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Fill the Nutrient Gap Tajikistan

SUMMARY REPORT



July 2018



Fill the Nutrient Gap Tajikistan | SUMMARY REPORT

Triple burden in Tajikistan

The effects of malnutrition are globally recognised as being devastating and far reaching. Malnutrition is widespread across Tajikistan. Nationally, stunting has dropped to just below 20% among children under 5 years of age, but regional prevalence varies widely. Stunting reduces the likelihood of reaching full mental and physical potential. Micronutrient deficiencies remain widespread, with anaemia ranging between 25 to 42% in the most recent surveys for both women and young children, while increases in overweight and obesity and non-communicable diseases also negatively impact population health and development. Progress has been hampered by several factors including seasonal fluctuations in agriculture and incomes; inadequately diverse agricultural production and diets; dependence on imported foods and their price fluctuations; climate change risks; and insufficient availability of nutritious foods, including for specific target groups. Addressing malnutrition in a sustainable manner in Tajikistan must take a lifecycle approach with a special focus on children under 2 years of age, adolescent girls and pregnant and lactating women. It must include a range of context-specific, targeted interventions that engage stakeholders across multiple sectors, including food production, processing and fortification, and social protection.

Fill the Nutrient Gap (FNG) in Tajikistan: Purpose

The overarching objective of the Fill the Nutrient Gap (FNG) analysis was to bring together stakeholders from sectors including health and nutrition, education, social protection, agriculture, trade and industry as well as academia and the private sector to identify and prioritise context-specific policies and programmes, aimed at improving the nutrient intakes of key target groups across the lifecycle. The results from the FNG will contribute to several ongoing national initiatives, including development of the national

Comprehensive Results Framework for nutrition, advancement of food fortification legislation and implementation, development of a strategy for social and behaviour change communication around nutrition, and potentially informing use of the Targeted Social Assistance platform for nutrition-sensitive interventions. Additionally, together with the Zero-Hunger Strategic Review conducted independently by the Tajik Innovation Development Centre, the FNG will inform the formulation of the next 5-year Country Strategic Plan that frames the support of the World Food Programme (WFP) to Tajikistan towards achieving the Sustainable Development Goals.

FNG in Tajikistan: Process

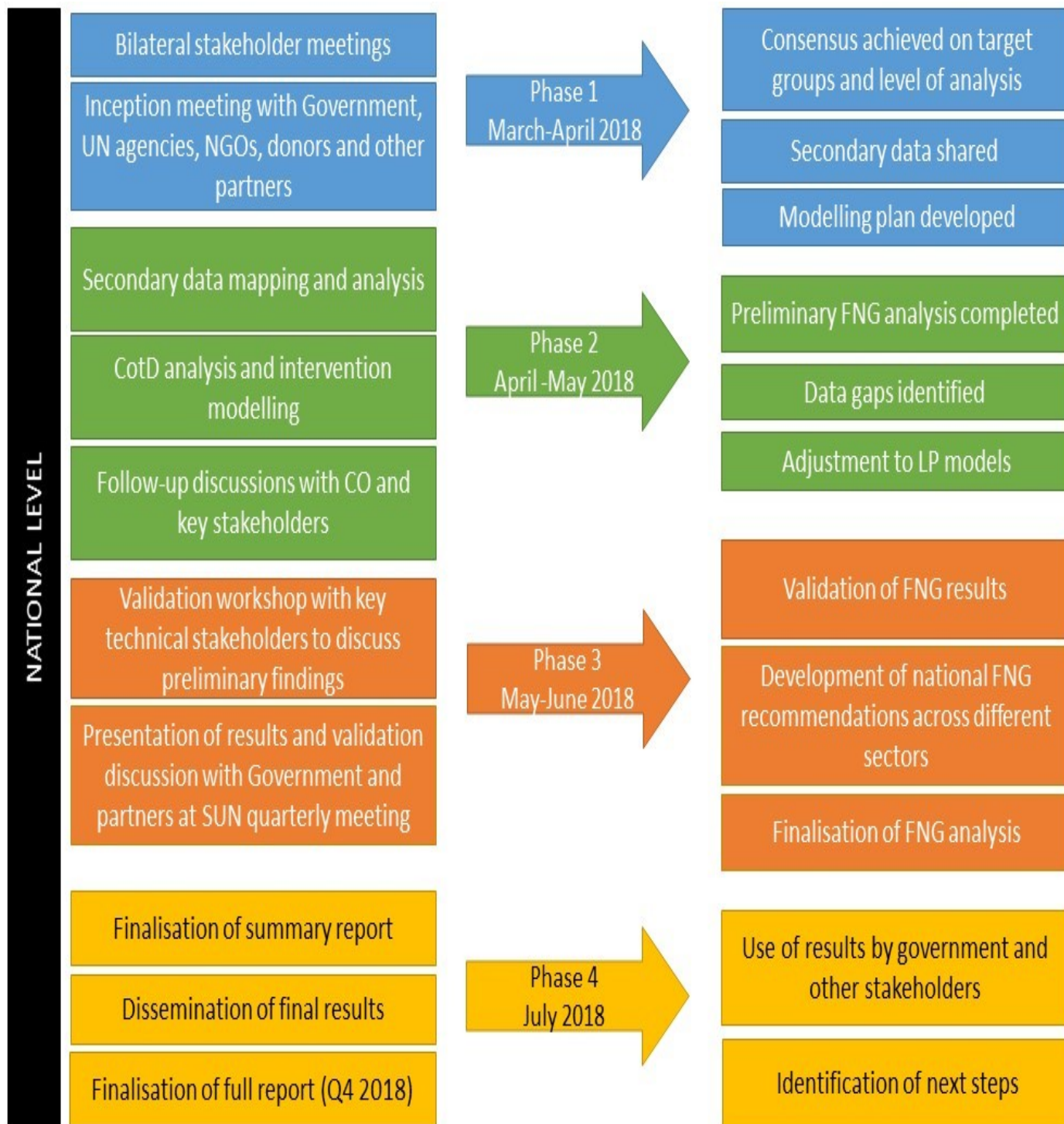
The FNG process in Tajikistan ran from March to July 2018, as proposed and endorsed by the government at the National Nutrition Forum in July 2017. The analysis comprised a comprehensive literature review of available secondary sources in combination with linear programming (LP) using the Cost of the Diet (CotD) software. The aim was to understand barriers to adequate nutrient intake and to model potential interventions to improve access to nutrients, which is a prerequisite for improving nutrition, health and development.

The FNG assessment was led by the Ministry of Health and Social Protection, with the First Deputy Minister also serving as the Scaling Up Nutrition (SUN) Focal Point for Tajikistan, with technical assistance from the WFP country office, Cairo regional bureau and Rome headquarters; and Columbia University. Together, these formed Tajikistan's FNG team. At the start of the process, the team met with partners from government, non-government, United Nations (UN) agencies, academia and donors to introduce the FNG process; collate key secondary data sources; and identify possible interventions, entry points and transfer mechanisms to model with CotD. Over 200 data sources

were identified and reviewed, and a number of data gaps were identified.¹ The analysis prioritised recent, nationally representative government data when available, and triangulated sources to better understand differences that were identified. LP analysis and intervention modelling were conducted by the WFP regional bureau. Preliminary findings were discussed internally with the WFP country office, validated in a workshop with technical stakeholders,

and subsequently presented to the Multi-Sectoral Coordination Council for SUN. Final results were disseminated at a high-level event hosted by the WFP country office on July 5, 2018. The detailed process is illustrated in Figure 1.

Figure 1: The Fill the Nutrient Gap (FNG) process followed in Tajikistan.



1. Key sources included the 2017 DHS (key findings) and the 2016 National Micronutrient Survey (NMS), the most recent national surveys. Methodologies, including season of data collection and sample sizes, were considered for interpreting any substantial differences between DHS and MNS results.

FILL THE NUTRIENT GAP: A SITUATION ANALYSIS AND DECISION MAKING TOOL

The FNG tool is used to identify which nutrition-specific and nutrition-sensitive interventions are most appropriate for a given context to improve nutrient intake, one of the two direct causes of malnutrition (the other cause being disease). Any intervention should ultimately result in an improvement in nutrient intake.

The tool has been developed by the WFP with technical support from research institutes: the University of California Davis; the International Food Policy Research Institute (IFPRI) (Washington DC); Epicentre (Paris); Harvard University (Boston); Mahidol University (Bangkok) and the United Nations Children's Fund (UNICEF). FNG provides a framework for strengthened situation analysis and multi-sectoral decision making that identifies context-specific barriers to adequate nutrient intake among specific target groups. It engages different sectors to propose cost-effective strategies to overcome barriers. It has been used in more than ten countries to date.

The FNG combines review of secondary data and information with LP analysis using the CotD software developed by Save the Children United Kingdom. The FNG analysis considers a range of factors that reflect or affect dietary intake, including local malnutrition characteristics; the enabling policy environment; type and availability of nutritious foods in local markets; affordability of nutritious foods; nutrient intake; local practices; and cost optimization.

The consolidated information is analysed and the findings are reviewed by a multi-sectoral group of stakeholders, at relevant levels, to come to a shared understanding of the issues, context and solutions. Through this consultation process, context-specific optimal policy and programme actions, including possible entry points for interventions, are jointly identified for different sectors, for example, health, social protection and across the food system, and stakeholders from the public and private sectors.



COST OF THE DIET ANALYSIS

The CotD software uses LP to understand the extent to which poverty, food availability and prices may affect the ability of people to meet their nutrient needs. Using price data collected from markets or from secondary sources, the software calculates the amount, combination and cost of local foods that are needed to provide individuals or households with their average needs for energy and their recommended intakes of protein, fat and micronutrients.² These diets are calculated within defined constraints to prevent the inclusion of unrealistic types or amounts of food and the provision of excessive amounts of nutrients.

The FNG approach defines the Staple Adjusted Nutritious Diet: the lowest cost nutritious diet that includes the typical staple foods and excludes foods that are considered taboo. This diet is referred to as the 'nutritious' diet throughout this summary.³ Population expenditure data is compared to the cost of this nutritious diet and is used to estimate the proportion of the population that would not be able to afford a nutritious diet. This non-affordability can be estimated and compared across different regions, seasons or countries.

