were concerned that the lack of supportive environment to fortified wheat flour producers could delay the program implementation. Initially, the JFPR supported feeders and premix to major flour milling companies which joined the program.

48. The legislation of Kazakhstan (2004) and Kyrgyz Republic (2004 and 2006) exempted flour millers from the import tax and customs taxes/tariffs (including VAT) on processing equipment and vitamin-containing premix. Uzbekistan also entered into force the tax exemption on processing equipment in 2007, but this did not exempted premix importation. However, Mongolia and Tajikistan did not achieve tax-exemption for flour fortification equipment and premix.

49. In Kazakhstan and Kyrgyz Republic the Governments adopted the regulations which were supposed to facilitate use of wheat grain from public reserves for its further fortification. Another way was preferential procurement of fortified wheat flour form public funds for the needs of health institutions (Tajikistan) and educational institutions (Kyrgyz Republic). However, this initiative was not supported from the local authorities' budget and therefore was not implemented.

50. The project designed the 'Healthy Food' logo, which was adopted by all participating countries as part of the packaging bag or special label. The project funding of food fortification advocacy was based at the unified 'Healthy Food' logo, which facilitated the marketing efforts of participating food industries (see **Figure A6.3** for examples).

Quality Assurance of the Fortified Wheat Flour

51. The Project agreements ensured the design and adoption of the quality assurance and control procedures. Only Governments of Kazakhstan (2005) and Mongolia (2005, 2006) designed and adopted the procedures for monitoring of production, import and sale of the fortified wheat flour. Kyrgyz Republic, Tajikistan and Uzbekistan use the standards and sanitary regulations and norms (the summary of the standards by country can be found in **Table A3.4**). In general these procedures included control on: (i) compliance of the fortificants (and/or premix) to the existing standards; (ii) adequacy of the flour fortification method; (iii) vitamin and minerals' content in final product; and (iv) compliance of the packaging and labeling to the existing standards. The overall evaluation of the adequacy of the quality assurance and control at the industrial sites was provided by Standard Agencies (in all countries), SES laboratories (in Central Asian countries) and Bread Inspection in Kyrgyz Republic, Special Governmental Inspection (in Mongolia).

52. The JFPR provided support in strengthening the quality assurance at industrial sites (supply of laboratory equipment and reagents; training of laboratory technicians). It should be noted that the flour milling internal laboratories in all participating countries have the long-term experience in quality monitoring, so the quality of the fortified flour was high from the very beginning.

Quality control at producer level

53. The routine internal control procedures include measuring of the iron content in flour samples (spot test method); spectrophotometer's method of measuring iron and 1-2 vitamins; and/or High Pressure Liquid Chromatography (HPLC) method. **Table A1.6** provides an overview of the quality monitoring at industrial sites in participating countries. Quality control at the factory level is most often monitored by the laboratory technician at an on-site laboratory. Most of medium-size flour mills monitor a random salt sample by spot test method every two hours, and make spectrophotometer tests for occasional control. In Kazakhstan the use of spot test was limited due to the constraints in use of the hydrochloric acid, so the League of Grain Processors assisted in adoption of methods based on weighing of the utilized premix. It also started installation of the batch-weighing feeders. In Kyrgyz Republic the Bread Inspection introduced the spectrophotometer tests of the iron content. The use of

HPLC was highly evaluated by the flour millers, but the relevant cost of the analysis limited this method for certification purposes only.

54. The governments of Central Asia countries implement limited the number of eligible inspections to the production sites to encourage the development of small and medium business initiatives. Also the limited capabilities of SES and Standard Agency laboratories across the countries did not allow them to ensure adequate external quality control.

Quality control at retail level

55. Regular monitoring of fortified wheat flour quality at the retail level is also limited across the countries. However, taking into consideration its importance, the control authorities in project countries provided such a monitoring at wholesale and retail markets (see **table A1.7** for an overview).

56. The Flour Millers Associations played an important role in sharing the experience and facilitating the regular monitoring to advocate the benefits of the fortified food and promote the fortified products to consumers.

Lessons learned on Implementation of Flour Fortification Programs

57. Efforts to address anemia have not reached the same level of intensity as those for the iodine deficiency elimination. Although most countries have survey data on the prevalence of anemia among pregnant women and young children (DHS, MICS and national surveys), in general there tends to be a lack of national surveys documenting the prevalence of anemia among at-risk groups, such as lactating women and the elderly. Moreover, few country-specific studies have examined the causes of iron-deficiency anemia among high-prevalence groups and in high-prevalence areas. All project countries have incorporated programmatic approaches and goals related to the control of iron-deficiency anemia into a national plan of action for public health. This plan of action has often been established in collaboration with international agencies such as UNICEF and the World Health Organization (WHO). Initiation of an iron-supplementation program has almost always been dependent on external assistance. Iron tablets were supplied to countries by UNICEF and are usually at least partially (if not fully) funded by UNICEF offices. In Naryn province of Kyrgyz Republic the Swiss Red Cross implemented the distribution of sprinkles (with iron and some vitamins).

58. Uzbekistan is the only project country that has legislation for mandatory fortification of the wheat flour with iron since 2005. In 2004 fortification of wheat flour became mandatory in Kazakhstan, but the Government rescinded the law in 2007. Kyrgyz Republic, Mongolia and Tajikistan have ongoing fortification of wheat flour with iron, zinc, thiamine, riboflavin, and folate. Among project countries only Mongolia almost achieved program targets (30%), Kazakhstan and Kyrgyz Republic demonstrated stabile (although small) ongoing wheat flour fortification. Tajikistan failed to sustain the wheat flour fortification without external support; it was also due to the general economic situation in the country.

59. Although all project countries completed the adoption the set of national standards on premix, fortified flour and even bakery from fortified flour (Kazakhstan, Kyrgyz Republic, Mongolia and Tajikistan), most of the countries are lacking complete legislation for regulation of the import, export and trans-regional trade of fortified wheat flour.

60. The information dissemination on the availability and benefits of the fortified wheat flour was not well developed. This resulted in low consumers' demand and affected the motivation of flour millers on increase of production. The shortage of the wheat grain in such grain-importing countries as Kyrgyz Republic, Mongolia and Tajikistan, also impacted on the amounts of production. Incentives for producers were partially developed and not in most of countries. These factors limited the accessibility of the fortified wheat flour at local markets and impacted on the consumers' demand.

Quality Salt Iodization

61. Since mid-90s the support of international organizations (particularly UNICEF) was almost universal across countries and was thus important for the initiation of national iodized salt programs. In most cases, UNICEF worked with the private sector and provided both the machinery and the potassium iodate necessary for salt fortification. In Mongolia UNICEF in cooperation with JICA (Japan International Cooperation Agency) provided mixers and fortificants to small-scale salt producers and supplied replacement parts for broken machinery. In addition, UNICEF conducted numerous meetings and national workshops for politicians, health workers, salt producers and NGOs to advocate universal salt iodization.

62. All participating countries currently have adopted universal salt iodization, although the degree to which these programs are governed by legislation varies across countries. The national programs on the IDD prevention were endorsed by the governments of most of the project countries: Kazakhstan (2001 and 2003), Kyrgyz Republic (2002), Mongolia (2002 and 2007), Uzbekistan (2005). Most project participating countries had adopted mandatory legislation for iodized salt already by 2004 (only Uzbekistan adopted the USI law in 2007), and all countries have adopted the national standards to ensure the adequate salt iodization (see **Tables A3.1-A3.2**). Governments of all participating countries have adopted the common requirements for quality salt iodization (40 ppm±10 ppm)[13].

63. The project continued on the achievements and lessons learned from the JFPR-9005 Project. The general directions were the following: (i) to achieve sustainable quality iodized salt production at major domestic industrial sites; (ii) to strengthen (and establish in some countries) the quality assurance and control and industrial sites; (iii) to establish regular monitoring on distribution networks in order to ban the sale of the non-iodized salt; and (iv) to promote quality iodized salt consumption by poor families.

Iodized Salt Production and Distribution

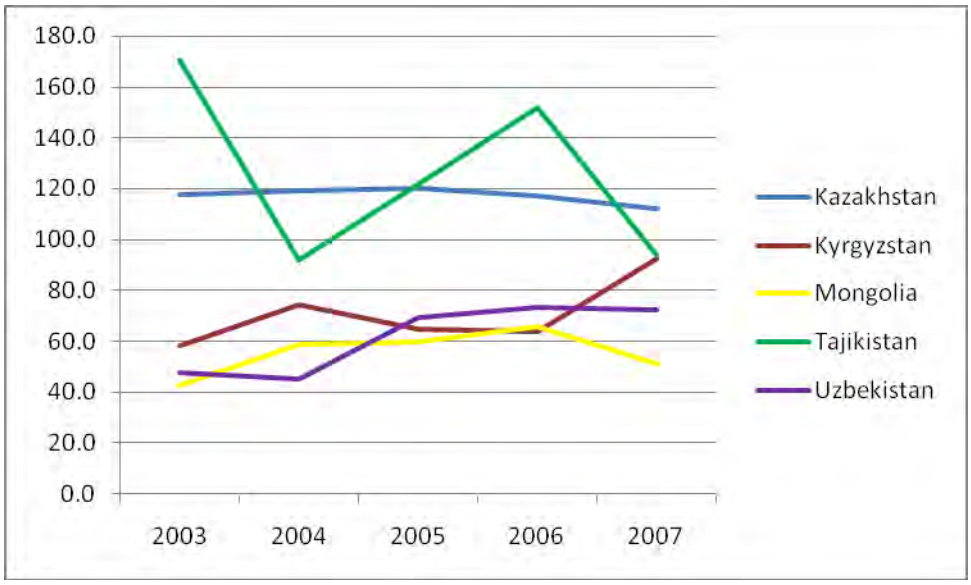
64. The continuous support from the international agencies in 1995-2000 and then through the TA 9005-REG Project in 2001-2004 had contributed greatly to the strengthening of salt iodization in participating countries. The production of the iodized salt has been increased significantly and even exceeded the regional demand (see **Figure 5** and **Table A2.1** for details). However the salt distribution and consumption at country level was different.

65. In Kazakhstan two main companies - the Aral Tuz (traditional supplier of the iodized salt to Central Asia countries since early 70-s) and Pavlodar Salt (which provided iodized salt to the northern areas of the country) were involved in project activities since 2001. From 2005 the Sozak Tuz company (newly established company in Southern Kazakhstan) joined the production of quality iodized salt. Aral Tuz has developed various grades of iodized salt and significantly improved its quality. The project provided technical assistance to the Pavlodar Salt Company which contributed to the final improvement of the quality of its production. In Kyrgyz Republic the amount of medium-size salt industries increased to 12 sustainable salt companies which ensured the production almost to 80-90% of the country demand, while the rest amount of iodized salt was imported from neighboring countries and other CIS countries. Mongolia established the reasonable balance between the quality iodized salt imported from China to central areas and domestically produced iodized salt in remote provinces. Also in Mongolia the project supported the construction of two salt deposits at industrial sites at remote provinces, which helped to improve the quality of the produced salt. In Tajikistan the Yavan Salt Enterprise produced the huge amounts of iodized salt almost duplicating the national demand. At the same time the illegal non-iodized salt was dominating at local retail markets. Uzbekistan promoted establishment of few modern salt industries and improving the quality of the iodized salt produced at old or adapted salt industries. The number of the salt production and

[13] Mongolia has adopted (30 ppm±10 ppm) due to the country nutrition-specidic reasons

distribution companies reached 60 in 2007, however the 13 main salt industries, which were involved in project activities since 2002, ensured production of two-thirds of the annual bulk salt amount.

Figure 5. Annual Iodized Salt Production in Central Asia and Mongolia in 2003-2007
(% to annual salt consumption)



Note: The calculation is based on the amount of 10 grams/per capita/per day

Source: Country Project Reports, 2003-2007

Capacity-Building of the Salt Industries

66. Already by 2005 the Kyrgyz Republic, Mongolia and Uzbekistan have numerous enterprises which were producing a significant amount of iodized salt. Although the technical assistance to salt producers on quality salt production was not anticipated by the project, the industry-specific issues appeared in the implementation agenda due to the fact of close relationship of the quality of salt and iodine content. In 2002-2003 the JFPR (TA-9005-REG) provided feeders, packaging equipment and supplies, and one-year amount of potassium iodate to major salt industries in all countries.

Table 6. JFPR Initial Support to Beneficiary Salt Industries

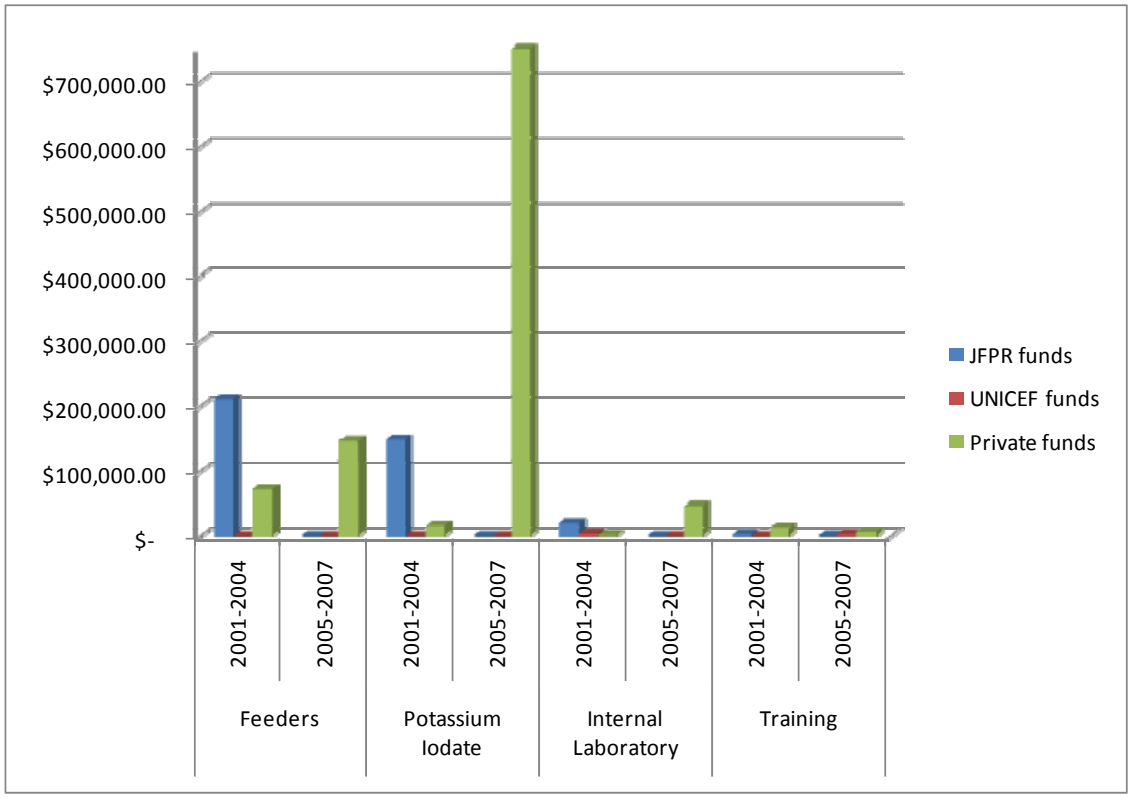
Country	Potassium Iodate (MT)	Iodization Equipment (units)	Packaging Equipment (units)
Kazakhstan	3.25	1	1
Kyrgyz Republic	1.00	3	2
Mongolia	0.20	-	4
Tajikistan	1.15	2	2
Uzbekistan	3.90	12	5

Source: Country Project Reports, 2002-2005

67. Since 2003 the project initiated the process of shifting from donor-driven to self-procurement of salt iodization equipment and potassium iodate. These arrangements were established by Kazakhstan since 2003 and by Kyrgyz Republic – since 2004, and from this time the salt associations assisted salt producers to negotiate the vendors. The project provided support to the First Meeting of Salt producers of Central Asia (Bishkek, 2004), which started the direct dialogue between the salt industry and vendors of equipment and potassium iodate. The discussions continued at the Second Regional Meeting (Tashkent, 2005). In Tajikistan the Salt Association established the revolving fund (with initial support from UNICEF and JFPR reimbursement funds), which initiated the self-procurement since 2005. In Uzbekistan the arrangements were made with the Uzmedimport (the governmental agency under the Ministry of Health), as the Salt Association had no license on import of fortificants. In Mongolia the Salt Association studied the practice of other participating countries as the potassium iodate was granted by UNICEF in the framework of Country Cooperation Program for 2006-2008.

68. In 2003-2005 the participating salt producers increased the sharing of costs of quality iodized salt production not only in processing, iodization and packaging/labeling, but also in strengthening of the internal laboratories, training and social marketing. These current expenditures of the private salt industry (see **Figure 6** and **Table A2.2** for details) sustain the visible achievements in universal salt iodization.

