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POLICY DOCUMENT

**HEALTH HIDDEN COSTS OF AGRI-
FOOD SYSTEMS: DRIVERS AND
POLICY LESSONS IN THE SOUTH
CAUCASUS**

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EXECUTIVE SUMMARY

For the countries in the South Caucasus, health hidden costs amount to 87%, 88%, and 92% of the total quantified hidden costs of agri-food systems. In terms of the share in GDP, they subsequently comprise 18%, 16%, and 22%, respectively. These health-related hidden costs stem from labour productivity losses due to obesity and non-communicable diseases (NCDs) caused by unhealthy dietary patterns (FAO, 2023).

The occurrence of obesity among adults is similar across Armenia, Azerbaijan, and Georgia, with approximately one in every five individuals suffering from obesity in all three countries. The age-standardized death rate due to cardiovascular disease, cancer, diabetes, or chronic respiratory disease in adults aged between 30 and 70 is the lowest in Armenia (19.9), as opposed to Azerbaijan with the highest death rate of 27.2 and Georgia with a rate of 24.89. For western European countries, this indicator ranges from 8 to 12, thus indicating that South Caucasus death rates are almost double the values in Western Europe, and slightly higher than in Eastern Europe where the rate ranges between 16 and 26.

All three countries are dependent on food imports and maintain a negative trade balance for agri-food products. In light of their import dependency, and the predominant focus on the availability and affordability of basic food staples in the South Caucasus, prioritizing nutrition within policy agendas remains limited. Despite the consensus among stakeholders regarding the detrimental impact of unhealthy diets on obesity and non-communicable diseases, concerted efforts to address this issue are still inadequate. Currently, there is also a noticeable absence of collective action among stakeholders across the three countries to tackle the challenge of unhealthy dietary patterns.

Moreover, a notable gap in understanding persists among stakeholders regarding the interconnectedness of various sectors, beyond healthcare, for the promotion of healthy diets. The potential role of transforming agri-food systems to advance nutrition and healthy diets, and alleviate concealed health costs, remains largely unexplored in all three countries.

The dietary patterns observed across the three countries equally share commonalities, with cereals serving as a significant contributor to the energy intake of their populations. Traditional staples such as lavash, a type of salty flatbread, hold cultural significance in these regions, thereby contributing to the challenge of altering local dietary habits.

Several underlying factors further drive the prevalence of unhealthy diets in the South Caucasus. Low incomes emerge as the primary catalyst in both Armenia and Georgia, while cultural preferences exert a more pronounced influence in Azerbaijan. Furthermore, inadequate nutritional education exacerbates the challenges, and perpetuates unhealthy dietary practices throughout the region. The other major drivers of unhealthy eating are limited physical access to diversified diets; seasonal changes in food availability due to limited domestic production of agri-food products; low awareness on the definition and importance of healthy nutrition; and the widespread marketing of foods high in sugar, salt, and fat.

Addressing such multifaceted issues necessitates a comprehensive approach that integrates economic, cultural, and educational strategies in order to promote healthier dietary choices and mitigate the burden of NCDs. To foster the adoption of nutritious eating habits in the region, several strategic initiatives are under this proposal. Firstly, there should be a concerted effort to bolster local production capabilities, thereby ensuring a steady supply of fresh, nutrient-rich food. Concurrently, the implementation of flour fortification and salt reduction programmes act as pivotal measures to enhance the nutritional quality of staple foods.

Furthermore, stringent regulations governing the labelling, sale, and marketing of foods high in salt, sugar, and fat, alongside fast food, are equally important. Collaborative initiatives incorporating food producers and retailers are therefore critical to collectively design the mechanisms required to reduce the levels of sugar, fat, and salt in beverages and processed foods.

In addition, the establishment of a multisectoral committee, comprising representatives from diverse ministries and agencies, holds the potential to advance the agenda of healthy nutrition. This collaborative body could lead coordinated efforts, pooling resources and expertise, to design comprehensive strategies and action plans. Equally, it is vital to conduct robust awareness-raising campaigns which disseminate knowledge about the benefits of healthy diets and the risks associated with poor nutrition. Through education and outreach initiatives and private-public partnerships, communities can be empowered to make informed dietary choices, thereby fostering a culture of good nutrition and healthy diets.

INTRODUCTION

According to the FAO State of Food and Agriculture (SOFA) (FAO, 2023) report, within the three sub-categories of hidden costs – environmental, social, and health – those related to health constitute the greatest expense for countries: accounting for an average of 75% of the total quantified hidden costs. These health-related hidden costs stem from labour productivity losses due to obesity and non-communicable diseases (NCDs) caused by unhealthy dietary patterns, among other reasons (FAO, 2023). The burden of these costs is particularly pronounced within upper-middle-income countries (UMICs), where they comprise 11% of the GDP.

In the South Caucasus, the corresponding shares are higher than both the global and the UMIC average. Specifically, health hidden costs amount to 87%, 88%, and 92% of the total quantified hidden costs for Armenia, Azerbaijan, and Georgia, respectively. Moreover, they comprise 18%, 16%, and 22%, respectively, in terms of their share in GDP.

Given the direct relevance of health hidden costs in the South Caucasus, in order to make policies sustainable and capable of delivering healthy diets to the whole populace, they should not be overlooked during the formulation of policies that transform agri-food systems. The three countries of the South Caucasus have each already pledged to address NCDs through their prominent strategic documents. For instance, in Armenia, initiatives like the National Strategic Programme (2012–2018) and the Strategic Programme for NCD Prevention and Control (2016–2020) demonstrate the country's commitment to combat circulatory diseases, malignant neoplasms (cancers), diabetes, and other related risk factors. The Ministry of Health of Azerbaijan has also developed a comprehensive strategy and action plan to tackle non-communicable diseases,¹ that which aims to integrate prevention and control measures across government agencies and the private sector. The strategy includes intersectoral collaboration to enhance capacity on NCD prevention and control, while incorporating education, awareness raising programmes, and research. In Georgia, the National Strategy and Action Plan for Non-Communicable Diseases Prevention and Control 2017–2020 has steered comprehensive efforts at all levels.² The plan focuses on nine targets, prioritizing the reduction of premature mortality by 2025, particularly for major NCDs such as cancer, diabetes, cardiovascular diseases, and chronic respiratory diseases. The Georgian plan also addresses risk factors such as tobacco and alcohol consumption, insufficient physical activity, and unhealthy diets.

Nevertheless, it is important to note that aspects within the current strategies and action plans for all three countries are outdated, as they primarily date back to 2020, and as of 2024 no updated strategies covering the upcoming 5–10 years have been developed. Moreover, the three countries each continue to face significant challenges related to the prevalence of NCDs. A review of the

¹ The Azerbaijan National Strategy for the Prevention and Control of Non-Communicable Diseases 2015-2020. (n.d.). Retrieved 27/11/2023 from https://extranet.who.int/ncdccc/Data/AZE_B3_NCD%20AZERBAIJAN%202015-2020.pdf

² The Ministry of Health, Labour and Social Affairs; The National Center for Disease Control and Public Health. (n.d.). The National Strategy and Action Plan for Non-Communicable Diseases Prevention and Control 2017-2020. Retrieved 27/11/2023 from https://www.iccp-portal.org/system/files/plans/NCD_Strategy_UICC.pdf

strategic documents also identifies that obesity-related issues still receive insufficient attention relative to malnutrition.

The objective of this background paper is therefore to examine the health dimension of hidden costs within the agri-food systems of Armenia, Azerbaijan, and Georgia, to analyze the drivers of these costs, and to recommend policy entry points for their reduction. The paper examines the major features of agri-food systems in the South Caucasus, and it reviews the respective strategic documents and action plans to assess the extent to which the importance of a healthy diet is recognized and appropriately addressed. The research further aims to evaluate the tools employed to promote healthy diets, while assessing their feasibility, effectiveness, and relevance within the context of the three countries. Its ultimate goal is to catalyze action towards agri-food systems transformation in order to reduce health hidden costs within agri-food systems.

METHODOLOGY

The background paper is based on an extensive review of scholarly studies and articles within the South Caucasus agri-food sector. It synthesizes insights from a review of statistical data concerning agri-food systems and the health sector. Moreover, it integrates perspectives acquired through stakeholder consultations with key entities such as the respective Ministries of Agriculture, Health, and Economy, alongside agricultural research institutions and disease control centres. These consultations encompassed a broad spectrum of stakeholders, including those from the donor community, to ensure better understanding of the complex interplay between agri-food systems and public health within the region.

AGRI-FOOD SYSTEMS AND HUMAN HEALTH

Effectively operating agricultural and food systems are crucial for enhancing nutrition and food security, for alleviating poverty, and for achieving those sustainable development objectives related to the climate and the environment. Their significance is particularly pronounced given the current challenges of escalating prices and food insecurity (Shiferaw & Apfalter, 2021).

Despite the enhanced capacity to produce adequate calories to meet the needs of expanding populations, disparities in income and food distribution have led, globally, to both persistent undernutrition and a worldwide epidemic of weight gain, obesity, and the associated NCDs, often coexisting within the same geographic areas (Shrimpton & Rokx, 2012). Globally, dietary risks are estimated to account for 255 million (234–274mn) Disability Adjusted Life Years (DALYs) annually, with dietary enhancements potentially able to prevent one out of every five global deaths (Afshin et al., 2019).