As part of the FNG process in Tajikistan, a separate CotD analysis was undertaken for three regions and Dushanbe. Analysis was not done for the Districts of Republican Subordination (DRS), as food price data was unavailable for a sufficiently wide range of foods. Tajstat monthly food price monitoring data from 2016 and 2017 was used to calculate food prices and availability, and food expenditure data from the World Bank WASH dataset for Winter 2016 was used to estimate non-affordability of a nutritious diet. Households were modelled based on the average household size at the national level according to the 2012 Tajikistan Demographic and Health Survey. A nutritious diet was estimated for a household of six members, which included a child of 12–23 months, a child of 6–7 years, an adolescent girl of 14–15 years, a lactating woman, an adult man, and an older man of more than 60 years. The following portions of staple

foods were included for all household members, except for the child age 12–23 months, in all regions: two servings per day of wheat flour, three servings per week of potato, and one serving per week of milk. In Khatlon, 10 servings per week of oil were also included. In all regions, the child aged 12–23 months received half the number of servings of these foods.⁴

The CotD software is also used to model interventions with the objective of improving the affordability of a nutritious diet for individuals and/or households. The selection of potential interventions for modelling was informed by the secondary data review and stakeholder consultations. It included:

- Increased availability of local nutritious (unfortified) foods and bio fortified foods.
- Different types of complementary foods or specialized nutritious foods (SNF) made available through the market and/or social safety nets (such as school meals).
- Micronutrient supplementation.
- Fortification of staple foods.
- Conditional cash transfers for vulnerable households.
- Reduction of food prices due to opening of border with Uzbekistan.

The modelled interventions are theoretical and would need to be accompanied by complementary behaviour change interventions.

2. As defined by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO). Needs for 9 vitamins and 4 minerals are included.

3. This diet is not intended to reflect what individuals or households are currently eating, nor should it be used to develop food-based recommendations or dietary guidelines.

4. Please refer to the full report for the list of staple preferences applied.

Sector	Stakeholder recommended priorities, by sector, based on FNG findings
Health and Nutrition	Coordination through SUN platform and continued Multisectoral engagement, including the Committee for Youth and Women's Affairs
	Develop, review and promote food-based dietary guidelines that emphasize the need for dietary diversity and reduced intake of bread and other grain products and oil, and limited intake of high-fat and high-sugar snacks and drinks
	Improve national nutrition capacity, including through support to the ongoing initiative to develop and incorporate nutrition training modules into medical curricula
	Increase local health centre capacity, including supplies, staff, and trainings Raise awareness within communities about the importance of exclusive breastfeeding and appropriate, diverse and timely complementary feeding, including by engaging with local government and health workers, women's groups, and religious leaders via multiple channels
Fortification	Support passing of fortification law by parliament
	Set fortification standards (per commodity) that consider technical feasibility, micronutrient needs of the population as well as regional trade in Central Asia
	Prepare for implementation of fortification law by involving relevant government and non-government agencies, including: -Government: Ministries of Health and Social Protection; Industry and technology; Agriculture; Economic development and trade; Food security committee under the government of Tajikistan; Tajikistan consumer's union; Customs; Central and local/regional governments -Development partners including WFP, FAO, UNICEF, USAID, World Bank, GIZ -Food industry including millers, dairy industry and others
	Explore feasibility of development and local/regional production of fortified complementary foods for children 6-23 months old
Social Protection	Package of support to increase consumption of nutritious foods, including by specific target groups (cash, in-kind, fresh/fortified foods, etc) should be based on local conditions and needs
	Consider and strengthen capacity of government agencies to deliver services, especially in more remote areas
	Use TSA registration system to ensure delivery of services by other sectors, including those that support nutrition
Education	Provision of nutritious meals at school by reintroducing school kitchens; provide healthy options in school canteens; require sellers to carry nutritious foods
	Sensitize children to healthy lifestyle and importance of nutritious, healthy, safe foods
Agriculture	Promote and support year-round growing of vegetables in greenhouses and tunnels
	Introduce new micronutrient-rich varieties of fruits and vegetables to extend the growing season; increase yields; lower vulnerability to shocks (such as drought); lower prices; increase income; and ultimately increase consumption of these fruits and vegetables
	Promote improved food storage and preservation practices to reduce loss and maintain nutrient levels
Media	Use journalists and other television entry points to promote healthy and nutritious diets in a way that effectively and appropriately engages target groups: for example, TV shows and social advertisements should be broadcast during hours when the target group watches, such as the commercial breaks of popular evening series
Gaining further insights	Seek opportunities for engagement with academia and other partners to carry out qualitative assessment of social and cultural drivers of feeding practices and constraints faced by women to care for young children
	Conduct qualitative assessment of social and cultural drivers of feeding practices and constraints faced by women to care for young children
	Better understand provision of water to children, including those under 6 months: why it is done, what are the risks, and designing approaches to address it. This includes when water is provided, how much, how is it treated, who provides it, and what feeding utensils are used.
	Incorporate additional questions into regular national surveys, including the DHS, for more detailed insights into infant and young child caring practices
	Assess non-affordability of a nutritious diet throughout the year using Tajstat data on household food expenditures from different times of the year
	Collect food price data for a larger variety of foods in DRS (as in GBAO, Khatlon, Sughd and Dushanbe)
	Analyse data on Minimum Dietary Diversity in Women for winter and lean seasons, to better understand seasonality of consumption of nutritious foods

FNG in Tajikistan: Findings⁵

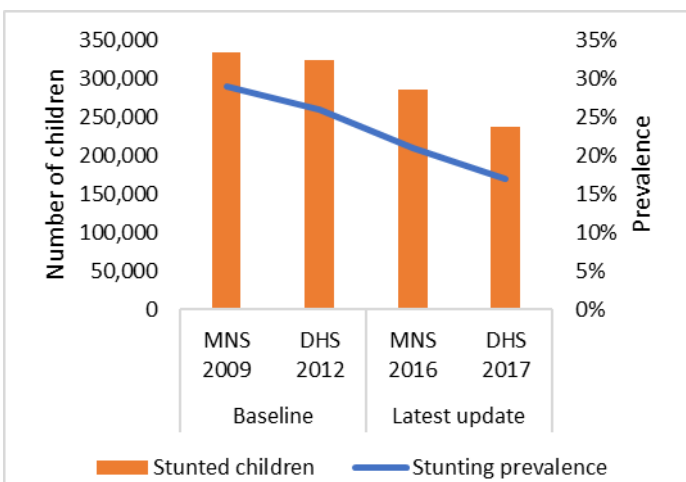
1.

STUNTING IS DECLINING, BUT PREVALENCE OF MICRONUTRIENT DEFICIENCIES IS HIGH, AND OVERWEIGHT, OBESITY AND NON-COMMUNICABLE DISEASES ARE INCREASING.

There has been a decline in the national prevalence of stunting among children under 5 years of age, from 29% in 2009 to 17% in 2017 (Figure 2). It is important to note that the decrease of four percentage points from 2016 to 2017 may be partly due to differences in methodologies between the 2016 NMS and the 2017 DHS, such as inclusion of children 0-59 months in the DHS and 6-59 months in NMNS. Looking at the decline over a longer period of time, the current rate of reduction is likely not enough to meet Tajikistan's stunting target for Sustainable Development Goal 2 by 2030: on average, the decline between the 2009 & 2016 NMS and the 2012 & 2017 DHS together with annual population growth of 2.5% predict meeting SDG2 (40% fewer stunted children than in 2010) by around 2037. This estimate highlights the importance of continued and increasing focus on stunting prevention efforts to maintain progress on reducing both prevalence and the number of children stunted.

Prevalence varies across regions, with the most populous regions having a lower prevalence (15-18%) but higher numbers of stunted children overall, compared to GBAO where the prevalence is 32%, but the number much smaller. There is little variation in stunting prevalence across wealth quintiles and it decreases across all. Stunting increases during the period of complementary feeding, from 6-18 months, while wasting is highest in children under six months (14%). Wasting prevalence in children under 5 varies across regions, from 17% in Dushanbe to 4% in Sughd.

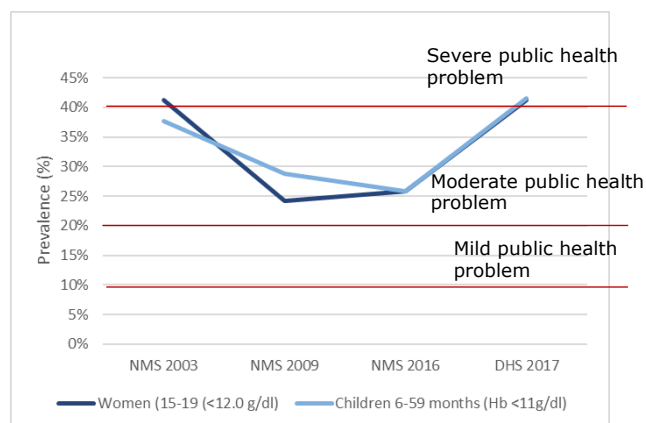
Figure 2: Numbers of stunted children versus prevalence (%), 2009-2012 (UNICEF MNS 2009 & 2016, DHS 2012 & 2017)



5. Complete details of the findings, a full list of data sources used and references can be found in the full report.

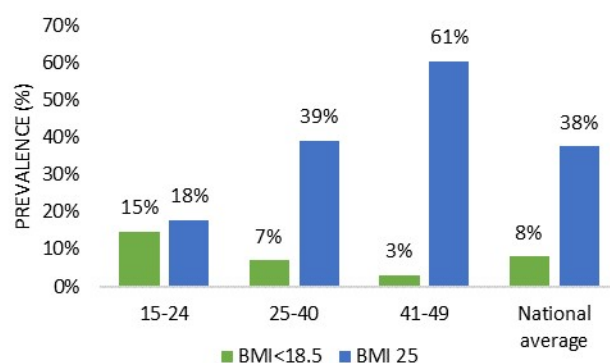
Prevalence of micronutrient deficiencies are high, with vitamin A deficiency classified as severe and anaemia as moderate to severe public health problems by the World Health Organization (WHO) (Figure 3). The reason for the difference of prevalence reported by the NMS and DHS is not clear, but it is unlikely that prevalence, both among women and children, increased so much within one year. The prevalence is most likely somewhere between these two prevalence figures. In most regions at least 50% of anaemia in women and children is attributed to iron deficiency. Prevalence of iron deficiency, anemia, and iron deficiency anemia is significantly lower in urban areas than in rural areas. Iodine deficiency affects over 50% of women and children. Prevalence has increased nationally for women and in some regions for children, coinciding with a decrease in the use of iodized salt by households nationally from 82% in 2009, to 74% in 2016.