Figure 6. Share of Grant and Private Costs on Iodized Salt Production in Central Asia and Mongolia in 2001-2007 (US dollars, two project stages)



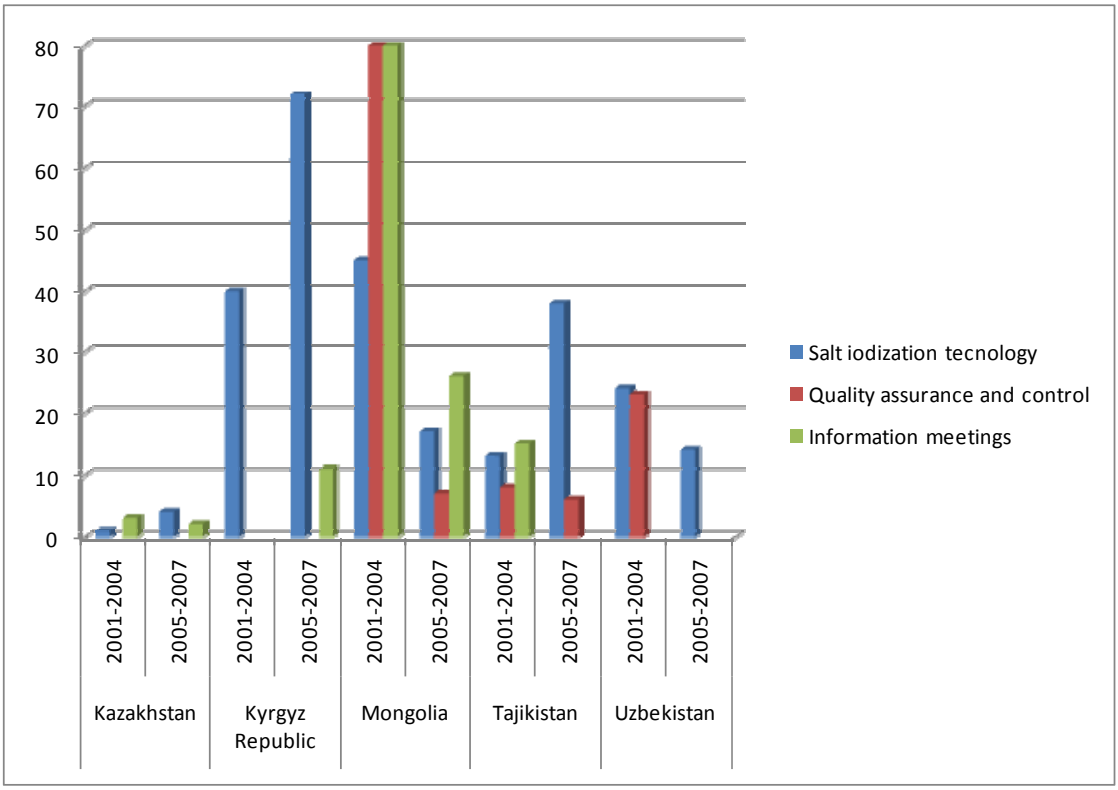
Source: Country Project Reports, 2002-2007

69. The project supported the establishment of National Salt Producers' Associations, which were very cooperative in design and advocating the advantages of the iodized salt and strengthening the quality control. In all countries the Salt Associations took the coordinating role of identifying the ongoing problems of salt industries and discussion the solutions with the Governments and donor community. One of the important undertakings of the Salt Association was technical assistance for the

salt industries on technology issues of quality iodized salt production and strengthening the internal laboratory control. The Salt Associations took active part in preparing and conducting of trainings for salt technology engineers and laboratory technicians. In Kyrgyz Republic and Tajikistan the associations were leading the process of providing the potassium iodate to salt producers.

70. The JFPR Project ensured the adequate training on the salt iodization for salt industries technologists and laboratory technicians. While the regional trainings facilitated the access of participants to the global experience and best practice of the participating countries, the national and local trainings provided practical guidance on the national legislation and regulations. The technologists and laboratory technicians were encouraged to provide comments on practical implementation of the existing and desired regulations and monitoring procedures. **Figure 7** and **Table A2.3** provide overview of the training events and capacity-building for the salt industries in participating countries. It should be noted that UNICEF in cooperation with CDC also conducted regular trainings on quality assurance and monitoring on the iodized salt in all countries throughout 2004-2007.

Figure 7. Training of Salt Engineers and Laboratory Technicians in Central Asia and Mongolia in 2003-2007 (persons, two project stages)



Source: Country Project Reports, 2003-2007

Incentives for Salt Producers

71. At Almaty Forums 2001 and 2004 salt producers cite common disincentives to producing iodized salt, such as low demand for iodized salt, the expense of producing it, equipment necessary for its production, and high costs of potassium iodate. The project considered the design and adoption of the incentives for salt producers as one of the pillars to ensure financial sustainability and profitability over the long term. The JFPR supported salt iodization and packaging equipment to major salt industries. This completed the similar efforts of UNICEF in Central Asian countries in 1996-2000,

and JICA in Mongolia. The project also funded valuable amount of potassium iodate and the related procurement of packaging supplies.

72. Tax exemptions are most used incentives to be allowed to producers of iodized salt. In Kazakhstan (1996 and 2004) and Kyrgyz Republic (2004 and 2006) the salt producers were exempted from the import tax and customs taxes/tariffs (including VAT) on salt iodization and processing equipment and iodine-containing fortificant. Uzbekistan also entered into force the tax exemption on processing equipment in 2007, but this did not include fortificant importation. However, Mongolia and Tajikistan did not achieve tax-exemption for salt iodization equipment and fortificant.

73. The project designed the 'Healthy Food' logo, which was adopted by all participating countries by incorporated in their salt packaging (see **Figure A6.2** for examples). The project supported food fortification advocacy campaign, which was based at the unified 'Healthy Food' logo. This facilitated the marketing and advertizing strategies of participating salt industries.

Quality Assurance of the Iodized Salt

74. The Project agreements ensured the design and adoption of the quality assurance and control procedures. The Governments of Kyrgyz Republic (2002), Kazakhstan (2004) and Mongolia (2005) designed and adopted the procedures for monitoring of production, import and sale of the iodized salt. Tajikistan and Uzbekistan use the standards and sanitary regulations and norms (the summary of the standards by country can be found in **Table A3.2**). In general these procedures included control on: (i) adequacy of the processed salt; (ii) compliance of the potassium iodate to the existing standards; (iii) adequacy of the salt iodization method; (iv) iodine content in final product; and (v) compliance of the packaging and labeling to the existing standards. The overall evaluation of the adequacy of the quality assurance and control at the industrial sites was provided by Standard Agencies (in all countries), SES laboratories (in Central Asian countries), Special Governmental Inspection (in Mongolia).

75. The JFPR's support in strengthening the quality assurance at industrial sites (supply of laboratory equipment and reagents; training of laboratory technicians) resulted in visible improvement of the quality of the iodized salt. Simultaneously the salt industries shifted from the test indicators to titration and spectrophotometers' methods. The sanitary norms of most participating countries still allowed use of salt test indicators for quality control, but most of participating salt industries use it as the approximate test method for on-site check at production site. None of the countries could include the WYD Iodine Checker in the list of the formally approved equipment, though the eligibility of spectrophotometer testing of the iodine content was confirmed by the standards of all countries and the WYD Checkers were extensively used by all of participating countries.

Quality control at producer level

76. The routine internal control procedures include measuring of the iodine content in salt samples by: salt test indicators; spectrophotometer's method and/or WYD iodine checkers and titration method. **Figure 8** and **table A2.4** provide an overview of the quality monitoring at industrial sites in participating countries. Quality control at the factory level is most often monitored by the salt producer at an on-site laboratory. Most of medium-size salt enterprises monitor a random salt sample by iodine test indicator every two hours, and make tests by titration at least two times per day. The use of WYD Iodine Checkers (in Mongolia the spectrophotometers were used for the same purposes) was highly evaluated by the salt producers and replaced salt titration methods in every-day use. However, the spectrophotometer test results are not recognized by the government authorities for certification purposes, so the internal laboratories use the titration method to justify the adequate of iodine content before putting the salt on sale.

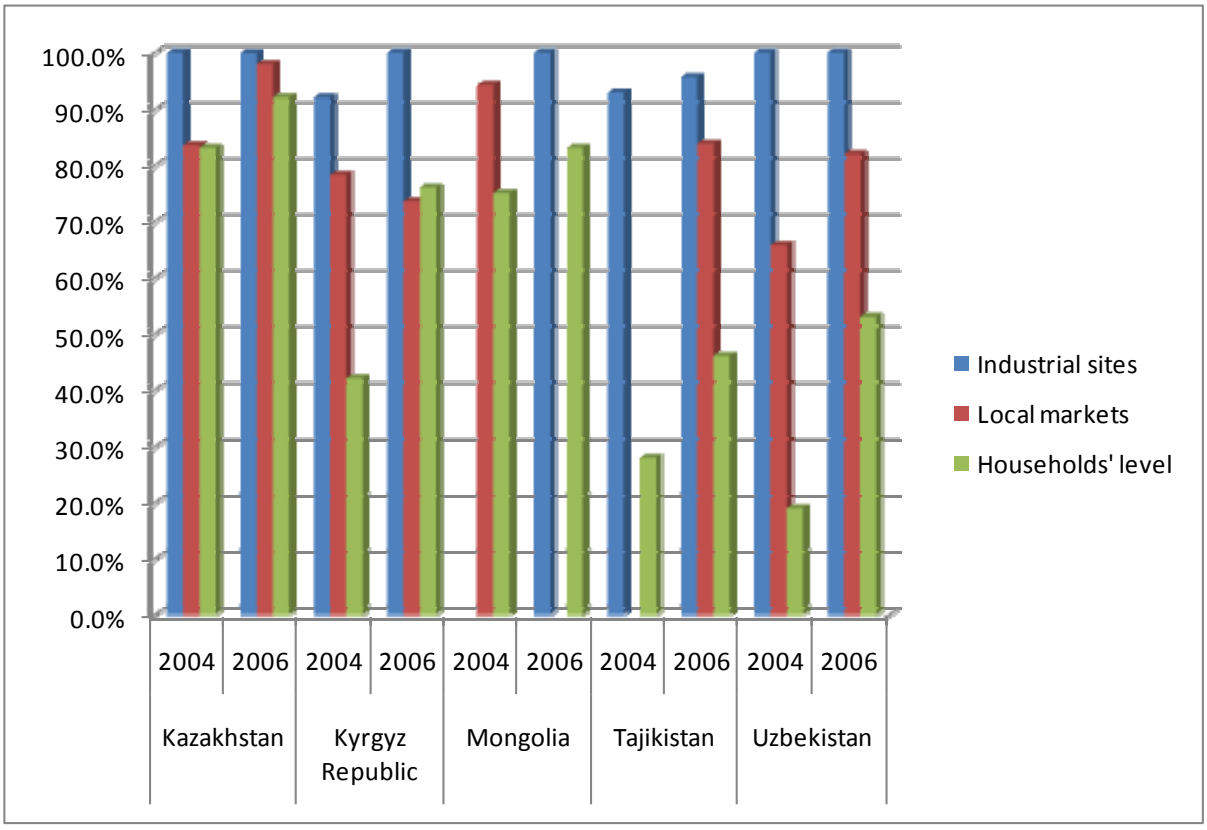
77. The governments of Central Asia countries implement limited the number of eligible inspections to the production sites to encourage the development of small and medium business initiatives, thus the salt producer is given responsibility for monitoring its own production, with little

enforcement of accountability. Across countries, SES, Standard Agency or other control authorities may perform random checks of salt producers and monitor the compliance with salt iodization regulations; however, it seems that most iodized salt programs do not collect regular data at the production level.

Quality control at retail level

78. Regular monitoring of salt quality at the retail level is also limited across the countries. For example, in Kyrgyz Republic and Uzbekistan, the control authorities are authorized for annual checks at the markets only; in Tajikistan and Uzbekistan they should apply to the local authorities one month in advance and simultaneously inform the market management. This makes such a regular checks inefficient in regard to illegal and/or false salt sale. The project countries used the Customers' Associations to initiate the checks (this is allowed by legislation) and SES and Standard Agency were subordinate part of the team. **Figure 8** and **table A2.5** provide an overview of the quality monitoring at local markets.

Figure 8. Availability of the Quality Iodized Salt in Central Asia and Mongolia in 2004-2006 (percentage of the samples with adequate iodine content)



Source: *for industrial sites* - Country Project Reports, 2003-2007;
for local markets – Ministries of Health of Kazakhstan, Kyrgyz Republic, Tajikistan and Uzbekistan, and State Agency of professional Inspection of Mongolia;
for households level –State of World's Children, UNICEF, 2001-2008.

79. It should be noted that Salt Producers Associations played an important role in tests at local markets in order to ban the illegal salt and non-iodized salt. The Associations initiated the joined monitoring with SES and the representatives from the Standard Agencies (in Kyrgyz Republic and Tajikistan), local authorities (Mongolia and Tajikistan) and Consumers' Associations (Kyrgyz Republic and Mongolia). In Kyrgyz Republic the results of the monitoring was reflected in mass media (naming

the companies and brands with non-adequate iodine content). In Tajikistan the results of monitoring were discussed with the local authorities and community leaders and reflected at the TV-casts. Mongolian Women's Federation and local food inspections officers actively cooperated in testing of the iodized salt quality at local markets.

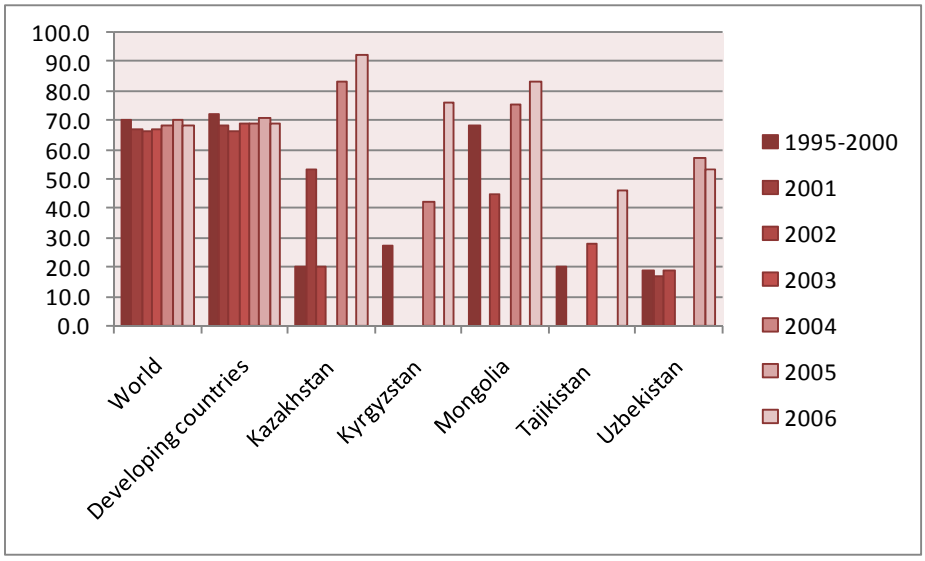
Coverage of program: household level

80. Most countries have national data on coverage of their iodized salt programs. All of the countries conduct regular surveys to assess iodized salt coverage with assistance from UNICEF, CDC and other international agencies. Data on iodized salt from salt testing are often collected as part of indicators to broader-based health and nutrition surveys (e.g., demographic and health surveys [DHS], multiple indicator cluster surveys [MICS]):

- Kazakhstan – DHS 1995,1996; Iodized Salt Consumption Survey (2006);
- Kyrgyz Republic – DHS, 1997; MICS, 2006
- Mongolia – MICS, 2000, 2005; National Nutrition Survey, 2004;
- Tajikistan – National Nutrition Survey, 2003; MICS, 2006;
- Uzbekistan – DHS, 1996, 2002; MICS, 2006.

81. The joint efforts in implementing of the national salt iodization programs provided impressive achievements in the quality of the iodized salt at households' level in all countries. UNICEF Multiple Indicator Cluster Surveys (MICS) confirmed the valuable achievements made by Kazakhstan, Mongolia and Kyrgyz Republic and significant progress in Tajikistan and Uzbekistan (see **Figures 9** and **A2.6**).

Figure 9. Percentage of Households Using the Iodized Salt in Central Asia and Mongolia in 1995-2006



Source: State of World's Children, UNICEF, 2001-2008.

Lessons learned on Implementation of Salt Iodization Programs

82. Salt iodization is recognized as a highly effective long-term public health strategy for the control of iodine deficiency disorders, with a minimal cost per capita required strategy. All project countries had national legislation for mandatory iodization of salt for human consumption. While

universal salt iodization have the potential to eliminate iodine-deficiency disorders, not all needed activities are implemented effectively. Of all project countries, only Kazakhstan reports a national coverage rate above 90%, Kyrgyz Republic and Mongolia – 76% and 83% respectively, but in Tajikistan and Uzbekistan iodized salt programs do not reach national coverage targets. Well-developed monitoring systems for quality control of iodized salt are often lacking.

83. Although most project countries have a law banning the production, sale, and importing of non-iodized salt, most of the countries are lacking complete legislation for regulation of the production and distribution of iodized salt. The number of the salt producers and the geographical specificity can be mitigated but not controlled factors. In Kazakhstan and Tajikistan there are only few large-scale salt producers and overseeing compliance with standards for iodized salt production is easier. Mongolia and Uzbekistan have numerous identified salt producers, and although all of them are registered with the Ministry of Health (Uzbekistan) or Food Inspection (Mongolia), monitoring of the compliance of all producers (through iodine levels at production and retail) would require more resources.

84. In addition there are constraints related to the accessibility of iodized salt. In countries, where non-iodized salt is available, either from local open salt deposits (remote provinces of Mongolia; Khatlon province and Rasht area of Tajikistan; Kyzylorda and Zhambyl provinces of Kazakhstan, Jizzak province and Karakalpakstan in Uzbekistan) or illegally imported (Kyrgyz Republic), the price at which it is sold is substantially lower than that of iodized salt. This discourages poor population groups to purchase iodized salt in lieu of non-iodized salt.

85. Incentives for producers to iodize salt have been offered across most of project countries and have been critical for motivating the producers' cooperation. In Tajikistan and Uzbekistan the 'revolving fund' of potassium iodate was established which helped medium and small salt producers to mitigate the shortage of turn-over costs.

86. Sustainability of national iodized salt programs requires strong enforcement of iodized salt legislation by the supporting norms and procedures on quality monitoring, responsibilities of producers and retailers and their accountability.

87. Those countries like Kyrgyz Republic and Mongolia do not domestically produce the quantity of iodized salt needed annually; therefore enforcement of quality monitoring procedures at border sites was essential for the potential success of national iodized salt programs. In Khatlon province of Tajikistan the numerous individual entrepreneurs have the license on mining raw salt from the open salt deposits. This created the possibilities of illegal trade of non-processed salt to poor population groups and thus resulted in low level of use of iodized salt at household level, contrary to huge production amounts of the quality iodized salt which sometimes were 1.6 times higher the annual national demand. The situation was returned on track after joint efforts of the central and local authorities, control agencies, police, food producers and community leaders.

88. All countries express a need to improve the monitoring of the iodized salt program. The greatest need may be to improve monitoring at production and market sites as well as at border crossings where salt is imported. Mongolia and Tajikistan have plans to establish a more developed monitoring process and to improve the monitoring of small-scale salt producers. Uzbekistan aims to improve the enforcement of proper salt iodization at the production or import and retail levels and to increase the capability of laboratories at the central and provincial levels.