At present, food systems capitalize on the desire for inexpensive, convenient, and flavourful food to promote the consumption of nutritionally deficient, highly-processed foods across high, middle, and low-income nations. With economic forces incentivizing the expansion of food supply chains, there is also a natural progression towards increased food processing aimed at enhancing taste, texture, and shelf life (Swinburn et al., 2019). The processed nature of these goods, rather than solely their macronutrient composition or calorie density, triggers elevated calorie consumption and subsequent weight gain from exposure to ultra-processed foods (Hall et al., 2019). Disadvantaged communities in affluent nations frequently depend on such highly-processed, calorie-rich, nutrient-deficient foods to fulfil their energy requirements. In Low and Middle Income Countries (LMICs), ultra-processed foods may be seen as desirable and are increasingly accessible and convenient (Swinburn et al., 2019). These food products (together with the supply chains responsible for their production and marketing) are among the most significant factors contributing to the escalating prevalence of non-communicable diseases related to diet.

OBESITY AND NCDs IN THE SOUTH CAUCASUS

According to the FAO's 2020 SOFI publication, adult obesity stemming from unhealthy dietary patterns is on the rise in every single region, including the South Caucasus.

In Armenia, although the prevalence of overweight among children declined from 16.5% in 2012 to 13.7% in 2019, the prevalence of obesity among adults has risen. While the data for children is limited, the occurrence of obesity among adults is similar across Armenia, Azerbaijan, and Georgia; with approximately one in every five individuals suffering from obesity in all three countries. Specifically, in 2019, obesity affected 21.7% of the adult population in Georgia, 20.2% in Armenia, and 19.9% in Azerbaijan (SOFI, 2020). These statistics are slightly higher than the world average, where, according to WHO, 43% of adults (aged over 18) were overweight and 16% were living with obesity in 2022.

Regarding NCDs (cancers, blood diseases, and diabetes), with a high attribution to unhealthy diets, the age-standardized death rate due to cardiovascular disease, cancer, diabetes, or chronic respiratory disease in adults aged 30–70 is the lowest in Armenia (19.9), as opposed to Azerbaijan which has the highest death rate (27.2) and to Georgia with a rate of 24.89. In Western Europe, this indicator ranges from 8 to 12,³ thus revealing that the death rates in the South Caucasus are almost two times higher than in Western Europe and slightly higher than in Eastern Europe, where the rates range between 16 and 26.

Crucially, obesity and NCDs can lead to decreased work performance, increased absenteeism, and higher rates of disability. This results in a loss of productivity for employers, lower economic output, and decreased overall workforce efficiency, signalling an urgent need for action beyond the health implications (Goettler, Grosse, & Sonntag, 2017).

³ Accessed March 2024. Retrieved from <https://dashboards.sdgindex.org/map/indicators/age-standardized-death-rate-due-to-cardiovascular-disease-cancer-diabetes-or-chronic-respiratory-disease-in-adults-aged-30-70-years>

ARMENIA

DIETARY PATTERNS AND THEIR DRIVERS

During the last decade, the dietary habits of the Armenian population have deteriorated, with the most vulnerable households sharply decreasing their intake of meat, fruit, vegetables, and dairy products (Food Security and Vulnerability Assessment, WFP, 2019).

The research shows that, on average, Armenians consume approximately double the recommended maximum intake of salt, four times more staple foods (such as baked goods and potatoes), and about half the recommended intake of fruits and vegetables. A comparison of the current dietary habits in Armenian households under the principles of sustainable consumption, as reflected by the UK's recommended standard "Eatwell Plate", shows that a healthy diet should consist of 33% starchy foods, like bread, rice, potatoes, and pasta, yet in Armenia, this constitutes 42% of the average diet. Similarly, fruits and vegetables, which should comprise 33% of the diet, make up only 30% in Armenia. The proportion of dairy products (including eggs) amounts to 12% in Armenia, instead of the advocated 15%. The recommended share of meat, fish, eggs, and other non-dairy sources of protein reaches 12% of the diet, however it stands at only 7% in the Armenian diet (excluding eggs). Lastly, foods high in fat or sugar should constitute 8% of the total intake, while they account for almost 9% in Armenia. Overall, there is a clear disparity in the distribution of starchy foods, fruits and vegetables, and animal-based foods (Stepanyan, Pipoyan, Beglaryan, & Merendino, 2022).

Armenian cuisine is influenced by its cultural heritage and historical context. Bread, particularly lavash (thin unleavened flatbread), holds cultural significance in the cuisine and is a staple food in the local diet. Grains such as wheat, barley, and rice are also commonly consumed. Meat is yet another important nutritional component; the most commonly consumed meats being lamb, beef, and poultry.

An analysis of the consumption data for 2008–2019 reveals a decrease in the consumption of all food types, including plant-based foods, while the use of animal-based foods has largely remained steady. Notably, cereal and bakery products account for over 50% of the total energy, protein, and carbohydrate intake. The population also exhibits variations in its macronutrient intake, with energy and carbohydrate intake falling below the WHO/FAO recommended values, total fat consumption reaching the highest recommended level, and protein intake exceeding the threshold.

Excessive salt intake has also been observed among the population, as found by an NCD STEPS survey. The mean salt consumption stands at 9.8 g/day among people aged 18–69 (11 g/day for men and 8.4 g/day for women), which is almost two times higher than the recommended WHO target of 5 g/day. The primary foods containing salt are led by bread, followed by cheese, pickles, and processed and semi-finished meat products (fermented sausages/meat snacks).

In Armenia, the total average salt intake from bread is rather high (3.75 g, 38.3%), compared to the contribution from bread in many countries in European and Eastern Mediterranean regions, due to

both the relatively high salt density in bread and the high level of its consumption in the country. More than 60% of salt consumed in Armenia derives from processed foods, added by food manufacturers prior to purchase (Aslanyan, Andreasyan & Khachatryan, 2022). Beyond the largest share of salt that is contributed through processed foods, a significant proportion of dietary salt is apparently added during cooking or from sauces (Aslanyan et al., 2022).

Research further suggests that a significant portion of the population has insufficient iron intake, potentially leading to iron deficiency anaemia (Stepanyan et al., 2022; FAO, 2023; Aslanyan et al., 2022).

The major drivers of unhealthy diets in Armenia include the population's low income; limited physical access to diversified food; seasonal changes in food availability; cultural preferences and habits; low awareness of healthy nutrition; widespread marketing of foods high in sugar, salt, and fat; alongside the post-Soviet transition and subsequent conflicts.

The findings of a WFP Food Security and Vulnerability Assessment in Armenia indicate that 31% of respondents cited a **lack of financial resources** as a hindrance to accessing food (World Food Programme, 2023). Increased food prices have contributed to limited access to food since 2020, with Armenia experiencing a rise in its Consumer Price Index (CPI). Notably, the CPI in Armenia averaged 91.45 points from 1993 until 2024, and it peaked at 159.24 points in February 2023 (Trading Economics, 2024). Such an increase in food prices is particularly alarming given that food accounts for 46.5% of household expenditures (Statistical Committee of Armenia, 2023). High food prices paired with significant unemployment levels further reduce access to food. The country is presently grappling with a high unemployment rate (13.4%) and with labour participation rates of only 55.7% (Statistical Committee of Armenia, 2023). The Food Security and Vulnerability Assessment highlighted that approximately 30% of households experience food insecurity, exacerbated by disruptions in income and food price inflation (World Food Programme, 2023). According to the 2021 SOFA, 46% of the Armenian population could not afford a healthy diet, with an additional 32% at risk if their income were to be reduced by one third (FAO, 2021).

Another driver behind unhealthy diets is the **limited physical access to diverse food products**. The Food Security and Vulnerability Assessment in Armenia revealed that 39% of households have encountered challenges in accessing the market. Notably, rural areas had a higher proportion, with 43% reporting difficulties, compared to 34% in Yerevan and 40% in other urban areas, indicating a disparity in market access. Additionally, the assessment found that 39% of households had experienced market access challenges in the week leading up to the interviews (World Food Programme, 2023). Such challenges are particularly severe for mountainous, rural, and border communities.

Seasonal changes in food availability also negatively impact access to healthy diets. Seasonality in local production has a particularly negative affect on mountainous, rural, and border communities. During the off-season (winter or spring, depending on the specific products), the inaccessibility ratios for seasonal foods in rural, border, and mountainous and high mountainous communities differ essentially from urban, non-border, and lowland communities. Accessibility in the latter areas is on average 70% lower (OXFAM, 2016).

Cultural preferences are significant drivers of unhealthy diets. Studies conducted in Armenia highlight the prevalence of dietary habits that contribute to malnutrition and long-term health issues, despite individuals potentially meeting their daily calorie requirements. In addition, adolescents consume excessive amounts of sugar, with half consuming sweets on a daily basis. Skipping breakfast is also common among schoolchildren and adolescents.