Figure 3: National prevalence of anaemia over time (DHS 2003, UNICEF MNS 2009, DHS 2012, UNICEF MNS 2016, DHS 2017)



Alongside these high levels of micronutrient deficiencies, the prevalence of overweight and obesity and non-communicable diseases is high and increasing (Figure 4). onally, overweight and obesity prevalence among women increased from 2003 to 2017, reaching 35-45% in all regions except in GBAO, where it increased to 25%. The prevalence is higher in urban areas at 41%, than in rural areas at 32%. Overweight and obesity remains low in children (below 5%).

Figure 4: BMI class distribution in women 15-49 years (UNICEF MNS, 2016)

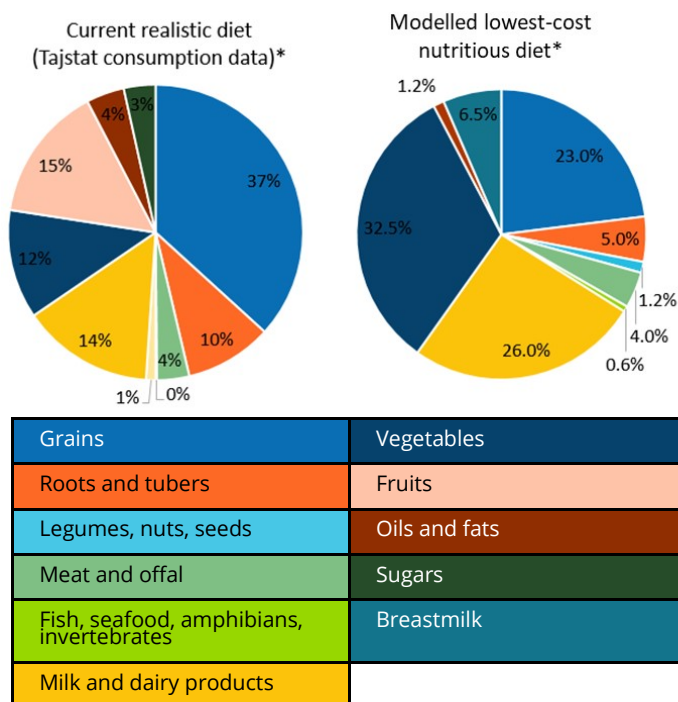


2.

CONSUMPTION OF BREAD AND OIL IS TOO HIGH, WITH TOO LITTLE DIETARY DIVERSITY. A NUTRITIOUS DIET, WHICH MUST BE MORE DIVERSE, COSTS 2-3 TIMES MORE THAN A DIET THAT ONLY PROVIDES SUFFICIENT ENERGY.

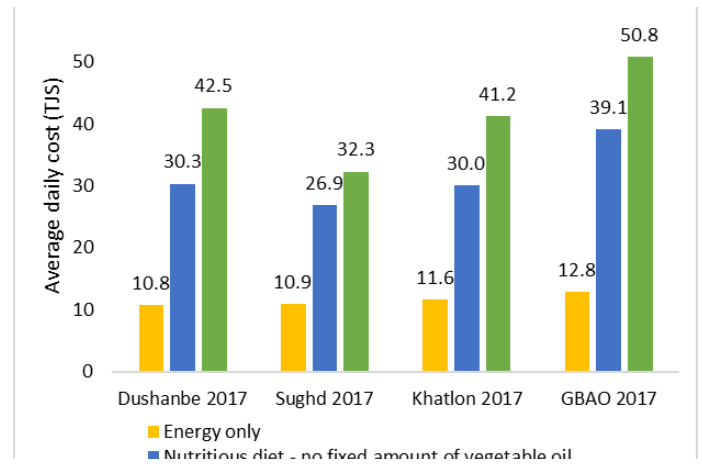
Comparing the current diet to a lowest cost nutritious diet ('nutritious diet') modelled with CotD, consumption of grains, oils, sugars, and roots and tubers (potatoes) must decrease for more nutrient-dense foods to be consumed (including vegetables, fruits, dairy, and other animal source foods) (Figure 5). The current diet, based on consumption data from Tajstat, contains too many 'empty calorie foods' that are high in energy but nutrient-poor. Wheat is the most important staple food in Tajikistan, providing 50-70% of per capita caloric intake, one of the highest in the world, consumed predominantly as bread.

Figure 5: Current diet compared to a modelled lowest cost nutritious diet
(Agency of Statistics Under the President of Tajikistan, 2016. 25 Years of State Independence: Statistical Book. Dushanbe: State Statistics Agency & Cost of the Diet Analysis, 2018)



The nutritious diet for the household costs 2.5-3.5 times more than a diet that meets only energy needs (Figure 6), because fresh, micronutrient-rich foods are more expensive than staple foods. Furthermore, including a level of consumption of oil that reflects the current intake of approx 12% of energy intake further drives-up the cost as the remaining foods in the diet now need to be even more nutrient-dense (Figure 6). For national modeling, the diet had a fixed amount of oil for Khatlon and no fixed amount for the other regions.

Figure 6: Household cost of diets that meet energy and nutrient needs with/without oil as a staple (2017)
(Cost of the Diet analysis, 2018)

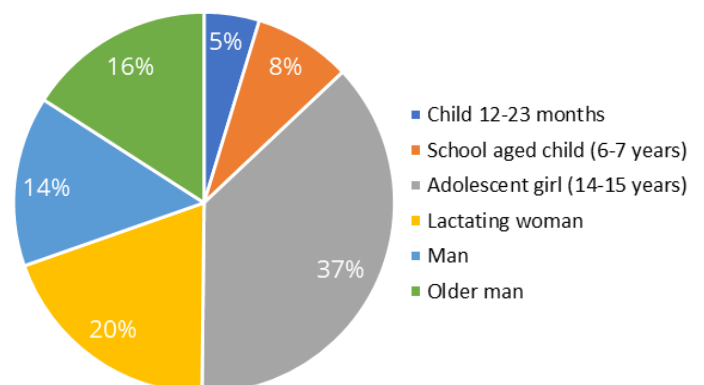


3.

TARGET GROUPS WITH HIGH NEEDS, SUCH AS THOSE IN THE FIRST 1,000 DAYS OF LIFE, ADOLESCENT GIRLS, PREGNANT AND LACTATING WOMEN AND THE ELDERLY, ARE MOST AT RISK OF INADEQUATE NUTRIENT INTAKE.

Certain segments of the population have higher nutrient needs. The CotD analysis shows, in a modeled family with six members, the nutrient needs of the adolescent girl are the most expensive to meet, making up 37% of total cost of the nutritious diet for the household (Figure 7). Adolescence is the second most physically demanding growth period after the first year of life, and an adolescent girl's access to good nutrition and healthcare determines not only her own health and development but also that of the next generation. The second highest proportion of the cost is 20%, for the lactating woman. These costs are due to the adolescent girl and lactating woman's high need for essential micronutrients relative to energy, requiring more expensive nutrient-dense foods including meat, eggs and green leafy vegetables. Given households are not currently consuming enough diverse micronutrient dense foods, the needs of adolescent girls and pregnant and lactating women are more unlikely to be met.

Figure 7: Average cost of the nutritious diet per household member, 2017
(Cost of the Diet analysis, 2018)



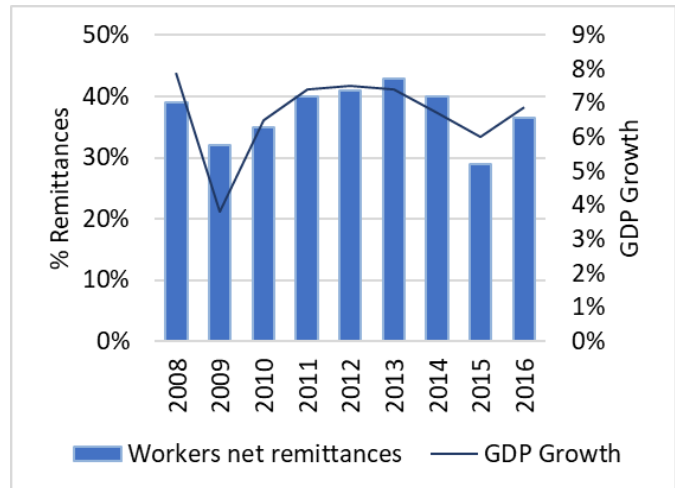
4.

MAJOR DRIVERS OF FOOD SECURITY INCLUDE DEPENDENCE ON AGRICULTURE, REMITTANCES, AND IMPORTED FOODS WITH FLUCTUATING PRICES.

Agriculture is the main economic sector, responsible for 21% of GDP (compared with 38% in 1996). Agriculture is responsible for 49% of employment, with 40% of households deriving more than half of their income from agriculture, and 20% more than 70%. Women make up 53% of the economically active population in agriculture while 86% of women in rural areas are involved in farming. Agricultural productivity is low: only 7% of land is arable, of which 97% is subject to soil degradation. Productivity constraints include natural disasters, dependence on run-down agriculture infrastructure and technology, and inadequate land tenure structures. Production of wheat in Tajikistan is only 2.2 tons/hectare compared to 4.5 in Uzbekistan, a pattern that also holds for other crops. Due to low production, imports account for more than 50% of cereal and 75% of oil consumption, tying access to these staple foods to fluctuating international market prices. Remittances are of high economic importance, making up

37% of GDP in 2016 (Figure 8). More than 800,000 people, about 15% of the working age population, migrate for work, primarily men who go to Russia for seasonal employment in construction. Dependence on remittances leaves Tajikistan vulnerable to international market fluctuations, such as the fall in oil prices and contraction of the Russian economy in 2015, which sent shocks through the Tajik economy (Figure 8).