89. Finally, the important element of sustainable iodized salt program is phasing out of donor contributions of potassium iodate and parts of iodization/packaging equipment. Kazakhstan and Kyrgyz Republic demonstrated the effective capability for the purchase of potassium iodate, equipment and expendable supplies. Tajikistan and Uzbekistan plan to transfer full responsibility for the purchase of potassium iodate to Salt Producers Associations in the near future. For Mongolia this decision is tentatively delayed because of previously agreed international assistance programs, but public-private cooperation in establishment of country-specific technology for two salt deposits in remote areas has proven this potential capacity.

Strengthening the Capacities of the Governments

90. Nutrition and food are in-between of the domains of the government (a public good) and the consumer (a private good). Based on the evidence that poor nutrition contributes to risk of poverty and reduced capacity of human input, the governments of project countries were engaged in fortified food legislation, monitoring of fortified food quality and food fortification advocacy. Also the governments were invited to play stronger role to facilitate cross-border trade of the fortified food products in the region.

Legislation on Fortified Food

91. The project efforts were aimed at establishing of the set of unified (or harmonized) national laws, regulations and standards to: (i) ensure the essential quality of the fortified foods; (ii) to protect the consumer from fraud; (iii) to provide the legal authority and an adequate legal framework for the food-control activities; and (iv) to strengthen the incentives for food producers and traders for cross-border and country-wide trade of the fortified foods.

92. One of the visible impacts of the project was the development of basic food acts on fortification. In Kazakhstan parliamentarians proposed to incorporate the issues of food fortification in the draft Health Code. In Tajikistan, Mongolia and Kyrgyz Republic the Governments submitted to the Parliaments the draft laws on wheat flour fortification dealing with import food products. While in 2003-2004 the USI laws were the single feature of the policy-making decision on improving nutrition, by 2008 the framework of the food regulations was developed in most of participating countries (see **Tables A3.1-A3.4** for details). The recently adopted EU regulations on vitamin and mineral additives among European Union countries were considered by all project countries as a model for further direction.

93. In Kazakhstan the Parliament shifted from the mandatory wheat flour fortification to the voluntary one, following the reason of least restrictive trade practices and safeguard health concerns. There is a strong concern that mandatory food fortification is misconstrued in most of the countries as a non-tariff barrier under the WTO regime. This can lead to the situation of lower prices for non-fortified wheat flour from domestic and/or imported sources.

94. The food regulations, which were designed with project support and adopted within the project implementation period, include lists of approved fortificant compounds and food standards stating the allowed levels of nutrients in the fortified foods (all project countries); changes in wheat flour and salt-processing (all project countries) and food-packaging technologies for iodized salt (all project countries) and fortified wheat flour (Mongolia). The incentives for food producers were legally adopted in Kazakhstan and Kyrgyz Republic. Mongolia and Kazakhstan designed the modern regulations on quality control, which provide the government with adequate inspection powers. In accordance with the WTO requirements (Kyrgyz republic and Mongolia are WTO members, and other countries applied for WTO membership), the shift to technical regulations instead of national standards was implemented.

95. The project has launched the regional harmonization process in trans-border trade of the fortified foods by adoption of the unified standards and common test methods. There are data on small trade of iodized salt between Tajikistan, Kazakhstan and Kyrgyz Republic, and importation of fortified wheat flour from Kazakhstan to Tajikistan and Mongolia. But the process still is unclear: lack of adequate infrastructure, resource constraints, and weak institutions remain barriers to realizing the greater potential benefits from increased trade. In order to make harmonization more inclusive, social and cultural aspects also need to be considered, since food systems local resource availability, and levels of economic development differ among countries.

National Coalitions Aimed on Fortification

96. The Almaty Forum 2001 stressed the need in establishment of national coalitions to promote an integrated approach to improving nutrition, mobilizing and involving local communities and coordinating the intersectoral programs and projects targeting the national nutrition policy. It was expected that the Steering Committees, which were established in project countries, can be transformed to address the complex problems related to food and nutrition. However, the National Fortification Alliance was established in Kyrgyz Republic only in 2003, but its activity was paralyzed by the fast changes of the Government and actually no meetings were held after 2005. In Kazakhstan the Government rejected the idea of the formal National Alliance and authorized the Ministry of Health to establish the intersectoral Commission on Food and Nutrition instead. In Tajikistan and Uzbekistan the drafts of the mandate and composition of the National Fortification Alliances were considered since 2004, but never adopted by the Governments. At the same time the Civil Forum in Khatlon Province of Tajikistan appeared the efficient intersectoral collaboration which resulted in real decrease of the distribution of non-iodized salt.

97. Mongolia has demonstrated the efficient cooperation between two ministries – Ministry of health and Ministry of Food and Agriculture, which co-chaired the Steering Committee on JFPR Project and worked in close cooperation not only with central governmental agencies, but also with local authorities. In remote areas the local nutrition teams were formed. These teams helped to convert national-level project targets into local initiatives and shape it in accordance with area-specific environment. In Orkhon, Bulgan, Arkhangai and Zavkhan aimags these activities helped to increase the demand of the fortified food products. In Arkhangai and Bulgan aimags the project teams conducted continuous broadcasting information at local TV and radio channels on the advantages of the fortified food, its affordability in site and the quality of the salt at local markets. Mongolia also appeared the positive example of National IDD Council, which coordinating efforts resulted in effective implementation of the National IDD Prevention Program and adoption of the efficient USI legislation. One of the visible achievements of multisectoral approach was elimination of the import of non-iodized salt from China.

98. The JFPR project experience showed that the National Coalition can be effective only if the political will would be demonstrated at the highest level, appropriate leverage by the international agencies, and food and nutrition policy implementation would be considered an integral part of national development policy. Key elements for success include a technical secretariat both from the government and the academicians, a modest level of technical and financial support and active involvement of civil society. Strengthening of monitoring and regular reporting on food and nutrition issues may also act as an incentive to the governments to reconsider the effectiveness of their current policies.

Collaboration between Government and the Private Sector

99. Engaging the private sector in efforts for food fortification is essential to the success of the program. The project had initiated the collaboration with private sector from the very beginning, which helped to establish good working relations with and strong partnership with the salt industry and flour millers in all project countries. Involvement of the private sector in program activities helped to increase producers' level of knowledge of micronutrient deficiency as well as encourage a sense of ownership for the program among the producers themselves. For example, in Kazakhstan, Kyrgyz Republic and Mongolia the associations of food producers were leading the process of installation of fortification equipment, and later Kazakhstan and Mongolia flour millers started procurement of premix and feeders from private funds.

100. In Mongolia, Kyrgyz Republic and Tajikistan the project played the important facilitating role in establishment of Salt Producers Associations which later ensured the sustainability of production of

quality iodized salt. In all project countries the private industry contributed in advertizing of the advantages of the use of fortified food, and they made it as a part of their marketing strategy. The unified 'Healthy Food' logo was widely used among the participating food industries (see **Table 7** for details and **Annex 6** for examples of use of the logo), although no formal regulation on its use and procedures have been reached.

Table 7. Use of Healthy Food' Logo by Participating Food Industries in Central Asia and Mongolia in 2005-2007

Countries	Flour Mills		Salt Industries	
	Participating Industries	Using the 'Healthy Food' logo	Participating Industries	Using the 'Healthy Food' logo
DMC, in total	**99**	**56**	**58**	**44**
Kazakhstan	16	11	3	2
Kyrgyzstan	23	19	12	10
Mongolia	28	6	25	10
Tajikistan	18	6	5	9
Uzbekistan	14	14	13	13

Source: Country Project Reports, 2005-2007

101. The ownership of the food fortification helped the flour millers to establish in 2007 the new regional branch (Eurasian Branch) of the International Association of the Operating Millers (IAOM), which comprised the flour millers from 35 Eastern Europe, Middle East and CIS countries and sharing the fruitful experience of the wheat flour fortification. With the support of the neighboring countries Kazakhstan was elected to be the first president of the newly established board.

102. Active involvement of the food producers facilitated design and adoption of the numerous legislative documents and norms on fortified food production and distribution, which in other terms could require much more time and efforts.

Capacity-Building of the Government Control Agencies

103. The Almaty Forum 2004 stressed the essence of a well-functioning quality assurance and control framework. Being an important element in nutrition strategies, food fortification must, however, be controlled through the development of appropriate regulations. The addition of nutrients to a food for the purpose of fortification increases the number of control points that must be considered. Poor manufacturing control leading to excessively high levels of nutrients in the finished product could have important health implications for the consumer if intake of the nutrient reaches the toxic dose. Conversely, low levels of nutrients in the finished product could render it nutritionally ineffective. Good manufacturing practices based on the Codex Alimentarius, General Principles of Food Hygiene and HACCP system.

104. Quality assurance and control model, which was designed and adopted within the project framework addressed selected crucial activities that have an impact on product safety and quality, from raw materials and ingredients used to product handling, through distribution channels, all the way to the final consumer. The outline of quality-assurance system is at **Table 7** below. The detailed scheme of food fortification control with the reference to country specific regulations and control agencies is attached in annex (see **Figure A4.1**).

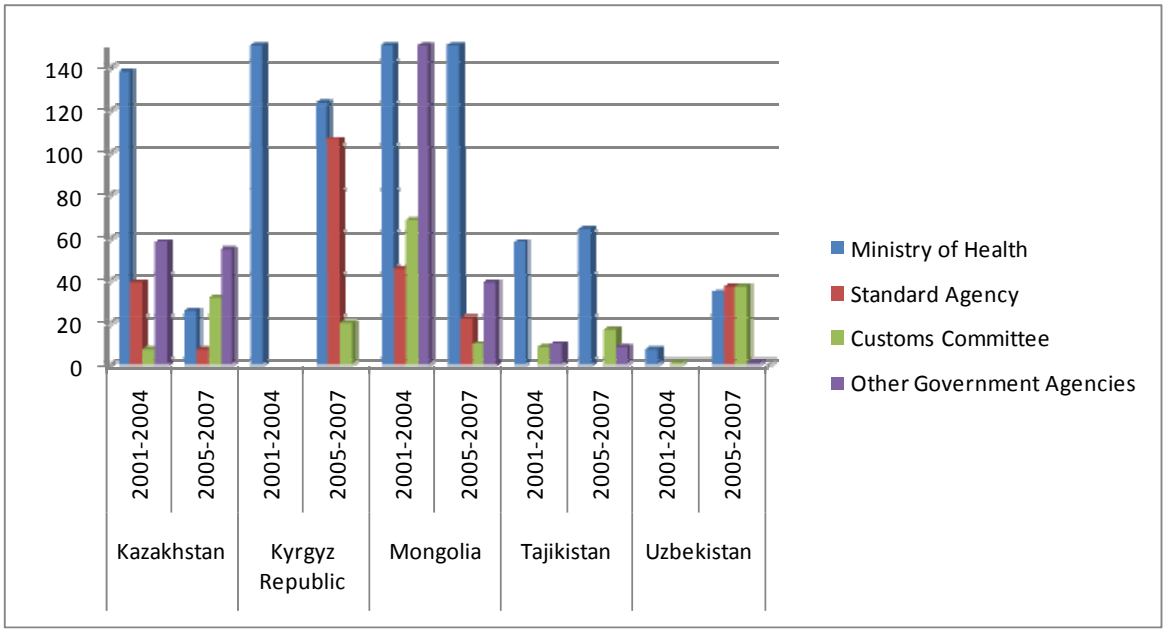
Table 8. Quality Assurance and Control System for Fortified Food

Components	Monitorable factors	Authorized for control	Authorized for supervision (oversight)
Raw material control	Fortificant (premix) ingredients	Food factory	Customs Service, SES
Process control	Mix of fortificant	Food factory laboratory unit	SES, Standard Agency, Food Inspection, Association of producers
Finished product control	Content of micronutrients	Food factory laboratory unit	SES, Standard Agency, Food Inspection, Consumers Associations, NGOs
	Labeling	Food factory	Standard Agency, Food Inspection

Source: Country Project Reports, 2005-2007

105. In parallel to the legislation strengthening, the project visibly increased the capacity-building of the governmental control agencies in participating countries. In 2003-2006 the JFPR funded the procurement of laboratory equipment and reagents to ensure adequate tests of fortified food samples at control agencies. While in Mongolia due to the institutional reform, the single Specialized Inspection Agency was established in 2006, the other countries have the interaction of the Standard Agency, Sanitary-Epidemiological Surveillance under the Ministry of Health (SES) and Customs Service. **Figure 10** and **Table A4.2** provide overview of the training events and capacity-building for the control agencies in participating countries.

Figure 10. Training of Staff of the Control Agencies in Central Asia and Mongolia in 2003-2007 (persons, two project stages)



Source: Country Project Reports, 2003-2007

Food Fortification Advocacy and Social Mobilization

106. The major operational stages and elements of work included: (i) design the country-specific communication strategy and workplan for its implementation; (ii) identification of the most important audiences for targeting the communication activities; and (iii) selection of an effective mix of channels to reach the target audiences. The project selected local communication consultants to help the Working Group on strategy planning and monitoring the implementation of activities. In Kazakhstan the Kazakh Academy of Nutrition was contracted as a consulting institution for implementing and review of communication activities. UNICEF Regional Office in Geneva and UNICEF Country offices in all participating countries provided valuable partnership support in communication and social mobilization activities, depending on country-specific issues.

107. The project benefited from the international consultant's technical assistance, who assisted at two regional meetings (Bishkek, 2002 and Bishkek, 2005), which were aimed at capacity-building in food fortification advocacy. The meetings defined and revised the country's communication strategy goals, and listed the criteria for the selection of local communication consultants, involvement of efficient NGOs, communication campaign monitoring, and Project website improvements.

108. Project website (www.caffproject.net) was established in 2003 and served as the reference materials sight for sharing the best practice and on-line catalog of regulations, IEC materials and reports on food fortification activities of project participating countries. The advantage of the site was its collection in Russian-language documents, which made it of use by the local project stakeholders. However the delays in updates and lack of materials in English language limited the use of the Project accomplishments by the international audience. In 2005 ADB facilitated the establishment of the other project Web-site (www.adb.org/Projects/sustainable-food-fortification/default.asp), which was recognized by the project countries and provided useful overview of project activities. Kazakh Academy of Nutrition continued administration of the previous Project Web-site for the benefit of the project partners in participating countries.

Food Fortification Advocacy

109. Project advocacy activities were aimed to keep fortification on the agenda of policymakers, program designers, and the food industry. This was crucial to ensure the legislation strengthening and the activities were widely spread among the participating countries.

110. In Kazakhstan the project supported the activities of the Working Group on design and facilitating the adoption of the wheat flour fortification mandatory law. In cooperation with UNICEF several meetings and workshops for parliamentarians were conducted, which resulted in adoption of the law by Mazhilis (The Lower Chamber) and the Senate in July 2007. Unfortunately the law was vetoed by the President of Kazakhstan in concern of constraints to the WTO membership application. However the awareness of the politicians on the advantages and availability of the fortified wheat flour is very high. Another positive example of high-level advocacy in Kazakhstan was demonstrated by the National Commission on Family and Gender Issues. This Commission reports directly to he President of the country and has the mandate on monitoring of public-private activities in relation to health and family issues. The Commission organized two meetings on consideration of the food fortification progress in Kazakhstan in 2006 and 2007, and reported to the Government on the actual need on the strengthening of the legislation and food fortification promotion. The issues of the food fortification and advantages of the use of fortified food were incorporated into the textbooks and curricula of the teaching and medical students.

111. In Kyrgyz Republic the project facilitated the advocacy activities to parliamentarians and achieved the design and favorable consideration of the wheat flour fortification mandatory legislation by the Parliament. The draft law was recommended by two Parliament's Committees for the adoption and included in the agenda of the Parliament for early 2008.

112. In Mongolia the joint advocacy efforts of the two committed ministries – Ministry of Health and Ministry of Food and Agriculture – resulted in design and favorable consideration by the Government of the draft law on mandatory wheat flour fortification. The draft law would be considered by April 2008.

113. In Tajikistan the advocacy workshops for the government officials and parliamentarians facilitated the design of the draft law on wheat flour fortification, which was submitted by the Government in January 2008 for consideration and expected adoption by the Parliament.

114. In Uzbekistan the long-term delay with USI legislation urged the project team to consider the advocacy activities addressed to the government officials and parliamentarians. The consequent workshops and meetings in 2006-2007 helped to shape and adopt the USI law in May 2007. The educational NGO assisted in incorporation of the food fortification issues into the curricula of the teaching and medical students and textbooks for secondary schools.

Social Mobilization and Awareness

115. The project targeted the awareness of government authorities, food industry, health personnel and nutritionists, and communities of the consequences of IDD and IDA and the benefits of consuming of fortified food. Most countries have multiple information and education activities focusing on efforts to eliminate micronutrient-deficiency disorders, also in partnership with the international agencies (UNICEF, GAIN, CDC, CARE International, Flour Fortification Initiative and others).

116. Information, education and communication activities (IEC) are a priority approach for NGOs' involvement in project participating countries. Community nutrition education is often provided, focusing on promoting IDD and IDA awareness and dietary diversification. In Mongolia and Uzbekistan the women NGOs also included sessions during which techniques are shared for increasing the bioavailability of iron through food preparation and non-use of the tea jointly with meals. In Kyrgyz Republic and Kazakhstan the NGOs addressed village health workers and schoolteachers to provide health and nutrition education at the community level. In Mongolia and Tajikistan the NGOs involved community leaders and women volunteers by health workers. In Uzbekistan the national Youth Organization KAMALOT conducted special campaigns for students with the use of popular artists. The project supported production of the VHS copies of the IEC materials and printed booklets and posters for immediate distribution at grass-root level (see **Table A5.1** for details). The involvement at communities' level was very impressive in Tajikistan and Kazakhstan (see **Table A5.2**).

117. The Civil Society Forum 'Health Food – Health Nation', which was conducted by NGOs with the support of the Government of Tajikistan, ADB, JFPR, and UNICEF, in Khatlon province of Tajikistan demonstrated the positive example of public-private cooperation. The Forum discussed the issue of abandoning the production and sale of non-iodized salt from the open salt deposits and was attended by the senior government officials, local authorities, community leaders, food producers and NGOs. The Forum adopted the joint activities which resulted in significant increase of use of the non-iodized salt not only at local markets, but at household level as well.