Despite increased food availability from 2008 until 2015, dietary habits have not improved, and are still characterized by an insufficient intake of fruits, vegetables, and micronutrient-rich animal products, with the exception of dairy products.

It is essential to emphasize the widespread **lack of knowledge regarding healthy nutrition** among Armenians, which in turn leads to the adoption of culturally accepted diets without consideration of their health implications. These knowledge gaps significantly contribute to diet-related health issues. For example, a cross-sectional study conducted in Yerevan revealed low average awareness of nutritional information; particularly concerning the relationship between diet and diseases, with only 24.1% of respondents demonstrating a sufficient understanding of the correlation between these two factors. Additionally, over 25% of participants mistakenly believe that osteochondrosis, a developmental disease, was linked to high salt intake (Torchyany, 2007; Stepanyan et al., 2022).

Widespread marketing of unhealthy diets is another critical factor, where 65% of the products actively promoted on television are prohibited by WHO for those under 16 years old (NIH, 2024). WHO research underscores that there is unequivocal evidence that the marketing of foods and non-alcoholic beverages high in saturated fat, salt, and free sugars (HFSS foods) influences childhood obesity. Adolescents also often imitate the dietary behaviours of their peers, and they are notably influenced by advertising when selecting food (Aslanyan & Demirchyan, 2019).

Lastly, the **post-Soviet transition and the ensuing conflicts** have also contributed to unhealthy dietary patterns. Following the collapse of the Soviet Union and communism in Central and Southeastern Europe, the newly independent states transitioned from planned to market economies. As such, core reforms, such as land privatization, led to the prevalence of small-scale farmers in agricultural production, thus posing poverty and food security risks (FAO, 2023).

Studies investigating the negative impact of the Soviet Union's collapse on well-being, particularly mortality rates, indicate a notable increase following the events. Notably, various factors contribute to these mortality patterns, including economic crises, transition stress, changes in social organization, dietary shifts, alterations in alcohol consumption, alongside their interconnectedness (Stillman, 2006).

The Nagorno-Karabakh conflict, which intensified in September–November 2020, led to an influx of displaced individuals into Armenia. The aftermath from the conflict and the ongoing crisis furthermore disrupted local and regional food systems, resulting in limited access to food for the displaced population (World Food Programme, 2023).

STRATEGIC AND REGULATORY FRAMEWORK

To tackle nutritional concerns within the country, the government has adopted various legislative measures, such as the Food Safety Law, Food Security Law, Rights of Children, and the Water Code, among others. Moreover, numerous government policies and strategies, for instance the Strategic Program for Promoting Healthy Lifestyles and the Child Nutrition Concept, have been designed and implemented. Additionally, there are various governmental and ministerial decrees and directives addressing issues like food safety, school nutrition, hygiene, and disease prevention (OXFAM, 2016).

Armenia's commitment to promoting a healthy lifestyle and nutrition is reflected in its Healthy Lifestyle Program, which aims to address various aspects of public health. The programme includes implementing taxation mechanisms and legislative reforms intended to reduce the advertising of food products that lead to unhealthy diets. These legislative reforms have also been implemented to regulate the sale of food and carbonated drinks intended for children and adolescents. Additionally, awareness campaigns have been conducted to reduce the consumption of saturated fat, trans fat, free sugar, and excess salt in food and beverages.

Under the framework of the programme, guidelines for educators in public educational institutions have been developed to address issues related to healthy nutrition and to limit unhealthy eating habits among preschool and school-age children. These guidelines have also been incorporated into educational programmes to promote healthy eating habits from an early age.

Short-term surveys on eating habits are moreover conducted in the population to monitor the implementation of the measures promoting a healthy lifestyle and limiting unhealthy nutrition.

The importance of the availability of nutritious and healthy food is also outlined in the Sustainable Development Cooperation Framework 2021–2025, which emphasizes the importance of educating the population on health-related issues, starting in school. This is pursued through curricula advice, parenting education, public campaigns, and risk communication initiatives.

The main intervention strategies for the adoption of a healthy lifestyle and nutrition include the following: analyzing food value chains; promoting nutrition-sensitive programmes, including school feeding programmes and healthy lifestyle education; triggering behavioural change through communication, counselling, and education; providing policy advice and implementing support for people-centred service delivery to prevent and control NCDs and CDs; operationalizing education curricula; supporting parenting education; and conducting public advocacy campaigns and education. In addition, school feeding and nutritional education are both emphasized in Armenia's National Pathway Dashboard. Nevertheless, there are no national policies regulating trans fat intake, and the standards for trans fat content within food products remain uncertain.

In spite of certain governmental policy and regulatory interventions, challenges hindering the shift towards healthier diets still remain and include:

Minimal labelling requirements and a rigid regulatory framework. As Armenia is a member of the EEU, it has to agree to any changes in the labelling of food products and the adoption of technical regulations with members of the Union. Reaching such an agreement remains quite

challenging as it requires participation in lengthy negotiations with partners who are frequently reluctant to adopt any changes that might place additional burdens on the private sector.

Higher prices on healthy food. Under World Bank research, 41.4% of the population in Armenia, equivalent to 1.2 million people, were unable to afford a healthy diet in 2021 (The World Bank, 2021). The research suggests that due to financial constraints, the majority of Armenians rely heavily on carbohydrate-rich foods, leading to restricted access to nutrient-dense options like fruit, meat, or seafood. High prices and limited purchasing power have been identified as the primary obstacles preventing the consumption of these foods, despite their availability (OXFAM, 2016).

Local seasonal production. As evident from low self-sufficiency ratios and underdeveloped greenhouse production, seasonality is particularly pronounced in the production of fruits and vegetables. Among the common seasonal vegetables there are pumpkins, sweet red peppers, and herbs used as ingredients in food, alongside green beans, squash, green peppers, corn, cauliflowers, and potatoes. The inaccessibility ratio for these vegetables ranges from 1.1% to 39.8%. Notably, the highest inaccessibility rates during the off-season were recorded for tomatoes, red sweet peppers, and similar produce (OXFAM, 2016).

Large numbers of small producers. Family farms play a crucial role in Armenian agriculture. As of 2016, family farms already owned a substantial portion of arable land, perennial plantations, and hayfields, comprising 72%, 90%, and 45%, respectively. By 2019, approximately 317,346 family farms were actively engaged in agricultural activities, reflecting their continued prevalence in the sector. Considering the total Armenian population stood at 2.8 million in 2019, family farms maintain a critical role in the country's food production system (FAO, 2020).

However, the prevalence of smallholder farmers in Armenia presents challenges that impact the availability and accessibility of healthy food, as enhancing nutrition requires not only improvements in food access for different population groups, but also advancements in the quality and diversity of diets (Sibhatu, Krishna, & Qaim, 2015). Smallholders often encounter difficulties in diversifying their production, which leads to a restricted range of crops and subsequently limits the variety of healthy food available in local markets. Furthermore, inadequate infrastructure, including insufficient storage facilities and transportation networks, hampers smallholders' ability to efficiently bring their produce to market, resulting in spoilage and reduced availability of fresh and nutritious foods.

Seasonal variations in weather and limited access to technologies like greenhouses pose additional challenges for smallholders, thus making it difficult to maintain consistent production throughout the year. Fluctuations in the availability of certain healthy foods occur as a result, and this restricts year-round accessibility for consumers. Moreover, smallholders may face obstacles accessing larger markets or selling their produce to supermarkets and retailers, thereby restricting the distribution of healthy foods, particularly in rural or remote areas where smallholders are prevalent.

The inefficiencies associated with small-scale production, like higher per-unit production costs and limited economies of scale, contribute to higher prices for healthy foods, rendering them less affordable and accessible, particularly for low-income households. Additionally, smallholders may struggle to meet quality standards and to obtain certifications, such as organic or fair-trade labels, for their produce, further limiting their access to premium markets and restricting the availability of healthy, certified foods for average consumers. Addressing these challenges requires

comprehensive interventions that support smallholders and promote sustainable agricultural practices in Armenia.

Convenience of fast food and the popularity of food delivery services. Over the past few decades, there has been a global surge in fast food consumption, resulting in an increase in trans-fatty acid (TFA) intake in many countries, including Armenia. Eating habits have also transformed, with unhealthy diets and food prepared outside the home becoming more popular among the population (Pipoyan, Beglaryan, Stepanyan, & Merendino, 2022).

Absence of national policies regulating trans-fat intake. While there are stringent regulations for trans-fatty acid limitations on food supplies around the world, in Armenia, this area is unregulated and there is a scarcity of data on the TFA content in products and on their consumption levels (Pipoyan et al., 2022).

Lack of nutrition specialists. The scarcity of specialists impacts public health initiatives and hinders efforts to combat malnutrition and diet-related diseases. Additionally, it restricts access to nutritional education and research, consequently impeding the development of evidence-based interventions.

Absence of food-based dietary guidelines for Armenia. There is no guidance on how to design healthy diets that take into account the preferences and habits of the Armenian population, or local contexts in terms of peculiarities in the agri-food sector, like scale or seasonality.