Figure 8: % of GDP from remittances and GDP growth, 2008-2016 (Adapted from World Bank *Slowing Growth, Rising Uncertainties*, updated with 2015-2016 data)



5.

FOOD SECURITY IS CURRENTLY DECLINING, WITH CLIMATE CHANGE REPRESENTING A FURTHER THREAT.

Households spend, on average, 50-60% of their overall expenditure on food. Consumer prices for food items increased more than prices for non-food items between 2015 and 2017 (Figure 9), which increased the share of expenditure that households spend on food as observed in WFP’s monitoring of rural households (Figure 10). This indicates an increase in food insecurity.

Tajikistan is considered the most climate vulnerable

country in Europe and Central Asia, which poses a further threat to food security. The population is predominantly rural and agricultural, with most households owning livestock or cultivating land. A considerable proportion of rural households already experience natural shocks (Figure 11), which also reduce their ability to cope with future natural disasters.

Figure 9: Consumer price indices (end of each month in %) (TajStat Food Security and Poverty №3, 2017)

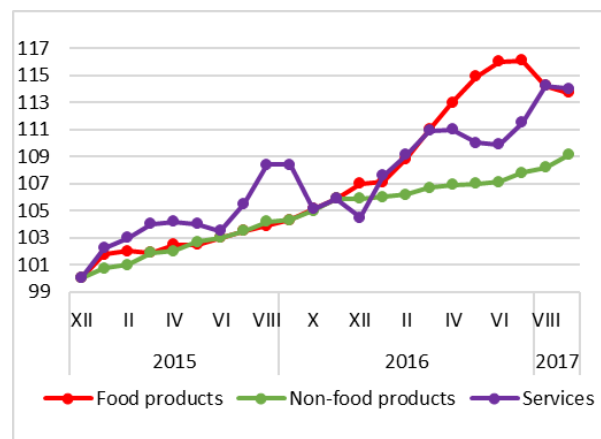
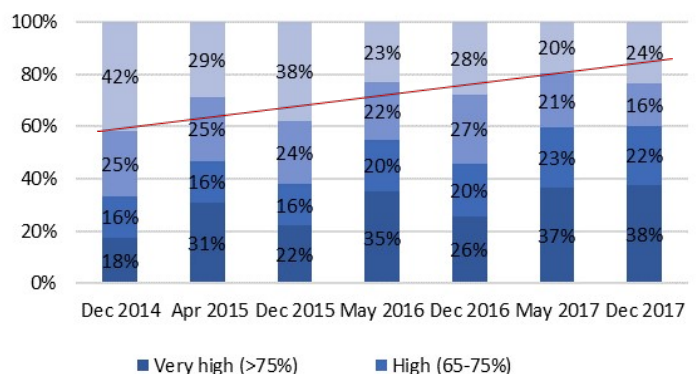


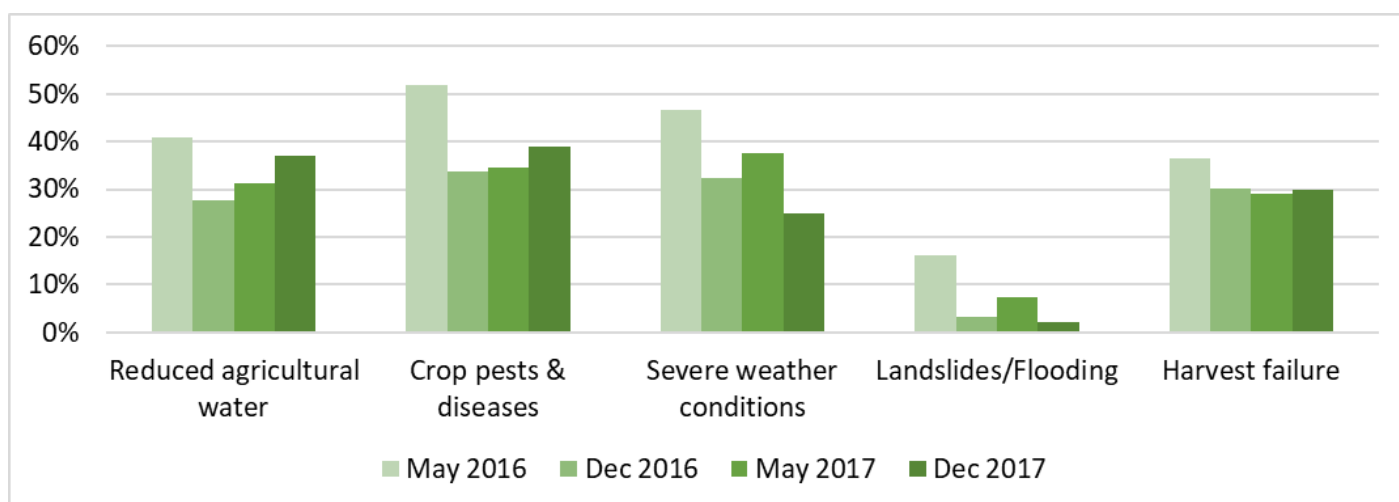
Figure 10: % share of food expenditure groups (rural households) (Draft WFP Food Security Monitoring Report December, 2017)



Expected impacts of climate change that could affect agriculture include increased reliance upon aging irrigation systems, glacial melt leading to flooding and droughts, land erosion, and loss of crops due to heat and frost. Simulations show that a 20% decline in agricultural

productivity, for example caused by climate change, could increase the national poverty rate by 13%, while a 20% increase in relative food prices could increase the poverty rate by 16%.

Figure 11: Natural shocks experienced by rural households (Draft WFP Food Security Monitoring Report December, 2017)



6.

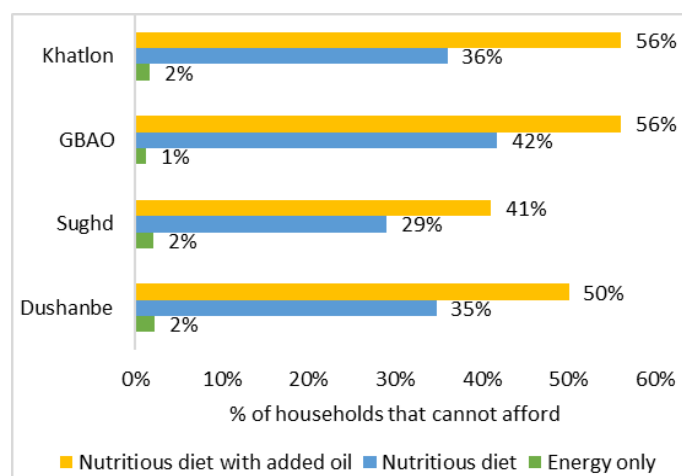
A NUTRITIOUS DIET IS UNAFFORDABLE FOR 30-56% OF HOUSEHOLDS, AND AFFORDABILITY IS DECLINING, WHICH WORSENS FOOD SECURITY.

The national poverty line is set based on the Cost of Basic Needs approach and a minimum food basket; in 2016, the official poverty line was TJS 175.2 per capita per month, and as of 2018, 29% of the population fell below the poverty line. Although the poverty rate has decreased substantially over the past decade, there has not been a comparable decline in rates of undernourishment (food consumption not meeting energy needs). In 2016, the poverty rate and the proportion of undernourished people stood at 31.3 and 30%, respectively, and given population growth, the number of undernourished people had in fact remained stagnant at 2.6 million people.

According to the CotD analysis, a diet that meets only energy needs cost TJS 343 per household per month in 2017, while a nutritious diet cost TJS 1047. Less than 2% of households are unable to afford the energy only diet, however, 29-56% of households are unable to afford a nutritious diet (Figure 12). According to Tajstat estimates, a basic Tajik consumer food basket costs TJS 198.46 per capita per

month, and a healthy diet TJS 383.24. Unaffordability of that healthy diet will be even higher than that of the modelled lowest-cost nutritious diet. The cost of a nutritious diet estimated by the CotD analysis increased across all regions from 2016 to 2017, and unaffordability will worsen if the current trend of decreasing economic access, due to food prices increasing more than incomes, continues.

Figure 12: Non-affordability by region (Cost of the Diet Analysis, 2018)



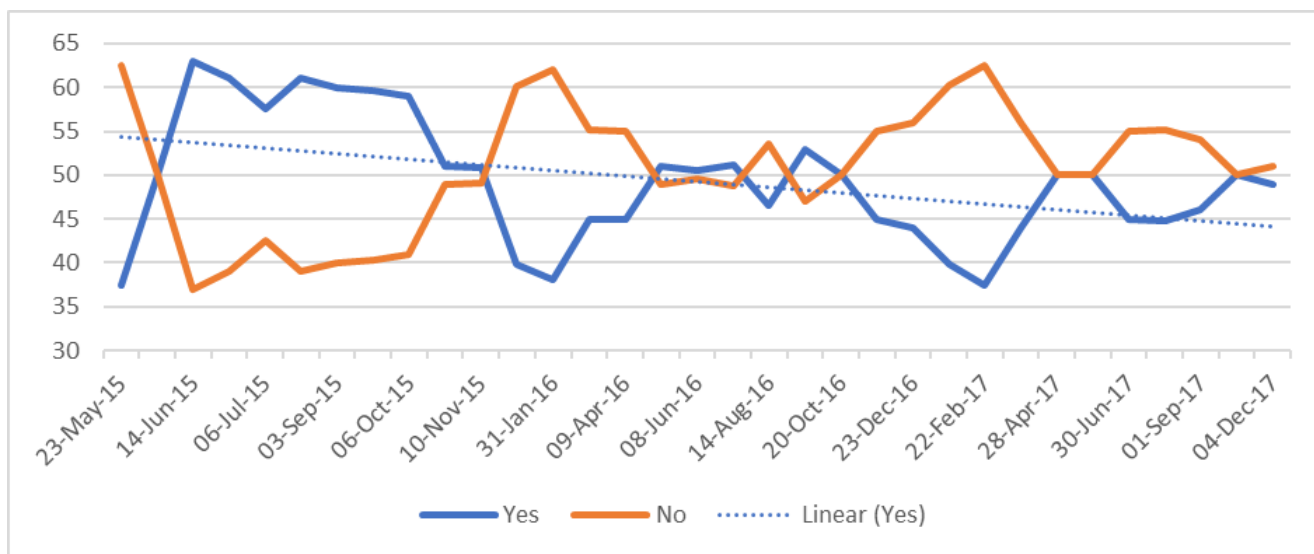
7.