118. The project widely used mass media to promote nutrition education and advantages of use of the fortified food. In Mongolia and Uzbekistan regular TV lessons were designed with the help of nutritionists and journalists. Also Mongolian Women's Federation used its weekly newspaper to deliver the printed '12 lessons on micronutrient deficiency' to the women in remote areas. In total, the micronutrient deficiency issues and food fortification activities were reflected in 147 articles (national and local magazines/newspapers) and 90 telecasts. In addition, the project outcomes were documented at 59 academic publications in project countries (**Table A5.1**). In Mongolia the project supported the documentary on food fortification activities, which was demonstrated at prime-time at national TV-channels. In Tajikistan, Kyrgyz Republic and Mongolia the popular broadcasting channels were involved in translation of the audio clips on the benefits of the fortified food.

119. In most of countries the private sector also has a role in food fortification awareness and advertizing. Starting from project communication strategy, the food industry funded design and regular advertizing. In Kazakhstan two flour milling companies advertize the advantage of their flour mill and pasta referring to its micronutrient content (KAP-Komplex-1). In Mongolia the Food Producers Associations used the annual trade fairs in 2005-2007 to exhibit the iodized salt and fortified wheat flour. In 2006 the Mongolian Consumers Association in cooperation with Grain Processors Association conducted special competition on the quality fortified food.

120. In Kazakhstan the Ministry of Culture and Public Information funded the regular demonstration of the advocacy telecasts on advantages of the fortified food by national public TV channels. In Kyrgyz Republic the private TV companies agreed to provide free broadcasting time for fortified food advocacy visual materials.

Project Management and Financial Performance

Project Management

121. The implementation arrangements of the JFPR Project are the following: ADB coordinates overall implementation in all five countries through the Regional Coordination and Administration Office (RCAO) set up in Almaty, Kazakhstan. RCAO is also responsible for centralized procurement of equipment and fortificants and selection of auditors. The RCAO staff is recruited by ADB and financed under the Project. The RCAO acts as the central project implementation unit and coordinates Project planning, reporting, monitoring of implementation progress, international procurement, and organizing workshops and round table meetings. RCAO responsibilities also include: (i) detailed project planning and management; (ii) assistance to country project teams on local procurement and contract administration; (iii) review of withdrawal applications for CPOs imprest accounts; (iv) monitoring of disbursement of funds, including timely submission of withdrawal applications to ADB; (v) preparation of consolidated quarterly progress and completion reports; (vi) coordinating of annual audits; (vii) design and support of the project website; and (viii) assistance to ADB/JFPR staff and consultants' missions. To facilitate project implementation ADB have been fielded regular missions to participating DMCs and RCAO.

122. Participating countries set up Country Steering Committees for project oversight, the latter comprising representatives from the finance, economic development, and health ministries; the private food industry; and the NGO community. The Ministry of Health (MOH) of each participating country was functioning as the Executing Agency (EA) of the JFPR project and established the Country Project Office (CPO). The EA in each participating country is responsible for overall coordination of Project activities in its country, including the following: (i) coordination with other ministries, agencies and NGOs; (ii) approval of annual work plans and disbursement plans; and (iii) ensuring compliance with ADB rules for procurement and disbursement. A Country Project Coordinator (medical doctor), a Financial Specialist and Administrative Assistant (optional) staffed the CPO in each participating country. The CPO staff has formal contract arrangements with EA based on terms of reference approved by ADB.

123. Steering Committees were required to help develop national action plans, monitor the effectiveness of public-private initiatives and foster community-based action. In Kazakhstan and Mongolia they were helpful to promote inter-ministerial cooperation within government. However in Tajikistan the Ministry of Health ignored contacts with other governmental agencies and this limited the project impact on the nutrition status and was not helpful for legislation development. In Kyrgyz Republic the Government decided to upgrade the Steering Committee to the National Fortification Alliance chaired by Vice Prime Minister. The good will was blocked by frequent change of the Government and finally did not allow the Alliance to adopt any agreeable decision. In Uzbekistan the

Government delegated the authority of the National Fortification Alliance under the Vice Prime Minister to the Ministry of Health, which substantially reduced the capacity of the governing body and increased the bureaucracy constraints in decision-making.

124. While both JFPR projects (TA 9005 and TA 9052) were administered by ADB, the close collaboration with UNICEF was established. Consultations between ADB and UNICEF were conducted for the purpose of design and implementation of IEC strategies that were intended to raise national and regional awareness of nutrition issues and in preparing the regular regional Forums and round table meetings. These consultations also facilitated the division of tasks between ADB and UNICEF in assisting the implementation of the national nutrition programs with proven beneficial outputs in Kazakhstan, Mongolia and Tajikistan. An improved understanding by ADB and UNICEF of each other's organizational goals and processes was proved value added of the project outputs. New international partners - Center for Disease Control (CDC), Global Alliance on Improving Nutrition (GAIN), International Association of Operative Millers (IAOM) and Flour Fortification Initiative (FFI) – have limited participation at regional level or country-tailored activities.

Engagement of Consultants

125. International consultants were recruited in accordance with the Guidelines on the Use of Consultants of the Asian Development Bank (ADB). The Project contracted five individual international consultants and one institution - Kazakh Academy of Nutrition (Almaty, Kazakhstan), which acted as a technical advisor to ADB and RCAO, and facilitates exchanges with nutrition institutes in the other project countries. . In line with the terms of reference, the consultants provided inputs to the implementation of project components and assisted to regional Forums, workshops and national seminars. The project also benefited from the recruited domestic consultants from each of the five participating countries in the fields of flour fortification, salt iodization, legislation strengthening and communication. In Kazakhstan, Mongolia and Tajikistan the Food producers Associations were engaged to implement technical assistance (consultancy service). UNICEF, in accordance with the project agreements, provided visible technical support to the country teams.

Financial Performance

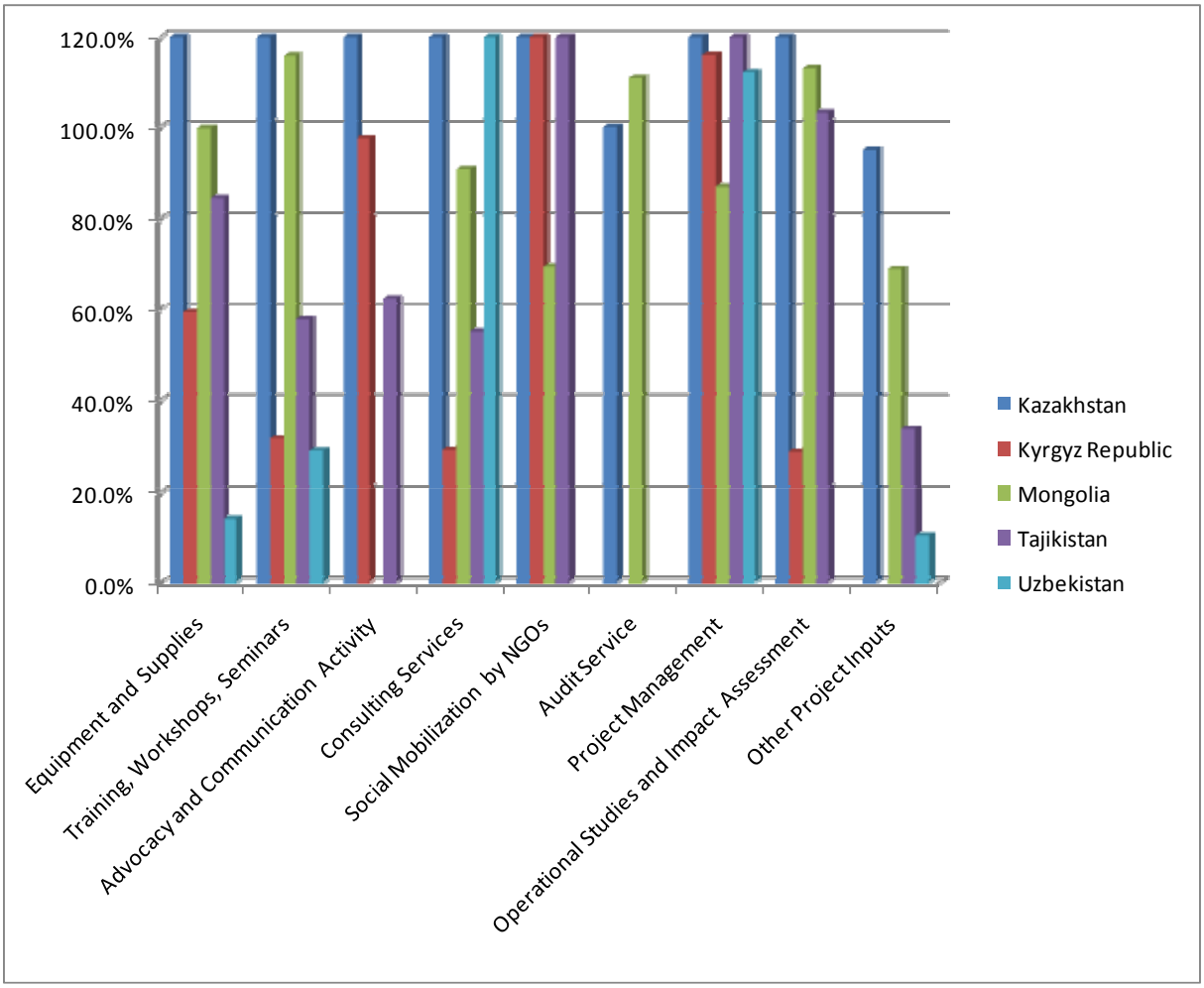
126. TA 9052-REG was originally scheduled to be completed in 24 months, but it required 32 months to complete. The extension on project was intended to facilitate legislation adoption and provide inputs to sustain the food fortification by the private sector.

127. The financing allocation for the project in the amount of US$2 million or its equivalent was funded by the Government of Japan and financed on a grant basis by JFPR. JFPR's funds were spent within the framework of CIPs (see **Table A7.1** for countries' details). The consolidated Statement of Expenditure from the beginning of the Project until 30 September 2007 (**Annex 7**) shows the progress in funds utilization. Of the total grant amount, an estimated 51.5% had been used by the end of the reporting period. The consumption of JFPR's funds by 30 September 2007 had been $1,029,668 (see **Figure 11**).

128. The Imprest Accounts were inspected by independent auditors two times during the project implementation period. These inspections were conducted in accordance with International Standards of audit and results were reported to ADB. RCAO conducted two biddings (2006 and 2007) in order to select the auditing companies acceptable to ADB requirements. Three local audit companies (from Kyrgyz Republic, Mongolia and Uzbekistan) have been contracted by the EA in each participating country. The contract assignment called for the provision of professional services to ensure the economic and effective use of grant funds toward approved goals. The auditors had evaluated: (i) project financial statements; (ii) Statements of Expenditures (SOEs); (iii) use of project accounts; (iv) use of granted equipment and premix; and prepared the Audit Report, the Financial Statement and

Management Letter. A separate audit opinion on the use of the Project account and SOE, as well as on the execution of ADB procedures for Imprest account and SOE, had been included in the audit reports. Both auditors' reports were considered as positive and in whole reflected good results of financial performance. Most of issues had common character for all EAs/CPOs, namely: classification of expenditures, use of different exchange rates, applying of method of accounting, ineligible bank charges and etc. EAs presented the auditor's reports to ADB, and the comments were considered jointly.

Figure 11. Utilization of JFPR Funds in Central Asia and Mongolia in 2005-2007
(Project expenditures categories, percentage of accumulated expenditures)



Note: The calculation is based against CIP cost estimates.
Data for Kyrgyz Republic and Tajikistan were available up to 30 September 2007

Source: Country Statements of Expenditures, 2005-2007

Evaluation of Project Performance

Relevance of Objectives and Design

129. The project was developed to assist DMC governments in raising awareness of IDA and IDD as a public policy problem and of the need to link appropriate strategies and resource mobilization for its solution. The design of the project mainly geared at promoting sustainable food fortification programs and intends to improve nutrition status and physical and mental capacity of the poor, by: (i) focusing support on the poor currently afflicted or at risk; (ii) piloting related capacity-building processes for establishing a regional network for marketing, distribution, and rules of trade; and (iii) demonstrating the efficacy of a regional approach to solving a common nutrition problem that is depressing both human and economic development in the region. The objectives were ambitious (especially in wheat flour fortification) and also covered a range of issues, including (i) identifying the more successful interventions and approaches in food fortification and recommending appropriate strategies for the participating DMCs; (ii) strengthening the food legislation and regulation in regard to fortified food; (iii) identifying incentives for food producers so that targeted interventions for poor families can be sustained after termination of the donor support; (iv) incorporating investment planning for micronutrient deficiency eliminating in national policy formation for domestic resource mobilization and external financing; and (v) strengthening national coalitions and civil society so that advocacy of fortified food will become a permanent fixture in health, nutrition and social policy formation.

130. The scope of the project was aimed to: (i) conduct regional roundtable conferences in seeking policy commitment and agreement on the essential requirements for fortifying salt and flour; (ii) establish fortification of salt and flour; (iii) support the regulatory authorities in developing food-testing instruments and surveys for monitoring the enriched food program for mothers and children; and (iv) develop social marketing approaches to create demand by the poor. The project implementation was ensured by close collaboration between governments, local experts and international consultants in developing the project objectives and its shaping to specific country situation. TA 9052-REG is therefore highly relevant both at approval and at completion.

Efficacy

131. The efficacy of the project in achieving the objectives was mixed, with different levels of effectiveness in different countries. In Kazakhstan and Mongolia the project matched the majority of targets; in others, such as Kyrgyz Republic and Uzbekistan, the achievements were beyond expectation. Targets related to the capacity-building of the food industry and government control agencies were generally met. Most of the countries adopted the national plans based on the recommendations of the Almaty Forum 2007. There has been dissemination of nutrition awareness and the importance of intersectoral collaboration in the improvement of nutrition with education, food industry and other concerned sectors. While the above achievements can be considered highly efficacious, some of the RETA's objectives have not been achieved. Therefore, the project can be assessed as efficacious.

Efficiency

132. The project experienced delays, and has been extended from its original completion date of 30 April 2007 to 31 December 2007. This was partly due to the late start of project activities in Uzbekistan (linked to the postponed adoption of the USI Law); termination of Project leadership by the Ministry of Health in Kyrgyz Republic since May 2007 and the juridical casus with the project imprest account in Kazakhstan, which needed almost 7 months for release. However in three countries the

disbursements almost reached 100% by 2008 and major planned activities were finalized. Although time-wise the project is not very efficient in all participating countries, it has achieved its objectives well and appears to have significant impacts. Hence, it can be considered efficient.

Sustainability

133. Increased capacity of food industries in sustainable food fortification and the governments in eliminating the micronutrient deficiency advocacy is the underlying purpose of the project. Technology transfer was primarily achieved through involvement in regional meetings and national workshops. Some transfer of awareness in related ministries of the participating DMCs on issues such as nutrition transition, the effectiveness of various approaches toward nutrition improvement and the relation between food fortification programs and WTO and WHO requirements was achieved.

134. The project is most likely sustainable at least in two participating DMCs (Kazakhstan and Mongolia). In general, it established public-private partnership to bring fortification as a primary approach for micronutrient deficiency control, to develop a positive attitude to nutrition, and to help map out effective strategies in light of the nutrition transition. The project has enhanced the monitoring capacity of the participating DMCs and helped the governments to identify managerial decisions, which enable increased coverage and focus on delivery of fortified foods consumed by the poor. The project has facilitated transfer of appropriate food fortification technologies to governments, NGOs, the food industry, and consumer groups. It has mobilized other external assistance for nutrition and food fortification in the region and benefited from co-sharing of the private food industry. Thus, the project can be assessed as most likely sustainable.

Impact

135. The impacts that were expected from this project were (i) nutrition policies for the next development plans of the participating DMCs; (ii) requests for country-specific assistance in the area of life cycle-based nutrition interventions; (iii) continued work in the advocacy and promotion of fortification of various foods that have the possibility to improve the micronutrient status of the poor; and (iv) increased awareness of the importance of nutrition in the poverty reduction strategies. Not all of the expected impacts have been documented.

136. In some DMCs, such as Kazakhstan, Mongolia and Tajikistan, the project has generated support from various development partners to implement their fortification CIPs. The strategies outlined have been funded by other agencies, including Global Alliance in Improving Nutrition (GAIN) in Uzbekistan. Thus, ADB has played the role of a catalyst. However, the transfer of technology in developing CIPs beyond the participating food industry is limited. The project can be considered likely to demonstrate substantial impact.

Overall Assessment

137. TA 9052-REG is assessed as highly relevant, efficacious, efficient, most likely sustainable, and has moderate impacts. Therefore, it is rated successful.

Lessons Learned

138. Factors involved in constraining and/or facilitating the development of successful food fortification programs might be categorized as technical, socio-economic, infrastructural, and political.

139. Innovative fortificant development does not appear to have been a major constraint; the flour millers in Kyrgyz Republic and Mongolia reported about technical problems with micro-feeders, which seemed to be the issue of adequate maintenance and use of appropriate materials. The premix dilution helped to solve some of the reported problems. Also the flour millers were convinced to follow the strengthened technical specifications in equipment procurement. Production of the quality iodized salt in Mongolia and Uzbekistan needed special attention to purity and humidity of raw salt, which also affected the quality of the final product.

140. Most of the countries indicated the need on further strengthening and improving the quality control at industrial sites and monitoring of the food products at retail level. Only Kazakhstan has the adequate system of industrial quality control at slat industries, and other countries need to improve the basic quality control procedures. In flour milling industry Kazakhstan and Mongolia developed the appropriate quality control systems (mostly at big-size flour mills), while the other countries need to strengthen the general arrangements of the internal laboratories.

141. Socio-economic constraints were reported by most of participating countries. These include the lack of wheat grain and turnover funds for premix procurement; electric power interruptions; low consumers' demand. In Uzbekistan the producers indicated the demand in foreign currency exchange and limited licensing for premix importation.

142. The specificity of food staples local production and distribution should be considered at initial planning stages. While in Mongolia the local salt deposits provide salt for 20-25% of the population, the local production is the only source for the remote areas. Similar in Kyrgyz Republic and Tajikistan the small flour mills provide the wheat flour for the people at numerous rural areas.

143. Lack of incentives for the food producers resulted in low production as the actual expenditures were not balanced with sales. While in Kazakhstan and Mongolia the flour millers considered the fortification as the tool on marketing strategy and promotion of the quality products, in Kyrgyz Republic and Tajikistan the millers complained of the non-profitability of the food fortification interventions. In Kazakhstan the Working Group incorporated the public-funded support on premix procurement in the draft law on wheat flour fortification, which will be considered by the Parliament.

144. The traditional weak links between the health care system and the private food sector provide certain delays in design and supporting the incentives for producers and increase of distribution of the fortified foods. Mongolia appeared the positive example of enhanced cooperation between two ministries and food industries, but this was the only country case. SES and ministries of health were helpful in design and adoption of standards and specifications, and also in establishment of the quality control systems. However the presence and further strengthening of the National Coalitions (and Food Associations) creates the optimistic background for future progress.

145. The limited awareness on the advantages of the fortified food and its limited availability at local markets resulted in low demand from bakeries and individual consumers. Kazakhstan and Mongolia indicated that the local authorities' involvement can be crucial for successful project implementation.

146. The efforts on food fortification advocacy and social mobilization campaign need comprehensive and country-tailored strategies. While the tele- and broadcasting brings positive results, most of the countries expressed the need in focusing the efforts at community level.

147. While the legislation on food fortification is crucial, the basic laws and regulations should be thoroughly followed by the government control agencies. In Kyrgyzstan and Tajikistan the adequate norms on salt iodization and flour fortification did not resulted in its regular implementation by producers and traders. Most of the countries indicated the need of political support at highest level to ensure the sustainability of food fortification programs.

148. Political support was lacking for a number of reasons. Nutrition and health are relatively low priorities in national budgets in developing countries. The health authorities failed to provide top

decision-making bodies with convincing data on the magnitude of micronutrient malnutrition and it's economic and health costs compared to the advantages of the fortified food. The governments in most of participating countries indicated a serious concern about: (i) start-up costs and the current costs of fortification; and (ii) virtual contradiction of mandatory fortification to WTO requirements. As mentioned above, the project made a little progress in adopting of incentives for food producers. The list of the known incentives includes: tax exemptions; import licenses and loans for equipment and raw materials; initial subsidies to procure fortificants; assistance in developing an in-process quality control system; training of production, administrative, and marketing personnel; training of the wholesale and retail sector; and prohibition of illegal imports. However, these incentives are quire rarely offered. Only part of it was adopted by Kazakhstan and Kyrgyz Republic.

149. Cross-borders trade facilitation should be linked to the mandatory importation of the fortified food products, otherwise most likely such countries as Kyrgyz Republic, Mongolia and Tajikistan would not ensure the adequate supply of the fortified wheat flour.

150. In addition two countries faced constraints in financial administration of project funds. The financial implementation was negatively impacted in Kazakhstan (sequestration of Project funds) and Uzbekistan (delays in validation of funds at imprest accounts). Based on the lessons learned the Ministry of Economy and Budget Planning of Kazakhstan decided to improve the local provisions and procedures for projects funded through international channels and arrange consultations with the Ministry of Finance and ADB Resident Mission.

Conclusion

151. The innovative project approach to nutrition interventions used the combination of traditional series of meetings and workshops facilitated by international consultants with the comprehensive capacity-building based on reasonably small investments in food fortification and laboratory equipment and contribution of the private food industry. While this modality required additional time and efforts both from ADB and local project stakeholders (especially in thorough CIPs and workplans preparation and updates, and project performance monitoring), the project successful implementation benefited from the increasing ownership of the country management. The regional forums, primarily designed for facilitating regional cooperation and trans-boundary trade of fortified foods, became the regular public-private event which helped participating countries to review their progress on the MDGs, sharing experience, raising awareness and developing cost-effectiveness estimates. The discussions were followed by shaping of country-specific plans of action.

152. Due to the direct and catalytic effects of TA-9052, the participating countries have demonstrated the significant progress in universal salt iodization and established sustainable wheat flour fortification at least at three countries. The objective to meet the 33% goal was quite difficult particularly for those countries with high flour imports and little wheat production. However the dynamic of wheat flour fortification was visibly progressive. All participating countries also initiated designed and adoption of much-needed legislative and regulatory action. Three countries (Kazakhstan, Kyrgyz Republic and Tajikistan) competed the transfer to sustainable quality iodized salt production (including self-procurement of potassium iodate), and flour milling industries in two countries (Kazakhstan and Mongolia) already demonstrated sustainable quality production of the fortified wheat flour. The local production of premix for wheat flour fortification was initiated in Kazakhstan. The current food fortification costs did not affected the price of the final product; however the prices for food staples were dramatically increased due to the other economic factors and inflation. The involvement of food producers and community based organizations further enhanced the sustainability of food fortification and its demand by consumers. The Project experience has helped the governments and private sector identify steps required for sustainable food fortification.

153. The capacity-building of the government control agencies has been visibly improved and involved all main actors: SES, Standard Agencies and the Customs service. Technical assistance was

provided to improve monitoring of the fortified food products at retail markets and household level, in addition to the further strengthening of the industrial quality control. Food producers Associations were recognized partners by the Governments in most of participating countries.

154. The project received good coverage in national and local mass media. Regular press-conferences, TV-spots, talk-shows with high-reputed personalities; special broadcasts for remote areas were provided. The project achievements were updates at the Project's Web-site, and Mongolia created the Country Web-site which demonstrated its usefulness for the local partners.

155. Almaty Forum (October 2007) has adopted recommendations (see **Annex 8**) which served as the framework for follow-up actions to the Country Teams and helped to design and adopt the national actions plans for 2008-2010 by all participating countries.

156. The Project's effectiveness in achieving its stated purpose was satisfactory. The major components were completed with a reasonable degree of cost efficiency. Procurement of goods and services and engagement of consultants were generally smooth in accordance with ADB guidelines. Performance of consultants, contractors and suppliers were generally satisfactory.

157. The Project was highly relevant in terms of the Governments' and ADB' development strategies. The Project contributed to the ADB' poverty reduction initiatives by targeting poor women of reproductive age and children and focusing support on the poor currently afflicted or at risk. All participating countries have designed and endorsed at the national level the plans of activities for years 2008-2010, which will serve to sustain the achievements and further food fortification progress.

Recommendations and Follow-Up Actions

158. The Project has helped the governments and private sector identify steps required for sustainable food fortification, and also clarify what more needs to be done. These activities should concentrate on: (i) increasing production of quality iodized salt and fortified wheat flour; (ii) primarily building the capacity of the public and private sectors to sustain food fortification; (iii) adoption of the mandatory wheat flour fortification legislation and adoption of adequate standards; (iv) strengthening support for food industry by fiscal and other incentives; (v) facilitating trans-boundary trade of the fortified food products. There is a need to encourage the private sector in its efforts of self-procurement of fortificants and equipment, and establishing links between global producers of premix. The governments, public and private sector need to strengthen and upgrade the quality assurance system to ensure that consumers receive quality fortified food.

159. The achievements of the Project, including food industry capacity-building, legislation and regulations framework, region-wide exchange of technical information, multi-country training, and sharing of information through project Web site will increase cost-effectiveness and overall technical resources available to all the countries involved.

160. ADB should continue playing the role of a catalyst in nutrition development efforts in the region. The findings, lessons and outputs of the both projects (TA-9005 and TA-9052) could be useful inputs for ADB in updating ADB Policy for the Health Sector or the integrated Health, Nutrition and Population Strategy.

Contents

Annex 1 Wheat Flour Fortification: Production and Quality Assurance

Table A1.1 Wheat Flour Production, Export and Import in Central Asia and Mongolia in 2001-2007 (*thousand metric tons, calendar year*)

	2001	2002	2003	2004	2005	2006	2007 (Jan-June)
Kazakhstan							
production [a]	2 889[a]	3 720[a]	4 023[a]	3 669[a]	2 756[b]	2 274[b]	
export [b]	170	298	484	532	932	1 122	682
import	…	…	…	…	…	…	
Kyrgyz Republic							
production	…	…	…	221.7	235	…	
export	-	-	-	-	-	-	
import [c]	…	…	…	50.0	47.5	50.0	
Mongolia							
production [d]	…	…	…	57.8	40.5	…	
export	-	-	-	-	-	-	
import [d]	…	…	…	79.3	103.0	74.1	
Tajikistan							
production [e]	…	…	…	375.9	389.2	375.2	
export	…	…	…				
import [f]	…	…	…	224	428	456.8	
Uzbekistan[g]							
production	…	…	…	1 737	1 576	1 349	
export	…	…	…	144	179	158	
import	…	…	…	161	401	429	

Sources: [a] Statistical Yearbook of Kazakhstan, 2005; [b] League of Grain Processors and Bakers of Kazakhstan; [c] Ministry of Agriculture, Water Resources and Processing Industry of Kyrgyz Republic; [d] Association of Flour Producers of Mongolia; [e] Ministry of Economic Development and Trade of Tajikistan; [f] Ministry of State Revenues and Taxes of Tajikistan; [g] National Statistical Agency of Uzbekistan

Table A1.2 **Fortified Wheat Flour Production, Export and Import in Central Asia and Mongolia in 2001-2007** (metric tons and number of operative flour mills; share in domestic consumption; calendar year)

	2003	2004	2005	2006	2007
Kazakhstan[a]					
production	72 445	120 877	86 570	214 747	161 480
operative flourmills	7	13	13	13	12
share in consumption,%	4.5	7.6	5.4	13.6	16.1
Kyrgyz Republic[b]					
production	20 257	30 609	13 513	13 470	25 827
operative flourmills	8	8	11	17	18
share in consumption,%	4.8	7.3	3.2	3.2	5.9
Mongolia[c]					
production	7 382	11 904	33 118	50 483	49 388
operative flourmills	4	5	6	25	17
share in consumption,%	3.1	4.9	13.8	21.1	25.2
Tajikistan[d]					
production	24 873	58 063	72 773	84 245	11 478
operative flourmills	4	6	15	18	14
share in consumption,%	2.6	6.1	7.7	8.9	1.2
Uzbekistan[e]					
production	220 783	353 608	36 859	…	…
operative flourmills	12	14	14	…	…
share in consumption,%	…	…	…	…	…

Sources:
[a] League of Grain Processors and Bakers of Kazakhstan;
[b] Association of Producers of Fortified Flour and Bakery of Kyrgyzstan;
[c] Association of Flour Producers of Mongolia;
[d] Association of Fortified Salt and Flour Producers of Tajikistan;
[e] 2003-2004: JSC Uzdonmakhsulot Company;
2005-2007: GAIN Country Project Office in Uzbekistan

Table A1.3 **Fortified Wheat Flour Production at medium-Scale Industries in Central Asia and Mongolia in 2001-2007** (metric tons and number of operative flour mills; share in domestic consumption; calendar year)

	2005	2006	2007
Kyrgyz Republic[a]			
production	3 892	6 270	16 555
share in total production (%)	28.8	46.5	72.0
medium industries, total	17	17	17
active industries	7	14	13
Mongolia[b]			
production	2 900	10 268	6 249
share in total production (%)	8.8	20.3	12.0
medium industries, total	25	25	25
active industries	4	23	15
Tajikistan[b]			
production	18 447	10 592	1 520
share in total production (%)	25.3	12.6	13.4
medium industries, total	12	12	12
active industries	10	12	8

Sources: [a] Association of Producers of Fortified Flour and Bakery of Kyrgyzstan;
[b] Association of Flour Producers of Mongolia;
[c] Association of Fortified Salt and Flour Producers of Tajikistan

Table A1.4 Share of JFPR and Private Industry Costs in Flour Fortification in Central Asia and Mongolia in 2001-2007 (US dollars; two project stages)

Countries	Feeders		KAP-1 Premix		Packaging/Labeling		Internal Laboratory		Training	
	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007
DMC, in total										
JFPR funds	589,164		741,980		-		25,113		56,435	42,622
Other donor funds							25,113			101,466
Private funds	-	194,888	-	184,879	35,125	1,953,753	-	25,569	16,347	128,672
Kazakhstan										
JFPR funds	337,158		481,270				13,657		17,757	18,102
Other donor funds										51,024
Private funds		174,802		128,426		556,200		25,120	16,347	64,724
Kyrgyzstan										
JFPR funds	149,672		84,028				1,650		35,125	5,966
Other donor funds										2,506
Private funds					35,125	51,120				2,175
Mongolia										
JFPR funds	73,167	32,214	59,984				3,597	1,386	3,553	18,554
Other donor funds										5,314
Private funds		20,086		56,453		602,780		449		2,929
Tajikistan										
JFPR funds	29,167	54,300	116,698			14,000	6,209			
Other donor funds										
Private funds						743,653				

Source: Country Project Reports, 2002-2007

Table A1.5 Capacity Building of Flour Millers in Central Asia and Mongolia in 2001-2007 (calendar year; events; number of participants)

Regional and Country Activities	2002-2004		2005		2006		2007	
	Events	Participants	Events	Participants	Events	Participants	Events	Participants
Regional events								
flour fortification technology	1	7		…	1	42		
quality assurance and control	3	9		…	1	14		
information meetings	3	7		…	1	2	1	
Kazakhstan								
flour fortification technology	4	156	2	134	1	59		…
quality assurance and control	1	24	2	40	1	19		…
information meetings		…		…	1	26	2	59
Kyrgyz Republic								
flour fortification technology	1	40		…	3	75		…
quality assurance and control	2	46		…		…		…
information meetings	1	45		…		…	1	25
Mongolia								
flour fortification technology	3	26	2	39	1	21		
quality assurance and control	5	14			1	21	2	11
information meetings	21	515		…	1	14		
Tajikistan								
flour fortification technology	1	8	1	11				
quality assurance and control	1	11		…			1	32
information meetings	2	10		…				
Uzbekistan								
flour fortification technology								
quality assurance and control								
information meetings								

Source: Country Project Reports, 2002-2007

Table A1.6 Quality Control on Fortified Flour at Industrial Sites in Central Asia and Mongolia in 2004-2007

Country (years)	HPLC tests			Spectrophotometers' Tests			Spot tests**		
	Number of samples		Percentage of adequate samples (%)	Number of samples		Percentage of adequate samples(%)	Number of samples		Percentage of adequate samples(%)
	Total	Iron content 50 ppm		Total	Iron content 50 ppm		Total	Iron content 50 ppm	
Kazakhstan									
2004	75	75	100.0	-	-		11,236	11,236	100.0
2005	4	4		-	-		10,473	10,473	100.0
2006	7	7	100.0	8	8	100.0	9,312	9,312	100.0
2007	5	5	100.0	15	15	100.0	20,177	20,177	100.0
Kyrgyz Republic									
2004	41	41	100.0	65	65	100	1,931	1,931	100.0
2005	-	-		20	20	100	202	202	100.0
2006	9	8	88.9	43	39	90.7	224	224	100.0
2007	-	-		115	115	100.0	840	840	100.0
Mongolia									
2004	14	14	100.0	26	26	100.0	431	431	100.0
2005	4	4	100.0				1,341	1,341	100.0
2006	25	25	100.0	9	9	100.0	4,608	4,608	100.0
2007	31	31	100.0	7	7	100.0	7,270	7,270	100.0
Tajikistan									
2004	32	32	100.0				789	647	82.0
2005							336	256	76.2
2006				278	217	78.1	649	498	76.7
2007				74	64	76.5	98	95	96.9
Uzbekistan									
2004	36	36	100				3,025	3,025	100
2005	n/a	-	-	n/a	-	-	n/a	-	-
2006	n/a	-	-	n/a	-	-	n/a	-	-
2007									

Note: **(*)** Measurement of iron content only

(**) qualitative test of iron content

Source League of Grain Processors and Bakers of Kazakhstan; Association of Fortified Wheat Flour and Bakery Producers of Kyrgyz Republic; Association of Food Producers of Mongolia; Association of Salt Producers and Flour Millers of Tajikistan; Uzbekistan National Flour Fortification Program

Table A1.7 Quality Control on Fortified Flour at Local Markets in Central Asia and Mongolia in 2005-2007

Country (years)	HPLC tests			Spectrophotometers' Tests			Spot tests**		
	Number of samples		Percentage of adequate samples (%)	Number of samples		Percentage of adequate samples(%)	Number of samples		Percentage of adequate samples(%)
	Total	Iron content 50 ppm		Total	Iron content 50 ppm		Total	Iron content 50 ppm	
Kazakhstan									
2005	1	1	100.0	-	-		-	-	
2006				10	10	100.0	44	44	100.0
2007				27	27	100.0			
Kyrgyz Republic									
2005							8	8	100.0
2006				6	5	83.3	35	35	100.0
2007				23	22	95.7	13	13	100.0
Mongolia									
2005							20	20	100.0
2006				5	5	100.0	89	89	100.0
2007				22	21	95.5	151	151	100.0
Tajikistan									
2005	-	-							
2006									
2007				161	149	46.1	323	304	94.1
Uzbekistan									
2005	n/a	-	-	8	8	100	8	8	100
2006	n/a	-	-	54	11	20.4	54	11	20.4
2007									

Note: **(*)** Measurement of iron content only

(**) qualitative test of iron content

Source League of Grain Processors and Bakers of Kazakhstan; Association of Fortified Wheat Flour and Bakery Producers of Kyrgyz Republic; Association of Food Producers of Mongolia; Association of Salt Producers and Flour Millers of Tajikistan; Uzbekistan National Flour Fortification Program

Annex 2 Salt Iodization: Production and Quality Assurance

Table A2.1 Iodized Salt Production, Export and Import in Central Asia and Mongolia in 2003-2007 (*metric tons and number of industries; calendar year*)

	2003	2004	2005	2006	2007
Kazakhstan					
desired production [a]	54 571	55 023	55 257	55 480	56 290
active industries [b]	2	2	2	2	2
actual production [b]	64 356	65 658	66 494	65 171	65 532
import [b]	…	16 000	15 660	8 765	
export [b]	…	3 000	1 344	2 688	512
Kyrgyz Republic					
desired production [a]	18 290	18 487	18 673	18 871	14 555
active industries [c]	6	10	10	12	12
actual production [c]	10 637	13 705	12 051	12 050	13 455
import [c]	5 630	1 200	1 200	2 400	2 600
export	…	…	…	…	
Mongolia					
desired production [a]	9 125	9 235	9 490	9 454	9 596
active industries [d]	20	18	18	17	17
actual production [d]	3 891	5 430	5 694	6 234	4 925
import [e]	…	…	16 000	8 380	
export [e]	…	…	3 000	…	
Tajikistan					
desired production [a]	23 991	24 492	25 003	25 514	19 135
active industries	3	3	4	5	5
actual production [f]	40 952	22 588	30 475	38 870	18 045
import	-	-	-	-	
export [g]	…	1 560	2 570	5 100	
Uzbekistan					
desired production [a]	93 805	94 900	95 995	97 455	99 908
active industries [h]	13	13	13	13	13
actual production [h]	44 861	43 004	66 595	71 575	72 105
export	…	…	…	…	
import	…	…	…	…	

Sources: [a] Estimated amount calculated on the needs of 10 grams per person/day;
[b] Salt Producers Association of Kazakhstan; [c] Association of Salt Producers of Kyrgyzstan;
[d] Association of Salt Producers of Mongolia; [e] Ministry of Food and Agriculture of Mongolia;
[f] Association of Fortified Salt and Flour Poducers of Tajikistan;
[g] Ministry of State Revenues and Taxes of Tajikistan; [h] Ministry of Health of Uzbekistan

Table A2.2 Share of JFPR and Private Industry Costs in Salt Iodization in Central Asia and Mongolia in 2001-2007 (US dollars; two project stages)

Countries	Feeders		Potassium Iodate		Packaging/Labeling		Internal Laboratory		Training	
	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007
DMC, in total										
JFPR funds	210,226		149,206		230,406		19,778		2,820	1,100
Other donor funds							3,695			3,000
Private funds	71,050	146,875	16,023	768,226	399,038	4,457,825	1,400	45,862	13,247	6,779
Kazakhstan										
JFPR funds	2,835		52,065		21,510		680			
Other donor funds										
Private funds		139,875		312,474		3,333,020		38,741	11,547	6,429
Kyrgyzstan										
JFPR funds	50,246		15,140							1,100
Other donor funds							3,695			3,000
Private funds	1,050			46,851	394,538	493,851			1,700	350
Mongolia										
JFPR funds	32,200		3,068		58,100		2,100		2,820	
Other donor funds										
Private funds			1,023			46,254				
Tajikistan										
JFPR funds	20,920		18,561		50,635		680			
Other donor funds										
Private funds		7,000		60,351		28,810		2,105		
Uzbekistan										
JFPR funds	104,025		60,372		100,161		16,318			
Other donor funds										
Private funds	70,000		15,000	348,550	4,500	555,890	1,400	5,016		

Source: Country Project Reports, 2002-2007

Table A2.3 Capacity Building of Salt Producers in Central Asia and Mongolia in 2002-2007 (calendar year; events; number of participants)

Regional and Country Activities	2002-2004		2005		2006		2007	
	Events	Participants	Events	Participants	Events	Participants	Events	Participants
Regional events								
salt iodization technology	2	22	1	28				
quality assurance and control	3	23						
information meetings	3	2			1	2		
Kazakhstan								
salt iodization technology	1	1	3	3	1	1		…
quality assurance and control				…		…		…
information meetings	1	3		…		…	1	2
Kyrgyz Republic								
salt iodization technology	1	40	1	15	1	30	1	27
quality assurance and control		…		…		…		
information meetings		…		…	1	11		
Mongolia								
salt iodization technology	6	45	1	17		…		…
quality assurance and control	14	81		…		…	2	7
information meetings	39	186		…	2	26		…
Tajikistan								
salt iodization technology	2	13	2	2	2	8	5	28
quality assurance and control	1	8	1	6		…		
information meetings	3	15		…		…		
Uzbekistan								
salt iodization technology	2	24	1	14				
quality assurance and control	1	23						
information meetings								

Source: Country Project Reports, 2002-2007

Table A2.4 Quality Control on Iodized Salt at Industrial Sites in Central Asia and Mongolia in 2004-2007

Country (years)	Titration Method			WYD Checkers			Salt Test Indicators		
	Number of samples		Percentage of Adequate samples (%)	Number of samples		Percentage of Adequate samples (%)	Number of samples		Percentage of Adequate samples (%)
	Total	Iodine content 40±15 ppm*		Total	Iodine content 40±15 ppm*		Total	Iodine content ≥15 ppm	
Kazakhstan									
2004	2,517	2,517	100.0				13,280	11,155	84.0
2005	2,183	2,175	99.6						
2006	2,281	2,279	99.9						
2007	2,208	2,208	100.0						
Kyrgyz Republic									
2004	127	127	100.0	56	52	92.2	500	500	100.0
2005				30	30	100.0	1,600	1,600	100.0
2006				192	192	100.0	3,500	3,500	100.0
2007				297	297	100.0	4,000	4,000	100.0
Mongolia									
2004	331	282	85.2				5,098	4,882	95.8
2005	1,128	1,126	99.8	6	6	100.0			
2006	8,337	8,125	97.5	57	57	100.0	2,184	2,148	98.4
2007	1,163	1,1150	98.9	25	25	100.0	66743	6,712	99.5
Tajikistan									
2004	1,928	1,789	92.8				7,721	6,933	95.4
2005	2,566	2,432	94.8	193	189	97.9	156	139	89.1
2006	4,500	4,304	95.6				697	681	97.7
2007	4,981	4,929	98.9	267	267	100.0	1,314	1,314	100.0
Uzbekistan									
2004	702	702	100.0				13,595	13,595	100.0
2005	2,039	2,039	100.0	190	190	100.0	6,969	6,969	100.0
2006	2,206	2,206	100.0	216	216	100.0	8,115	8,115	100.0
2007	5,133	5,133	100.0	740	740	100.0	12,448	12,448	100.0

Note: **(*)** The adopted iodine content in Mongolia is 30±10 ppm

Source Ministry of Health of Kazakhstan; Confederation of NGOs of Kazakhstan; Association of Salt Producers of Kyrgyz Republic; Association of Food Producers of Mongolia; Association of Salt Producers and Flour Millers of Tajikistan; Ministry of Health of Uzbekistan

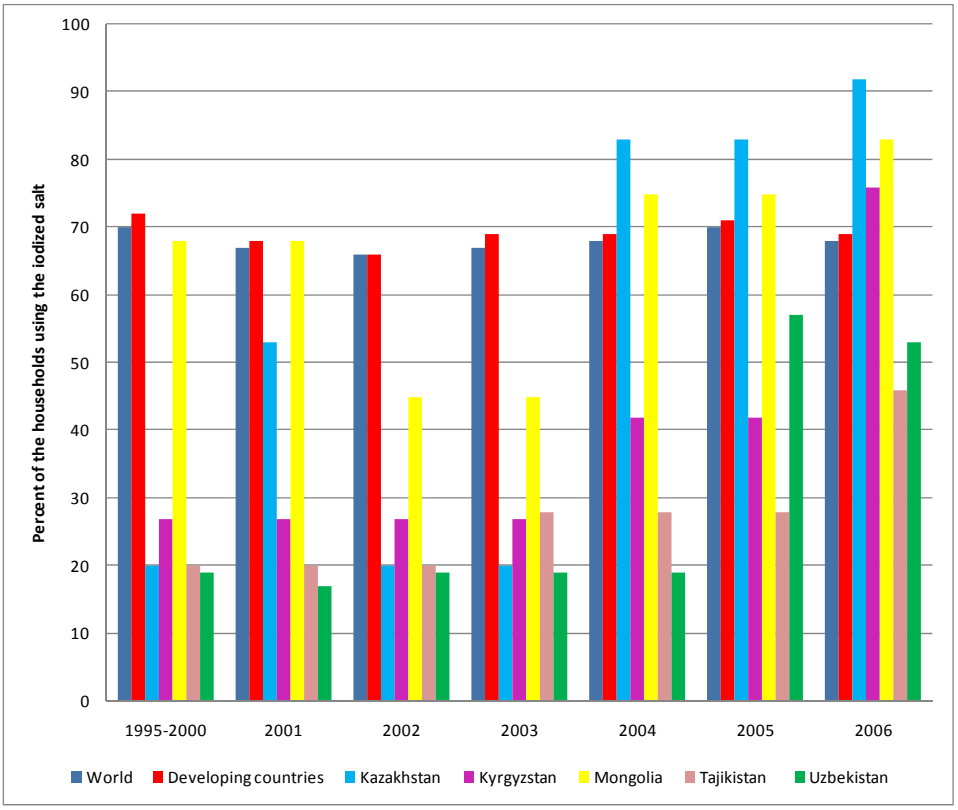
Table A2.5 Quality Control on Iodized Salt at Local Markets in Central Asia and Mongolia in 2004-2007

Country (years)	Titration Method			WYD Checkers			Salt Test Indicators		
	Number of samples		Percentage of Adequate samples (%)	Number of samples		Percentage of Adequate samples (%)	Number of samples		Percentage of Adequate samples (%)
	Total	Iodine content 40±15 ppm*		Total	Iodine content 40±15 ppm*		Total	Iodine content ≥15 ppm	
Kazakhstan									
2004	12,559	10,490	83.5	n/a			n/a		
2005	11,124	10,818	97.2	n/a			n/a		
2006	13,057	12,785	97.9	n/a			n/a		
2007	8,395	8,235	98.1	n/a			n/a		
Kyrgyz Republic									
2004	24,435	19,132	78.3						
2005	2,438	1,969	80.8	930	755	81.2	5,700	5,700	100.0
2006	2,953	2,170	73.5	347	286	82.4	600	600	100.0
2007	1,548	1,250	80.7	1,026	852	83.0			
Mongolia									
2004	1,437	1,354	94.2						
2005							1,789	1,764	98.6
2006							2,439	2,419	99.2
2007	211	207	98.1	82	78	95.1	1,587	1.584	99.8
Tajikistan									
2004									
2005	648	530	81.8	526	431	81.9	22,249	17,212	77.4
2006	681	571	83.8	670	573	85.5	27,561	24,398	88.5
2007	1,909	1,846	96.7	293	293	100.0	23,127	22,597	97.7
Uzbekistan									
2004	9,920	6,518	65.7						
2005	21,675	15,960	73.6	1,631	1,275	78.2	n/a		
2006	22,848	18,704	81.9	1,699	1,360	80.1	n/a		
2007	51,365	45,974	89.5	4,265	3,816	89.5	n/a		

Note: **(*)** The adopted iodine content in Mongolia is 30±10 ppm

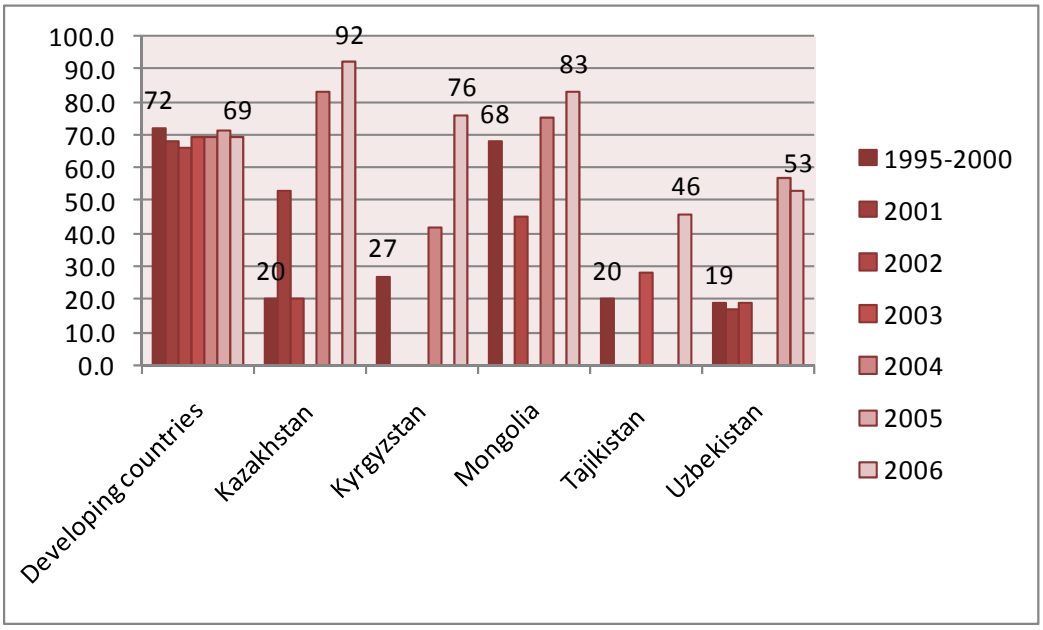
Source Ministry of Health of Kazakhstan; Confederation of NGOs of Kazakhstan; Association of Salt Producers of Kyrgyz Republic; Association of Food Producers of Mongolia; Association of Salt Producers and Flour Millers of Tajikistan; Ministry of Health of Uzbekistan

Figure A2.6 **Percentage of the Households Using the Iodized Salt in 1995-2006: Annual Perspective** (selected regions and countries)



Source: State of World's Children, UNICEF, 2001-2008

Figure A2.7 **Percentage of the Households Using the Iodized Salt in Central Asia and Mongolia in 1995-2006**



Source: State of World's Children, UNICEF, 2001-2008

Annex 3 Legislation and Regulations on Food Fortification in Central Asian Countries

Table A3.1 Legislation and Regulations of Central Asian Countries on Salt Iodization

(i) Main Acts

- The Law of the Kyrgyz Republic "On prevention of the Iodine Deficiency Disorders' (**18 January 2000, ref.no. 40**)

2001

- The Agreement "On Iodine Deficiency Status Prevention Among the Population of the CIS States Members" (**Minsk, 31 May 2001**)
- The Decree of the Government of the Republic of Kazakhstan "On Prevention of the Iodine Deficiency Disorders Among the Population of the Republic of Kazakhstan in 2002-2005" (**5 October 2001, ref.no. 1283**)

2002

- The Decree of the Government of Mongolia "About the National Program on Prevention of the Iodine Deficiency Disorders " (**1 May 2002**)
- The Decree of the President of Mongolia "On Establishment of the Working Group on Design of the Law on Salt Iodization and Iodine Deficiency Prevention" (**20 November 2002**)
- The Decree of the Government of the Republic of Tajikistan "On Adoption of the Strategy of the Health Care of the Population within the Period up to the year 2010" (**5 November 2002, ref.no. 436, section I, p.20**)
- The Law of the Republic of Tajikistan "On Salt Iodization" (**2 December 2002, ref.no. 85**)
- The Decree of the Government of the Kyrgyz Republic "About the National Program on Decrease of the Iodine Deficiency Disorders in the Kyrgyz Republic within the Period of 2003-2007" (**9 December 2002, ref.no. 836**)

2003

- The Law of Mongolia "On Salt Iodization and Iodine Deficiency Disorders Prevention" (**10 October 2003**)
- The Law of the Republic of Kazakhstan "On Iodine Deficiency Disorders Prevention" (**14 October 2003, ref.no. 489–II**)
- The Decree of the Government of the Kyrgyz Republic "About the Concept of the National Policy in Healthy Nutrition" (**19 December 2003, ref.no. 785**)

2005

- The Decree of the Government of the Republic of Uzbekistan "About the National Program on Prevention of the Iodine Deficiency Disorders among the Population of Uzbekistan" (**26 September 2005, ref.no. 07-1-198**)

2007

- The Law of the Republic of Uzbekistan "On Iodine Deficiency Disorders Prevention" (**3 May 2007, ref.no. ZRU-97**)
- The Decree of the Government of Mongolia "About the National Program on the Prevention of the Iodine Deficiency Disorders " **4 April 2007, ref. no. 85)**

(ii) Facilitation of the Production and Trade of the Iodized Salt

2002

- The Decree of the Government of the Kyrgyz Republic "On Procurement of Food and Agricultural Products for the Needs of the Ministries, Governmental Agencies, Public Institutions and Other Organizations to be Funded from the National Budget (Nutrition Account)" (**18 July 2002, ref.no. 478**)

2004

- Monitoring Procedures on the Quality, Production, Storage, Import, Export and Sale of the Iodized Salt and Other Iodized Food Products (**the Decree of the Ministry of Health of Kazakhstan, 18 August 2004, ref.no. 641**)

2005

- The Decree of the Government of the Republic of Kazakhstan "On Adoption of the Classification of Commodities and Services (share in percentage) to be Procured by the Public Funds from the Small-Scale Business Companies in 2005" (**11 August 2005, ref.no. 828**)
- The Order of the Board of the Ministry of Health of Tajikistan on mandatory procurement of the fortified food products for the needs of the hospitals (**29 September 2005, ref.no. 9-2, section 6**)

2006

- The Order of the Ministry of Education, Science and Youth Policy of the Kyrgyz Republic on mandatory use of the fortified wheat flour and iodized salt in schhols' catering services (**25 January 2006, ref.no. 42/1, item 2.2**)

(iii) Tax and Tariffs Privileges

2003

- The Decree of the Government of the Republic of Kazakhstan "On Rates of Customs Taxes on Imported Commodities" (**14 November 1996, ref.no. 1389,revised in 2004**): inclusion of the potassium iodide/iodate in the list of the medical drugs and substances to be eliminated from taxes and VAT
- The Law of the Kyrgyz Republic “On Amendments to the Tax Code of the Kyrgyz Republic" (**20 January 2003**): elimination of the vitamin and mineral additives from VAT

2004

- Customs Code of the Kyrgyz Republic (**13 April 2004**): elimination of the customs taxes on the imported equipment and spare parts (which cannot be produced domestically) and medicament substances (including vitamin and mineral additives)
- The Decree of the Government of the Kyrgyz Republic "The Basic List of the Production Equipment to be the Subject of VAT Elimination when Importing to the Kyrgyz Republic" (**27 May 2004, ref.no. 391**): elimination of taxes for food fortification equipment (classification code TN VED 8437)

2006

- The Law of the Kyrgyz Republic “On Amendments to the Tax Code of the Kyrgyz Republic" (**1 February 2006, article 148**): elimination of the VAT on imported main production equipment
- The Law of the Kyrgyz Republic “On Customs Code of the Kyrgyz Republic" (**29 March 2006**): elimination of taxes on the equipment and spare parts which are not produced domestically; vitamin and mineral additives: group 30, code of goods 3003 90 900 9; 'zero tax rate' on the import and export of the iodized salt: group 25, code of goods 2501 00 911 0