CONCLUSIONS

Armenia, as a net importer of agri-food products, has governmental programmes in agriculture that are directed towards increasing primary production to substitute imports and ensure availability and access to food. While the country generally has a liberal trade policy, increased customs tariffs for a broad range of imports and rigid labelling regulations due to membership of the EEU might be negatively affecting the local availability and accessibility of food.

The primary factors contributing to poor dietary habits in Armenia are constrained finances; limited access to varied, nutritious foods; cultural preferences for unhealthy options; insufficient awareness about healthy eating; extensive promotions of foods associated with unhealthy diets; and the aftermath of the Soviet transition alongside recent conflicts.

Overall, it can be concluded that Armenia, as an import dependent, middle-income, developing country, focuses more on the availability and affordability dimensions of food security than nutrition.

While stakeholders agree that unhealthy diets contribute to obesity and NCDs, healthy nutrition is still not prioritized on the policy agenda. Equally, there is currently no collective attempt from different stakeholders to address the issue of unhealthy diets.

RECOMMENDATIONS

In order to transform the populace's existing dietary patterns and promote a transition to healthy nutrition, it is recommended to:

Emphasize healthy nutrition on the policy agenda. Prioritizing the topic of nutritious eating within the primary strategic document, namely the Government Program of the Republic of Armenia (2021-2026), is recommended, alongside effectively underscoring the significance of balanced diets within the programme for the forthcoming span of five years.

Reduce salt intake. Set a maximum limit of salt for specific food items like bread, cheese, and other salt-containing foods. It is particularly advisable to standardize the amount of salt in bread and to develop the relevant regulations to guide bakers. Studies show that setting an upper 1.0% limit for the salt content in wheat bread, including lavash (Armenian bread), is strongly recommended, and that salt levels at $\leq 1\%$ are considered appropriate for other kinds of bread. Cheese and other salty foods should also be targeted to lower overall salt intake, with a gradual and sustained reduction in the amount added by the industry into food. Regulatory measures should therefore address the salt content in foods prepared outside the home (salt added while cooking or seasoning prior to consumer purchase), and promote reduced salt consumption among consumers (Aslanyan et al., 2022). Public health campaigns are also needed to encourage consumers to use less salt.

Regulate the use of trans fats by adopting respective regulations based either on scientific evidence or the best international practices. Such regulations could limit the allowable amount of trans fats in food products or, preferably, could focus on the full elimination of trans fats due to their harmful health effects.

Improve the labelling of agri-food products. One option could be the adoption of a traffic light system for food labelling. This requires the establishment of clear regulatory guidelines and standardized criteria for assigning colour codes (red, amber, green) based on the nutritional content of food; public education campaigns to raise awareness and understanding of the traffic light system among consumers; ensuring industry compliance with these new labelling requirements; and international cooperation to adopt the best practices from successful implementations of similar initiatives.

Implement a flour fortification programme aimed at combating anaemia (Aslanyan et al., 2022). This includes setting standards for fortification levels and monitoring the compliance. Collaboration with flour producers is also crucial to ensure the feasibility and cost-effectiveness of fortification processes, alongside education of consumers about the benefits of fortified flour and encouragement of its consumption.

Regulate the sale of fast food, especially in and near educational institutions (FAO, 2023). This would require enacting policies that delineate restricted zones and adopting specific regulations that govern the types of food permissible for sale within the proximity of kindergartens, schools, and other educational facilities.

Offer tax breaks or subsidies for producers and retailers who reduce the salt and sugar content in their produce or promote and offer healthy products to consumers.

Consider the taxation of sugar and sweetened beverages. The government could implement taxes based on the sugar content or volume of beverages to incentivize consumers to make healthier choices. The revenue generated from these taxes could thereafter be allocated towards

funding health promotion programmes, subsidizing healthier food options, or supporting healthcare services. Additionally, taxation can encourage beverage manufacturers to reformulate products with reduced sugar content. However, effective implementation requires careful consideration of the potential economic impacts, enforcement mechanisms, and the monitoring of consumer behaviour to assess the effectiveness of the tax in achieving its health objectives.

Change standard school food and kindergarten menus. The government needs to increase the coverage of public schools and universities with cafeterias, and to provide additional human and capital resources to enable them to offer healthy, tasty, and affordable food choices to children and adolescents.

Support the enlargement of farms. Although the government implements different support programmes for agricultural producers, further support is needed to ensure the enlargement of farms. Critical impact assessments of the current projects would inform the design of new plans. Environmental sustainability also has to be considered during the enlargement process to minimize adverse effects on the environment.

Promote healthy diets via social media, TV, and programmes in educational institutions. To reform the prevalent dietary habits, such as irregular meals and skipping breakfast, it is important to raise awareness regarding nutritional requirements (Stepanyan et al., 2022).

Develop food-based dietary guidelines for producers and vendors in Armenia to understand how they can transform their activities to promote healthy diets.

Establish a multisectoral committee that unites different ministries and agencies working in the areas of agriculture, economy, health, education, or any other field directly or indirectly related to healthy nutrition.

Support experience exchanges among the countries of the South Caucasus. While European experience is valuable, given the similarities in the region's dietary patterns and their drivers, it is important to exchange experience directly within the South Caucasus.

AZERBAIJAN

DIETARY PATTERNS AND THEIR DRIVERS

In Azerbaijan, food expenditure dynamics are influenced by various factors, including the population income, those which fluctuate depending on economic conditions. For instance, the COVID-19 pandemic altered consumer behaviour, but the situation is gradually stabilizing. On average, food comprises half of all household expenditure in the country.⁴

Recent statistical data indicates that the increased consumption of bread, potatoes, vegetables, fruit, and meat per capita surpasses the annual consumption norms. Sugar consumption also exceeds norms, whereas fish and fish products consumption is declining, and butter consumption is half the norm.

Alongside the negative trends, there have also been some positive tendencies in food consumption over the past five years. These include increased potato, vegetable, fruit, meat, egg, and vegetable oil consumption per capita. However, bread remains a major staple food, as milk consumption is decreasing and sugar and confectionary consumption rising. Dairy intake fluctuated between 2010–2019, while protein-rich food like meat, fish, and eggs saw increased consumption. Vegetable oil and margarine consumption have moreover risen in recent years.⁵

Despite being self-reliant for essential staples, achieving food variety remains a hurdle for Azerbaijani consumers. Although red meat, chicken, rice, and bread are common in diets, there is a notable lack of fruit and vegetable consumption among children. The prevalence of undernourishment in Azerbaijan is minimal, standing at less than 2.5%; however, the adult population faces a considerable obesity rate of 19.9%.⁶

In 2021, Azerbaijan conducted a comprehensive national survey using the WHO STEPwise approach of surveillance (STEPS), thus shedding light on the prevalence of non-communicable disease (NCD) risk factors.

The findings underscore several key factors that contribute to unhealthy eating habits. Firstly, the survey revealed a notable portion of the adult population exhibiting multiple risk factors for NCDs, indicating a potential **lack of awareness regarding healthy dietary practices**. For example, 27.1% of respondents did not believe that consuming too much salt could lead to serious health issues. Additionally, a significant percentage of the population (48.8% of male and 0.2% of female respondents) were found to engage in behaviours such as **smoking, which is often associated with poor dietary choices** (WHO, 2021). Furthermore, the **convenience of fast food and processed options**, coupled with **hectic lifestyles**, exacerbates the reliance on unhealthy diets.

⁴ See: <https://cdn.bseccsfs.org/ContentModule/04c38b29-9e89-4c5a-8722-cbff7d6c128c.pdf>

⁵ [Ibid](#)

⁶ [Ibid](#)

Moreover, certain areas experience “food deserts” – zones that lack access to affordable, nutritious options – which poses challenges for individuals striving to make healthier choices.

The prevalence of unhealthy eating habits is particularly pronounced among the younger generation in Azerbaijan (Keller, Dernóczy-Polyák, & Alasgarova, 2019). One Azerbaijani study (ACT, 2017) revealed that 56% of the respondents ate fast food regularly. This phenomenon can be attributed to several factors. Firstly, there is a notable trend among the Azerbaijani youth toward **adopting a Westernized diet**, characterized by the consumption of fast food, and frozen and canned items, that are often high in fat and lacking nutritional value. **Cultural and social influences, including societal pressures related to body image** and peer influence also play a significant role in shaping the dietary preferences of young individuals, especially females. Additionally, **socioeconomic disparities** contribute to the issue, as lower-income households may encounter barriers to accessing nutritious foods, leading to the increased consumption of calorie-rich, unhealthy options.

These findings underscore the urgent need for comprehensive public health interventions that promote healthy eating habits across all demographics in Azerbaijan. Addressing the root causes, including raising awareness, improving access to nutritious food, and addressing cultural and societal influences, will be essential in combating the rising prevalence of NCDs associated with unhealthy dietary patterns in the country.

STRATEGIC AND REGULATORY FRAMEWORK

To overcome the challenge of unhealthy dietary patterns, the Azerbaijani government has taken proactive steps to promote a healthy lifestyle. Those steps include the adoption of a country action plan related to nutrition and the implementation of physiological nutritional norms.⁷ The proposed initiatives aim to increase physical activity through the distribution of educational materials and the organization of events that promote physical activity in schools and public spaces.