THE SEASONALITY OF PRODUCTION AND INCOME IS LIKELY TO AFFECT NUTRITIONAL QUALITY OF DIETS THROUGHOUT THE YEAR.

Food security changes throughout the year as availability of food and purchasing power of households depend on seasonal factors including fluctuations in agricultural production, employment in agriculture, employment that provides remittances, and prices of imported foods. The agricultural lean season is from January to May and the harvest from May to October, impacting access to both food and agricultural employment. Remittances are received predominantly in the summer from construction work in Russia.

The percentage of household heads who reported working the previous week decreased from 2015 to 2017, and fluctuates seasonally (Figure 13). While food prices remain relatively stable throughout the year (Figure 13), fluctuations in earnings lead to changes in purchasing power across seasons.

Figure 13: Household head working during the last week (World Bank, *Listening to Tajikistan, Jobs, 2017*)



During the lean season households face both reduced employment and decreasing stocks from the previous harvest. 75% of households from WFP's monitoring areas report storing food; however these stocks last only until February or March. 61% of stocks were purchased on the market, while 30% were from home production. Further data on the seasonality of production of specific crops, consumption and availability of key stored foods, especially for the lean season, would contribute to better understanding of how changes in access and availability impact consumption and may hence affect the nutritional status of the population.

Due to changing economic access to foods purchased on the market, home production and household stocks, household dietary diversity was highest in December after the harvest and lower at the end of the lean season in May. Lower dietary diversity results in lower intake of important micronutrients, of which the most common staple foods (including wheat, potatoes and oil) have less. Data on dietary diversity of women are currently only available for the harvest season.

8.

PREVALENCE OF WASTING IS HIGH DURING EARLY INFANCY (0-5 MONTHS) AND INSTEAD OF EXCLUSIVE BREASTFEEDING AT THIS AGE MANY CHILDREN RECEIVE WATER OF UNKNOWN QUANTITY AND QUALITY.

Nationally, wasting prevalence was 6% in 2017, yet prevalence in children under six months was substantially higher (Figure 14), while only 7% of babies were reported to have been born with a low birth weight (less than 2.5 kg); the higher prevalence is more likely related to suboptimal feeding and caring practices for infants.

On average, 64% of children 0-5 months are not exclusively breastfed, however, as can be seen from the

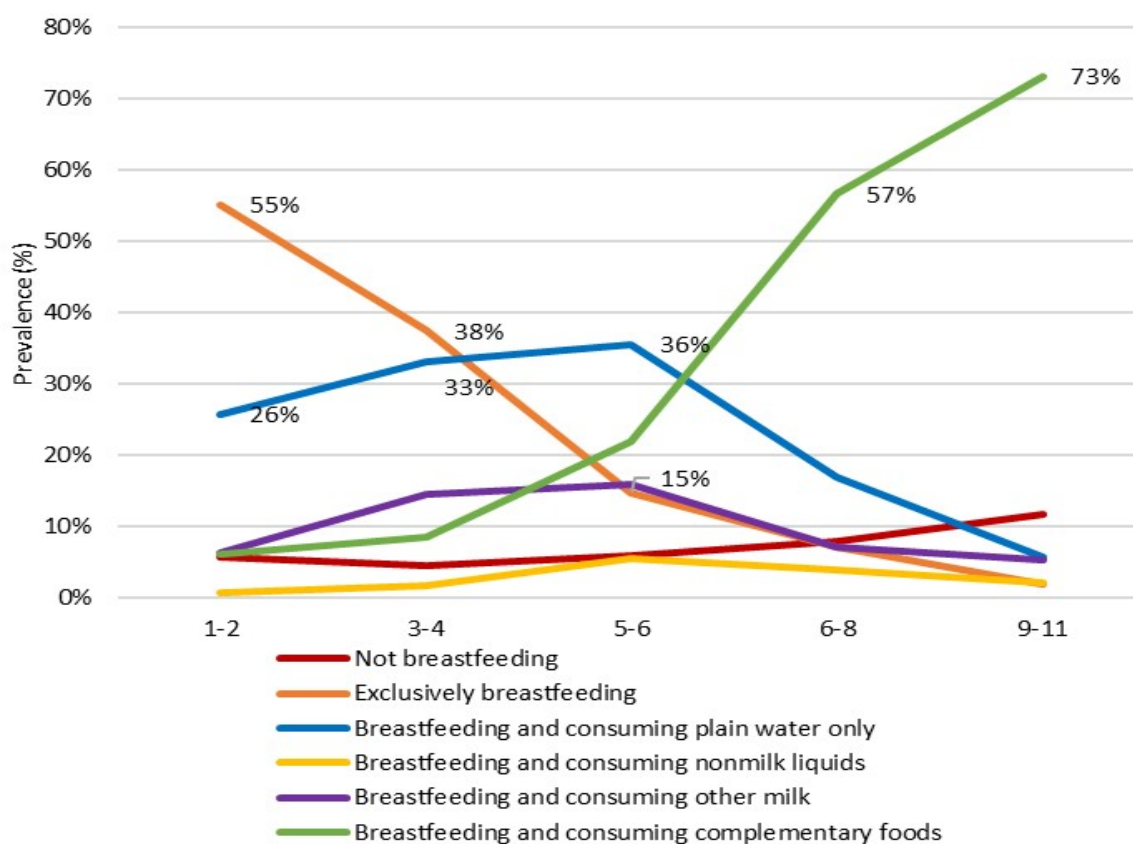
blue line in Figure 15, most receive only plain water in addition to breastmilk. This practice could reduce children's weight in two ways, by reducing breastmilk intake, if quantity is substantial, and by causing illness, if it is untreated, unclean water or if utensils used for giving it are not clean. Little information was identified about this practice.

Breastmilk is an important source of nutrients, without which young children would need more costly, nutrient-dense foods to meet their needs. A CotD model showed that the daily cost of a nutritious diet for a non-breastfed child is TJS 0.4-0.8 more, or 17-32% higher, than the cost for a child receiving the quantity of breastmilk recommended by the WHO.

Figure 14: Nutritional status of children by age
(DHS, 2017)



Figure 15: Breastfeeding status by month of age
(DHS, 2017)



9.

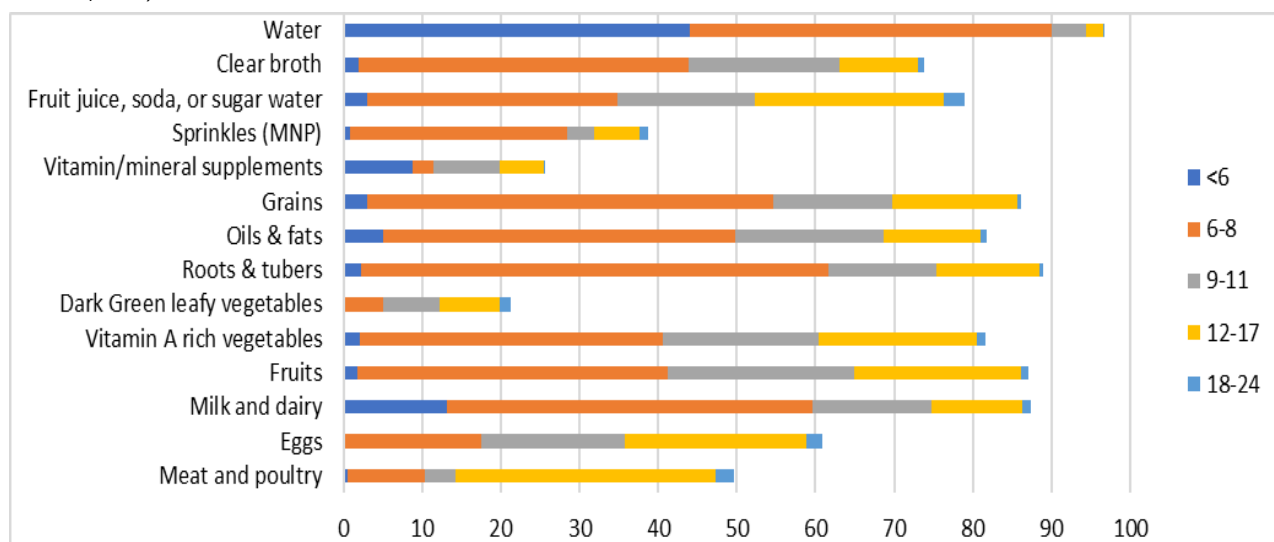
COMPLEMENTARY FOODS ARE INTRODUCED LATE AND ARE NOT DIVERSE, ESPECIALLY WHEN COMPARED WITH DIETARY DIVERSITY OF WOMEN.

Only 9% of children aged 6-23 months have a minimum acceptable diet (MAD), a composite indicator that takes into consideration both the diversity of diet and frequency of feeding. Dietary diversity in children is especially low when compared to the dietary diversity of women, since 80% of women achieved Minimum Dietary Diversity (>5 food groups) in the harvest season of 2017, during the same period when the MAD data was collected. UNICEF formative research on infant and young child feeding in Tajikistan similarly found that in 47% of households interviewed, the mother's diet was adequately diverse, while the child's was not. This indicates that there is potential for behaviour change to

encourage sharing the diverse foods that are available in the household also with young children.

Stunting increases during the period of complementary feeding, from 6-24 months, which often indicates that the foods being given are inadequate. Only 57% of children 6-8 months received complementary foods, and the 8% who were no longer breastfeeding may also have been consuming complementary foods. The late introduction of complementary foods likely impacts introduction of important micronutrients to the diet, such as iron and zinc that are not available in adequate quantities from breastmilk. In addition to late introduction to complementary foods in general, children are also introduced later to more nutrient-rich foods, such as animal source foods and dark green leafy vegetables (Figure 16). Liquids and sweets are introduced relatively early, including tea which should be discouraged as it reduces iron absorption. It is positive that nearly 40% of children received micronutrient powders (MNP).

Figure 16: Age of child (months) when first fed food or liquids other than breastmilk (UNICEF MNS, 2016)



10.

