Flour Fortification in Kazakhstan: Bridging Nutrition and Trade in the Region

Workshop Report

7-8 July 2015, Astana
The Grand Park Esil
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Acronyms

ADB Asian Development Bank
ATAR Afghanistan Trade and Revenue Project
CAR Central Asia region
EBRD European Bank for Reconstruction and Development
FFI Food Fortification Initiative
GAIN Global Alliance for Improved Nutrition
GPF GAIN Premix Facility
IDA Iron deficiency anemia
ISO International Organization for Standardization
KAN Kazakh Academy of Nutrition
KAZAID An informal name for the future Kazakhstan Development Agency
MOHSP Ministry of Health and Social Protection
NGO Non-governmental organization
NTD Neural tube defects
QA/QC Quality assurance and quality control
SES Sanitary and Epidemiological Service
UNDP United Nations Development Program
UNICEF United Nations Children's Fund
USAID United States Agency for International Development
USDA United Stated Department of Agriculture
WHO World Health Organization
Background

Despite remarkable advances in the reduction of hunger and undernutrition worldwide, many additional efforts are still needed, including efforts to prevent overnutrition and the associated non-communicable diseases. Undernutrition still affects most countries in Central and South Asia especially with regard to micronutrient deficiencies. The primary source of food energy intake in the region is wheat flour, a good portion of which is not fortified. Kazakhstan, the world’s number one exporter of milled flour, exports wheat and wheat flour to Afghanistan and other neighbors. Fortified wheat flour can provide additional amounts of micronutrients to complement the nutritional value of common diets, and help offset some of the micronutrient deficiencies for the most vulnerable segments of the population. The Central Asian Republics have fortified wheat flour since 2002, when the Asian Development Bank (ADB) financed the introduction of this intervention. However, coverage is low.

Since 2008 when the ADB project ended, the Global Alliance for Improved Nutrition (GAIN) has been working with governments and private sector partners in some countries in the Central Asia region with the aim of improving availability and access to fortified foods. In 2014, GAIN expanded its work in the region with support from the United States Agency for International Development (USAID). The new program aims at improving wheat flour and edible oil fortification processes, and strengthening regulations and monitoring in order to address micronutrient deficiencies in the region. The program works to increase supply of micronutrients to Central Asia region (CAR) and Afghanistan through fortification of wheat flour and vegetable oil; facilitate harmonization of standards for fortification in Central Asia, Afghanistan and Pakistan; strengthen quality control and enforcement; and introduce and test mechanisms to assess extension of use and quality of fortified products at the consumer level.

A two day workshop held in Astana on July 7-8, 2015 brought together key partners in Kazakhstan including the ministry of health, regulatory and standards agencies; the milling industry; leading academic institutions; civil society; international partners; non-governmental organizations, and donors to review the ongoing fortification work and the latest international evidence, present key assessment findings and recommendations, discuss technical aspects of fortification with a focus on quality control and quality assurance systems and regulatory monitoring, and discuss stakeholder needs, priorities, concerns and suggestions.

The workshop was organized by GAIN in collaboration with the Kazakhstan Union of Grain Processors and financial and technical support from USAID.

Objectives

1. Reinvigorate interest in fortification and present good practice in fortification regulations and compliance monitoring.
2. Discuss key findings of recent national and regional wheat flour fortification-related analyses.
3. Analyze good fortification practices and new quality assurance and quality control (QA/QC) technologies at the global milling industry level.
4. Identify solutions and develop recommendations for advancing the food fortification agenda in Kazakhstan and in the region.
Participants

The workshop was attended by representatives of

I. The government

✓ Ministry of Health and Social Protection (MoHSP)
✓ Ministry of Investment and Development
✓ Consumer Rights Protection Committee under the Ministry of Economy
✓ Ministry of Foreign Affairs - KAZAID secretariat

II. Private sector

✓ Flour millers - directors, heads of production, engineers, quality control specialists, laboratory analysts

III. Academia

✓ Kazakh Academy of Nutrition

IV. Civil Society

✓ Kazakhstan Union of Grain Processors

V. Development partners

✓ GAIN
✓ United Nations Children's Fund (UNICEF)
✓ United Nations Development Program (UNDP)
✓ European Bank for Reconstruction and Development (EBRD)
✓ US Department of Agriculture (USDA)
✓ Food Fortification Initiative (FFI)
✓ Altai Consulting
✓ Afghanistan Trade and Revenue (ATAR) project

VI. Donors

✓ USAID

The workshop agenda is provided is Annex 1.
The full list of participants is in Annex 2.
Day 1 - Opening speeches

Evgeny Gan, President, Union of Grain Processors of Kazakhstan opened the workshop and presented the organizers, donors, goals and objectives of the workshop.

Toregeldy Sharmanov, President, Kazakh Academy of Nutrition described the work of the Academy in the region and emphasized the importance of the workshop given that the problem of anemia in the country has not been recognized for a long time.

Alexander Lane, Kazakhstan Country Director, USAID presented USAID’s regional approach to increasing the quantity and quality of fortified flour on the market and the Regional Fortification Program that provides opportunities to improve public health through private sector and government support by increasing the export of fortified wheat flour from Kazakhstan and Pakistan and harmonization of import-export policies and standards, improving the trade environment to increase commerce and regional connectivity.

Dora Panagides, Senior Manager, Fortification Global Program, GAIN presented GAIN's mission and the global significance of micronutrient deficiencies, and emphasized that fortification of staple foods is one of the most important, cost-effective, scalable and evidence-based solutions to this issue. Ms. Panagides thanked USAID for the opportunity to work in the region to improve wheat flour and edible oil fortification processes, regulations and monitoring to address ongoing micronutrient deficiencies.

Yuri Oksamitniy, UNICEF Representative in Kazakhstan stressed that iron deficiency in the region is not yet overcome and that this workshop can help find new ways to decrease child mortality by supporting system measures such as mandatory fortification law enforcement and government subsidy of the premix supply in Kazakhstan to ensure sustainability of fortification, and can help strengthen the existing and form new partnerships to advance the fortification agenda in the region.