Furthermore, the Public Health and Reforms Centre conducts nationwide surveys to assess the prevalence of NCD risk factors, thus informing evidence-based policy formulation and intervention strategies. Leveraging technological advancements, Azerbaijan has also developed health-focused web portals and mobile applications to disseminate health information and combat NCD risk factors.

According to Azerbaijan’s National Pathway to Sustainable Food Systems, one of the key priorities for food systems is, by 2030, to “achieve a future in which healthy and organic food is available, affordable and accessible to a growing population”. One of such objectives directly addresses the challenge of fostering a healthy diet, and it highlights the importance of shifting existing food consumption patterns within the country. This includes promoting safe and nutritious eating habits, enhancing education in food systems, facilitating access to information for consumers and producers, and organizing targeted awareness campaigns. These efforts aim to enhance public

⁷ The plan was developed under the framework of the Strategy for Non-communicable Diseases (NCDs) in the Republic of Azerbaijan for 2015-2020.

health by preventing those chronic diseases associated with different diets, ultimately contributing to the sustainability of the national food system.⁸

In 2018, the government introduced amendments to the On Food Products Law. These amendments focus on ensuring compliance with food safety technical regulations and legal acts when products are labelled as “medicinal,” “dietary,” or with similar terms. They also require food manufacturers to package and label their products according to safety regulations. The labelling must include details like the product name, type, composition, quantity, nutritional information, production and expiration dates, storage instructions, manufacturer’s information, and other required details. Additionally, guidelines for labelling ecologically clean agricultural and food products are outlined by the relevant executive authority.

In 2023, the governing body of the Food Safety Agency of the Republic of Azerbaijan adopted a legislation entitled Sanitary norms and regulations for controlling trans-fatty acids in edible oils and fats. This document establishes the acceptable threshold for trans-fatty acid levels in edible oils and fats. Under which, the concentration of trans-fatty acids (excluding those naturally present in animal fats and oils) must not surpass 2% of the total fat content in such edible oils or fats.

In spite of some policy and regulatory interventions from the government, challenges nevertheless hinder the shift towards healthy diets, including:

Low priority of healthy nutrition on the policy agenda. Ensuring healthy diets has not been prioritized on the policy agenda as the government is focused on safeguarding sufficient staple food reserves (e.g. wheat) to maintain food security during a crisis. While the Azerbaijan self-sufficiency ratios are higher than Armenia and Georgia, the country is still dependent on wheat imports, which remains a central topic of the Azerbaijani food security policy.

Strategies and action plans related to healthy nutrition are outdated, as reflected by the Strategy for Non-communicable Diseases (NCDs) in the Republic of Azerbaijan for 2015-2020, which solely covered the period until 2020.

Seasonal domestic production affects the availability of food products. Fruits and vegetables production and availability are markedly seasonal, with output peaking under favourable growing conditions and supported by Azerbaijan’s diverse climatic zones. This results in abundant supplies during harvest seasons, when produce is widely available and typically cheaper. However, during off-peak seasons, reduced local production diminishes availability and food prices tend to increase, causing a greater reliance on imports (Berkum, 2017). Similarly, the dairy sector experiences fluctuations based on seasonal variations in feed availability, which impacts milk production cycles and the availability of dairy products. These seasonal patterns underscore the importance of strategic agricultural planning and infrastructural development, such as storage and processing facilities, for stabilizing food availability throughout the year.

⁸ See: <https://www.unfoodsystemshub.org/member-state-dialogue/national-pathways-analysis-dashboard/en>

CONCLUSIONS

Unlike its neighbours, low income is not a major driver of unhealthy diets in Azerbaijan, rather they are driven primarily by cultural preferences and a lack of nutritional education. While Azerbaijan is a net importer of agri-food products, with a negative agricultural trade balance, their self-sufficiency ratios are the highest in the South Caucasus, thus signalling its relatively strong position regarding local production. The country therefore needs to supplement this opportunity with behavioural changes to achieve healthy nutrition among its population.

It is also notable that while the importance of healthy diets is outlined in several strategic documents, there is more focus on the promotion of physical activity as a major instrument to reduce obesity and NCDs.

Seasonal variations heavily influence food availability in Azerbaijan, which impacts price stability and access throughout the year. These dynamics underscore the need for continuous improvement in agricultural practices, infrastructure, and market systems each to bolster food security and economic stability. Moving forward, the country's ability to integrate technological advancements, sustainable practices, and market-oriented strategies will likely be pivotal in achieving a resilient and diverse agricultural sector that can adequately meet the needs of its population while reducing its reliance on imports.

RECOMMENDATIONS

Encourage balanced and nutritious diets. Promote the adoption of nutritious, balanced diets that meet the dietary recommendations for preventing non-communicable diseases. This could involve educating the population about the importance of consuming a variety of foods from different food groups (WHO, 2021). It is also recommended that awareness is increased regarding the importance of healthy diets (particularly among the youth) through public information campaigns about the benefits of healthy eating and the risks of consuming processed foods and products high in sugar, salt, and fat.

Promote the consumption of locally grown fruits and vegetables. Despite Azerbaijan's favourable climate for agriculture, the population has poor fruit and vegetable consumption. The development of a national strategy is recommended to encourage both a healthy diet and physical activity, and to promote these recommendations through the media. The country would also benefit from the implementation of targeted programmes to improve fruit and vegetable consumption, especially among females and rural populations (WHO, 2021).

Support local agriculture by utilizing Azerbaijan's rich agricultural resources to promote the consumption of locally grown fruits and vegetables. Supporting local farmers and markets would also improve access to fresh and nutritious produce (WHO, 2021).

Reduce salt intake by raising awareness about the health risks associated with excessive salt intake and promoting strategies to reduce its consumption, thus addressing the high levels of salt consumption in Azerbaijan (WHO, 2021). Concurrently, the government could collaborate with the private sector to set a maximum salt limit and standardize amounts in specific products, like bread,

cheese, and other salt-containing foods, thereafter they could develop technical regulations and monitor their enforcement.

Implement a flour fortification programme. Flour fortification is considered one of the most efficient and economical strategies for fighting iron deficiency anaemia, and its importance has already been recognized by the government of Azerbaijan. In 2017, a roundtable discussion, supported by the Ministry of Health and UNICEF's Baku office, highlighted the initiatives and legislative needs required to enhance public health through flour fortification (Azerbaijan State Information Agency, 2017). The event, echoing global practices and successes from similar health interventions, underlined the importance of creating a supportive policy environment and aligning it with international standards to maximize fortification efforts in combating micronutrient deficiencies across the population. However, while the Food Safety Agency continues to increase awareness of the benefits and importance of flour fortification, a programme has still not been implemented (Food Safety Agency of the Republic of Azerbaijan, 2022).

Enhance nutritional education by integrating it into various settings, including schools, workplaces, and healthcare facilities. Providing individuals with the knowledge and skills to make healthy food choices can contribute to long-term improvements in dietary behaviours (Keller, Dernóczy-Polyák, & Alasgarova, 2019).

Increase access to healthy food options. It is important to expand access to affordable and nutritious food, particularly in underserved areas, through initiatives such as community gardens, farmers' markets, and subsidies for primary producers and processors of healthy foods (Keller, Dernóczy-Polyák, & Alasgarova, 2019).

Regulate the sale of food high in sugar, salt, and fat, especially near education institutions. The national strategy of Azerbaijan includes an objective to develop approaches that reducing the influence of marketing on children from those products rich in saturated and trans fats, sugar, and salt (WHO, 2015). However, this strategy has not yet been implemented, consequently it is recommended that further work be directed towards this goal.

Regulate food marketing of fast food targeted at young people, especially through media channels and social media platforms, to reduce its influence on food choices (Keller, Dernóczy-Polyák, & Alasgarova, 2019).

Community engagement. Engage community stakeholders, including local governments, schools, healthcare providers, and businesses, in collaborative efforts to create a supportive environment for healthy eating (Keller, Dernóczy-Polyák, & Alasgarova, 2019).

GEORGIA

DIETARY PATTERNS AND THEIR DRIVERS

Consumer behaviour in Georgia is directly impacted by factors like purchasing power and external economic fluctuations, and the resulting expectations. Overall, there is significant demand for dairy (particularly cheese), grains (for pastries), vegetables, and potatoes, reflecting the influences of traditional Georgian cuisine.

In terms of dietary preferences, key ingredients like maize and wheat flour (especially for bread and pastries), beans, vegetables, and walnut paste are prominent. Cereals, roots, and tubers also significantly contribute to the dietary energy intake, while there is also a notable demand for meat – with chicken and pork increasingly preferred over beef due to lower costs. A decline in red meat consumption may lead to potential deficiencies in iron and in quality protein.

Urbanization, often accompanied by frequent dining out, has also had an impact on nutrition and health outcomes, with increased fat intake and obesity observable among the population.

The major drivers of unhealthy diets in Georgia include low incomes, limited physical access to food, the increased availability of junk food, and a lack of nutritional education.