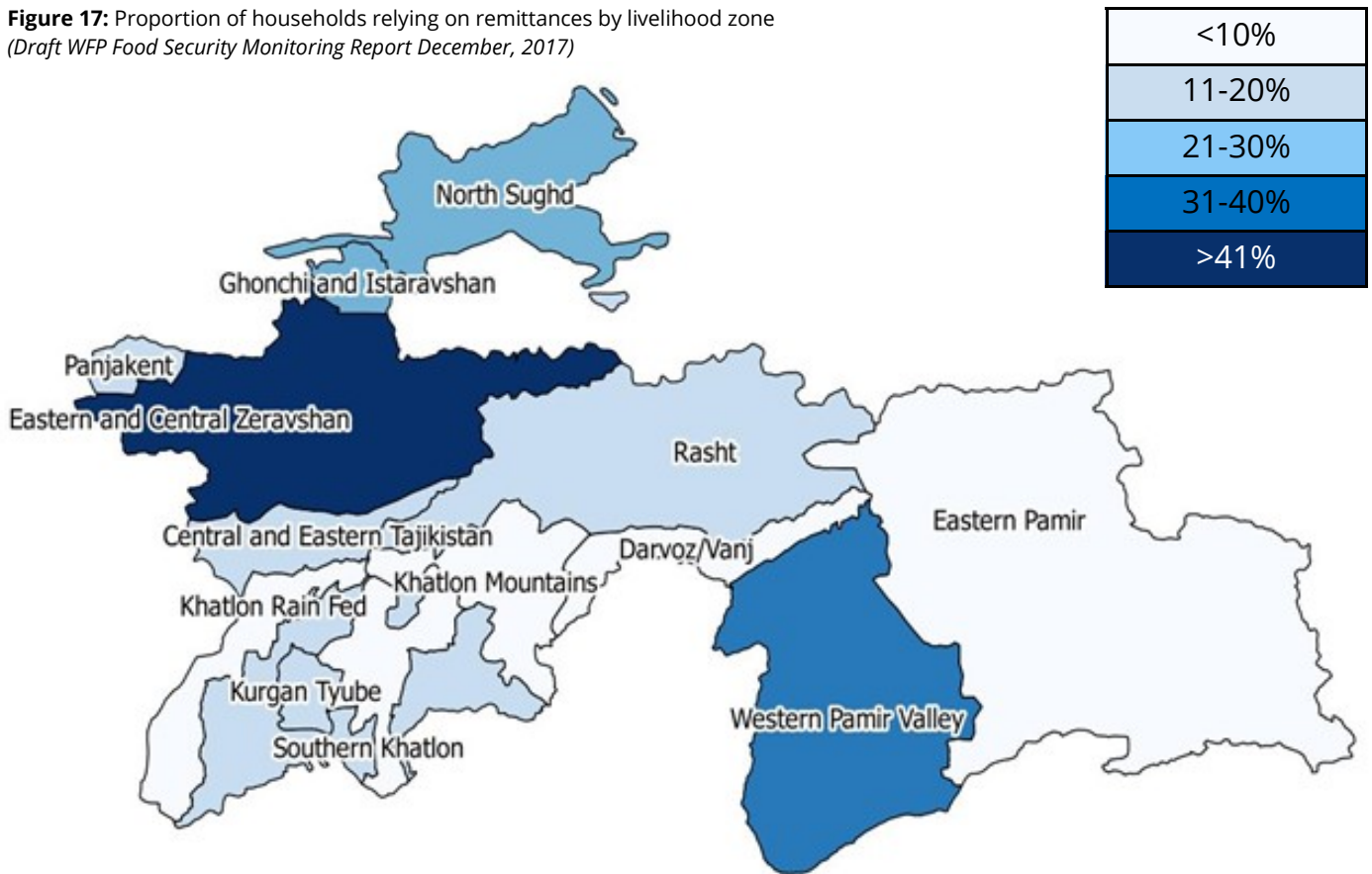
WOMEN'S DOMESTIC WORKLOAD CONSTRAINS THEIR CAPACITY TO CARE FOR CHILDREN. LABOUR MIGRATION LEADS TO MORE FEMALE-HEADED HOUSEHOLDS AND INCREASED INCOME-EARNING RESPONSIBILITIES FOR WOMEN, ESPECIALLY IN AGRICULTURE.

Women have limited time to care for children given the high and increasing demands on their time. Daughters-in-law carry out household chores to "please their mother in laws and husbands" and are increasingly responsible for agricultural production as men migrate for work. Sughd, which has the highest level of reliance on remittances, also has the highest number of female-headed households (FHH) at 27% (Figure 17). The greater the reliance on remittances for a household, the more domestic and agricultural work taken on by women.

Having limited time to care for children means women are less able to exclusively breastfeed, feed frequently enough, or ensure children receive a diverse diet.

Food security is lower in FHH, according to WFP's monitoring data: 67% compared to 80% in male-headed households, while poor dietary diversity was also higher among FHH at 23%, compared to 15% for male-headed households.

Figure 17: Proportion of households relying on remittances by livelihood zone
(Draft WFP Food Security Monitoring Report December, 2017)



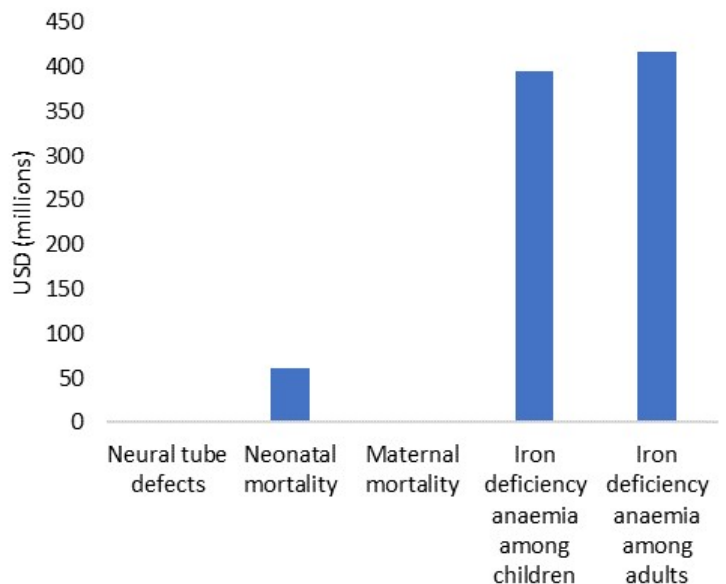
11.

AVAILABILITY AND AFFORDABILITY OF NUTRITIOUS FOODS THROUGHOUT THE YEAR CAN BE IMPROVED THROUGH COLLABORATION WITH FOOD PRODUCERS BY DIVERSIFYING AND IMPROVING AGRICULTURAL PRODUCTIVITY, PRESERVATION AND STORAGE, AND WITH FOOD PROCESSORS BY IMPLEMENTING FORTIFICATION (WHEAT FLOUR, OIL, COMPLEMENTARY FOODS FOR YOUNG CHILDREN)

Fluctuations in income and the seasonality of production limit intake of micronutrients. This can partly be addressed through diversifying agricultural production, in terms of crops grown and techniques used (e.g. green houses), and improving storage and preservation.

Furthermore, given the high consumption of wheat, fortification of wheat flour is a very important strategy to increase micronutrient intake and prevent deficiencies among the population of Tajikistan. A cost-benefit analysis of wheat flour fortification found that fortification could prevent cumulative economic losses of \$878 million over the next 10 years (Figure 18). Implementation of the fortification law, which will hopefully be passed in 2018, requires coordination between government agencies, private sector in particular the wheat millers, and development partners

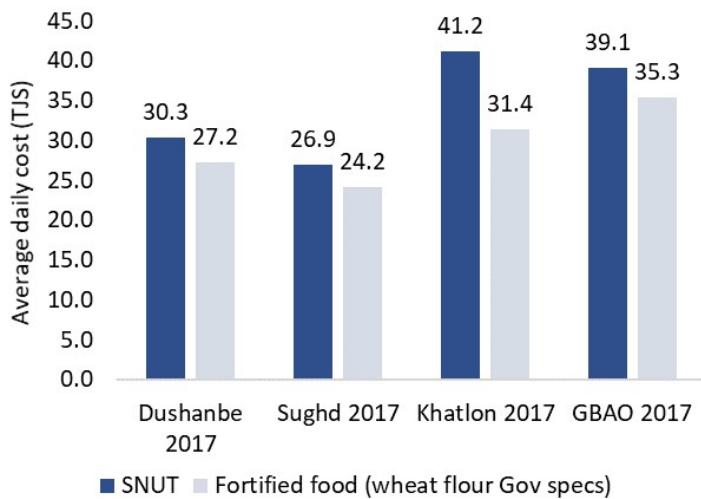
Figure 18: Cost-benefit analysis of wheat flour fortification
(USAID/GAIN Food Fortification in Tajikistan: A Cost-Effective Strategy for Sustainable Economic Growth, 2016)



Regional specifications for wheat flour fortification include six micronutrients: vitamins B1 and B2, niacin, folic acid, iron, and zinc. In addition, in Tajikistan it is also important that the flour be fortified with vitamin A, given the high prevalence of vitamin A deficiency, and vitamin B12, as this deficiency can be masked when fortifying with folic acid. Fortification would reduce the daily cost of a nutritious diet in most regions by 10 percentage points, and in Khatlon (with the inclusion of vegetable oil) by 24 percentage points (Figure 19).