2007

- The Decree of the President of the Republic of Uzbekistan "The Additional Activities to Motivate Modernization, Technical and Technology Re-equipment of industries" (**14 March 2007, ref.no. 3860**): elimination of taxes for production equipment

(iv) Monitoring on Import, Export and Sale

2002

- The Decree of the President of the Kyrgyz Republic "On Strengthening of the State Monitoring and Control on the Production, Import, Storage and Sale of Salt in the Kyrgyz Republic" (**11 July 2002, ref.no. 184**)
- The Decree of the Government of the Kyrgyz Republic "On Implementation of the Decree of the President of the Kyrgyz Republic "On Strengthening of the State Monitoring and Control on the Production, Import, Storage and Sale of Salt in the Kyrgyz Republic" (from 11 July 2002, ref.no. 184)" (**9 December 2002, ref.no. 836**)

2005

- The Guidelines on Quality Control on the Fortified Food Products: the Joint Decree of the State Agency of the Professional Control of Mongolia, Ministry of Health of Mongolia and Ministry of Food and Agriculture of Mongolia (**9 June 2005, ref.no. 84/143/87**)

Table A3.2 Standards and Specifications of Central Asia Countries on Salt Iodization

(i) Potassium Iodate/Iodide

Kazakhstan, Kyrgyz Republic, Tajikistan, Uzbekistan

- Reagents. Potassium iodide. Specifications: **GOST 4232-74** (State Committee of the USSR on Standards, entered into force from 1 July 1975, amended 28.09.1984 and 11.12.1989)
- Reagents. Potassium Iodate. Specifications: **GOST 4202-75** (State Committee of the USSR on Standards, entered into force from 1 January 1977, amended 17.06.1991)

(ii) Production of the Iodized Salt

Kazakhstan

- Food common salt with content of iodine. Specifications: **TU 640 PK 197900772 AO KHK - 01-96** (27 September 1996, ref.no. 116/004492)
- Food common salt. Specifications: **ST RK GOST R 51574-2003** (Committee on Standardization, Metrology and Certification under the Ministry of Industry and Trade, 31 October 2003, ref.no. 377)

Kyrgyz Republic

- Food common salt. Specifications: **GOST R 51574-2000** (State Inspection on Standardization and Metrology, 10 September 2001, ref.no. 94-ST)

Mongolia

- Food natural common salt with content of iodine: **MNS 5046:2001** (National Centre on Standardization and Metrology, 31 May 2001, ref.no. 33)

Tajikistan

- Food common salt: **GOST 1060-04** (Agency on Standardization, Metrology, Certification and Trade Inspection, 5 March 2004, ref.no. 48-ST)
- Food common salt with content of iodine: **GOST R 51575-2004** (Agency on Standardization, Metrology, Certification and Trade Inspection, 5 March 2004, ref.no. 48-ST)

Uzbekistan

- Food common salt with content of iodine. Specifications: **O'z DSt 1091:2005** (Agency on Standardization, Metrology and Certification, 26 September 2005, ref.no. 05-30)

(iii) Quality Assurance and Control at Industrial Sites

Kazakhstan

- Food common salt. Testing methods: **GOST 13685-84** (State Committee of the USSR on Standards, entered into force from 1 January 1985, amended 11.12.1985 and 06.04.1987)
- Food common salt with content of iodine. Methods of determination of iodine and sodium thiosulfate: **ST RK GOST R 51575-2003** (Committee on Standardization, Metrology and Certification under the Ministry of Industry and Trade, 31 October 2003, ref.no. 377)
- Regulations on monitoring procedures on quality, processing, storage, import and sale of the iodized table salt and other food products with content of iodine (Order of the Ministry of the Republic of Kazakhstan, **18 August 2004, ref.no. 641**)

Kyrgyz Republic

- Food common salt. Testing methods: **GOST 13685-84** (State Committee of the USSR on Standards, entered into force from 1 January 1985, amended 11.12.1985 and 06.04.1987)
- Food common salt with content of iodine. Methods of determination of iodine and sodium thiosulfate: **ST RK GOST R 51575-2000** (State Inspection on Standardization and Metrology, 10 September 2001, ref.no. 94-ST)
- Food common salt with content of iodine. Requirements on processing, import, transportation, storage and sale: Sanitary Regulations and Norms (**SP 2.3.4.006-04**, 12 November 2004, ref.no.141-04)

Mongolia

- Methods of determination of iodine in iodized salt and drinking water: **MNS 4260:95** (National Centre on Standardization and Metrology, 15 November 1995, ref.no. 14)
- Food natural common salt with content of iodine: **MNS 5046:2001** (National Centre on Standardization and Metrology, 31 May 2001, ref.no. 33)
- Determination of iodine mass faction in iodized salt: **MNS 5168:2002** (National Centre on Standardization and Metrology, 29 August 2002, ref.no. 30)

Tajikistan

- Food common salt with content of iodine: **GOST R 51575-2004** (Agency on Standardization, Metrology, Certification and Trade Inspection, 5 March 2004, ref.no. 48-ST)

Uzbekistan

- Food common salt. Testing methods: **GOST 13685-84** (State Committee of the USSR on Standards, entered into force from 1 January 1985, amended 11.12.1985 and 06.04.1987)
- Sanitary regulations and hygienic norms on processing and quality of the table salt (**SP 0085-98**, 5 November 1998; amendment 1, 20 December 2002)

Table A3.3 Legislation and Regulations of Central Asian Countries on Flour Fortification

(i) Main Acts

2002
- The Decree of the Government of the Kyrgyz Republic on adoption of the list of the flour mills to be engaged in the wheat flour fortification, use of wheat grain from the state reserve stocks and mandatory procurement of the fortified wheat flour by the public institutions (**3 June 2002, ref.no. 89-r, items 5-6**)

2004
- The Law of the Republic of Kazakhstan "On Food Security and Safety (**8 April 2004, ref.no. 543**): Article 11 on mandatory wheat flour fortification

2005
- The Decree of the Government of the Republic of Kazakhstan "On the Regulations on Mandatory Fortification of the Premium and First Grade Wheat Flour produced in Kazakhstan" (**7 July 2005, ref.no. 708**)
- The Decree of the President of Uzbekistan "On Implementation of the National Wheat Flour Fortification Program" (**11 August 2005, ref.no. 153**)

(ii) Facilitation of the Production and Trade of the Fortified Wheat Flour

2005
- The Decree of the Government of the Republic of Kazakhstan "On Adoption of the Classification of Commodities and Services (share in percentage) to be Procured by the Public Funds from the Small-Scale Business Companies in 2005" (**11 August 2005, ref.no. 828**)
- The Order of the Board of the Ministry of Health of Tajikistan on mandatory procurement of the fortified food products for the needs of the hospitals (**29 September 2005, ref.no. 9-2, section 6**)

2006
- The Order of the Ministry of Education, Science and Youth Policy of the Kyrgyz Republic on mandatory use of the fortified wheat flour and iodized salt in schhols' catering services (**25 January 2006, ref.no. 42/1, item 2.2**)

(iii) Tax and Tariffs Privileges

2003
- The Law of the Kyrgyz Republic “On Amendments to the Tax Code of the Kyrgyz Republic" (**20 January 2003**): elimination of the vitamin and mineral additives from VAT

2004
- The Decree of the Government of the Republic of Kazakhstan "On Rates of Customs Taxes on Imported Commodities" (**14 November 1996, ref.no. 1389,revised in 2004**): inclusion of the potassium iodide/iodate in the list of the medical drugs and substances to be eliminated from taxes and VAT
- Customs Code of the Kyrgyz Republic (**13 April 2004**): elimination of the customs taxes on the imported equipment and spare parts (which cannot be produced domestically) and medicament substances (including vitamin and mineral additives)
- The Decree of the Government of the Kyrgyz Republic "The Basic List of the Production Equipment to be the Subject of VAT Elimination when Importing to the Kyrgyz Republic" (**27 May 2004, ref.no. 391**): elimination of taxes for food fortification equipment (classification code TN VED 8437)

2006
- The Law of the Kyrgyz Republic “On Amendments to the Tax Code of the Kyrgyz Republic" (**1 February 2006, article 148**): elimination of the VAT on imported main production equipment
- The Law of the Kyrgyz Republic “On Customs Code of the Kyrgyz Republic" (**29 March 2006**): elimination of taxes on the equipment and spare parts which are not

produced domestically; vitamin and mineral additives: group 30, code of goods 3003 90 900 9; 'zero tax rate' on the import and export of the iodized salt: group 25, code of goods 2501 00 911 0

- The Law of Mongolia on import taxes and VAT: amendment on elimination of customs tax and VAT on imported wheat grain and wheat flour **(29 June 2006)**

2007

- The Decree of the President of the Republic of Uzbekistan "The Additional Activities to Motivate Modernization, Technical and Technology Re-equipment of industries" (**14 March 2007, ref.no. 3860**): elimination of taxes for production equipment

(iv) Monitoring on Import, Export and Sale

2005

- The Guidelines on Quality Control on the Fortified Food Products: the Joint Decree of the State Agency of the Professional Control of Mongolia, Ministry of Health of Mongolia and Ministry of Food and Agriculture of Mongolia (**9 June 2005, ref.no. 84/143/87**)
- The Order of the Ministry of Health of Kazakhstan on Quality Control on Fortified Wheat Flour Production and Utilization of Premix (**29 December 2005, ref.no. 07-21-15269**)

2006

- The Guidelines on Quality Control on the Fortified Wheat Flour: the Joint Decree of the State Agency of the Professional Control of Mongolia, Ministry of Health of Mongolia and Ministry of Food and Agriculture of Mongolia (**1 December 2006, ref.no. 140/390/121**)

2008

- The Guidelines on Enrichment (Fortification) of the Food Products in Regard to the Sanitary and Epidemiologic Surveillance: the Decree of the Government of Kazakhstan (**19 January 2008, ref.no. 32**)

Table A3.4 Standards and Specifications of Central Asia Countries on Flour Fortification

(i) Premix

Kazakhstan

- Vitamin and mineral additive 'KAP Komplex 1': **TU 70 00 RK 39309831-ZAO-025-2002** (Committee on Standardization, Metrology and Certification under the Ministry of Industry and Trade, 1 March 2002, ref.no. 022/001453)
- Vitamin and mineral additive 'KAP Komplex 1': **ST TOO 40261271-01-2006** (Standard of industry, 27 April 2006, ref.no. 0013)

Kyrgyz Republic

- Vitamin and mineral additive 'KAP Komplex 1': **TU 9352 PT 020007157 001-2002** (Technical Committee 09 'Grain and its processing products', 20 January 2004)

Mongolia

- Vitamin and mineral additive 'KAP Komplex 1': **MNS 5154:2002** (National Centre on Standardization and Metrology, 30 May 2002, ref.no. 26, **MNS 5154:2003** amended on 1 May 2003, ref.no. 12)

Tajikistan

- Vitamin and mineral additive 'KAP Komplex 1'. Specifications: **TU 9352 RT 020007157 001-2002** (Agency on Standardization, Metrology, Certification and Trade Inspection, 7 January 2003)

Uzbekistan

- Vitamin and mineral additive for enrichment of the baking wheat flour. General specifications: **O'z DSt 1098:2006** (Agency on Standardization, Metrology and Certification, 6 March 2006, ref.no. 05-07)

(ii) Production of Fortified Wheat Flour

Kazakhstan

- Wheat baking flour enriched with the vitamin and mineral additive 'KAP Komplex 1': **TU 70 00 RK 39309831-ZAO-026-2002** (Committee on Standardization, Metrology and Certification under the Ministry of Industry and Trade, 1 March 2002, ref.no. 022/001453)
- Wheat flour. General specifications: **ST RK 1482-2005** (Committee on Standardization, Metrology and Certification under the Ministry of Industry and Trade, 28 December 2005, ref.no. 498)
- Wheat flour enriched with the vitamin and mineral additive 'KAP Komplex 1': **ST TOO 40261271-02-2006** (Standard of industry, 27 April 2006, ref.no. 0014)

Kyrgyz Republic

- Wheat baking flour enriched with the vitamin-mineral or mineral additive: **TU 9293-002-05712834-2002** (State Inspection on Standardization and Metrology, 16 May 2002, ref.no. 146/490544)
- Wheat baking flour enriched with the vitamin-mineral or mineral additive: **KMS 918:2004** (State Inspection on Standardization and Metrology, 6 February 2004, ref.no. 9-ST)
- Wheat common flour. General specifications: **KMS 990:2005** (National Institute of Standards and Metrology, 30 December 2005, ref.no. 105-ST)

Mongolia

- Wheat flour enriched with the vitamin and mineral additive 'KAP Komplex 1': **MNS 5156:2002** (National Centre on Standardization and Metrology, 30 May 2002, ref.no. 26, **MNS 5156:2003** amended on 1 May 2003, ref.no. 12). Amendment from 21 December 2006, ref.no. 47 indicated the requirement of use of 'Healthy Food' logo.

Tajikistan

- Wheat baking flour enriched with the vitamin-mineral additive (premix). Specifications: **ST RT 1057-2004** (Agency on Standardization, Metrology, Certification and Trade Inspection, 14 January 2004, ref.no. 47-ST)

Uzbekistan

- Wheat baking flour enriched with the vitamin-mineral additive 'KAP Komplex 1'. Specifications: **Tsh 8-178-2002** (Agency on Standardization, Metrology and Certification, 23 September 2002, ref.no. 112/004792, amended 10.10.2005 ref.no. 112004792/01)
- Technological instruction on processing of wheat baking flour enriched with the vitamin-mineral additive 'KAP Komplex 1': **TIUz 8-215-2003** (Technical Committee 'Bread and Bakery', Uzkhleboproduct ltd., 14 March 2003)
- Wheat baking flour enriched with the vitamin-mineral additive 'KAP Komplex 1'. Specifications: **O'z DSt 1098:2006** (Agency on Standardization, Metrology and Certification, 10 April 2006, ref.no. 05-10)

(iii) Bread and Bakery Production with Fortified Wheat Flour

Kazakhstan

- Bread and bakery enriched with the vitamin and mineral additive 'KAP Komplex 1': **TU 70 00 RK 39309831-ZAO-028-2002** (Committee on Standardization, Metrology and Certification under the Ministry of Industry and Trade, 18 September 2002, ref.no. 022/001643)
- Standard of industry: Bread and bakery with fortified wheat flour: **ST TOO 40261271-07-2006** (17 May 2006, ref.no. 0103)

Kyrgyz Republic

- Bakery with fortified wheat flour enriched with the vitamin-mineral, protein and other food additives: **KMC 922:2004** (National Institute of Standards and Metrology, 23 December 2004, ref.no. 39-ST)

Mongolia

- Bread and bakery with wheat flour enriched with the vitamin and mineral additive 'KAP Komplex 1': **MNS 5384:2004** (National Centre on Standardization and Metrology, 1 December 2004, ref.no. 38)

Tajikistan

- Bread and bakery with flour enriched with the vitamin-mineral additive (premix). Specifications: **ST RT 1058-2004** (Agency on Standardization, Metrology, Certification and Trade Inspection, 14 January 2004, ref.no. 47-ST)

(iv) Quality Assurance and Control at Industrial Sites

Kyrgyz Republic

- Wheat baking flour enriched with the vitamin-mineral or mineral additive: **TU 9293-002-05712834-2002** (State Inspection on Standardization and Metrology, 16 May 2002, ref.no. 146/490544)
- Wheat baking flour enriched with the vitamin-mineral or mineral additive: **KMS 918:2004** (State Inspection on Standardization and Metrology, 6 February 2004, ref.no. 9-ST)

Mongolia

- Methods of test of vitamin and mineral additive 'KAP Komplex 1': **MNS 5155:2002** (National Centre on Standardization and Metrology, 30 May 2002, ref.no. 26, amended on 7 July 2003, ref.no. 31)
- Methods of test of wheat flour enriched with the vitamin and mineral additive 'KAP Komplex 1': **MNS 5157:2002** (National Centre on Standardization and Metrology, 30 May 2002, ref.no. 26, **MNS 5157:2003** amended on 7 July 2003, ref.no. 31)

Uzbekistan

- Methods of test of Vitamin B fraction: **O'z DSt 1095:2006** (Agency on Standardization, Metrology and Certification, 10 April 2006, ref.no. 05-10)

Annex 4 Quality Control on Fortified Food

Figure A4.1 Fortified Foods Monitoring in Central Asia and Mongolia in 2002-2007

Countries	Vitamins Premix		Processing Internal Control		Processing External Control		Commercial Monitoring		Household Monitoring	
	Salt Iodization	Flour Fortification	Salt Iodization	Flour Fortification	Salt Iodization	Flour Fortification	Salt Iodization	Flour Fortification	Salt Iodization	Flour Fortification
Kazakhstan										
Procedures/ Methods	Certification	Certification HPLC test	Titration	Premix weighing control	Titration	Spectrophotometric methods HPLC method	Titration	Spectrophotometric methods HPLC method	Test indicators, Biochemical tests	Spot test, Biochemical tests
Regulations	S 4232-74 S 4202-75	TR (2002) S 40261271-01-2006	S 13685-84 S 51575-2003 AD (2004)	TR (2002) S 1482-2005 S 40261271-02-2006	AD (2004)	AD (2005) GD (2008)	AD (2004)	AD (2005) GD (2008)		
Implementing responsibility	Salt Factory	Flour Mill	Salt Factory	Flour Mill	SES, Reference laboratories	SES, Reference laboratories	SES	SES	NGOs, Nutritionists	NGOs, Nutritionists
Supervision responsibility	Customs Service, Standard Agency	Customs Service, Standard Agency, Reference laboratories	SES, Standard Agency	SES, Standard Agency	SES, Standard Agency	SES, Standard Agency	SES	SES	Ministry of Health, Nutrition Centers, UNICEF/WHO/CDC	Ministry of Health, Nutrition Centers, UNICEF/WHO/CDC
Kyrgyzstan										
Procedures/ Methods	Certification	Certification HPLC test	Titration	Spectrophotometric methods Spot test	Titration	Spectrophotometric methods Spot test	Titration	Spectrophotometric methods Spot test	Test indicators, Biochemical tests	Spot test, Biochemical tests
Regulations	S 4232-74 S 4202-75	TR (2002)	S 13685-84 S 51575-2000 SanPiN (2004) PD (2002), GD (2002)	TR (2002) S 918:2004 S 990:2005	SanPiN (2004) PD (2002), GD (2002)		SanPiN (2004) PD (2002), GD (2002)			
Other practice			Test indicators WYD Checker	Premix weighing control	Test indicators WYD Checker		Test indicators WYD Checker			
Implementing responsibility	Salt Factory	Flour Mill	Salt Factory	Flour Mill	SES	SES, Bread Inspection	SES, Consumers Associations	SES, Bread Inspection	NGOs, Consumers Associations, Nutritionists	NGOs, Nutritionists
Supervision responsibility	Customs Service, Standard Agency, SES	Customs Service, Standard Agency, SES	SES, Standard Agency	SES, Standard Agency, Bread Inspection	SES, Standard Agency	SES, Standard Agency Bread Inspection	SES, Standard Agency	SES, Standard Agency Bread Inspection	Ministry of Health, Nutrition Centers, UNICEF/WHO/CDC	Ministry of Health, Nutrition Centers, UNICEF/WHO/CDC
Mongolia										
Procedures/ Methods		Certification HPLC test	Titration Spectrophotometric methods	Spectrophotometric methods HPLC method	Titration Spectrophotometric methods	Spectrophotometric methods HPLC method	Titration Spectrophotometric methods	Spectrophotometric methods HPLC method	Test indicators	Spot test
Regulations		S 5154:2002 S 5154:2003	S 4260:95 S 5168:2002 AD (2005)	S 5156:2002 S 5156:2003 S 5384:2004	AD (2005)	AD (2005) AD (2006)	AD (2005)	AD (2005) AD (2006)		
Other practice			Test indicators	Spot test	Test indicators	Spot test	Test indicators	Spot test	Biochemical tests	Biochemical tests
Implementing responsibility	Salt Factory	Flour Mill	Salt Factory	Flour Mill	State Agency of Professional Control	State Agency of Professional Control	State Agency of Professional Control Local Food Inspections	State Agency of Professional Control Local Food Inspections	NGOs, Consumers Associations, Nutritionists	NGOs, Consumers Associations, Nutritionists
Supervision responsibility		State Agency of Professional Control	State Agency of Professional Control	State Agency of Professional Control	State Agency of Professional Control	State Agency of Professional Control	State Agency of Professional Control, Ministry of Health, Ministry of Food and Agriculture	State Agency of Professional Control, Ministry of Health, Ministry of Food and Agriculture	Ministry of Health, Salt Producers Association, Nutrition Centers, UNICEF/WHO/CDC	Ministry of Health, Flour Millers Association, Nutrition Centers, UNICEF/WHO/CDC
Tajikistan										
Procedures/ Methods	Certification	Certification HPLC test	Titration, Test indicators	Premix weighing control	Titration		Titration		Test indicators	Spot test
Regulations	S 4232-74 S 4202-75	TR (2002)	S 51575-2004 S 1058-2004	S 1058-2004	SanPiN		SanPiN			
Other practice			WYD Checker	Spot test	WYD Checker		WYD Checker		Biochemical tests	Biochemical tests
Implementing responsibility	Salt Factory	Flour Mill	Salt Factory	Flour Mill	SES	SES	SES	SES	NGOs, Nutritionists	NGOs, Nutritionists
Supervision responsibility	Customs Service, Standard Agency, SES	Customs Service, Standard Agency, SES	SES, Standard Agency	SES, Standard Agency	SES, Standard Agency	SES, Standard Agency	SES, Standard Agency	SES, Standard Agency	Ministry of Health, Nutrition Centers, UNICEF/WHO/CDC	Ministry of Health, Nutrition Centers, UNICEF/WHO/CDC
Uzbekistan										
Procedures/ Methods	Certification	Certification	Titration, Test indicators	Spectrophotometric methods HPLC method Spot test	Titration		Titration		Test indicators	Spot test
Regulations	S 4232-74 S 4202-75	S 1098:2006	S 13685-84 SanPiN (2002)	Tsh 8-178-2002 TIUz 8-215-2003 S 1098:2006	SanPiN (2002)		SanPiN (2002)			
Other practice			WYD Checker	Premix weighing control	WYD Checker		WYD Checker		Biochemical tests	Biochemical tests
Implementing responsibility	Salt Factory	Flour Mill	Salt Factory	Flour Mill	SES	Cerifikat-Non Centre	SES	Cerifikat-Non Centre	Nutritionists	Nutritionists
Supervision responsibility	Customs Service, Standard Agency, SES	Customs Service, Standard Agency, SES	SES, Standard Agency	SES, Standard Agency Cerifikat-Non Centre	SES, Standard Agency	SES, Standard Agency Cerifikat-Non Centre	SES, Standard Agency	SES, Standard Agency Cerifikat-Non Centre	Ministry of Health, Nutrition Centers, UNICEF/WHO/CDC	Ministry of Health, Nutrition Centers, UNICEF/WHO/CDC

Notes: **PD** - presidential decree; **GD** - government's decree; **AD** - ministry/agency decree;
S - national standard; **SanPiN** - Sanitary reguilations and requirements; **TI** - technological instruction; **TR** - technical regulations

Table A4.2 Capacity Building of Salt Producers in Central Asia and Mongolia in 2002-2007 (calendar year; events; number of participants)

Regional and Country Activities	2002-2004		2005		2006		2007	
	Events	Participants	Events	Participants	Events	Participants	Events	Participants
Regional events								
MOH/SES Specialists	6	80	2	20	2	26		
Customs Lab Technicians		…	1	1				
Standard Agency Lab Technicians	2	4			1	2		
Other Government Agencies	6	52	1	1	2	7		
Kazakhstan								
MOH/SES Specialists	2	138	3	11	3	12	2	2
Customs Lab Technicians	1	39	3	4		…		…
Standard Agency Lab Technicians	1	7	3	6	3	6	2	19
Other Government Agencies	3	58	3	5	3	13	2	36
Kyrgyz Republic								
MOH/SES Specialists	6	337		…	5	123		…
Customs Lab Technicians		…	1	106		…		…
Standard Agency Lab Technicians		…		…	5	20		
Other Government Agencies		…		…		…		
Mongolia								
MOH/SES Specialists	13	585	3	81	6	22	8	117
Customs Lab Technicians	1	45	2	5	3	7	3	10
Standard Agency Lab Technicians	2	68	1	4	3	5	1	1
Other Government Agencies	39	1,560	2	8	2	12	6	19
Tajikistan								
MOH/SES Specialists	10	58	6	26	12	22	5	16
Customs Lab Technicians		…		…		…		
Standard Agency Lab Technicians	4	8	2	4	6	6	5	7
Other Government Agencies	2	10		…		…	5	8
Uzbekistan								
MOH/SES Specialists	1	7					3	34
Customs Lab Technicians							3	37
Standard Agency Lab Technicians	1	1					3	37
Other Government Agencies								1

Source: Country Project Reports, 2002-2007

Annex 5 Fortified Food Advocacy and Communication Activities

Table A5.1 Capacity Building in Food Fortification Advocacy in Central Asia and Mongolia in 2002-2007 (calendar year; funds; activities; participants)

Countries	Kazakhstan		Kyrgyz Republic		Mongolia		Tajikistan		Uzbekistan	
	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007
Audio-visual production										
JFPR funds	$ 5,875	$ 5,556	$ 27,225		$ 7,288	$ 18,351			$ 408	$ 2,800
Audio-video clips		2			2	4	3	6		
TV casts	28	39			71	13	3	26	72	12
Broadcasts	14	3				9	33	5		
Press conferences	18	6	3		2	1		5	1	2
Printed advocacy materials										
JFPR funds	$ 84,374	$ 45,334	$ 95,593	$ 14,915	$ 53,325	$ 13,023			$ 788	$ 12,978
Booklets/leaflets	43,800	40,000	400,000	245,000	2,300	15,000	20,960	20,000	22,800	11,000
Brochures	21,500	1,000	12,200	52,000	115,100	2,900	745		3,305	1,000
Posters	30,000	8,000	120,000	18,000	2,000	2,000	865	25,000	1,855	7,000
Textbooks/manuals	7,000	8,400	10,000							8,500
Publications										
National newspapers/ magazines	13	24				27	26	46		4
Local newspapers/ magazines	38	31				12		3		
Academic press	18	39	6	2		12		6	2	
Advocacy workshops										
National workshops	3	5			4	8			8	
Local workshops	1	45			7	3				1
Participants, total	**199**	**1,706**	**174**	**89**	**3,727**	**568**	**256**	**0**	**390**	**108**
Parliamentarians					12	20				
Central authorities	10	189			450	135	136		275	74
Health officers	85	46			303	153	48			34
Food industry	8	367			716	63				
Traders		87				7				
Journalists	28	38	74	89	95	51				
NGOs	68	179	100		311	103	72		25	
Other		800			1,840	36			90	

Source: Country Project Reports, 2002-2007

Table A5.2 Capacity Building in Social Mobilization in Central Asia and Mongolia in 2002-2007 (calendar year; funds; activities; participants)

Countries	Kazakhstan		Kyrgyz Republic		Mongolia		Tajikistan		Uzbekistan	
	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007	2001-2004	2005-2007
NGOs' involvement										
Number of NGOs involved		2			5	8	28	6		2
JFPR funds	$ 5,875	$ 5,556			$ 28,380	$ 13,232		$ 47,000	$ 49,525	$ 21,804
Community events										
Workshops/trainings		41								2
Meetings/lectures	16	46			61	13		66		4
Participants, total	**4,052**	**111,029**	**1,951**	**5,858**	**4,598**	**1,505**	**0**	**2,407**	**0**	**67**
Local authorities and community leaders	4	414			861	84		70		67
Health officers		443			297	113		120		
School teachers		183			125	88		98		
Students/Schoolchildren		72,334			650	588		1,016		
Women		36,605			2,185	553		916		
NGO volunteers	4,048	1,050	1,951	5,858	480	79		187		

Source: Country Project Reports, 2002-2007

Annex 6 Use of 'Healthy Food' Logo

Figure A6.1 Unified 'Healthy Food' Logo and its Country-Tailored Formats

Unified Logo

Kazakhstan

Kyrgyz Republic

Mongolia

Tajikistan

Uzbekistan

Figure A6.2 Use of 'Healthy Food' Logo by Salt Industries in Central Asia and Mongolia in 2003-2007 (selected samples)

Aral Tuz (Kazakhstan)

Sozak Tuz (Kazakhstan)

Kovsar (Kyrgyz Republic)

Solo (Kyrgyz Republic)

Tsavdan Impex (Mongolia)

Badrakh Co. (Mongolia)

Namaki Yavon (Tajikistan)

Gali Kukhsor (Tajikistan)

Khodjaikon Tuz (Uzbekistan)

Figure A6.3 Use of 'Healthy Food' Logo by Flour Mills in Central Asia and Mongolia in 2003-2007 (selected samples)

Tsesna-Astyk (Kazakhstan)

Zhelayevski Kombinat (Kazakhstan)

Un Line (Kyrgyz Republic)

Osh-Nan Salamat (Kyrgyz Republic)

Altan Taria (Mongolia)

Baril Trade (Mongolia)

Khuvsgul Guril (Mongolia)

Kayrokkum Melkombinat (Tajikistan)

Dagest (Tajikistan)

Annex 7 Financial Performance

Table A7.1 Project Cost Estimates (countries; activities; US dollars; sources)

		KAZ		KGS		MON		TAJ		UZB	
		JFPR	Other sources	JFPR	Other sources	JFPR	Other sources	JFPR	Other sources	JFPR	Other sources
Component 1. Strengthening the capacity of salt industries and flour mills											
1.1	**Equipment and Supplies**		649,000	2,625	128,715	7,100	215,000	5,000	857,510	17,500	262,500
1.2	**Training, Worskhops, Seminars**	21,820	24,320	23,000	4,500	36,000		34,000	7,000	31,000	12,100
1.3	**Consulting Services**	11,000	8,500	1,500		2,400		1,000	4,900	1,200	1,200
1.4	**Other Project Inputs**	19,900	332,800	14,000	9,000	6,600	23,000	18,100		32,000	15,300
Component 2. Strengthening the capacity of the Governments											
2.1	**Equipment and Supplies**		22,400	9,200	4,000	16,500	10,000	8,000		14,600	5,200
2.2	**Training, Workshops, Seminars**	2,000	22,500	20,500	500	21,000		24,200	1,000	12,100	4,800
2.3	**Consulting Services**	10,900		6,600		12,000		2,200		1,200	500
2.4	**Management Costs to Governments**		20,000		17,520	5,000	15,000		2,000		6,000
2.5	**Other Project Inputs**									14,500	10,200
Component 3. Social mobilization/poverty targeting											
3.1	**Equipment and Supplies**	34,100	40,000	64,500	28,000	28,500		50,000		45,000	10,000
3.2	**Training, Workshops, Seminars**	26,000	553,000	23,000	32,000	34,500	10,000	22,000		45,750	21,600
3.3	**Consulting Services** (e.g., for management and monitoring/assessments)	20,000	31,400	7,700	500	4,200		7,000	1,000	4,750	300
3.4	**Social Mobilization**	55,000	289,400	43,000	30,000	13,000	35,000	52,000		5,000	4,200
3.5	**Management Costs to Governments**		20,000		9,000		40,000				1,800
3.6	**Other Project Inputs**					14,000					
Component 4.Project management, monitoring, and evaluation											
4.1	**Training, Workshops, Seminars**	5,000		6,500		12,000		6,500		5,200	2,000
4.2	**Consulting Services** (e.g., for management and monitoring/assessments)	12,000		12,600		19,000		16,000		16,000	1,000
4.3	**Management and Coordination of this Component**	59,580	20,000	36,000	14,000	36,000	36,000	36,000		39,000	4,500
4.4	**Other Project Inputs**	14,000	45,000	20,275		17,200		10,000		6,200	2,000
Contingency		8,700		9,000		15,000		8,000		9,000	
Total		**300,000**	**2,078,320**	**300,000**	**277,735**	**300,000**	**384,000**	**300,000**	**873,410**	**300,000**	**365,200**

Annex 8

Third Almaty Forum 2007

MAKING FOOD FORTIFICATION SUSTAINABLE

29-30 October 2007, Almaty, Kazakhstan

Declaration

1. In 2001, four Central Asian countries – Kazakhstan, Kyrgyz Republic, Tajikistan and Uzbekistan- and Mongolia- embarked on a set of ambitious national goals to ensure access to affordable, safe and efficacious fortified food as a permanent commitment to eliminate micronutrient deficiencies in their populations, and the Asian Development Bank, the United Nations Children's Fund and the Kazakh Academy of Nutrition, funded by the Government of Japan through the Japan Fund for Poverty Reduction started close collaboration in support of these goals.

2. At the Almaty Forum 2001, multi-sector delegations led by high-level ministerial officials promised to work together to fortify all salt for human consumption with potassium iodate and fortify wheat flour to the maximum achievable extent with micronutrients using the KAP complex formula. A regional roundtable reviewed the progress being made toward these pledges at the Almaty Forum 2004 and agreed to a detailed work plan to tackle the immediate shortfalls. In recognition that universal salt iodization and mandatory fortification contribute to sustainable elimination of micronutrient deficiencies, multi-sector delegations from the participating countries have once again gathered at the Almaty Forum 2007 to take stock of the achievements, to analyze the challenges that are still remaining, and pledge to complete the national fortification agendas.

3. A significant progress has been made in increasing the production, sales and consumption of quality iodized salt guided adoption and implementation of appropriate legal frameworks. Flour fortification also has been steadily expanding, but still lacks legal and regulatory frameworks to provide a level playing field for all mills.

4. On the basis of national and regional experience and lessons learned during the last six years we recognize that:

(i) In many countries of the region the nutrition status of many women and children continues to be poor with negative health consequences for children, families and constraining economic and social development;

(ii) Iodine deficiency in pregnancy permanently damages the learning capacity of children;

(iii) Iron deficiency causes serious damages including poorer pregnancy outcomes, permanent impairment of cognition in early childhood; poor school performance of children and teenagers; reduced work capacity among adults, and increased morbidity from infectious diseases and increased risk of heavy metal poisoning in contaminated environments;

(iv) Zinc deficiency is associated with lowered immunity to infectious disease, slower child growth;

(v) Folic acid deficiency in women, who become pregnant, contributes to congenital abnormalities of the central nervous system of the newborn and is an independent risk factor for coronary heart disease;

(vi) The key B-vitamins, thiamin, riboflavin, and niacin are removed from wheat during flour milling along with most iron and folic acid. This contributes to micronutrient malnutrition among populations who consume large amounts of bread and other flour-based foods;

(vii) Given the seriousness of the health effects of these micronutrient deficiencies, they must be eliminated as a public health problem.

5. This roundtable strongly reaffirms the goals of appropriate universal fortification of salt and wheat flours.

6. Recognizing that the progress will vary among countries and between salt and wheat, it will be necessary to use country specific interim benchmarks to measure progress toward these goals. Goals and benchmarks are essential and must be used to accelerate progress toward these goals.

Essential Recommended Actions at the National Level

(i) All countries will anchor food fortification strategies as an integral part of their national development plans and national budget to ensure sustained commitment at the highest political level.

(ii) All countries will strengthen an effective national alliance for salt and flour fortification among government, industry, academia, and producers.

(iii) All countries will complete the legislation and regulations requiring flour fortification.

(iv) The Kyrgyz Republic, Tajikistan, and Uzbekistan will complete the establishment of an effective and high quality system for quality control and assurance of fortified salt and flour.

(v) All countries will ensure that imported fortified foods meet national standards.

(vi) All countries will remove barriers to procurement of fortificants and equipment for fortification recognizing achievements Kazakhstan the Kyrgyz Republic.

(vii) All countries will assure that the importance and safety of consuming fortified salt and wheat products is understood at all levels of society.

(viii) All countries will continue to strengthen inter-country collaboration through existing mechanisms of communication to make optimal use of expertise and experience, to harmonize standards, strengthen quality assurance, remove impediments to trade in fortified foods and create economy of scale for food fortification inputs such as premix.

(ix) All countries will ensure regular meetings to report on progress and renew political commitments to the food fortification goals.

(x) All countries will establish a national fortified food surveillance system and report on fortified food supply, consumption and biological outcome.

(xi) Governments and parliaments should set aside adequate funds in their central budgets to finance activities required for sustaining universal salt iodization and flour fortification