Low incomes. Among the categories of healthcare, education, clothing, household goods, and others, the largest proportion of expenditure in Georgia goes towards food, beverages, and tobacco; the average monthly share of which constitutes 39% of total household consumption expenditure (Geostat, 2022). The specific share is slightly higher for urban areas 40%, while in rural areas the corresponding proportion amounts to 36%. Concurrently, the share of the population under the absolute poverty line is 12.3% in urban areas and it reaches 20.6% in rural areas (Geostat, 2022). Moreover, the unemployment level is 16.4% (2023). Food price inflation is currently low, however there was a notable jump in prices in 2021, and that pricing level is still currently being maintained.

Limited physical access to food. Access to food varies across regions and communities in Georgia. While urban areas often have a diverse range of food retailers, including supermarkets and specialty stores, rural and mountainous areas may have limited access to such establishments. In these regions, people typically rely on local markets and bazaars for their food supply. However, disparities in access persist, with some remote communities facing challenges obtaining fresh, nutritious, and diversified food. In more remote or mountainous villages (approximately 65% of the territory is mountainous), people often have to travel to their municipal centres to procure food. While some households also use mobile food sellers, they charge higher prices and are not always reliable.

Increased consumption of junk food in Georgia contributes to the prevalence of NCDs. The availability and consumption of junk food have increased due to factors such as urbanization, changing lifestyles, and the proliferation of fast-food outlets and of processed foods. Addressing the consumption of junk food is crucial in the fight against NCDs, and it requires comprehensive

strategies that promote healthier dietary choices, improve food environments, and raise awareness about the health risks associated with excessive consumption.

Lack of nutritional education. Although overall awareness of healthy eating habits in Georgia maintains a positive trend, with increasing efforts from various stakeholders, including the government, non-profit organizations, healthcare providers, educators, and the media, there is still lack of understanding on the importance of healthy diets and the health effects of poor nutritional choices. A lack of nutritional education is prevalent among consumers, parents, and even among the specialists who design menus for kindergartens and schools.

STRATEGIC AND REGULATORY FRAMEWORK

The Georgian National Strategy for Prevention and Control of Non-communicable Diseases 2023-2030 reviews the challenges of NCDs and attributes them to such behavioural risk factors like tobacco and alcohol consumption, unhealthy diets, low physical activity, and air pollution. The strategy notes that there is low awareness about the role of these risk factors, and their defining social determinants, as causes of NCDs. The document outlines forthcoming initiatives, including the development of a multisectoral working group to address excessive salt consumption, which is a primary risk factor for cardiovascular diseases. This group will focus on devising a comprehensive strategy to reduce salt intake.

In relation to healthy diets, discussions with the food industry are planned in order to establish proper labelling for food products, and to protect children from the marketing of processed food and foods high in sugar, salt, and fat, alongside non-alcoholic sweet drinks. Legislative efforts will also aim to remove industrial trans fats from food products. Therefore, measures are being developed to shield children from the marketing of unhealthy food products, including those high in saturated fats, trans fats, with excessive salt and sugar, and sweet carbonated drinks. Moreover, technical regulations for nutrition in schools and kindergartens are also to be developed or revised to promote the increased consumption of fruit and vegetables.

Within the National Pathway for Sustainable Food Systems, one of Georgia's objectives includes ensuring a competitive value chain in food systems, that which should contribute to the increased availability of food in general, including healthy products. The objectives do not specifically mention the importance of healthy diets, although it is outlined in the document that adequate nutrition is essential for the health and well-being of any nation. While the Pathway document places greater emphasis on the general availability of food and its access, under the key objective for ensuring effective systems in food and feed safety, and veterinary and plant protection, it states that Georgia plans activities to raise the awareness of the population on food safety and healthy nutrition, with a particular emphasis on adolescents and young people.

The government has also developed its Health Promotion programme, which envisions the endorsement of healthy diets. However, this programme has a limited budget.

In spite of certain governmental policy and regulatory interventions, challenges still hinder the shift towards healthier diets, including:

High availability and affordability of products with high sugar, salt, and fat content. Based on stakeholder interviews, it was discerned that foods contributing to unhealthy diets are priced more affordably compared to healthier options, resulting in the population making poorer dietary choices.

Focus on primary production and limited value added created domestically. Given that most processed foods are imported into Georgia, the country's capacity to affect the salt, sugar, or fat content of such imported products is limited – unless Georgia adopts non-tariff barriers and introduces new technical regulations, which may not align well with its generally liberal trade policies.

Lack of political will to prioritize the promotion of healthy diets on the policy agenda. The National Center for Disease Control and Public Health Center (NCDC) is the main stakeholder responsible for NCD control and prevention, and it struggles to attract state or donor funding to implement programmes on healthy nutrition.

Lack of state funds to promote healthy diets. While NCDs cause 94% of mortalities in Georgia, more than 90% of state funds for disease control and prevention are used to combat communicable diseases. At present, the annual funding for initiatives devoted to healthy nutrition is also rather limited and amounts to just 30,000 GEL (around 12,000 USD).

CONCLUSIONS

Georgia is a middle-income, import dependent country with a limited self-sufficiency ratio for its major agricultural crops. Limited, seasonal local production also still poses a threat to its food security.

The primary factors contributing to unhealthy dietary habits in Georgia include low incomes, restricted physical access to food, the heightened availability of food options high in salt, sugars, and fats, and a deficiency in nutritional education.

Although stakeholders generally recognize the significance of healthy nutrition, it has not been given priority on the policy agenda due to the country's emphasis on guaranteeing access to fundamental staple foods such as wheat.

RECOMMENDATIONS

Reduce salt intake. An assessment of the cost efficiency of measures increasing physical activity and reducing the consumption of salt, alcohol, and tobacco demonstrates that initiatives intended to lessen salt consumption have the highest return on investment. In addition to which, initiatives for salt consumption reduction (e.g. reduction targets, front-of-pack labelling, menu labelling, etc.) are the most feasible options and result in the greatest health benefits (United Health Futures, 2023). While the country currently attempts to devise a strategy for reducing salt consumption, as there has been no significant progress in this area thus far, it is recommended that stakeholders develop and prioritize a clear strategy for salt reduction.

Fortification of wheat flour with essential vitamins and minerals, like iron and folic acid, is highly important for addressing prevalent nutrient deficiencies among the population; iron deficiency anaemia and insufficient folic acid intake are particularly concerning as they relate to significant public health concerns. A three-year initiative for wheat flour fortification in Georgia, under the auspices of the Global Alliance for Improved Nutrition, was initially established in 2006. Results from the programme indicated that 24.9% of bread and 21.2% of wheat flour were adequately fortified by 2009. Subsequently, UNICEF launched a new initiative in 2013, and efforts were made within parliament to draft legislation aimed at mandating flour fortification. However, despite these endeavours, the draft legislation was ultimately never ratified. As a result, it would be pertinent to revisit initiatives concerning flour fortification in Georgia.

Set the limits for unhealthy ingredients in drinks and processed food. Scientific evidence and nutritional guidelines should inform the setting of such limits, while considering factors like sugar, salt, saturated fats, and artificial additives. Regulatory bodies can then develop clear standards and guidelines outlining the maximum permissible levels of these ingredients in food and beverage products. Collaboration with health experts, food manufacturers, and consumer advocacy groups is essential to ensure that the limits are feasible, enforceable, and aligned with public health objectives. Regular monitoring and enforcement mechanisms should also be implemented to verify compliance with these standards and to take appropriate action against non-compliant products. Additionally, ongoing research and review processes are necessary to update the limits as new evidence emerges and to adapt to changing dietary patterns and health concerns.

Labelling. Since 2019, the list of mandatory information required on labels has expanded, in particular, information regarding the safety and nutritional value of food, its ingredients, and information about allergens has to be placed on the label. In addition, the font size of this information and its format (accurate, clear, easy to understand) and the place (visible) have also been determined. However, adopting more specific labelling may still be required – for instance, traffic light labelling to indicate if a product is high in sugar, salt, etc. This necessitates the creation of distinct regulatory protocols and uniform criteria for allocating colour codes (red, amber, green) according to the nutritional composition; conducting public awareness campaigns to enhance consumers' comprehension of the system; ensuring industry adherence to the new labelling regulations; and collaborating internationally to integrate effective strategies from the successful implementations of comparable initiatives.

Further developing processing capacity in value chains to gain more control over the content of processed food. Increased processing capacity enables producers to customize food products according to consumer preferences and nutritional requirements. They can adjust ingredients, flavours, and nutritional contents to cater to specific market segments, thus not only enhancing consumer satisfaction and loyalty, but supporting healthy diets. By having greater control over processing, producers can more easily comply with food safety standards and regulatory guidelines, therefore reducing the risk of non-compliance and the associated penalties.

Change standard school food and kindergarten menus. While the menus of kindergartens and schools are each regulated by respective technical regulations, it is recommended that they be reviewed and updated to ensure that menus are sufficiently diversified. Incorporating seasonal and locally sourced ingredients could also enhance the freshness and flavour of school meals, while

supporting local farmers and reducing the environmental impact. Moreover, regularly evaluating and updating menus based on feedback from children and parents could also contribute to healthy nutrition among children and adolescents.

Consider taxation (e.g. excise tax) on sugar and sweetened beverages. Given that Georgia is a middle-income country, the price elasticity of demand for sugar and sweetened beverages is likely to be high. Therefore, interventions leading to even a small increase in the prices of these products are expected to have a relatively notable impact on consumption.

Restrict the marketing of fast-food products. The government can enact regulations that restrict the advertising of fast food and food high in sugar, salt, and fat – particularly those targeting children through various media channels such as television, the internet, and print media. Additionally, implementing labelling requirements that clearly indicate the nutritional content of products can provide consumers with sufficient transparent information to make informed choices. Collaborating with industry stakeholders to adopt voluntary marketing codes of conduct may also help reduce the promotion of foods that contribute to unhealthy diets. Enforcement mechanisms, including penalties for non-compliance, are equally essential to ensure adherence to these regulations.

Collaboration with the private sector. Discussions with the private sector and jointly design mechanisms are recommended as they can help reduce the amount of salt, sugar, and fat in processed foods and beverages. This collaboration could also be used for information exchanges between parties. Jointly designed initiatives could also be implemented within the framework of social corporate responsibility, thereby enhancing the long-term sustainability and reputation of private companies willing to promote healthy nutrition.

KEY TAKEAWAYS

Considering the predominant focus on the availability and affordability of basic food staples, alongside an import dependency throughout the South Caucasus, the prioritization of nutrition within policy agendas remains limited. Despite the consensus among stakeholders regarding the detrimental impact of unhealthy diets on obesity and non-communicable diseases (NCDs), concerted efforts to address this issue are still lacking. Moreover, there is currently a noticeable absence of collective action across the three countries and among stakeholders to tackle the challenge of unhealthy dietary habits.

Furthermore, a notable gap in understanding persists among stakeholders concerning the interconnectedness of various sectors, beyond healthcare, for the promotion of healthy diets. The potential role of transforming agri-food systems to advance the cause of healthy nutrition and alleviate concealed health costs also remain largely unexplored.

The dietary patterns observed across the three countries share commonalities, with cereals serving as a significant contributor to the energy intake of their respective populations. Traditional staples such as lavash, a type of salty flatbread, hold cultural significance in these regions, further contributing to the challenge of altering dietary habits.

Several additional underlying factors drive the prevalence of unhealthy diets in the region. Low incomes emerge as a primary catalyst in Armenia and Georgia, while cultural preferences exert a more pronounced influence in Azerbaijan. Furthermore, the lack of adequate nutritional education exacerbates the challenge, which perpetuates unhealthy dietary practices throughout the region. Addressing these multifaceted issues necessitates a comprehensive approach that integrates economic, cultural, and educational strategies to promote healthier dietary choices and mitigate the burden of NCDs. To foster the adoption of nutritious eating habits in the South Caucasus, several strategic initiatives have been proposed. Firstly, there should be a concerted effort to bolster local production capabilities, thereby ensuring a steady supply of fresh, nutrient-rich foods. Concurrently, the implementation of flour fortification and salt reduction programmes stand as pivotal measures to enhance the nutritional quality of staple foods.

Furthermore, stringent regulations governing the labelling, sale, and marketing of the foods that contribute to unhealthy diets are important. By imposing clear guidelines, consumers can make informed choices, thus mitigating the consumption of ultra-processed foods and goods high in sugar, salt, and fat. Collaborative initiatives with food producers and retailers are also critical during the collective design of mechanisms to reduce the levels of sugar, fat, and salt in beverages and processed foods.

In addition, the establishment of a multisectoral committee, comprising representatives from diverse ministries and agencies, holds promise in advancing the agenda of healthy nutrition. This collaborative body would lead coordinated efforts, while pooling resources and expertise, to design comprehensive strategies and action plans. Concurrently, it is vital to conduct robust awareness-raising campaigns, disseminating knowledge about the benefits of balanced diets and the risks

associated with poor nutrition. Crucially, through education and outreach initiatives and private-public partnerships, communities can be empowered to make informed dietary choices, thereby fostering a culture of healthy nutrition.

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ANNEX: COUNTRY PROFILES

Armenia

Armenia is an import dependent county with a negative agricultural trade balance (-126,776 thousand USD in 2022), and a particularly low self-sufficiency ratio for key agricultural commodities like wheat (24%) and maize (5%) (Table A1).

Table A1. Self-sufficiency ratios, 2022

	Wheat	Maize	Potatoes	Fruit and Vegetables	Meat	Milk	Eggs
Self-sufficiency ratio	24%	5%	98%	102%	65%*	83%	99%

*Note: * Average across different types of meat*

Source: Armstat, 2024

The top Armenian agri-food imports include wheat (7.5% of total agri-food imports in 2022), animal food (4.7%), chocolate products (4.6%), poultry meat (4.3%), and sunflower oil (3.7%).

The agriculture sector focuses on the production of fruits, vegetables, wine, and livestock, and it encompasses over 300,000 farms, each having an average landholding size of about 1.4 ha per household (ITA, 2022).

The food industry primarily consists of small, privately-owned businesses that emerged from the privatization of former state-owned agro-processing enterprises. Governmental reporting presently identifies approximately 1,600 food-production companies in Armenia.

Trade and taxation policy

Armenia, as a WTO member since 2003, maintains an open and liberal foreign trade policy characterized by low tariffs (average of 2.7%) and streamlined customs procedures. Agricultural products face an average tariff rate of 12.8%, with no quantitative restrictions on imports. Since joining the Eurasian Economic Union (EAEU) in 2015 – alongside Belarus, Kazakhstan, Kyrgyzstan, and Russia – Armenia benefits from duty-free trade among member states, while also adhering to common foreign trade measures with third parties.

Armenia moreover has free trade agreements (FTAs) with CIS countries, it signed the Comprehensive and Enhanced Economic Partnership Agreement (CEPA) with the European Union in 2017, and it established a free trade agreement with Iran in 2018. Additionally, Armenia operates under a Generalized System of Preferences (GSP) trade regime with the USA, Canada, Switzerland, Norway, and Japan.

Governmental programmes

The various state support programmes in agriculture focus on increasing the availability of cultivatable farmland; improving irrigation systems; enhancing access to finance; improving the quality of seeds and planting materials; promoting modern livestock management techniques and facilities; consolidating farms; and developing wholesale markets to eventually reduce a country's dependence on agri-food imports (Table A2).

Table A2. State-supported agricultural programmes in Armenia

Programme	Objective
Construction or re-construction of small and medium “smart” cattle houses and state assistance for their technology provision	Construct, or re-construct, small and medium “smart” cattle houses, and state assistance for technological provisions.
Beef Cattle Breeding Development Programme in the Republic of Armenia, 2019-2024	Provide breeding stock at affordable terms, by partially subsidizing the interest rates on loans, and enhance livestock productivity, increase milk and meat production, and reduce the cost of these products.
State assistance for the development of sheep and goat breeding in the Republic of Armenia, 2019-2023	Partially subsidize the interest rates on loans provided for the acquisition of small pedigree cattle and reimburse expenses.
Industrial Astaciculture Development Project in the Republic of Armenia, 2024-2026	Promote the introduction of modern industrial crayfish technologies and stimulate local production through partial reimbursement and compensation of investment costs.
State assistance of leasing for financial lending of agri-food equipment in the Republic of Armenia	Provide business entities operating in the agri-food industry with machinery, on affordable terms, in particular using mechanisms for the financial lending (leasing) of equipment.
Agricultural Machinery Leasing Support Project in the Republic of Armenia	Set favourable conditions for the supply of agricultural machinery to agricultural producers on affordable terms, in particular through leasing mechanisms for the effective use of agricultural land plots and agricultural production.
State Support Programme on the Development of Intensive Horticulture, the Introduction of Modern Technologies and Stimulation of the Production of Non-Traditional High-Quality crops in the Republic of Armenia	Development of vineyards, intensive fruit orchards, berries, and the cultivation of non-traditional, high-value crops, as well as the introduction of modern irrigation and hail protection systems.
State Support Programme for the Implementation of a Pilot Project on the Introduction of an Insurance System in Agriculture	The implementation of a pilot project for an insurance system in agriculture, with a subsidized insurance premium.

Azerbaijan

Azerbaijan is a net importer of agri-food products, with a negative agricultural trade balance (-1,773,071 thousand USD in 2022). Although the country has a negative trade balance, its self-sufficiency ratios are the highest in the South Caucasus (Table A3).

Table A3. Self-sufficiency ratios, 2022

	Wheat	Maize	Potatoes	Vegetables	Meat	Milk and Dairy Products	Eggs
Self-sufficiency ratio	57%	78%	89%	107%	86%	83%	101%

Source: The state statistical committee of the republic of Azerbaijan, 2024

The top agri-food imports for Azerbaijan are wheat (16.3% of total agri-food imports in 2022), sugar (6.5%), palm oils (4.3%), butter (4%), and prepared food/food preparations (3.9%).

The Azerbaijani agricultural sector focuses on the production of cotton, fruits, and vegetables. Livestock farming, with an emphasis on sheep and cattle, is also common. Following the country's shift toward a market economy, land privatization reforms were implemented, this resulted in land fragmentation and the establishment of over 800,000 small-scale farms, those with 1–3 ha plots (IFAD, 2020).

Trade and tax policy

Azerbaijan is not a member of the WTO, but the country has bilateral FTAs with Russia, Uzbekistan, Moldova, Ukraine, Belarus, Kazakhstan, Kyrgyzstan, and Tajikistan. A bilateral trade agreement between Azerbaijan and Georgia was also signed in 1996. The establishment of a free trade area between members of GUAM (Georgia, Ukraine, Azerbaijan, and Moldova) was moreover signed in 2002 and entered into force in December 2003.

Certain goods are subject to inspection by the Food Safety Agency, including plants, certain foodstuffs, wood, and leather.⁹

Regarding its tax policy, Azerbaijan adopted a new set of tariffs in 2018, simplifying the regime to include three rates: 0%, 5%, or 15% depending on the product imported. Under the new regime, finished products and agricultural produce are all typically charged the 15% tariff.¹⁰ The import tariff for animal products averages at 13.3%; dairy products at 15%; fruit, vegetables, and plants at 13.6%; coffee and tea at 14.6%; cereals and preparations at 11.6%; sugars and confectionery at 13.5%; beverages and tobacco reach 27.3%; and fish and fish products average at 7.2%.¹¹

⁹ See: <https://www.trade.gov/country-commercial-guides/azerbaijan-trade-agreements>

¹⁰ See: <https://www.trade.gov/country-commercial-guides/azerbaijan-import-tariffs>

¹¹ See: https://www.wto.org/english/res_e/statis_e/daily_update_e/tariff_profiles/AZ_E.pdf

Moreover, Azerbaijan requires import licenses for food products of animal origin to protect and spur domestic production.

Governmental programmes in the agri-food sector

The Azerbaijani government has designated agriculture as one of the four priority sectors for diversifying its economy. The state supports the agricultural sector through grants, tax exemptions, and subsidies for machinery, pesticides, and fertilizers. The government is also paying particular attention to automation and the adoption of nanotechnologies within the agricultural sector. Thus far, machinery subsidies have supported sales of American combines, tractors, harvesters, and irrigation equipment.

State-funded projects typically strive to enhance domestic production, with the ultimate goal of boosting agricultural exports and reducing the reliance on imports.

Georgia

Similar to Armenia and Azerbaijan, Georgia is a net importer of agri-food products, with a negative agricultural trade balance (-579,814 thousand USD in 2023).

While the self-sufficiency ratio for wheat is particularly low (22%), Georgia's domestic production of vegetables, meat, and eggs is also rather limited (Table A4).

Table A4. Self-sufficiency ratios, 2022

	Wheat	Maize	Potatoes	Vegetables	Meat	Milk and Dairy Products	Eggs
Self-sufficiency ratio	22%	62%	101%	52%	50%	77%	50%

Source: Geostat, 2024

The top agri-food imports for Georgia are tobacco products (8% out of total agri-food imports in 2023), sugar (4.9%), poultry meat (4.6%), chocolate products (4.4%), alongside bread, pastry, and cakes (4%).

The leading sub-sectors within Georgian agriculture are viticulture, horticulture, and livestock farming. In particular, the country is known for its wine production. Its non-irrigated regions are mainly devoted to livestock husbandry and rain-fed cereal cultivation, whereas irrigated areas focus on the production of fruit and vegetables. Georgia has over 640,000 agricultural holdings, with a predominance of small, fragmented family farms, with an average land size of 1.4 ha (FAO, 2023). These farms are primarily engaged in subsistence agriculture, featuring limited-scale production, a dearth of modern technologies, and challenges in accessing markets. Land tenure issues and underdeveloped infrastructure are additional constraints to the advancement of the sector.

Over the last three decades, there have been notable transformations in the food systems of Georgia. While food production continues to be largely decentralized, with smallholder and

household-based operations prevailing, there has been a gradual emergence of formal and structured distribution channels. This shift can be attributed to increasing urbanization and to changes in consumer preferences and dietary patterns.¹²

Trade and tax policy

Similar to Armenia, one of the major principles of Georgia's economic policy is its liberal foreign trade policy.

As a result of reforms in the areas of tariffs and technical regulations, Georgia currently has one of the most liberal foreign trade policies in the world, which implies facilitated foreign trade regimes and customs procedures, low import tariffs, and minimal non-tariff regulations. The liberal foreign trade policy is apparent in the country's tariff policies on imports (low import tariffs in general, no import tariffs on 85% of goods, bound tariffs on all product, average applied MFN tariff of 2%, the simple average MFN agriculture tariff was 6.3% in 2015), minimal non-tariff regulations, and fast customs procedures.

Georgia became a member of the WTO in 2000. The country also has bilateral FTAs with Turkey, CIS countries, the European Union, and with the People's Republic of China. The Association Agreement (AA) between Georgia and the EU, including the Deep and Comprehensive Free Trade Agreement (DCFTA), was signed in June 2014. In June 2016, Georgia also signed an FTA with the European Free Trade Association (EFTA), including: Iceland, Liechtenstein, Norway, and Switzerland. An FTA between Georgia and China was thereafter signed in May 2017. The USA, Canada, and Japan have also granted Georgia with Generalized System of Preference (GSP), applying lower tariffs on 3,400 goods exported from Georgia.

Moreover, the Strategic Partnership and Cooperation Agreement between the United Kingdom of Great Britain and Northern Ireland and Georgia was signed on 21 October 2019, and it entered into force on 31 December 2020.

In Georgia, a 5% import tax is imposed on selected products including pork meat, cheese, and chocolate.¹³ While certain products have a 12% import tax, including live poultry, meat from bovine animals, sheep, goats, horses, other meats, and edible meat offal.

Aside from standard imports taxes, the government of Georgia occasionally imposes temporary import taxes. For instance, a temporary tax of 400 GEL per ton of imported sugar was recently imposed (from November 2023 until 1 July 2024). The government suggests the main motivation for imposing this tariff was to preserve domestic sugar production, as represented by one enterprise with 500 employees. As the trade statistics show, rather limited domestic production cannot compete with imports, and there is a risk of the full replacement of domestically produced sugar with imported products.

¹² See: <https://cdn.bseccsfs.org/ContentModule/ed8ed050-d6de-4748-8b37-e7828d416207.pdf>

¹³ More specifically, the 5% tariff applies to the following products: meat of swine (0203); cheese and curd (0406); chocolate and other food preparations containing cocoa – in blocks, slabs, or bars (filled), weighing 2kg or less (180631); chocolate and other food preparations containing cocoa – in blocks, slabs, or bars (not filled), weighing 2kg or less (180632); chocolate and other food preparations containing cocoa – n.e.c. chapter 18 (180690).

In June of 2023, the Georgian government introduced a temporary import duty on wheat flour imported from Russia in response to the Russian so-called “floating tariff” on wheat, which made it more expensive to import wheat rather than wheat flour. As a result of the “floating tariff” on wheat, wheat flour imports skyrocketed and almost fully substituted wheat imports, thus leading to disruptions in local wheat production. In October 2023, a temporary tax was also imposed on the import of barley and bran as well.

Governmental programmes in the agri-food sector

During the last decade, state funding in the agricultural sector has increased by almost 20 times (in current prices) and comprised 3% of total governmental spending in 2021. The subsidies on interest rates and agricultural insurance co-financing account for approximately 36% and 3% of total subsidies, respectively, thus demonstrating that the government places notable priority on encouraging private investment via its support programmes. Such state funded projects intend to increase domestic production in order to eventually increase agricultural exports and substitute imports (Table A5).

Table A5. State-supported agricultural programmes in Georgia

Programme	Objective
Plant the Future	Cultivate agricultural lands for the effective use of planting perennial crops, with the result of replacing imported products and increasing export potential.
Preferential Agrocredit	Improve primary agricultural production processes, processing, storage, and sales by providing legal and natural entities with cheap, affordable, long-term, and preferential funding.
State Dairy Modernization and Market Access (DiMMA) Programme	Modernize the dairy industry to establish competitive, diversified, and sustainable dairy farms.
Supporting hazelnut production	Support the primary production of hazelnuts through subsidizing the operational costs of producers.
Viticultural development	Grape prices are subsidized and partially covered by the government.
State Co-financing Refrigerated Storage Facilities for Berry Crops of Agricultural Cooperatives Programme	Enhance the availability of refrigerators for the cold storage of berries produced by agricultural cooperatives as a result of the state support programme for berry production.

Agroinsurance	Develop the insurance market in the agricultural sector, promote agricultural activities, retain income for individuals occupied with those activities, and reduce risks.
Bioproduction Promotion Programme	Support bioproduction to ensure growth in the production of bioproducts.
State Technical Assistance Programme	Support with consulting services, training, product branding, and packaging; implement international food safety management systems and standards; and grant recognition to business operators producing or processing foods of animal origin in order to increase the competitiveness of products and services for both domestic and foreign markets.

In the past, the government has also implemented programmes to support tea production, establish new enterprises in the regions, expand beekeeping, and establish processing and storage enterprises.