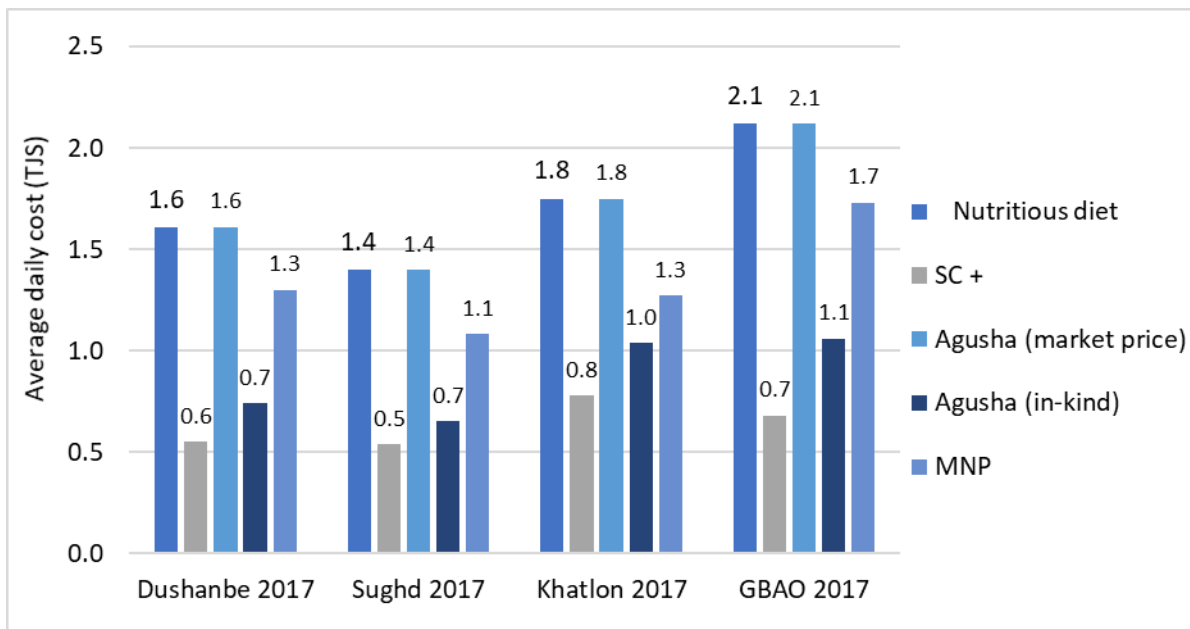
Although this may seem a small cost reduction for households, the costs of fortification are much lower, which makes it an efficient and effective way to improve the micronutrient intake of populations and achieve great health benefits with very high economic returns (see above). Moreover, if fortification is mandatory, there is no need for additional interventions to incentivize purchasing or consumption of fortified flour.

Figure 19: Cost of the Diet - Impact of fortified wheat flour on household cost of a nutritious diet
(Cost of the Diet analysis, 2018)



Micronutrient intake can also be improved by targeting vulnerable groups, such as provision of fortified complementary foods for children 6-23 months. These fortified foods can be given in-kind or through commodity vouchers. Figure 20 shows the impact of introducing fortified complementary foods that are currently available in Tajikistan into the diets of children. Super Cereal Plus (SC+) has the greatest impact on the price of a nutritious diet, reducing the cost for households by TJS 1-1.4 per day. SC+ consists of wheat flour, milk powder, oil, soya flour, is fortified, and is currently used to treat moderate acute malnutrition in Tajikistan. Agusha, a locally available fortified food, was also modeled both for purchase at the market price and given in-kind. Agusha reduces the cost of a nutritious diet substantially when provided in-kind, but not when purchased at the market price. These foods are examples of nutritious foods for this target group, the composition of which could be referenced for local development and production of a complementary foods.

Figure 20: Cost of the Diet—Provision of complementary foods for the child under 2
(Cost of the Diet analysis, 2018)





12.

EXISTING PLATFORMS AND DELIVERY CHANNELS, INCLUDING THE HEALTH SYSTEM AND, IN PARTICULAR, SOCIAL SAFETY NETS IN COMBINATION WITH MARKETS, CAN BE USED TO INCREASE ACCESS TO NUTRITIOUS FOODS FOR THE MOST VULNERABLE AND FOR SPECIFIC TARGET GROUPS.

Existing programs and their delivery channels as well as markets represent an opportunity for the delivery of services aimed at improving nutrition, including the use of specific channels to reach the target groups that are most vulnerable to malnutrition.

There are currently three social protection programs in Tajikistan including pensions (old age, disability and survivor), Targeted Social Assistance (TSA) and the provision of school meals.

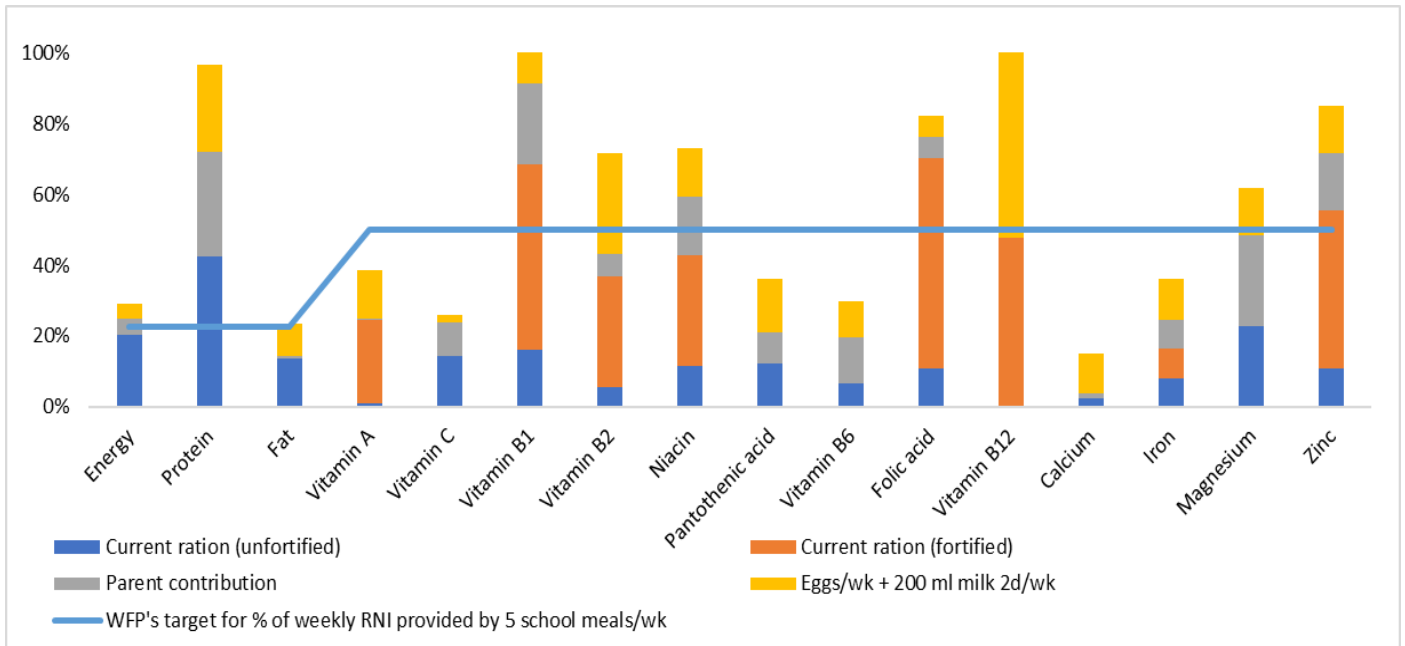
From 2009 to 2013, 73% of the national budget allocated for social protection was spent on pensions, while only 12% was used for TSA. 99% of pensions are for old age and are received through allocations of up to TJS 400 per

month, compared to TSA which is only TJS 400 per year or about TJS 33 per month. WASH data showed that 80-90% of households with an older person received a pension. In total, approximately 38% of households nationally receive a pension. The TSA currently targets the poorest 15% of the population.

School meals are provided to boarding schools by the government, and to those in the first four years of primary school by the WFP (50% of schools) with additional support from the government and parents.

Without school feeding, the cost of a nutritious diet to a household for a school-age child is TJS 2.8 per day, while with the current ration provided by WFP the cost to the household is reduced by TJS 0.5 per day. To illustrate how the school meal could be further optimized, a parent contribution of fresh vegetables, and two eggs and two servings of milk per week was added to the modeled diet (Figure 21). This combination reduced the cost to the household further and would provide a substantial part of the children’s nutrient requirements (see the blue line in Figure 21) and hence reducing the need for nutritious foods to be provided by the household.

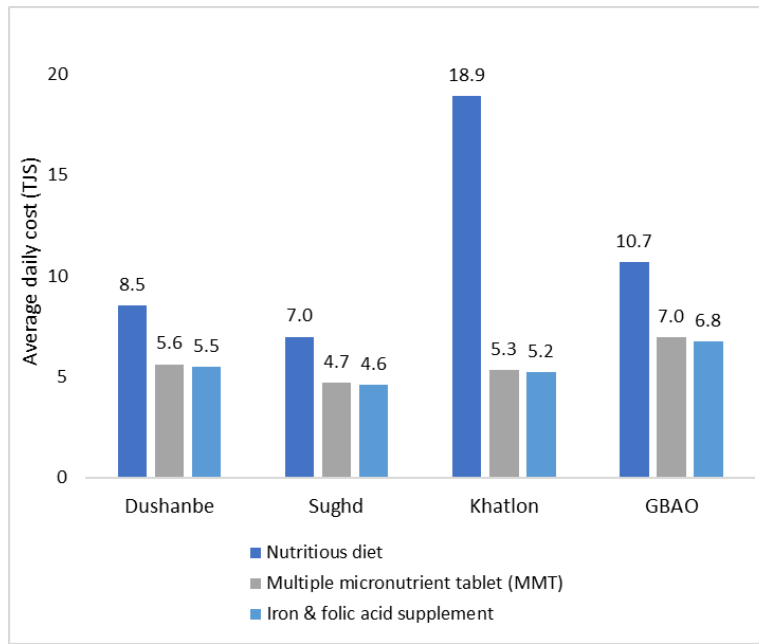
Figure 21: Cost of the Diet—Percentage of the Nutrient of the School-Aged Child covered by the Current School Feeding Ration + Parent Contribution + 2 Eggs/wk + 200ml Milk 2d/wk in Sughd (Cost of the Diet analysis, 2018)