Magripa Yembergenova, Deputy Director, Medical Care Maintenance Department, Ministry of Health and Social Development highlighted the importance of food fortification given that anemia prevalence in Kazakhstan has been reaching nearly 40% which increased the risk of maternal mortality, and given that the global evidence of fortification benefits is clear. She indicated that there is mandatory legislation in the country, and respective technical standards and rules have been developed and approved, and that we now should motivate the industry an educate the population to successfully continue the fortification program.

The session ended with short introductions by all of the participants.
Day 1 - Presentations and discussion

The morning session of day 1 was chaired by Evgeny Gan, President, Union of Grain Processors of Kazakhstan and Anton Luchitsky, Regional Manager - Central Asia, GAIN.

Development of the Nutrition Program in Central Asian countries.

Toregeldy Sharmanov, President; Shamil Tazhibayev, Vice President, KAN

Academician Sharmanov presented the work of KAN on the development of the national nutrition policy and assisting the neighboring countries in developing their policy documents. Iron deficiency is specified as problem number one in food and nutrition action plans of the countries of the region; and fortification of wheat flour with iron and folic acid, introduction of appropriate standards, elaboration of legislative and regulatory framework, and changes in the diet are proposed as potential solutions. In Kazakhstan, the plan calls for resource and institutional support of healthy nutrition and food safety. Micronutrient deficiency and anemia prevention are also prominent in the action plans of Uzbekistan, Kyrgyz Republic, and Tajikistan. All Central Asian countries are encouraged to provide adequate resources and implement the plans in a timely manner. Academician Sharmanov also indicated that KAN was in favor of reviewing the existing flour fortification standard and updating the formula as necessary. He stressed that the fact that 400 million tenge ($2.5M) were budgeted by the MOH to support fortification during the past two years but never used was unacceptable. The President of KAN indicated he was going to bring this issue up with the Minister of Health and with the President of Kazakhstan.

Global evidence of impact, experiences from regions around the world. Importance of food fortification in Kazakhstan.

Dora Panagides, Senior Manager, Fortification Global Program, GAIN.

Ms. Panagides presented the data from micronutrient surveys conducted in various countries of the region that indicate that anemia prevalence remains very high and is a significant public health problem according to WHO criteria. Having described visible consequences and long-term health effects of micronutrient deficiencies, she also pointed to their far reaching effects on economies through secondary physical and mental disabilities and altered work productivity. For example, the estimated number of folic acid preventable NTDs in Kazakhstan is 258 annually, and a 2003 study found that the cost to the national economy in lost productivity
was projected to be over $1.5 billion over the following 10 years. Mr. Panagides then presented global studies on effectiveness and cost-benefit of fortification, the global situation with adoption of fortification laws, and the ongoing initiatives in the region including Afghanistan's efforts to develop mandatory flour fortification legislation and the fact that in Pakistan, in the province of Punjab, flour fortification will be mandatory beginning October 2015. Mr. Panagides stressed that these initiatives would have a major effect on improving health and trade in the region.

The status of flour fortification and anemia prevalence in Kazakhstan.
Shamil Tazhibayev, Vice President; Toregeldy Sharmanov, President, KAN

Prof. Tazhibayev described Kazakhstan's history of fortification laws development and the current fortification standard - the KAP complex #1 premix formula - developed by KAN for the country and the region. According to the results of bio-monitoring of micronutrients conducted by KAN, in 2011 fortified wheat flour was available in only 27% of Kazakh households compared to 100% in Turkey, 71% in Uzbekistan and 36% in Mongolia. Anemia prevalence among non-pregnant women aged 15-49 years was 39%, including 9% of women with severe and moderate anemia. In children under 5 years, anemia prevalence was 35%. Based on the prevalence (%) of low ferritin levels in blood serum, in 2014 the proportion of iron-deficiency anemia (IDA) was 65% in children and 60% in non-pregnant women. The studies also showed that the prevalence of iron deficiency was 44% in Kazakhstan, 51% in Kyrgyzstan, 29% in Tajikistan, and 48% in Uzbekistan. In 2012, the prevalence of folic acid deficiency in Kazakhstan was 11%.

The speaker pointed that to advance mandatory wheat flour in Kazakhstan, the following is required: political support by relevant ministries, adoption of supporting regulatory documents, equipment and experience at the industry level, and government funding to purchase premix to motivate producers. Other suggestions for the prevention of anemia in Kazakhstan include the following: 1) change electrolyte iron in the premix for wheat flour fortification in Kazakhstan to much more biologically available iron in NaFeEDTA, 2) enforce the articles of the law and regulations on mandatory flour fortification; 3) improve quality control and assurance, as well as monitoring of flour fortification; 4) improve the program on iron and folic acid supplementation to achieve a high coverage of risk groups with these supplements; 5) intensify efforts to raise awareness about anemia and its prevention, and 6) constantly conduct biological monitoring of anemia, iron and folic acid deficiency.

The flour milling industry in Kazakhstan. History and current issues of food fortification in Kazakhstan.
Evgeny Gan, President, Union of Grain Processors.

Mr. Gan indicated that the Kazakhstan milling industry was consolidating: the number of mills decreased 10 times from 2,300 in 2000 to 250 in 2015. Grain (including wheat) production has been fluctuating over the years. In 2014, the country produced 13,000,000 MT of wheat. Wheat flour exports have been slightly decreasing and amounted to 1,850,000 MT in 2014. Kazakhstan's grain reserves provide food security and political stability for the whole Central Asia region. Wheat markets of Kazakhstan and Russia are getting more and more integrated: Kazakhstan buyers can raise prices in Russia, and vice versa the prices Kazakhstan can charge depend on wheat markets in the border regions of Russia.
Increased competition between Kazakhstan and Russia for export markets is expected in the coming years.

The speaker stressed that the main reason for fortification is elimination of iron deficiency anemia in the country and improvement of women’s and children’s quality of life. Food fortification costs at large enterprises are only $1.07 per ton (or just 0.34 KZT per 600 g bread loaf). Mr. Gan emphasized that as far as flour millers are concerned, there are two major challenges: lack of demand for fortified flour and the need to recover premix costs, which can be addressed via a government program. He also mentioned that it was high time to consolidate Community of Independent States' vast experience in flour fortification and organize an international flour fortification conference followed by a comprehensive regional program on advancing fortified foods production and consumption.

**Establishment of the Kazakhstan Development Agency [the KAZAID project]**

Nurzhan Beisembayev, UNDP Project Manager, Expert support for the establishment of a national ODA system in Kazakhstan, Head of Secretariat at the Ministry of Foreign Affairs of the Republic of Kazakhstan.

Mr. Beisembayev indicated that the Kazakhstan Development Agency was currently a part of the Ministry of Foreign Affairs. It was officially registered in December, 2014, however, respective regulatory framework is still being developed. The geographic priority for the Agency is the countries of Central Asia and Afghanistan. Priority technical areas include agriculture, health and education. Theoretically, KAZAID (the informal name of the future Agency) is already in the position to begin providing assistance in the near future, and we should consider this as we continue discussing the work on advancing food fortification in Central Asia.

**The afternoon session** of day 1 was moderated by Quentin Johnson, Technical Adviser, FFI and Yuliya Beloslyudtseva, Kazakhstan Country Coordinator, GAIN

**Afghanistan/Central Asia Regional Food Fortification Initiative**

Khadijat Mojidi, Regional Health and Education Office Director, USAID/CAR
Tanya Jackson, Agriculture Development Officer, USAID/Afghanistan

Ms. Mojidi presented the Regional Program and the two initiatives on which the US Department of State and USAID have been working in the past years: the New Silk Road Initiative that focuses on energy, trade/transport, customs/borders, and people-to-people activities and the Almaty Consensus that centers on trade/transit, energy, food security/nutrition and water security. She pointed that the US Government emphasizes the importance of stimulating trade, and in this case the trade of food products in Central Asia and neighboring countries.
Having emphasized that undernutrition was a serious problem for the region, Ms. Mojidi presented food fortification as a solution and explained why USAID was supporting a regional response, including the need to build on previous efforts of other donors, to support regional harmonization efforts, to leverage resources and to learn from the experience of others.

Ms. Jackson presented the work of USAID/Afghanistan and the Government of Afghanistan on designing a bilateral program to build a regulatory framework to mandate food fortification and to build capacity of the Ministry of Public Health for monitoring, enforcement and compliance that should start in a couple of months.

**Improving Nutritional Outcomes: Afghanistan/Central Asia**

Dr. Ahmad Bashir Hamid, Project Management Specialist (Health) USAID/Afghanistan

Khadijat Mojidi, Regional Health and Education Office Director, USAID/CAR

Dr. Bashir presented the health and economic situation in Afghanistan highlighting many similarities between Afghanistan and Central Asia and many common problems including high prevalence of stunting and anemia. He also pointed that iodine deficiency disorder had also emerged as a major public health issue with 75% of non-pregnant women of reproductive age and 72% of school age children being iodine deficient according to a national nutrition survey.

Dr. Bashir mentioned that wheat flour is a staple food item in Afghanistan and that it is estimated that the Afghan population consumes approximately 160 kg/year/capita, or 4.5 million metric tons yearly. He also pointed that according to a United States Department of Agriculture study published in 2011, 54 percent of calories in the Afghan diet were derived from wheat. Dr. Bashir then described the recent and current efforts on food fortification including the development of national standards for wheat flour and edible oil based on WHO recommendations, drafting a national law for mandatory fortification of wheat flour and edible oil, equipping of factories, and training of food inspectors. Dr. Bashir concluded that in view of the upcoming mandatory fortification legislation in Afghanistan, the country needs to work together with its partners in Central Asia and Pakistan to harmonize the standards and all related issues.
Regional trade flows and wheat flour market development
Geraldine Baudienville, Director, Altai Consulting

Ms. Baudienville presented a market study on wheat, wheat flour and edible oils commissioned by GAIN and the preliminary results including regional trade agreements, data on production, consumption, import, export and major trade routes for these commodities.

The speaker pointed that Kazakhstan and Pakistan are the main flour producers, although countries like Kyrgyzstan and Tajikistan also produce significant volumes of industrial wheat flour from imported wheat. Pakistan is by far the largest producer of wheat flour in the region: 18m MT in 2013, representing 62% of total wheat flour produced in the region. Kazakhstan is the second largest producer of wheat flour with 4m MT in 2013. Afghanistan produces significant volumes of wheat flour (3.4m MT) but remains a net importer: it imports a quarter of its total consumption (around 1m MT in 2013). Kazakhstan is by far the major wheat flour exporter in the region, along with Pakistan; Afghanistan mainly imports from Pakistan (60%) and Kazakhstan (40%).

Presenting the findings of the industry assessment in Pakistan, Ms. Baudienville emphasized that access to good quality premix at affordable price was critical for millers and the industry needed to get organized to buy in large quantities and to benefit from lower rates. Access to affordable micro feeders adapted to the mill’s production capacity is crucial and they should be installed and used correctly by trained personnel for fortification to be effective. Flour mills may show varying extraction rates which in turn impact quality of flour and production prices as well as ability to fortify. Laboratory equipment and trained personnel are needed to ensure proper internal quality checks are conducted. The cost implications of fortification should also be taken into account in a context where millers’ ability to increase prices may be limited due to legal constraints and/or competition. A recent study in Pakistan demonstrated that fortification costs amounted to 5.9 USD/MT of flour. Variable costs (mostly premix, and packaging) account for 96% of the total cost. Ms. Baudienville concluded that we need to develop strategies to cover this cost in a sustainable way.

The discussion with the participants that followed focused on the cost of premix. In Pakistan it is $20 per ton of premix. In Kazakhstan it is 1.5 times cheaper. The moderator noted that the cost of fortification translates into just 0.2 tenge per loaf of bread. However, the key issue is whether the consumer is willing to pay the increased price. The Union of Grain Processors does not support the change of the premix formula to include NaFeEDTA proposed by KAN because it will increase the cost of premix. Flour millers indicated that the profit margin is so small that if the cost of fortification is born by the industry, the profits will decrease by 20%, and this is not acceptable. One of the participates proposed to start premix production in Kazakhstan with the support of the government. Several participants noted that the government of Kazakhstan should find a way to motivate the industry to fortify wheat flour.
Food Fortification: Regional harmonization experiences
Quentin Johnson, FFI

Mr. Johnson mentioned that regional harmonization efforts across various regions of the world focused on increasing regional trade of food stuffs including grains, and processed foods and wheat flour, preventing technical barriers to trade under World Trade Organization rules and regulations, and reducing costs to producers, processors and consumers. He indicated that regions with progress on harmonization include East Asia, East African Community, North America, West Africa, and that the WHO Wheat and Maize flour Fortification Recommendations (2009) set the scene for harmonization. The recommendations established the amounts of vitamin A, B12, Folic Acid, Iron, Zinc that should be added based on flour consumption levels. Many regions have adopted or modified existing standards to the WHO recommendations. Regional fortified flour standards exist in North America, North Africa and Middle East, West Africa and East Africa countries, Pacific Island Countries, Australia and New Zealand. Mr. Johnson stressed that the importance of partnerships between international agencies and countries should not be underestimated. He gave an example of regional harmonization milestones achieved in West Africa that included private/public sector dialogue, standardization of fortification norms, health ministers resolution on mandatory fortification of cooking oil and cereal flour, and adoption of regional fortification standards. Mr. Johnson also shared some of the lessons learned during this work including the importance of championing (developing evidence base, sensitizing and advocating, facilitating exchange of lessons learned, brokering and sustaining partnerships, supporting legal framework, catalyzing regional approach, facilitating public sector communication, mobilizing recourses, documenting and disseminating), the importance of on-the-ground presence to catalyze action and the need to understand and respect points of view of diverse partners and acknowledge their contribution and maintain open communications. Mr. Johnson concluded that regional approach does not substitute for country level action, and that fortification is an iterative process and it is necessary to build in flexibility.

Regional analysis of legislation and policy
Sergey Shevchuk, Legal Adviser, GAIN

Mr. Shevchuk indicated that at this time mandatory legislation at the national level exists only in Kyrgyzstan, Uzbekistan (wheat flour), Kazakhstan (wheat flour sold in the country) and Pakistan (edible oil and wheat flour (Punjab)). National fortification standards have been established in all counties: they are used for mandatory (where applicable) and voluntary fortification. All countries import premix. It is centrally procured in Uzbekistan and Kyrgyzstan. Premix funding source varies from country to country. Premix import duties and taxes range from 12% in Kyrgyzstan to 72% in Pakistan. Enforcement of fortification legislation is weak in all countries. There are no tax privileges for flour producers in any of the countries. Import duties on wheat flour vary from country to country.
Having described major gaps and opportunities in the study countries, Mr. Shevchuk summarized the key recommendations. To advance wheat flour fortification, all countries need mandatory laws for production and import a regulatory framework including fortification standards: WHO recommendations should be followed. Given high levels of consumption, various bioavailable iron compounds can be used. An effective system for quality monitoring and law enforcement is needed: clear roles and responsibilities and budget lines. Premix duties and taxes should be minimal because fortification is a public good. Fiscal incentives should be considered for flour producers in the most vulnerable countries where passing the cost of fortification to consumers is a politically sensitive issue. The speaker noted that harmonization of technical standards for premix translates into 1) ensuring mandatory fortification (laws and enforcement), 2) optimal formulas for individual countries (based on WHO recommendations), and 3) ensuring that countries-exporters have a way of meeting mandatory requirements of wheat flour importing countries, so that flour can be traded between countries and to maximize the benefits of fortification for the entire region. Mr. Shevchuk also mentioned that certain standards, recommendations, and strategies can be developed at the regional level, for example: technical standards for premix, protocols for quality monitoring and testing, food safety standards, labeling and logo requirements, information system requirements including record keeping and reporting standards for quality assurance, communication and social mobilization strategies.

Policy harmonization assessment: Wheat Flour Fortification Requirements in Specified Central and South Asian Countries
Chuck Lambert, Senior Trade Adviser, ATAR Project (via video conference)

Mr. Lambert presented the results of a study that was conducted at the end of 2014 to determine current flour fortification requirements in Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, Afghanistan and Pakistan, compare requirements to international guidelines, assess current trade flows, conduct a policy harmonization assessment, identify the import, customs and regulatory standards for fortified wheat flour, adherence to best international practices, and provide recommendations for harmonization. Having described the requirements of each country and the major trade flows, Mr. Lambert pointed that substantial trade in non-fortified wheat flour existed in the region. There are no real tariff or non-tariff barriers. Regional policy harmonization may include the following steps/measures: agree to one regional standard (harmonize), sponsor a regional conference of private sector and government officials from the six (seven) countries; develop/revise national legislation and regulations for domestic flour consistent to agreed standard; implement and enforce legislation and regulations, consider incentives for private sector (reduce taxes and tariffs, obtain ministry endorsement/seal of approval, provide price incentives to importers), develop consumer demand through education/communication; ensure that governments demand that imports meet domestic standards; develop/update domestic QA/QC programs and customs procedures at the borders to assure that domestic and imported product meets specifications (sampling and testing procedures, certified laboratories and laboratory
procedures; verify select certified suppliers who test pre-shipment). Mr. Lambert concluded that trade in non-fortified flour already exists, and we must assure that flour fortification specifications do NOT become technical barriers to trade.

Day 2 - Presentations and discussion

The morning session of day 2 was moderated by Elizabeth Bontrager, Nutrition Advisor, USAID/WDC.

Toregeldy Sharmanov, President, KAN thanked USAID for the support of fortification during the past 7 years and updated the audience about the results of his previous day’s meeting with the Minister of Health and Mr. Petukhov a member of the parliament: a mechanism is being developed to ensure financing of premix for the next 3 years through the national health program. No funding has been budgeted for 2015 yet.

Academician Sharmanov also addressed the concern of the audience regarding accumulation of iron in the body and reported that decades of the use of iron-fortified food in the USA has not resulted in an increase of the incidence of hemochromatosis.

Khadijat Mojidi congratulated Academician Sharmanov on this achievement and emphasized that advocacy has to come from the participants themselves. USAID, GAIN, UNICEF, WHO can provide support, but she mentioned that the participants have to be in the front making the case, presenting the evidence.

Yuliya Beloslyudtseva, Kazakhstan Country Coordinator, GAIN summarized the results of previous day of the workshop, emphasized the need to unite the efforts of all sectors and all partners for maximum achievement, and encouraged the participants to share their ideas, advice, and recommendations on how to achieve the desired goals focusing on the short term (6 months) in the first place.

Omar Dary, Health Science Specialist (Nutrition), USAID/WDC emphasized that USAID is here in Kazakhstan to share experience and invite the country experts to join efforts for the development of other countries of the region that still need some help. He pointed that the country had the needed talent, leadership, energy and recourses and that help of the country experts was needed to work together on these development problems. Dr. Dary stressed that despite all the efforts and the economic development, anemia prevalence in Kazakhstan (40%) was still very high and fortified flour availability (26%) was very low which justified the need for a country-specific program. He mentioned that fortification was a very cost efficient
intervention, and that it takes only $1M to cover 15M people with essential elements and vitamins. Dr. Dary stated that as an exporter Kazakhstan should be interested in harmonizing the standards so that the industry did not have to produce different formulas for different countries-importers. Quality assurance this is the job of the government and it needs to be improved. Program monitoring and impact evaluation are needed to know whether the efforts are leading to a desired impact. Dr. Dary encouraged the participants to share their ideas regarding future direction of food fortification in Kazakhstan and the region.

**Good Fortification Practices at the Global Milling Industry level. Analysis of mistakes and lessons learned.**

Quentin Johnson, Technical Adviser, FFI

Mr. Johnson indicated that in terms of awareness and commitment, some of the challenges at the global flour mill level include lack of general knowledge on method of fortification at the flour mill level, lack of full participation by milling industry in fortification, inadequate advocacy for need for fortification by public health agencies and development partners. Technical challenges may include 1) incorrect feeders supplied (feeder not correct size for the flour mill, poor feeder design resulting in inconsistent delivery of premix) 2) poor premix quality 3) incorrect installation of feeders 4) lack of consistent quality assurance. Examples of implementation challenges are adversarial relationship between milling industry and government food control agencies, lack of training of food control officials to monitor fortification at mill level and at border points for imports, lack of laboratory resources to analyze samples properly. Mr. Johnson pointed that overcoming these challenges requires provision of technical knowledge and understanding through training and workshops, running QA/QC workshops on QA/QC for both flour mill industry and regulatory officials at the same time, getting feedback from milling industry and government official to create mutual understanding of fortification and good practices, development of best practices. The rationale is to ensure the consistent application of the fortification practice at the flour mill, to ensure that the commercial practices will result in the correct addition of micronutrients to the national diet of the country, to assure that the fortification will result in the anticipated impact on public health. To implement best practices, it is key that pre-requisites for consistent quality are in place. Components of a good system include: premix procurement and handling, feeders, fortification process & quality control, quality assurance and audits.

Flour fortification millers best/enhanced practices millers toolkit is available at: http://www.ffinetwork.org/implement/toolkit.html
Enabling Compliance and Strengthening Regulatory Monitoring Systems: Lessons from around the world
Penjani Mkabula, Senior Manager, Food Safety Quality and Procurement, GAIN

Mr. Mkabula indicated that globally, over 80 countries have mandatory flour fortification and well over 100 mandate the iodization of salt. Enforcement and compliance generally needs strengthening. The external pass rate (according to quality checks carried out by external labs) among GAIN programs averaged 80%. Major QA/QC challenges during fortification are: low quality, unsafe inputs (vitamin premix, raw materials, equipment), poor processing procedures and expertise, lack of awareness on standards, no or limited control over pre-suppliers, improper packaging/handling, purposeful under-fortification. Examples of QA/QC issues faced during commercial monitoring include: outdated products on the shelves, lack of means to check quality, product labelling on the retail shelves does not correspond with their content, low buy-in for fortified foods, etc. Mr. Mkabula pointed that it is important to understand what causes low compliance. Fortified food is a product that customers cannot easily evaluate, so the burden largely falls on food and drug safety profession. Under-fortification is not considered a hazard and thus does not feature as a top priority by food control authorities which focus on high risk/safety issues. Capacity to test and enforce legal action to non-complying industries is too often underfunded. Governments face determining whether they include food fortification analysis within the overall food control system or create a new system. Cooperation is needed between private sector companies and government agencies but this takes time and significant effort. An effective and sustainable quality improvement can be achieved if the enabling environment and both the supply and demand sides of markets are addressed. The speaker also presented several case studies on enabling compliance from Nigeria, Kyrgyzstan, South Africa and Egypt, and presented the GAIN Premix Facility that has driven improved quality and competition among premix suppliers while decreasing costs and improving access. Mr. Mkabula concluded that compliance of fortification programs was low in many countries. Enabling compliance and building regulatory monitoring systems are crucial to ensure that foods are appropriately fortified and safe. This requires a multifaceted approach including strengthening government systems, working with retail, consumer groups, creating international standards in addition to ongoing QA/QC with industry.

National Food Control System in Kazakhstan – challenges and opportunities
Toktasyn Erubaev, Head, Sanitary Epidemiological Surveillance Department, Committee on Consumer Rights Protection, Ministry of Economy

Mr. Erubaev presented the laws and regulations governing wheat flour fortification in Kazakhstan and noted that surveillance methods were based on technical regulations, e.g., on food safety, safety requirements for dietary supplements, and common sanitary hygienic requirements that include hygienic requirements for goods. Food safety monitoring is
performed through facility inspections and sampling and sanitary epidemiological inspection of goods. Facility inspections include compliance verification (private business entities need to declare compliance with the national legislation) with testing products in laboratories as necessary. The speaker pointed that non-compliant business entities were instructed to rectify the discovered violations. Product sampling aims to detect and prevent violations of the national requirements and regulations. In case of non-compliance corrective measures are taken in accordance with the existing laws. Mr. Erubaev explained that flour milling facilities were considered low priority from the epidemiological point of view and therefore inspection frequency was not very high. He encouraged the participants to share any suggestions they might have for improvement of the work of the Committee.

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During the discussion that followed, the participants confirmed that flour mills were not considered to be epidemiologically important subjects of surveillance, and that planned inspections were not permitted. Some provincial committees practiced singing memoranda of understanding with facility managers to work together on assuring product quality especially at facilities that do not have their own laboratories. The vice president of KAN inquired why only 25% of flour was fortified if the Committee had everything to enforce the mandatory law. Mr. Erubaev clarified that the Committee did not have a mechanism to assess the impact of its control measures since the entities that can conduct such studies do not report to the Committee.

**Quality Assurance Principles and Practices. Quality Control and Process Control.**

Quentin Johnson, Technical Adviser, FFI

Mr. Johnson pointed that an external QA system has to include: proper legislation (food law, regulations, food standards), a monitoring system, and a surveillance system. Quality assurance is defined as a system to control all parts of the food industry process to ensure the consistent production of flour that meets both regulatory and commercial requirements. At the food industry level, it is expected that most of the following will be in place at the factory level: a documented Quality Plan, an internationally recognized system, i.e. ISO, good manufacturing practice documents, standard operating procedures, standard quality control procedures, recall system with action plan and traceability system, document and record keeping system, and a quality audit plan. Surveillance of imports requires cooperation of customs officials. The best inspection location is the point of importation. Mr. Johnson noted that key components of an external QA system are: 1) mill inspections, 2) sampling policies and procedures, 3) laboratory analysis, 4) enforcement procedures. A mill inspection check list should cover: premix storage and procurement, feeder location and operation, quality assurance laboratory records and procedures, premix usage reconciliation calculations,
flour sampling. Food inspectors must have the authority to look at all records including order records, delivery receipts and invoices for premix. For proper laboratory analysis, the following issues need to be considered: sampling accuracy, equipment capacity and capability, personnel capacity and training, availability of chemicals and supplies to run the tests, methodology proficiency including use of standard fortified flour sample or spiked sample, analysis variation. Mr. Johnson also indicated that process control of fortification at the mill is a key component of the Quality Assurance system. Ultimate process control of flour fortification would include modern mills with computer control systems, automatic feeder–flour scale feedback systems controlling the process, premix release system, stock reconciliation method on weekly or monthly basis, iron spot test used as mill QC tool, and access to qualified laboratories for quantitative analysis for monitoring.

**Feeders and Premix. Cost and financing options**

Quentin Johnson, FFI

Mr. Johnson noted that fortificant choice typically depends on identification and prevalence of deficiencies, consumption pattern of target food, single or multiple fortificant, bio-availability of micronutrients, distribution and storage conditions, and affordability. Vitamins are lost during processing. Standards for processed foods must reflect processing losses. Premixes should contain overages of minerals and vitamins to compensate for processing variations. Frequency of procurement depends upon shelf life of premix, usage rate by millers and flour demand. Considering long-term sustainability, millers should be responsible for procurement of premix. Options in practice today in various countries include millers, millers association, and ministries of health. Mr. Johnson emphasized that GAIN's Premix Facility gpf.gainhealth.org provides simplified options for premix procurement.

**Enterprise growth with EBRD**

Azim Gaibulin, Senior Project Specialist, Small Business Support, EBRD

Mr. Gaibulin noted that EBRD was owned by 64 countries and two international organizations. Bank’s capital is EUR 30B. More than USD 7.0B is invested by EBRD into Kazakhstan’s economy through more than 190 projects. In 2014 EBRD invested USD 700M through 19 projects in all sectors of economy. EBRD's Small Business Support makes business advice more accessible to small and medium-sized businesses to help them grow. Since 1993 EBRD delivered business development know-how to more than 14,000 enterprises across 25 countries in South and Eastern Europe, North Africa, Middle East and Central Asia. EBRD connects entrepreneurs with local consultants and international advisors to help transform businesses, looking at strategy, marketing, operations, quality management, energy efficiency, finances and beyond. Mr. Gaibulin indicated that two major support mechanisms were practiced by EBRD in Kazakhstan - Local Consultancy and International Advisory. Business advice is provided in a variety of technical areas including strategy, marketing, organization development, operations, information technology, research and
development, engineering, quality management, financial reporting and accounting. Mr. Gaibulin described several examples of EBRD-supported interventions and encouraged everyone to consider the available support mechanisms to advance what flour fortification and trade in the region.

**Day 2 - Breakout session to plan the work on improving wheat flour fortification**

The session was facilitated by Omar Dary, Health Science Specialist (Nutrition), USAID/WDC and Yuliya Beloslyudtseva, Kazakhstan Country Coordinator, GAIN.

Omar Dary opened the session summarizing biological reasons of the impact of fortified food on the health of population and the factors that had to be considered including nutrient bio-efficacy that is determined by availability and convection rates. Discussing an optimal choice of the fortification formula, and using various iron compounds as an example, Dr. Dary emphasized that countries had to also consider cost and technical feasibility of using a particular fortificant. For example the cost of the NaFeEDTA compound per unit of bio-efficacy is significantly higher compared to other options. Speaking of how Kazakhstan's experience can be extended to other countries, Dr. Dary emphasized the need for proper monitoring and evaluation of fortification programs, the entire program cycle that includes policies, standards and regulation, production and enforcement. The programmatic interest is very broad and includes feasible implementation strategies, and the implementation know-how, coverage achieved, cost-effectiveness of interventions, impact evaluation studies and program effectiveness more generally including efficiency, safety and sustainability.

The second part of this session included group work to solicit ideas and recommendations of the participants regarding ways to improve flour fortification and compliance in Kazakhstan, and specifically to plan interventions for the next 6 months.

The participants were divided institutionally into 4 groups:

- government, regulatory agencies and academia (1),
- flour millers / private sector (2)
- donors, implementing partners, NGOs (1)

Some groups divided further into smaller circles to hold more focused discussions.

Group discussions focused on the following questions:

1. Where would we like to be 6 months (mid-term goals and desired outcomes)?
2. How can we get there? what measures need to be taken by our sector to achieve these goals? and
3. Specifically who should do what and when? and what is expected from other partners.
The outcomes of the discussions were presented and discussed during a subsequent plenary session.

**Key recommendations**

A summary of recommendations by sector is presented below:

**Government agencies and regulators** would like to

I. Improve national policies and laws  
II. Strengthen the fortification law enforcement capacity of the Committee on Consumer Rights Protection  
III. Provide government subsidy to flour millers to expand fortification (a public-private partnership)  
IV. Improve fortification related information and evidence base  
V. Educate various stakeholders on the benefits of fortification.

Specific measures / activities suggested by the groups include the following:

- Create a coordination committee or another mechanism for multi-stakeholder engagement and cooperation of all key policy-makers, including the ministries of health, agriculture, education, information and national economy;
- Revise/optimize fortification-related law and regulations specifying requirements more clearly and providing effective enforcement mechanisms;
- Develop better information for action including current data on micronutrient deficiencies prevalence in the region and fortification coverage;
Conduct costing, cost-benefit and consumer willingness to pay studies
Hold a regional scientific seminar to advocate at the highest government level
Develop a separate national program on iron-deficient anemia prevention and elimination
Ensure explicit inclusion of fortification into the National Health Program for 2016-2020
Provide training to technical specialists in compliance monitoring at production sites
Strengthen technical and laboratory capacity of the Committee n Consumer rights Protection
Develop and implement awareness raising campaigns for target beneficiaries and other stakeholders and education of population through the state administrative resources;
Provide government subsidies to flour millers to expand fortification
Develop a law on mandatory procurement of fortified flour by government institutions such as schools, hospitals, the army, etc.

**Flour millers** would like to

I. Improve national policies and laws
II. Strengthen technical capacity of the industry and begin/expand fortification
III. Provide government subsidy to flour millers to expand fortification
IV. Improve fortification related information and evidence base and
V. Educate various stakeholders on the benefits of fortification.

Specific recommendations are as follows:

- Develop clearer fortification requirements and regulations
- Provide information and training on flour fortification methods and technologies
- Carry out training of the responsible personnel on maintenance of fortification equipment, fortification cycle management, compliance with food safety standards and regulations, etc.
- Conduct a cost-effectiveness analysis
- Develop and implement a nation-wide information campaign to raise consumers' awareness of fortification benefits
- Provide government subsidies to expand fortification;
- Establish best fortification practices via pilot projects

**Donor and development partners** would like to

I. Expand fortification advocacy at all levels focusing on motivation to fortify
II. Strengthen regional cooperation more broadly and achieve harmonization of standards and regulation more specifically to ensure smooth and effective trade and fortification agenda development in the region
III. Strengthen technical capacity of the industry and the government
IV. Improve fortification related information and evidence base and
V. Educate various stakeholders on the benefits of fortification.
There were many similarities across the groups in terms of what they thought priorities should be. The suggestions made by the participants during the previous sessions of the workshop including the idea of a scientific seminar on fortification with a focus on evidence with the participation of various ministries (health, information, industry and trade, etc.) were captured in group presentations.

Next steps

The workshop recommendations will be incorporated in future work planning. The immediate next steps of the regional program were summarized by Khadijat Mojidi, Regional Health and Education Office Director, USAID/CAR, who specified the plans to conduct a flour fortification roundtable with various stakeholders in Afghanistan in August 2015, finalize the ongoing regional analyses by September, and hold a Regional food fortification meeting following the Central Asian Trade Fair in Almaty in late October focusing on trade, legislation and regional harmonization. In September 2015, GAIN will be organizing a Global Food Fortification Summit in Tanzania to review the last decade of fortification practices around the world, and it is important that Kazakhstan is well represented at the summit to share their experience and learn from the experience of others.

Closing the workshop Mr. Gan and Ms. Panagides thanked the participants, the donor and the organizers for productive discussions; and expressed confidence that the workshop was an important step towards improved health and trade through fortification. Ms. Mojidi and Mr. Lane thanked everyone on behalf of USAID and noted that the workshop and the regional program were made possible with the support of the American people. All workshop participants received certificates acknowledging their participation.

Conclusion

The workshop participants reviewed the ongoing fortification work and the latest international evidence, key findings and recommendations of regional assessments, discussed technical aspects of fortification with a focus on compliance and regulatory monitoring, and discussed needs, priorities, concerns and suggestions of various stakeholder groups. A number of recommendations on improving food fortification agenda in Kazakhstan and the Central Asia region has been developed. A country-wide consensus regarding future priorities has emerged. This event has turned out to be a good opportunity to strengthen in-country partner relationships to advance the fortification agenda.
Annex 1 - Workshop agenda

Day 1 - Food Fortification in Kazakhstan

Moderators
Evgeny Gan, President, Union of Grain Processors of Kazakhstan
Anton Luchitsky, Regional Manager - Central Asia, GAIN

8:00 – 9:00 Registration

9:00 – 9:10 Goals and objectives of the workshop
Evgeny Gan, President, Union of Grain Processors of Kazakhstan

9:10 – 10:00 Welcome and Introductions:
- Toregeldy Sharmanov, President, Kazakh Academy of Nutrition (KAN)
- Toktasyn Erubaev, Head, Sanitary Epidemiological Surveillance Department, Committee on Consumer Rights Protection, Ministry of Economy
- Alexander Lane, Kazakhstan Country Director, USAID
- Dora Panagides, Senior Manager, Fortification Global Program, GAIN
- Yuri Oksamitniy, UNICEF Representative in Kazakhstan

10:00 – 10:25 The status of flour fortification and anemia prevalence in Kazakhstan.
Toregeldy Sharmanov, President, KAN
Shamil Tazhibayev, Vice President, KAN

10:25 – 10:50 Global evidence of impact, experiences from regions around the world.
Importance of food fortification in Kazakhstan
Dora Panagides, Senior Manager, Fortification Global Program, GAIN

10:50 – 11:00 Discussion

11:00 – 11:20 Coffee Break

11:20 – 11:50 The flour milling industry in Kazakhstan. History and current issues of food fortification in Kazakhstan.
Evgeny Gan, President, Union of Grain Processors

11:50 – 12:10 Development of the Nutrition Program in Central Asian countries
Toregeldy Sharmanov, President, KAN
Shamil Tazhibayev, Vice President, KAN

12:10 – 12:30 Discussion

12:30 – 13:30 Lunch
Central Asia Regional Session moderated by
Quentin Johnson, Technical Adviser, FFI
Yuliya Beloslyudtseva, Kazakhstan Country Coordinator, GAIN

13:30 – 13:50 Afghanistan/Central Asia Regional Food Fortification Initiative
Khadijat Mojidi, Regional Health and Education Office Director, USAID/CAR
Tanya Jackson, Agriculture Development Officer, USAID/Afghanistan

13:50 – 14:10 Improving Nutritional Outcomes: Afghanistan/Central Asia
Dr. Ahmad Bashir Hamid, Project Management Specialist (Health) USAID/Afghanistan
Khadijat Mojidi, Regional Health and Education Office Director, USAID/CAR

14:10 – 14:30 Regional trade flows and wheat flour market development
Geraldine Baudienville, Director, Altai Consulting

14:30 - 15:00 Discussion: Questions and Answers.

15:00 – 15:20 Coffee Break

15:20 – 15:40 Food Fortification: Regional harmonization experiences
Quentin Johnson, FFI

15:40 – 16:00 Regional analysis of legislation and policy
Sergey Shevchuk, Legal Adviser, GAIN

16:00 - 16:20 Policy harmonization assessment:
Wheat Flour Fortification Requirements in Specified Central and South Asian Countries
Chuck Lambert, Senior Trade Adviser, ATAR Project (via video conference)

16:20 - 16:40 Plans on the development of chambers of commerce in Central Asia
Kairat Nurpeisov, Deputy Secretary, Food Industry Committee, Kazakhstan Chamber of Entrepreneurs

16:40 - 17:10 Discussion: Questions and Answers.

17:10 Adjourn

17:30 - 20:00 Networking Dinner

Day 2 – Technical aspects of Food Fortification in Kazakhstan

Morning Session –

09:00 - 09:10 Day One Summary
Alexander Lane, Kazakhstan Country Director, USAID
Yuliya Beloslyudtseva, Kazakhstan Country Coordinator, GAIN

09:10 - 09:40 National Food Control System in Kazakhstan – challenges and opportunities
Toktasyn Erubaev, Head, Sanitary Epidemiological Surveillance Department, Committee on Consumer Rights Protection, Ministry of Economy


10:10 – 10:40 Enabling Compliance and Strengthening Regulatory Monitoring Systems: Lessons from around the world Penjani Mkabula, Senior Manager, Food Safety Quality and Procurement, GAIN

10:40 – 11:00 Discussion

11:00- 11:20 Coffee Break

Flour Fortification Practices


12:00 – 12:30 Feeders and Premix. Cost and financing options. Quentin Johnson, FFI

12:30 – 13:00 Discussion

13:00 – 14:00 Lunch

14:00 - 14:30 Enterprise growth with EBRD Azim Gaiibulin, Senior Project Specialist, Small Business Support, EBRD

14:30 – 16:00 Breakout session: Planning the work on improving flour fortification and compliance in Kazakhstan during the next 6 months facilitated by Omar Dary, Health Science Specialist (Nutrition), USAID/WDC

16:00 – 16:30 Next steps for the regional project of food fortification. Khadijat Mojidi, Regional Health and Education Office Director, USAID/CAR Tanya Jackson, Agriculture Development Officer, USAID/Afghanistan

16:30 Close out session
## Annex 2 - List of participants

**Flour fortification in Kazakhstan:**

**Bridging Nutrition and Trade in the Region**

*7-8 July 2015, Astana*

*The Grand Park Esil*

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<thead>
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<td>Tel.: +7 (7112) 23-01-63 (52, 65), 513-714 <a href="mailto:JKHP@rambler.ru">JKHP@rambler.ru</a></td>
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<td></td>
<td>Ainagul Shokparova</td>
<td>Deputy Head of Laboratory</td>
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<td>Karaganda Oblast</td>
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<td>“Aknar” Firm LLC</td>
<td>Erbol Zhalgasov</td>
<td>Head, Commercial Department</td>
<td>141 Zhambyl St. Kazybek Bi Rayon, Karaganda</td>
<td>Tel.: +7 (7212) 56-11-00, 56-01-27 <a href="mailto:sales@aknar.kz">sales@aknar.kz</a> <a href="mailto:info@aknar.kz">info@aknar.kz</a></td>
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<td>Svetlana Petrova</td>
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<td>“Karagandinskiy Flour Mill” LLC</td>
<td>Olga Sukhorukova</td>
<td>Director</td>
<td>5 Reznik St. Karaganda</td>
<td>Tel.: +7 (7212) 51-37-89, 51-24-85 <a href="mailto:kmk_nan@mail.ru">kmk_nan@mail.ru</a></td>
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### Kostanai Oblast

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<tr>
<th>Company</th>
<th>Position</th>
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<tr>
<td>“Kostanai milling-plant” JSC</td>
<td>AisluShakirova Chief technologist for Macaroni Production</td>
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<td>“Agrofirma Dievskaya” LLC</td>
<td>Oleg Danilenko Executive Director</td>
<td>35 Uzokokeinaya St. Kostanai</td>
<td>Tel.: +7 (714 53) 97 1 02, 56 43 11, 56 44 07, 56 43 00 <a href="mailto:dievskoe@mail.ru">dievskoe@mail.ru</a> <a href="http://www.dievka.kz">www.dievka.kz</a></td>
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<td>GulzhaukharShamatova Head of Production</td>
<td>Tel.: +7 (7142) 51-37-45, 51-38-56, 51-37-20,</td>
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<td>“Salamat Company” LLC</td>
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<td>“Aruana-2010” LLC</td>
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### North Kazakhstan Oblast

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<tr>
<th>Company</th>
<th>Alexander Esimsharipov Head of Marketing Department</th>
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<tr>
<td>“Mamlyutskiy Milling Plant” LLC</td>
<td></td>
<td>37 Skachkkova St. Mamlyutskiy Rayon Mamlyutka</td>
<td>Tel.: +7 (71541) 2-15-01, 2-10-34 M.: +7 701 884 35 01 <a href="mailto:mmmk_office@mail.ru">mmmk_office@mail.ru</a></td>
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<td>“Dikanshy Firm” LLC</td>
<td>Vitaliy Mozgel Head of Production</td>
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<td>Igor Sychev Technology</td>
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### South Kazakhstan Oblast


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<tr>
<th><strong>“Amangeldy” LLC</strong></th>
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<th>General Director</th>
<th>2nd Zelenaya Balks St. Shymkent Tel.: +7 (7252) 53-15-51, 53-19-27 M.: +7 701 766 4210 <a href="mailto:nuraman_agro@mail.ru">nuraman_agro@mail.ru</a> <a href="mailto:nur_amankeldi@mail.ru">nur_amankeldi@mail.ru</a> <a href="mailto:Nurhad@mail.Ru">Nurhad@mail.Ru</a></th>
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<tr>
<td><strong>“YugPischeProm” LLC</strong></td>
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<td>Financial Director</td>
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<td>Anzhelika Tsoi</td>
<td>Quality Control Specialist</td>
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<td><strong>Kazakhstan Union of Grain Processors</strong></td>
<td>Evgeniy Gan</td>
<td>President</td>
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<td>Alexandra Zhestovskaya</td>
<td>Leading Specialist</td>
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