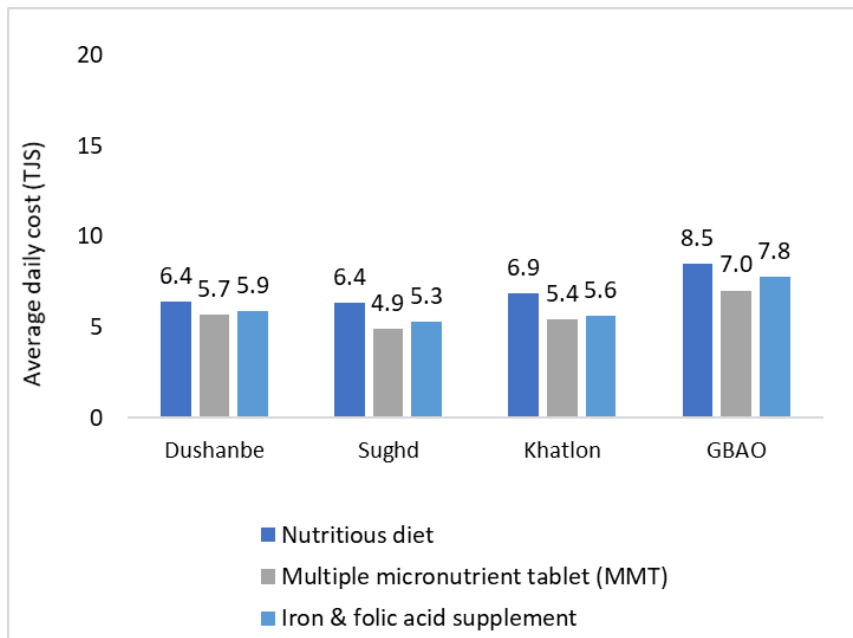
Another nutritionally vulnerable group are adolescent girls. As shown above, 37% of the cost of a nutritious diet for the modelled household were required to meet her nutrient requirements. To reduce this, micronutrient supplements to help cover her needs could be provided through existing health and education as well as the TSA list. Figure 22 shows the cost of a nutritious diet if she received a multiple micronutrient tablet (MMT) or an iron and folic acid supplement. Both substantially reduce the cost of a nutritious diet, especially because they reduce

the quantity of expensive iron-rich foods that the household would have to purchase. The cost of a nutritious diet for a lactating woman could similarly be reduced through the provision of MMT, which would have a slightly greater impact than iron and folic acid supplementation on the cost of her diet (Figure 23).

Figures 22: Cost of the Diet—Impact of adding micronutrient supplements for the adolescent girl (*Cost of the Diet analysis, 2018*)



Figures 23: Cost of the Diet—Impact of adding micronutrient supplements for the lactating woman (*Cost of the Diet analysis, 2018*)



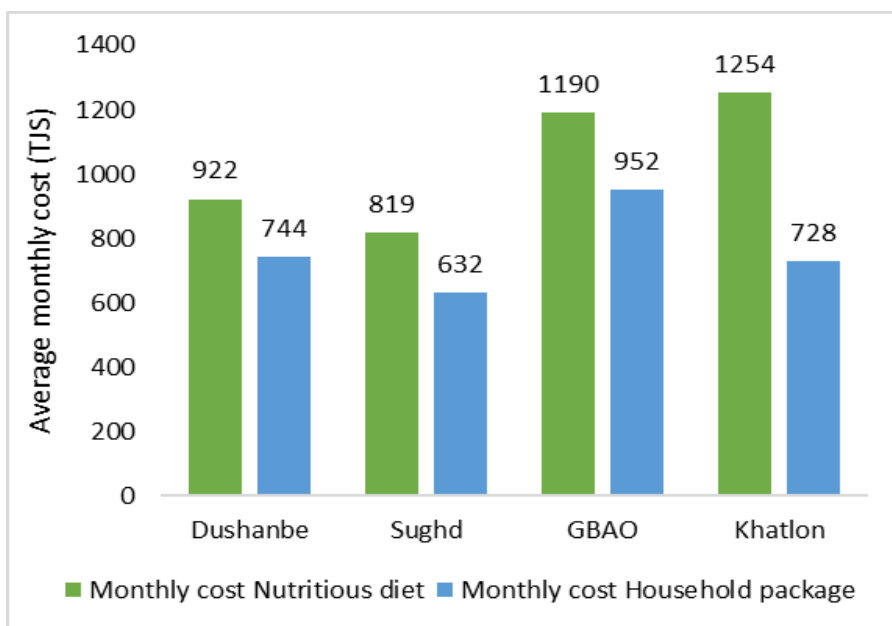
The list of households used for the TSA includes household composition and could be used to target vulnerable groups, including adolescent girls, pregnant or lactating women, and children under two years, with services provided by other government departments and agencies. The list could also be used to assess whether those eligible for services are receiving them. Using the TSA list to target groups such as those in the first 1,000 days of life could allow for increased access to fortified and complementary foods through in-kind provision, commodity-specific vouchers, or cash transfers accompanied by strong social and behavior change communication. The use of commodity-specific vouchers requires that foods are available at markets, which requires specific efforts. Because the geographic areas with larger percentages of households receiving TSA are poorer and have fewer services available, TSA lists could also be used to target improved provision of services including maternal and child health care or the provision of nutrient supplements to pregnant or lactating women. The interventions to increase the nutrient content of the diet, including fortification of wheat flour (discussed in section 11), provision of MMT to adolescent girls and lactating women via health platforms and of fortified foods to children under two through the market or TSA targeting, together with improved school meals, make up an optimized package of interventions to target vulnerable individuals and reduce the overall cost for households of meeting nutrient needs, making it more likely that they would meet their nutrient requirements (Table 1).

This optimized household package could reduce the cost for households of a nutritious diet by TJS 178-526 per month, a decrease of between 19-42% (Figure 24).

Table 1: Cost of the Diet—Household package of interventions
(*Cost of the Diet analysis, 2018*)

Target	Intervention	Modality
Household	Fortified wheat flour	Market
Lactating woman	Multi-micronutrient tablet	In-kind (health or social protection)
Adolescent girl	Multi-micronutrient tablet	In-kind (health or social protection)
Child under two	Agusha - locally available fortified complementary food	In-kind (health or social protection)
School-aged child	School feeding with parent contribution + animal-source food	In-kind (health or social protection)

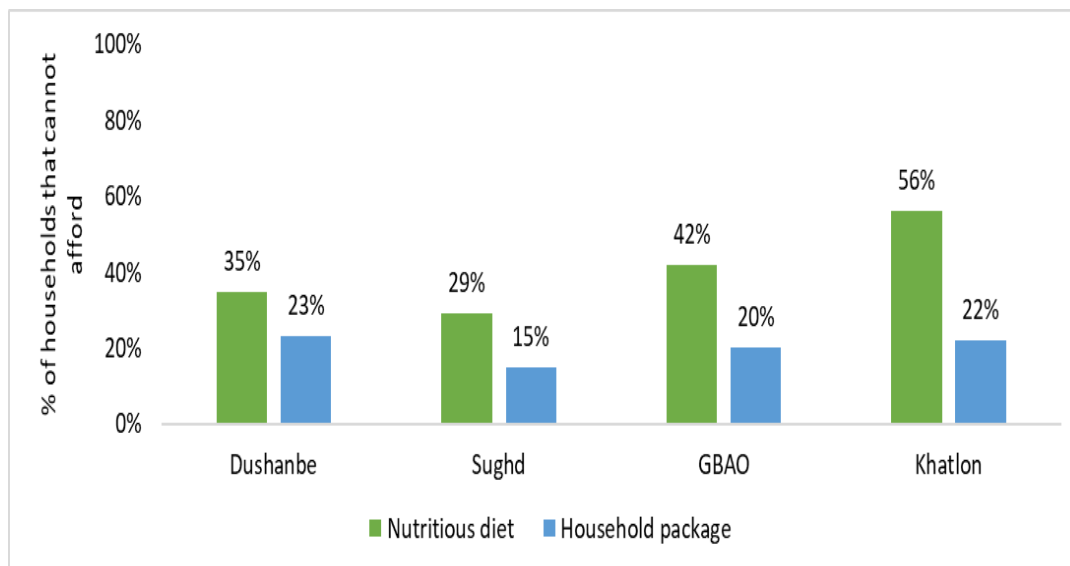
Figure 24: Cost of the Diet—Cost savings for household from intervention package
(*Cost of the Diet analysis, 2018*)



This cost savings, achieved through low cost market-based interventions and existing social protection platforms, could ultimately decrease the proportion of households for whom a nutritious diet is not affordable by 12-34% (Figure 25).

Lastly, the impact of these interventions, both individually and in combination, assumes the presence of both enabling national policies and complementary behaviour change interventions to promote use of these platforms and to ensure the interventions reach the targeted individuals.

Figure 25: Cost of the Diet—Non-affordability with household package
(*Cost of the Diet analysis, 2018*)



Package includes: Fortified wheat flour for all, multi-micronutrient tablet for adolescent girl and lactating woman, fortified complementary food for 12-23 mo old child and nutritious school meal for school-going child



CONTRIBUTORS

Ministry of Health and Social Protection with particular thanks to Ulmarzoda Saida Ghairat, First Deputy Minister of Health and Social Protection of Population of the Republic of Tajikistan; the Fill the Nutrient Gap team at the WFP HQ Nutrition Division, with particular thanks to Natalie West, Saskia de Pee, Pierre Momcilovic and Amy Deptford; the WFP Tajikistan Country Office team, with particular thanks to Shamsiya Miralibekova, Andrea Berardo, Janne Utkilen, Heejin Kim, Zoirjon Sharipov, Mariko Kawabata, and Paolo Mattei; the WFP Regional Bureau Cairo with particular thanks to Nitesh Patel & Lina Badawy; and the Columbia University team with particular thanks to Heather Kelahan & Katie Nelson. The FNG analysis was funded by the German Cooperation (BMZ).

LIST OF ACRONYMS

CotD	Cost of the Diet
DHS	Demographic Health Survey
EBF	Exclusive Breastfeeding
FAO	Food and Agriculture Organisation
FNG	Fill the Nutrient Gap
GLV	Green Leafy Vegetables
LP	Linear Programming
MAD	Minimum Acceptable Diet
MDD	Minimum Dietary Diversity
MNS	Micronutrient Survey
MMT	Multiple Micronutrient Tablet
MoHSP	Ministry of Health and Social Protection of Population of the Republic of Tajikistan
RNI	Reference Nutrient Intake
SC+	Super Cereal Plus
TSA	Targeted Social Assistance
UN	United Nations
UNICEF	United Nations Children's Fund
VMP	Vitamin and Mineral Powder
WHO	World Health Organisation
WFP	World Food Programme

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The FNG analysis was funded by:

