



ACTION PLANS FOR THE GREEN RECOVERY AND TRANSFORMATION OF THE UKRAINIAN FOOD INDUSTRIES

TECHNICAL REPORT
OUTPUT 7-REVITALIZATION OF THE
AGRIBUSINESS AND FOOD PROCESSING

MARCH 2024

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BRIEF INTRODUCTION

The food industry in Ukraine is diverse and serves both domestic and foreign markets. Food products are the third-largest export item after metals and grains, and most of them are sold to EU countries. The Food Industry proved to be more resilient to the extreme war-time conditions than other manufacturing sectors. However, the food industry has also experienced both direct and indirect war-related physical and economic damages and challenges.

As part of the project “Industrial capacity-building, policy advice and diagnostics for the green recovery of Ukraine”, UNIDO prepared a roadmap for the revitalization of the Ukraine food industry. The goal of this roadmap for the green recovery of the food processing industry is to provide a structured and strategic plan that outlines the stages, including steps, priorities, and actions necessary to steer the sector toward sustainability, resilience, and environmental responsibility. This roadmap serves as a guiding framework for development partners, government policymakers, and industry leaders to collectively work toward several key objectives and to identify investments and programmes to achieve them.

During the preparation of the roadmap, detailed action plans (APs) were developed for each selected sector (7 in total) with clear outcomes, outputs, and activities to be undertaken. An AP can be seen as a project concept note, including a sector specific SWOT analysis, a Theory of Change and a indicative project rational and description, including a project budget indication. These APs are an excellent starting point for detailed project design and can be taken individually or in combination with other AP's. Next to the industry specific action plan, two cross-cutting interventions have been identified and respective action plans are developed, these are: (1) food packaging industry; and (2) food quality & safety.

The proposed interventions and programs in the action plans, aligned with EU principles and ongoing development initiatives and programmes, aim to position Ukraine's food industries for sustainable and resilient growth while advancing integration into the EU and global market.

The following action plans have been developed and are included in this report.

1. Dairy processing
2. Fruit and berry processing
3. Honey processing
4. Grain processing
5. Food quality & safety (cross-sector)
6. Food packaging industry (cross-sector)
7. Poultry and egg products
8. Vegetable oil processing
9. Sugar processing

SELECTED FOOD PROCESSING INDUSTRIES

To focus on the most promising and resilient food sectors and sub-sectors, the following prioritisation criteria were applied: export growth, trade surplus, global ranking, EU market importance, war impact, and opportunities for deep processing. Six sectors

and 14 sub-sectors, such as livestock products, milk and milk products, vegetable oils, berry and fruits, sugar, and grain processing, are selected based on these criteria.

PRIORITISED FOOD PROCESSING INDUSTRIES

Upon consultation with the Ministry of Agrarian Policy and Food of Ukraine, a prioritized list was jointly developed and mutually agreed upon. This prioritization emphasizes the development of Small and Medium-sized Enterprises (SMEs), particularly in

the following 4 sectors: dairy, fruit and berry, honey, and grain processing industries. This strategic focus aligns with the predominance of SMEs in these sectors.

COMMON OUTCOMES

While interventions can vary significantly across the different industry action plans, they all aim to achieve the following common outcomes:

1. **Re-establishment of damaged enterprises** under the "Build Back Better" principle;
2. **Improved competitiveness and value-added food systems**, by enhancing capacities within food processing enterprises for further value addition and product development, as well as improved product quality, food safety and food packaging for designated export markets
3. **Improved processing technology and efficiency**, by adopting of energy efficient practices, automation, adoption of renewable energy, and utilization of bio-waste in transition to green low-carbon growth.
4. **Trade with EU and other export countries strengthened and prepared for**, including the Green Deal, EU "single Market" readiness; and aware of technologies and legislation, certification processes specific to the targeted market or trade bloc.
5. Ukrainian food products **aligned with EU and Export requirements** and promoted.

INDICATIVE INDUSTRY INVESTMENT NEEDS

In order to accelerate the green transition and at the same time improve the performance of the Ukrainian food industry, investments and technical assistance are needed. **Through engaging with the private sector and industry association representatives, indicative investments needs are identified within the following main strategic areas relevant for the food industry: 1) Carbon Footprint Reduction 2) Waste Reduction and Recycling, 3) Renewable Energy 4) Energy Efficiency 5) Water Conservation 6) Packaging Innovation/upgrading 7) Reconstruction of the destroyed enterprises.**

The green recovery investment needs, as estimated by UNIDO, are presented in the aggregated Table 1 below. The data has been collected and compiled from responses to questionnaires provided by business associations, specifically nonprofit organizations representing various sectors within the food industry.

TABLE 1 - THE AGGREGATED GREEN RECOVERY AND RECONSTRUCTION INVESTMENT NEEDS, IN USD MILLIONS

STRATEGIC INVESTMENT AREA	INVESTMENT NEEDS							TOTAL
	CO ₂ FOOTPRINT REDUCTION	WASTE REDUCTION RECYCLING	RENEWABLE ENERGY	ENERGY EFFICIENCY	WATER CONSERVATION	PACKAGING UPGRADE	RECONSTRUCTION	
TOTAL	145.5	171.2	524	371.9	257	77.3	58.1	1.605

In line with the green recovery strategic areas, according to estimations, the selected food industries have the overall green recovery investment need of an estimated at least **USD 1.6 billion**. Estimations of unconfirmed data (on damages, losses, waste reduction, CO₂ reduction, or packaging projects, etc) were not included.

Investment needs matrix. In Table 2 the investment needs are displayed, broken down per industry. Estimating the financial needs for reconstruction has been challenging for various reasons. Firstly, the ongoing conflict makes it difficult to assess the situation accurately. Secondly, enterprises located in or near active frontline areas have not yet fully evaluated the damages incurred. These assessments are based on the opinions of industry associations and the estimated number of enterprises capable of mastering investments.

TABLE 2 - THE INVESTMENT NEEDS MATRIX, IN USD MILLIONS

STRATEGIC INVESTMENT AREA	FOOD PROCESSING INDUSTRIES IN:								TOTAL
	DAIRY	FRUIT & BERRY	HONEY	GRAIN MILLING		POULTRY	VEGETABLE OIL	SUGAR	
				FLOUR, GROATS, PASTA	BREAD AND BAKERY PRODUCTS				
Carbon Foot-print Reduction	94.6	Yes	No	9.6	0.77	40.5	Yes	Yes	145.5
Waste Reduction and Recycling	47.9	No	No	4.4	10.8	108.1	Yes	Yes	171.2
Renewable Energy	65.46	Yes	Yes	5.3	17.6	175.7	200	60	524
Energy Efficiency	96.48	Yes	Yes	44.7	41.5	189.2	X	No	371.9
Water Conservation	78.9	No	No	2.25	31.5	74.3	20	50	257
Packaging Innovation / upgrading	1.13	Yes	30	4.36	5.4	36.5	Yes	Yes	77.3
Reconstruction of the destroyed enterprises	Yes	Yes	25% of processing facilities	27.9	30.3	Yes	Yes	Yes	58.1
TOTAL	384.5		30	98.5	138	624	220	110	1.605

YES means investment need was identified during discussions with stakeholders, but not yet quantified.

Budget and duration: It is expected that the implementation of an each Action Plan would be in the range of € 2-3 million for a period of 5 years. UNIDO would act as the executing agency on behalf of partners involved.

ACTION PLANS

1. ACTION PLAN FOR DAIRY PRODUCTS

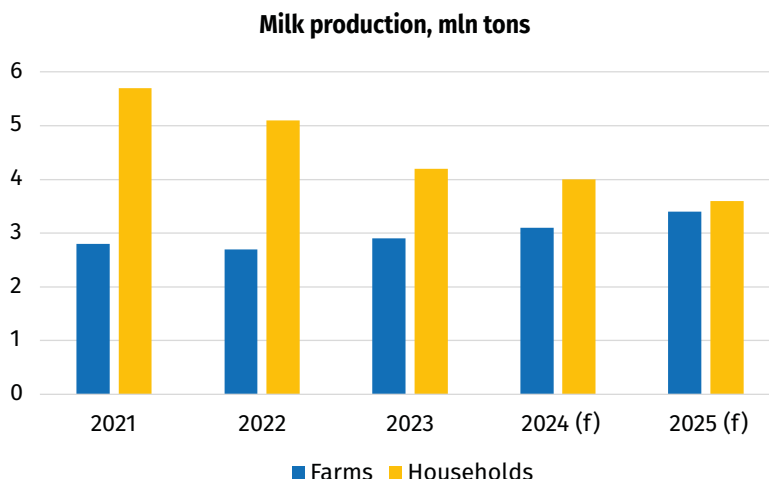
SITUATION ANALYSIS

Raw milk production. In recent years, there has been a steady downward trend in the amount of milk produced in Ukraine. In 2023, Ukraine produced about 7 million 412 thousand tons of raw milk, which is 5% less than in the previous year. Thus, the trend of recent years towards a decrease in raw milk production in Ukraine was maintained.

Households produced 4 million 604.3 thousand tons of milk in 2023, which is 11% less than in the previous year. At the same time, dairy farms increased milk production to 2 million 807 thousand tons, 7% more, than in 2022. In 2023 about 62% of milk comes from households, 38% from commercial farms (67% and 33% in 2022 accordingly). Figure 1 showcases milk production in dairy farms and households in Ukraine.

FIGURE 1 - MILK PRODUCTION DAIRY FARMS AND HOUSEHOLDS

Source: State Statistics Service of Ukraine.



The decrease in the amount of raw milk produced was due to a reduction in production in households.

These small producers have suffered the most from the consequences of Russia's full-scale invasion. A significant number of Ukrainians lost their cows in the occupied territories. The culling of injured animals also leads to a decrease in the number of cows. During the war, feeding conditions have deteriorated, as many fields and pastures are contaminated with mines and shells and are not suitable for use. Small farmers lack working capital and credit, and government subsidies are not significant. Fuel and electricity costs and the cost of feed production have increased. The price of premixes and other purchased ingredients has risen. Small farms are not able to increase production costs, and therefore the most profitable and resilient to challenges are dairy farms with more than 400 cows.

Milk production in households remains inefficient (600 000 households include micro farmers with 1-2 cows, and small holders with 3-10 cows, where mostly women are involved). Cow productivity in the private sector is 5,100 – 5,200 kg per year and is significantly lower than at dairy farms, which is 6,500 – 6,700 kg per year. The decrease in the number of workers in rural areas, an aging rural population, better employment opportunities in urban Ukraine and in neighboring EU countries deplete Ukrainian rural workforce. During the full-scale invasion, the situation was also complicated by the displacement of people from the territory where military operations are underway and conscription measures.

According to estimates by the Infagro analytical agency, the Association of Milk Producers, and the IFC Dairy Development Project, by 2027-2030, households will mostly stop selling raw milk for processing: given the annual decline in milk production of ~10%, over the next 3-5 years, household milk production will be less than 2 million tons per year and will be used only for home consumption.

Milk processing. In 2023, milk processing increased by 5% compared to 2022. However, the share of milk from households in the processing structure is de-

creasing to only 12%. 88% of processed milk comes from dairy farms. At the same time, 94.5% of milk produced by dairy farms is processed.

Milk from households is of lower quality and is only partially used by processing enterprises. Such milk is used for own consumption or processed at the point of receipt and sold on agri-food markets if households are not registered as food business operators. Table 3 showcases key indicators of the dairy processing sector in Ukraine.

TABLE 3 - KEY INDICATORS OF THE DAIRY PROCESSING SECTOR IN UKRAINE

Source: State Statistics Service of Ukraine.

	1990	2003	2020	2021	2022	2023
Number of industrial milk processing enterprises, units.	643	441	192	178	120	112
Milk production, mln tons	24,5	13,67	9,8	8,7	7,64	7,36
Milk processed, mln tons	18	4,5	3,5	3,2	2,72	2,96
Whole milk products, thousand tons	6430	1230	1010	1046	771	820
Butter, thousand tons	441,1	145,3	87,5	77,2	70,6	68,3
Cheese, thousand tons	183,8	167,8	115,8	111,2	89	88,4
Milk powder, thousand tons	61,1	19,8	29,4	34,1	34	29,7
Condensed milk, thousand tons	166	101,4	74,5	75,8	60	62

According to the State Statistics Service of Ukraine, as of November 1, 2022, 354 enterprises related to milk processing, butter and cheese production were registered, which is 43 enterprises less (-11%) than as of November 1, 2021¹. 120 of them were industrial enterprises. In 2023, the number of such enterprises decreased to 112². In 2023, the domestic dairy consumption market increased by 7%. This was due to:

1. the relative stabilization of dairy prices compared to inflation (food inflation is lower than general inflation);
2. there is a slight tendency to return migrants to Ukraine compared to 2022 according to the State Border Guard Service of Ukraine, in 2023, 142,000 more people crossed the border into Ukraine than from the country);
3. and the increased demand from the HoReCa industry.

1 Union of Dairy Enterprises of Ukraine: <https://uadairy.com/derzhstat-oprylyudnyv-dani-shhodo-kilkosti-molokoperobnyh-pidpryemstv/>

2 Union of Dairy Enterprises of Ukraine: <http://milkua.info/uk/post/ukraina-zajmae-32-misce-u-svitovomu-rejtingu-virobnictva-moloka-najbilsa-problema-deficit-sirovini>

According to the conclusions of the IFC Dairy Development Project, a sustainable model of the dairy industry in Ukraine is a dairy cluster based on partnership and cooperation, consisting of a dairy plant

with deep milk processing capacity of 500 thousand tons per year and a group of 10-30 dairy farms, with a size of 2000 cows and a productivity of more than 9000 kg of milk/cow/year.

EXPORT AND IMPORT

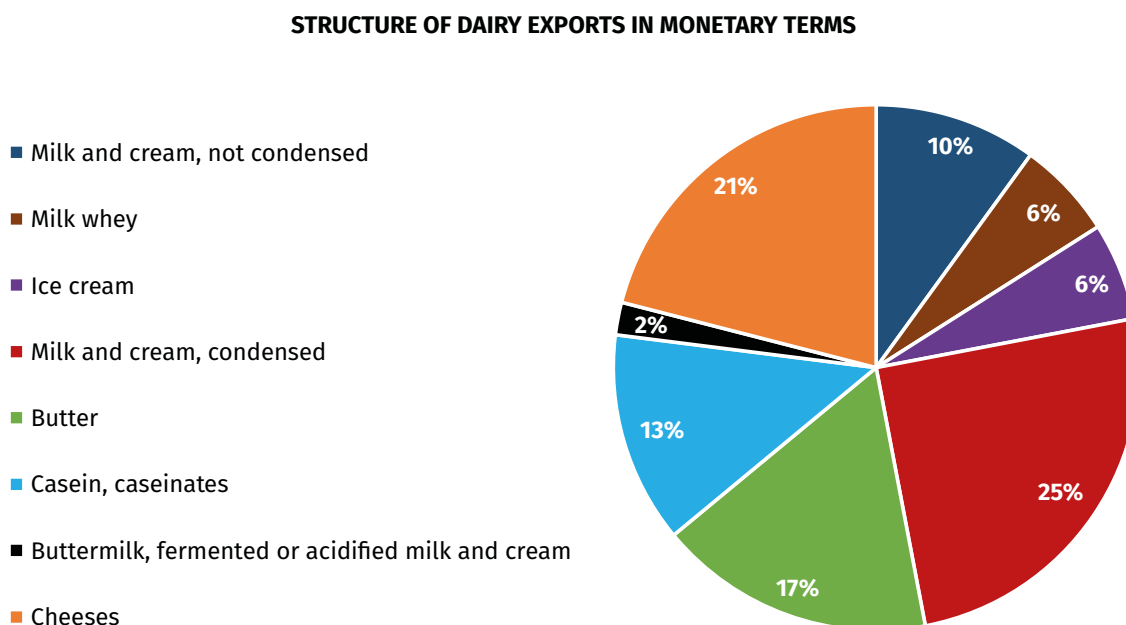
Due to the elimination of tariffs and quotas, since 2022 about 25 processing enterprises are approved for export to the EU. The total amount of the approved enterprises is 41³. Some enterprises, which have been approved as exporters to the EU, apply this approval as evidence of compliance with safety and quality requirements for export to third countries. 100% of milk powder exporters and 89% of butter exporters reported that, in addition to European markets, they are quite active in supplying their products to the Middle East.

The procedure for approving enterprises was simplified because the official control authority in Ukraine, the State Service for Food Safety and Consumer Protection, was granted the right to independently approve enterprises for export to EU.

In 2023, Ukraine exported 108 thousand tons of dairy products. Last year, natural export volumes decreased by 4%, and revenue fell by 38% compared to 2022. In 2023, prices of raw milk in the EU dropped significantly (by almost 26% on average). At the same time, the price of raw milk in Ukraine is rising due to higher production costs during the war. In December 2023, the price of raw milk in Ukraine reached current European average levels which resulted in a significant decrease in the competitive advantages of domestically produced dairy products in terms of price. Figure 2 showcases the structure of dairy exports in monetary terms in Ukraine.

FIGURE 2 - STRUCTURE OF DAIRY EXPORTS IN MONETARY TERMS

Source: State Statistics Service of Ukraine



3 Source: https://webgate.ec.europa.eu/tracesnt/directory/publication/establishment/index#!/view/UA/RAW_MILK/57

Prices for exchange-traded dairy products also declined steadily in 2023, making their exports from Ukraine less attractive than in 2022. The global situation on the dairy markets in 2023 was unfavorable for the Ukrainian dairy industry.

In 2023, total import of dairy products to Ukraine was 15% more than in 2022. Due to that fact, in 2023 the

THE IMPACT OF THE WAR

Milk production in Ukraine dropped by about 13% in 2022 and 5% more during the war primarily due to losses of territories.

Dairy processing sector lost 38 enterprises located in the areas temporarily occupied by Russian military forces. Over 100 dairy farms at temporarily occu-

RELEVANT INDUSTRY SUPPORT PROGRAMS

The main beneficiaries of state support and technical assistance projects in the sector are small milk producers and small milk processors. Since the beginning of the full-scale invasion, government support programs have been reduced compared to previous years. As of 2024:

- farmers with 3 to 100 cows are entitled to state aid of UAH 7,000 per head.
- the Concept of the State Targeted Economic Program for Livestock Development until 2033 is being developed.

For milk processing enterprises there are available support programs (on common basis): State support

negative balance of exports and imports amounted to \$77.2 million, while in the previous year, the figure was positive \$28.2 million.

This trend continued in January and February 2024. Milk prices in Ukraine are unlikely to decline, except for seasonal fluctuations, and thus no export benefits should be expected.⁴

occupied and close to the front-line territories were either severely damaged or ruined. Among those dairy farms that are located in at-front regions, survived occupation and still are the objects of aimed shelling for the invaders.

food processing industry is available through 1) Affordable loans “5-7-9” – compensation of interest rates payments up to 5, 7, or 9 % depending on type of credit or industry. Program focused on micro, small and medium enterprises⁵; 2) Grants for processing development (up to 8 mln UAH)⁶; 3) programs⁷ of Export-Credit Agency of Ukraine according to list of supported products⁸.

Also, some support programs are available if enterprise meets the criteria, for example, microfinance and grants for veterans, and EU for Business programs.

USAID support programs include among other programs Grants for medium and big processing enterprises⁹ - up to \$500 000.

4 Source: <https://landlord.ua/news/za-desyatylittya-svitovyj-rynok-moloka-mozhe-zrosty-u-25-razy/>

5 Source: <https://zakon.rada.gov.ua/laws/show/28-2020-%D0%BF#Text>

6 Source: <https://diia.gov.ua/services/grant-na-pererobne-pidpriyemstvo>

7 Source: <https://www.eca.gov.ua/produkty/rishennya-dlya-eksporteriv/>

8 Source: <https://zakon.rada.gov.ua/laws/show/1792-19#Text>

9 Source: https://chemonics.submittable.com/submit?fbclid=IwAR3H4WiYUVNZUDOOv0bHNwQNJu9zmlDptuxPX0seBBZ_Cg7lNXpu-yVe35g

THE FOLLOWING ASSISTANCE PROJECTS ARE CURRENTLY AVAILABLE

The Swiss-Ukrainian Program “Higher Value Added Trade from the Organic and Dairy Sector in Ukraine” funded by Switzerland and implemented by the Research Institute of Organic Agriculture (FiBL, Switzerland) in partnership with SAFOSO AG (Switzerland)». The project aims to increase trade in higher value-added products in the dairy sector, both domestically and for export. Two thematic areas have been prioritized: a) improving the legal and regulatory framework and business environment to enhance product quality and safety, and b) capacity building to increase trade opportunities.

The FAO project "Integrated, competitive and cost-effective creation of value chains in agriculture, fisheries and forestry" funded by EU. The project provides grant support to small producers and processors in different sectors including dairy in the western region of Ukraine

The EU funded Project “Institutional and Policy Reform of Smallholder Agriculture (IPRSA)”. Project aims to improvement of the capacity of central government and decentralized Oblast/ATC entities to create a positive enabling environment for the sustainable private sector development in rural areas in general, and the agriculture sector specifically, thereby improving livelihoods of smallholder farmers, encouraging the use of good agricultural practices (GAPs), and supporting ongoing reforms in the fisheries and forestry sectors.

Development of dairy business in Ukraine, 21.686.231, CAD, 30.09.24, Canada (The project aims to address the difficulties faced by small and medium-sized dairy producers by establishing and strengthening existing cooperatives that offer services necessary for an efficient dairy production system. These services include collection and market distribution of milk, supply of inputs to farms, including farm supplies and fertilizers, and production of high quality feed, namely hay and corn silage.

INDUSTRY SPECIFIC KEY CHALLENGES AND OPPORTUNITIES

KEY CHALLENGES

A downward trend in raw milk production in Ukraine. This trend is relevant primarily for households that have suffered more from the war. Low financial base and effectivity of smallholders, aging rural population, conscription, low integration of smallholders into dairy cooperatives and dairy value chains contribute to the declining milking cow herd. In addition, the productivity of households remains typically low, with annual average milk yields per cow being 1500 kg less than in dairy farms. Does all milk find it's way to MCCs? Or is there a challenge with milk collection and cooling for the evening milk?

Underutilization of milk processing capacities. The milk processing enterprises work only at 60% of their capacity due to lack of high-quality milk. Raw milk production at households continues to decrease. However, there is a positive trend that commercial farms slowly increase production volume of high-quality milk.

Outdated equipment. According to a survey conducted by APK Inform, 63% of milk powder producers and 62% of butter producers have production facilities older than 30 years. The share of enterprises with equipment older than 10 years among milk powder producers is 81%. 55% of milk powder producers expressed expectations of receiving the latest technologies from foreign partners. Rationale for modernization/investment is hampered by the declining supply of raw milk, leading to a long-term underutilization of the milk processing capacities.

SUPPORT OF SMALL PROCESSORS

The most sensitive players in the dairy sector who need support are micro and small processors. In Ukraine, there are the following classifications of enterprises

According to the Commercial Code:

- Micro enterprises: the average number of employees in a calendar year does not exceed 10 people and the annual revenue from any activity does not exceed the equivalent of EUR 2 million.

Lack of proper quality milk on the market. Extra grade quality milk meets international safety standards, so the effectiveness of promotion and sales of dairy products from Ukraine in foreign markets will depend on an increase in its share in processing.

The milk produced in households is usually of lower quality and does not meet the milk safety requirements of the European Union. This is primarily due to failure to comply with the requirements for cooling regimes, the hygiene of milking, general hygiene and the lack of knowledge among employees on how to identify and treat cows with mastitis. This milk can be put on the Ukrainian market as the introduction of requirements similar to those of the EU for raw milk that has been postponed in Ukraine for two years from the date of termination of martial law. Increasing the share of dairy farms compared to households in the production of raw milk creates prerequisites for the growth of the amount of extra grade quality milk on the market. There is a trend towards an increase in the share of milk of the extra grade quality during last year. As a result, 39,8% of processed raw milk in Ukraine has extra grade quality in 2022. This is 8.8% more than in 2021. Raw milk of the extra grade quality is mainly produced by the farms with a productivity over 5 tons of milk per day.

- Small enterprises: the number of employees in a calendar year does not exceed 50 people and the annual income from any activity does not exceed the equivalent of EUR 10 million.
- Classification in accordance with food legislation: small capacities for the production of products of animal origin no more than 1000 liters or 1000 kg of products on average per week during the year.

This category of processors requires special attention in times of legislative changes. This situation is aggravated by the deterioration of the economic situation due to the full-scale invasion.

Logistical obstacles. Logistics management systems are widely used at processing enterprises. For example, among the representatives of the dairy processing industry, the share of enterprises with such systems was about 90%. Due to the war, transshipment of food products through the Danube and Odesa ports is fraught with security risks. Protests by Polish, Hungarian, and Slovak carriers and farmers blocking the western border crossings led to delays in the delivery of exported products and increased logistics costs.

Insufficient number of border inspection posts. For more details, see the Food Safety Action Plan

Food Safety & Quality. There is a need to introduce a clear traceability system. There is distrust of the competent authorities of European countries in the results of tests conducted by Ukrainian laboratories that carry out official control. There is also insufficient knowledge of raw milk safety and hygiene requirements. This is especially true for raw milk production in households. Furthermore, there is an insufficient participation of mainly small raw milk producers in the Milk Module monitoring system. "Milk module" is a software application that facilitates the cooperation of food business operators with laboratories and the competent authority in order to fulfill the requirements of the new hygiene legislation through the generation and further analysis of the results of laboratory tests. The low involvement in the system of laboratory milk control and ana-

lysis of test results is explained by the lack of funds of. Sometimes milk producers take advantage of the shortage of raw milk on the market to put raw milk on the market without laboratory testing.

For more details, see the Food Safety Action Plan

Waste water treatment. In milk processing, water is mainly used for heating, cooling, rinsing and cleaning. Total water consumption accounts for approximately 0.5% of the total cost of milk processing.

Waste water from dairy enterprises is highly concentrated and contains a number of substances:

- milk and dairy products (particles of cheese, butter, fermented milk products, yogurt, ice cream, milk powder, whey, albumin, enzymes)
- dissolved organic substances (milk fats, proteins, sugar, synthetic surfactants);
- dissolved inorganic substances (soda, salt, residues of detergents and disinfectants).

According to the "Rules for Acceptance of Wastewater into Centralized Sewage Systems" No. 26/31508 of 15.01.2018, wastewater from dairy processing plants is prohibited from being discharged into the centralized sewage system without prior treatment, i.e. in the absence of local treatment facilities at enterprises.

Waste water treatment remains a problem for dairy enterprises, which requires modernization and upgrade their local treatment facilities. All surveyed milk powder producers reported plans to improve water efficiency.

KEY OPPORTUNITIES

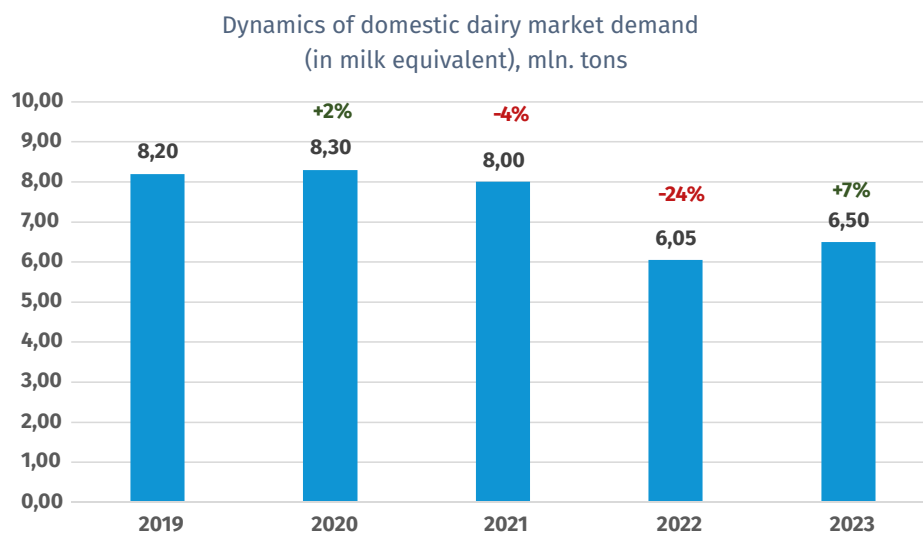
Export opportunities. There are good opportunities for export expansion of dairy commodities (butter, milk powder, etc.) to EU countries due to the reduction of trade barriers, as well as to third countries. Also, local currency devaluation vs hard currencies make it attractive for exporters to increase exports as their products become more competitive. Another positive aspect is that mainly processed products are exported, i.e., added value is created in Ukraine.

Improvement of quality of raw milk. The steady upward trend in the share of extra quality milk creates the potential to improve the quality of dairy products on the Ukrainian market.

Growth of domestic market. Ukraine has significant potential to develop its domestic dairy market. The decline in domestic demand in 2022 was caused by the outflow of population, disruptions in supply chains, and store closures. Domestic consumption grew by 7% in 2023. The upcoming return of temporarily displaced persons to Ukraine will continue to boost the domestic market. Figure 3 showcases the dynamics of the domestic dairy market demand.

FIGURE 3 - DYNAMICS OF DOMESTIC DAIRY MARKET DEMAND

Source: State Statistics Service of Ukraine

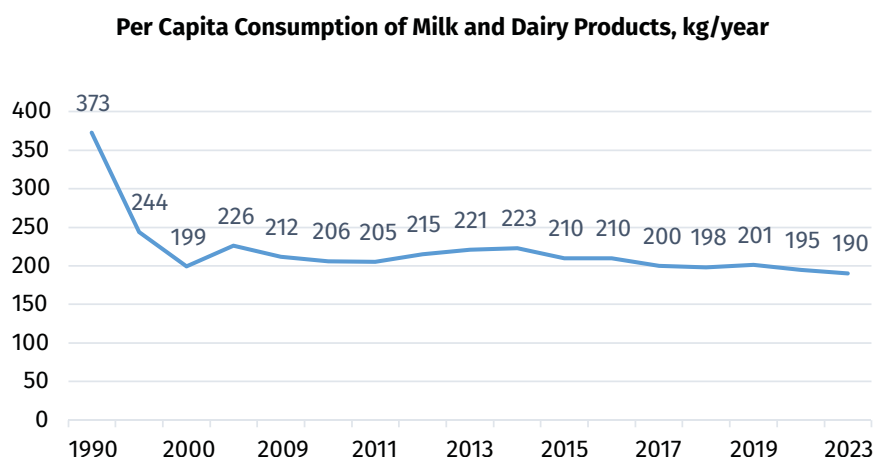


Ukraine still has good prospects for increasing milk production, as there is demand from both the export and domestic markets. Also, the average Ukrainian citizen consumes 190 kg of dairy products per year in terms of milk, while the nutritional norm is 380 kg.

This means that consumption of dairy products can be doubled within the country with the improvement of economic situation and the growth of population's purchasing power. Figure 4 showcases the per capita consumption of milk and dairy products in Ukraine.

FIGURE 4 - PER CAPITA CONSUMPTION OF MILK AND DAIRY PRODUCTS

Source: State Statistics Service of Ukraine



Green modernization of dairy enterprises is an opportunity. Four dairy enterprise estimated the investment in modernization/upgrade of about EUR 53 M for replacing boilers, waste treatment improvements, renewable energy installations (solar/wind), energy efficiency (ventilation and lightning systems), water treatment and recycling, cooling system upgrade (from ammonia based to modern CO₂ based).

Development of craft (local) production. The quantity of small craft processors is increasing due to the following facts:

- some small raw milk producers are not satisfied with the terms of cooperation with large milk processing enterprises and launch processing at the farms;
- high demand of craft manufacturing of dairy products among the population and especially among tourists;
- during the war, when prices for resources and raw milk are unstable and production costs are too high, own processing of milk in a craft cheese factory becomes a way to save and develop business;

The number of companies producing craft cheeses in Ukraine is increasing every year. According to various estimates, today, according to various experts, there are 150 to 300 such mini-productions¹⁰.

The share of craft products in supermarkets is growing¹¹. Simplification of legislative requirements for small producers helps to increase sales channels. The quality of milk is not compromised if milk is processed at the same establishment within 2 hours after milking (bactericidal phase). According to simplified requirements, small processors in the dairy sector (those who produce no more than 1000 liters or 1000 kg of products on average per week during the year) do not need to obtain approval from a state body before starting production, but only to be registered.

10 <https://numl.org/.570891>

11 Source: <https://auchan.ua/ua/brand/post/farm-products-ua/>
<https://lavkasilpo.com.ua/>

SECTOR SWOT ANALYSIS

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Good infrastructure of dairy processing enterprises, except for milk powder producers whose APK-Inform survey showed the need to upgrade facilities and equipment. • There is a steady yet small trend of growth in the share of milk in the extra quality category during last years. • Recovery of the domestic market. • As for export markets, the geography is rather wide – about 120 countries - from MENA region to Central Asia, to Southeast Asia, where Ukraine has already supplied some shipments of processed dairy products to. 	<ul style="list-style-type: none"> • The dairy processing enterprises work at 60% of their processing capacity due to lack of high-quality milk • Lack of high-quality (extra grade quality) raw milk as a raw material for dairy processing. About 62% of raw milk comes from households and do not meet EU requirements as well as upcoming Ukrainian requirements. As a result, for export purpose, it is required to implement additional procedures and/or production equipment to separate processes and products made from raw milk of extra grade quality from other products. There is a need to introduce a clear traceability system. • Over 60% of dairy processing plants are outdated (facilities built over 30 years ago) and have small daily processing facility (there are no dairy plants in Ukraine processing over 500 t of raw milk per day) that contributes to their high production costs and lower competitiveness. • Lack of a vertically integrated production system. Strengthening cooperation and exchange of experience between processors and raw milk producers will help to improve the quality of raw milk supplied to processors • Ukrainian dairy processors are focused predominately on exporting cheaper cheese and butter to neighboring markets and EU, lacking deeper processing and high value-added products. Simultaneously, Ukraine imports premium and high-quality products.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Good opportunities for export to EU countries due to the reduction trade barriers, as well as to third countries. • Open dairy products ? market in Canada. • Ukrainian dairy does have potential for deeper processing, for example, to further produce more expensive cheese, ice cream, dry milk, whey, dry whey, sour cream, butter, cream, lactoferrin (for medication, cosmetics, perfumes), etc. There is a wide variety of dairy products which can be produced from high quality milk and create added value; however, this requires a lot of investment (long term project equity and debt finance). In general, the global demand for dairy products (animal protein) has been growing, so Ukraine can satisfy this demand. However, it will require significant investments, solid and actionable government strategy, subsidies/incentives, etc. 	<ul style="list-style-type: none"> • There are not enough border inspection posts at the borders with the countries of the European Union. • Mistrust of the competent authorities of European countries in the results of studies of Ukrainian laboratories. • The loss of the Asian market is possible due to destroyed/blocked ports on Black Sea.

INDICATIVE INDUSTRY INVESTMENT NEEDS

TABLE 4 - GREEN RECOVERY INVESTMENT NEEDS FOR DAIRY PROCESSING INDUSTRY, IN USD MILLION.

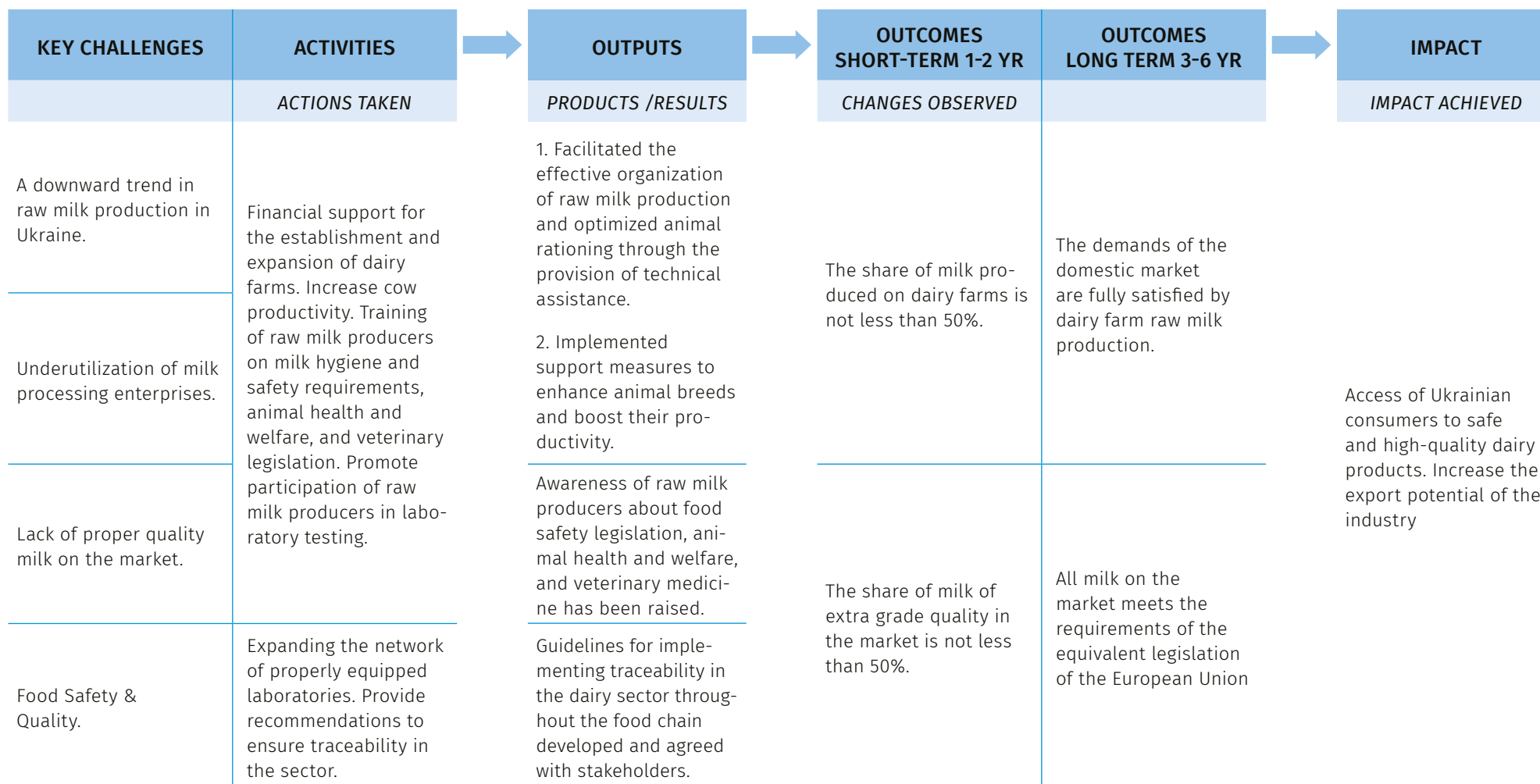
Source: Union of Dairy Enterprises of Ukraine (Association of Milk Processors)

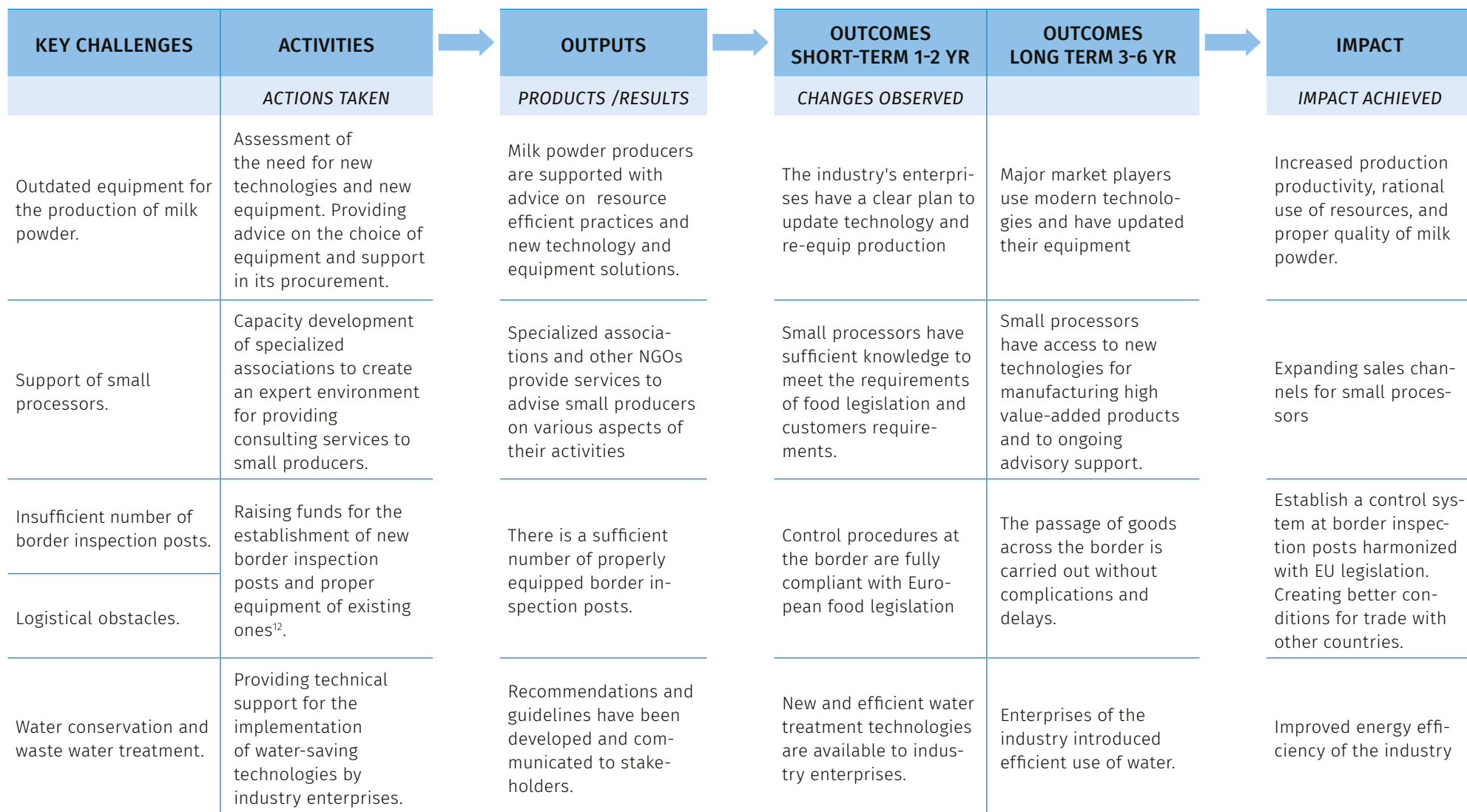
CO ₂ FOOTPRINT REDUCTION	WASTE REDUCTION, RECYCLING	RENEWABLE ENERGY	ENERGY EFFICIENCY	WATER CONSERVATION	PACKAGING UPGRADE	REPLACE THE OUTDATED AMMONIA COOLING SYSTEMS WITH CO ₂ COOLING SYSTEMS;	TOTAL
94,6	42,9	65,5	96,5	78,9	1,1	196,7	581,2

C. INDICATIVE PROJECTS

INDICATIVE THEORY OF CHANGE

This summarizes how the project intends to solve key issues and opportunities from Section B and achieve its objectives.





¹² More about this in the Food Safety Action Plan.

INDICATIVE PROJECT OVERVIEW

PROJECT RATIONALE

Decrease in raw milk production has been observed in Ukraine even before the Russian full-scale military invasion. Milk production by households has sharply decreased as a result of the pasture loss due to the war, decrease in market stability and not sufficient government support.

At the same time, dairy farms are slightly increasing their production of raw milk, so the overall share of milk on the market produced by commercial dairy farms is growing significantly. The increase in the market share of milk produced by dairy farms has led to an increase in the amount of extra grade quality grade quality milk that meets the requirements of EU legislation. There are several other reasons for this growth:

- harmonization of Ukrainian and European food legislation;
- reduction of the share of milk from households, since compliance with the rules of milk hygiene and safety requires more effort on households than on dairy farms;
- increasing the opportunities for exporting dairy products both to the EU and other countries, as the main requirement for such exports is the production of dairy products from raw milk of the extra grade quality;

PROJECT GOAL

Thus, the overall goal of the project is to restore Ukraine's dairy industry, taking into account the growth of the domestic dairy products consumption market and export opportunities. This recovery

- gradual implementation of raw milk control programs by accredited laboratories.

Despite the fact that the legislation establishing requirements for raw milk in Ukraine similar to those of the European Union has been postponed for 1 year after the end of martial law, the amount of such milk on the market is growing year by year. However, the share of extra grade quality milk in the market is still low - only about 40%.

At the same time, the domestic dairy market is recovering, which requires more milk of appropriate quality, and if the demand for milk is not met, the share of imported dairy products in the domestic market will increase. The growth of the domestic market and increased opportunities for exporting products create favorable conditions for increasing the utilization of processing capacity, which is currently around 60%. Increasing the production of dairy products will require improving technology and upgrading equipment. This is especially true for milk powder production facilities, which have mostly outdated equipment.

should ensure equal access to safe and high-quality dairy products for both Ukrainian consumers and consumers in the countries to which Ukrainian dairy products are exported.

PROJECT OBJECTIVES

<p>PROJECT OBJECTIVE:</p>	<p align="center">THE SCOPE OF THE PROJECT WILL INCLUDE THE FOLLOWING COMPONENTS:</p> <ul style="list-style-type: none"> ● ensuring the prerequisites for the full implementation of legal requirements Outcome 1; ● enhance access of processors to raw milk of proper quality, Outcome 2; ● improvement of technology and energy and resource efficiency of milk processing Outcome 3 	
<p>Project Outcomes - Components</p>	<p>Project Outputs</p>	<p>Project Activities</p>
<p>1. Full implementation of Ukrainian legislation and international standards on food safety and quality in the dairy sector.</p>	<p>1.1. Developed network of laboratories for the analysis of milk and dairy products</p>	<p>1.1.1. Improvement of equipment and support in accreditation of the designated laboratory for official control of raw milk. 1.1.2. A series of trainings for laboratory personnel on sample collection and transportation, laboratory testing, and interpretation of results. 1.1.3. Raising awareness of raw milk producers about animal health & welfare, milk production hygiene and requirements of laboratory control</p>
	<p>1.2. The requirements of food legislation and international standards for the introduction of traceability in the dairy sector are understood by stakeholders and implemented on a regular basis.</p>	<p>1.2.1. Developing guidelines for implementing traceability in the dairy sector. 1.2.2. Raising awareness of food business operators in the practical aspects of traceability implementation. 1.2.3. Conducting a series of trainings for trainers on the practical aspects of traceability implementation.</p>
	<p>1.3. There is a sufficient number of properly equipped border inspection posts¹³.</p>	<p>1.3.1. Developing a strategy and a plan, Raising funds for the establishment of new border inspection posts and proper equipment of existing ones.</p>

¹³ More about this in the Food Safety Action Plan.

2. Improvement of the safety and quality of raw milk as a prerequisite for meeting the requirements of legislation and international standards for processing.	2.1. In cooperation with associations operating in dairy sector improve the safety and quality of raw milk.	<p>2.1.1. Raising awareness of small-scale raw milk producers on the practical aspects of implementing hygiene rules, as well as animal health and welfare in small and family farms to fulfill processors' requirements.</p> <p>2.1.2. A series of trainings on feed safety and hygiene and the proper selection of the right animal ration to increase cow productivity in cooperation with associations operating in dairy sector as a basis for proper milk supply to processing enterprises.</p> <p>2.1.3. Support for milk processors' associations and agricultural advisory services, application of the agricultural knowledge and innovation transfer system (AKIS).</p>
	2.2. In cooperation with associations operating in dairy sector improve the safety and quality of raw milk in dairy farms.	2.2.1. Cooperation with milk processors' and producers' associations to strengthen their capacity to provide advisory services in the areas of milk safety and quality, animal health and welfare, safety and hygiene, laboratory testing and interpretation of its results
3. Application of new resource-saving technologies, equipment modernization and waste minimization and utilization ¹⁴ .	3.1. The milk powder and cheese producers use modern technologies and have updated their equipment Increased production productivity, rational use of resources, and proper quality of milk powder and cheese production.	<p>3.1.1. Milk powder and cheese producers are supported with advice on resource efficient practices and new technology and equipment solutions.</p> <p>3.1.2. Support search, identification, cost-benefit analysis, business plan, justified selection in procurement of new green, energy and resource efficient equipment and technology.</p>
	3.2. Improvement energy and resource efficiency of dairy enterprises.	3.2.1. Technical support for the implementation of resources - water-saving technologies by industry enterprises.
	3.3. SME processors have access to new technologies for manufacturing higher value-added products and to ongoing advisory support.	<p>3.3.1. Assess the need and provide SME dairy processors with the necessary knowledge, technological solutions and equipment.</p> <p>3.3.2. Support SME processors have sufficient knowledge to meet the requirements of food legislation and customers.</p> <p>3.3.3. Support SME producers in expanding the range of craft products with high added value, establishing local brands or geographical indications.</p> <p>3.3.4. Cooperation with specialized associations and other non-governmental organizations to make them service providers for SME producers on various aspects of their activities.</p>

¹⁴ See also Food Safety and Packaging action plans

INDICATIVE PROJECT BUDGET

The budget for the project depends on factors like the number of target enterprises, duration, and geographical coverage. To carry out the mentioned technical assistance activities for components 1 and 2, an estimated budget of around 2-3 million Euros

is required. This amount does not cover investment support cost and recurring costs, which must be secured separately to achieve the stated objectives and impacts.

2. ACTION PLAN FOR FRUIT & BERRY PROCESSING

SITUATION ANALYSIS

Ukraine has a well-established fruit processing industry and markets its products mainly as quick-frozen berries and berry mixes, juice concentrates, purees and frozen mixed-fruit preparations. The sector is dominated by small and medium-sized enterprises (SMEs), with basic processing. A few larger companies, like Agrana, Dohler, JE Vitmark, Galicia and others are involved in more complex processing and exports. The commodity structure consists of 2 main categories: frozen fruit and berries (45,1%) and fruit juices (41,1%).

Fruit and berry production: Ukraine produces a variety of different berries and has agro climatic advantages in a number of them. In addition to berries, Ukraine also cultivates fruits, mainly apples, pears, plums, and cherries. Most apple varieties are suitable either for processing into concentrate or for sale as fresh produce in the local market. The majority of apples produced are typically sold fresh within the domestic market.

Fruit juice production is still thriving thanks to a wide range of resources. Before the war, Ukraine was the 4th biggest exporter of apple juice with 6,2% of the global share¹⁵. The industry is quite competitive, with 10 major producers, strong regional players, and smaller ones offering unique products. However, exporting to the EU before the full-scale Russian invasion is regulated by quotas, usually filled up in the first few months of the year.

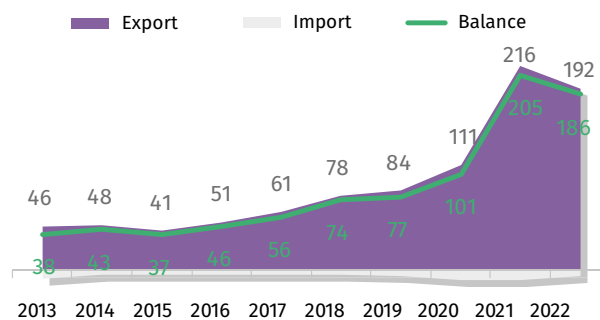
Other fruits and berries processing products. Apart from making juices, Ukraine is getting into various other fruit and berry processing areas, like pectin (started in 2019) and fruit fillers. Plus, the industry for jams, marmalades, jellies, and the like has picked up again after a dip in 2014. This segment of the market is highly concentrated with only a handful of large enterprises dominating the market.

Export: Ukraine has become the fastest growing exporter of berries among the top 20 leading global berry exporters, as can be seen on Figure 5. “Exports of berries from Ukraine in 2018-2022 grew by an average of 25% every year, mainly due to an increase in export shipments of frozen raspberries. Ukraine maintains a trade surplus in Frozen Fruits and Berries, as well as Fruit Juices, while experiencing a trade deficit in processed fruits and berries, including jams. The EU is the number one export destination. Frozen fruits and berries exhibit the most significant market demand growth at a 9% Compound Annual Growth Rate (CAGR), with processed fruit and berry sector following at a 4% CAGR¹⁶.”

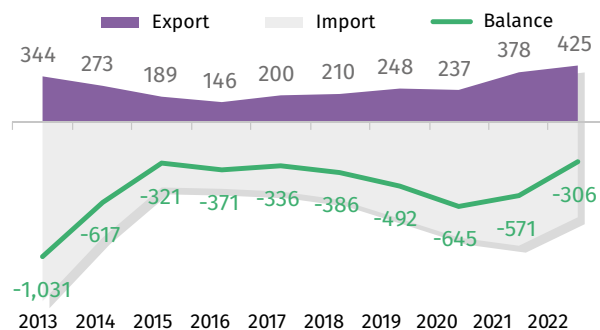
FIGURE 5 - EXPORTS OF FROZEN FRUITS AND BERRIES AS WELL AS FROZEN FRUITS AND BERRIES PRODUCTS

Source: GrowUkraine 2022

UKRAINE: DYNAMICS OF TRADE, MLN \$



DYNAMICS OF TRADE, MLN \$



15 Source: The National Strategy to Increase Foreign Direct Investment in Ukraine.

16 Source: GrowUkraine 2022 report

In 2023, Ukraine achieved a significant breakthrough in the challenging Swiss market. Switzerland's non-membership in the European Union makes it a highly protected food and the requirements for product safety and quality are very high. That is why the success of suppliers from Ukraine in this market is an important milestone for further export

THE IMPACT OF THE WAR

Facing challenges in both internal and export logistics, the situation has become more complex and expensive. This is mainly due to rising fuel costs, shifting in export routes, and obstacles encountered at export borders due to blockades. Additionally, the limited capacity at Ukrainian borders does not help the situation, with priority often given to perishable products over frozen berries and fruits. Serious disruption of the key production and processing processes caused by the outflow of workers (fruit pickers) and power outages.

All businesses and production facilities located in or close to Donetsk, Luhansk, Zaporizhzhya and Kherson suffered heavy losses. However, as the majority of berry producers are located in the North and West of Ukraine the overall sector loss due to the war is much lower compared to, for example, vegetables subsector, which has significant production in the South.

Outlook 2024, all war-related production and market challenges are expected to remain in place: the industry will face increasing production costs, energy shortage, domestic consumption decline due to the refugee crisis, and logistical export problems.

INDUSTRY SPECIFIC KEY CHALLENGES AND OPPORTUNITIES

Fruit and Berry processors in Ukraine continue to operate in the context of the war, adjusting their strategies to the realities of the current situation.

development. The substantial increase in berry exports to Switzerland (+86% in frozen raspberry and +63% in fresh blueberries compared to 2022)¹⁷ not only establishes Ukraine as a provider of affordable berries but also solidifies its reputation as a supplier of high-quality products.

The outflow of personnel is likely to stabilize in 2024.

At the time of compiling this report there were no fruit sectors specific support programs identified. The ones which are relevant to the green recovery of the sector as a whole are listed in the roadmap¹⁸.

The berry sector is represented by the Ukrainian Berry Association (UBA), a non-governmental organization. The UBA is important for the development of the berry and fruit subsector. It actively promotes the subsector, advocates for its interests, engages in parliamentary working groups, participates in international fairs, facilitates sector exports, conducts research and analysis of subsector trends, and implements international donor projects. The UBA is an active association which participates in key industry trade fairs like the Fruit Attraction 2023 in Spain and BIOFACH 2024 in Germany.

The juice producers are represented by the National Association of Manufacturers of Baby Food, Canned Milk and Juice Products "Ukrkonservmoloko" and the Public Union "Association of Gardeners, Grape Growers and Winemakers of Ukraine".

¹⁷ Source: EastFruit 2023

¹⁸ Green recovery roadmap: table 3: active projects and initiatives related to green recovery.

KEY CHALLENGES

The primary challenges identified by the surveyed¹⁹ Fruit and Berry processors in conducting business during wartime are as follows:

1. The outflow of personnel because of migration or conscription and problems in logistics are mentioned by all respondents (100%) and stands out as the 2 main challenges.
2. Followed by energy supply problems, noted by 88%-100% of the respondents.
3. A decrease in demand, is impacting 55-75% of those surveyed, and is also significant.

The fruit and berry processing sector is dominated by medium and small enterprises. From the UNIDO survey it became clear that the majority are medium sized enterprises (50-55% of respondents) followed by small enterprises (38-45% of respondents). Only a few enterprises have the size and the technology to produce high quality export fruit and berry products like aseptic berry products. Berry preparations like fillers, jams, purees and mixes, etc. are even less common and are produced predominantly by the very large enterprises.

Small and medium-sized enterprise (SME) owners show reluctance to invest in maintaining high-quality standards, leading to persistent food safety issues. While HACCP documentation may be in order, actual adherence to food safety practices is lacking, as revealed during audits. The oversight from state food safety control in the berry sector is nearly non-existent. The EU audit report from May-June 2021²⁰ was unfavorable, serving as a potential catalyst for necessary changes and improvements in state policies regarding food safety. The ongoing war and

KEY OPPORTUNITIES

Increase exports to EU. There is increasing international demand for Ukrainian (frozen) fruits and berries, driven by their quality and organic farming

short-term uncertainty are preventing enterprises from making investments. Limited financial resources and a lack of credit and investment support options further hinder investment efforts.

Lack of recognition of Ukrainian organic certification for export to EU. Despite aligning with EU principles, Ukraine's organic certification isn't recognized in Annex III of Regulation No. 1235/2008. This means Ukrainian organic exporters need separate EU certification, incurring additional costs for both domestic and EU markets. To facilitate organic business in Ukraine and EU exports, further align Ukrainian organic standards and control with the EU's and request the European Commission to recognize Ukraine as an approved country.

The outflow of personnel has created challenges for enterprises, reducing processing and export support. The personnel shortage is particularly acute due to factors such as women leaving the country and men being involved in the war. Therefore, there is a pressing need to expedite the automation of processes wherever feasible to replace manpower with machines.

Currently, the surveyed enterprises indicate having a variety of equipment from diverse origins and ages. The majority of the frozen fruits and berries enterprises (63%) have equipment aged under 5 years, in contrast only 9% of the enterprises active in processing of apples and pears report to have equipment under 5 years of age and thus assumed using old (between 5 -10yr) to over a decade old machinery. To excel in fruit and berry processing, investments in modern and energy efficient machinery and equipment are required.

practices, opening avenues for export-led growth. Additionally, there is potential for import substitution in the processed fruits and berries (jams) ca-

¹⁹ Source: UNIDO 2023 survey. Characteristics, problems and needs of enterprises in the food industry of Ukraine

²⁰ Source: European Commission, DG for Health and Food safety, Health and food audits & analysis (SANTE) 2021-7179

tegory. The EU-Ukraine Deep and Comprehensive Free Trade Area (DCFTA) agreement – together with competitive prices and (still) cheaper and shorter logistics than competing South American and African countries – creates real opportunity for Ukraine to increase its exports to the EU. However, this will require compliance with the EU trade rules and application of specific market standards for packing and marketing practices.

Low hanging fruit opportunity in value addition.

Ukraine exports a substantial volume of berries to Poland in a semi-processed state due to limited advanced processing capabilities. In Poland, these berries undergo further processing, packaging, and marketing, ultimately being sold under Polish or EU brands through local distribution channels. The estimated loss for Ukraine in added value amounts to around \$100 million. Ukrainian producers face the challenge of enhancing product quality, upgrading technology, equipment, packaging, and marketing to sidestep reliance on Polish processors. The goal is to sell directly to European importers and retail chains under increasingly own brandings.

Opportunities exist for the development of export value chains for fruits and berries, including investments in sustainable processing leading to improvements in energy consumption and waste reduction. As also leads to improved sorting and grading practices, cold storage facilities, blast freezing, food quality certification, (aseptic) packaging, labeling, branding, tracing, and distribution.

The existing traceability laws and regulations in Ukraine is a good basis to build on which can boost fruit and berry export in EU retail. Introduce practical and tested traceability applications of blockchain in the supply chain for improving the traceability of data. These include the tracking and tracing of berries from origin to market.

The organic and wild berry is a growth market. The growing popularity of organic food products has

resulted in high demand for organic berries in the EU and across the globe. The global organic berries market size was valued at US\$ 5.42 Billion in 2022 is expected to grow at a **CAGR of 6.3%**²¹ to reaching US\$ 8.31 Billion in 2029. A fair number of Ukrainian producers of both wild and cultivated berries meet organic standards, presenting an opportunity for expanding organic processing and marketing into EU. Organic products destined for the EU come with their own set of quality standards, regulations, and control as laid out in the new EU Organic Regulation which has started to apply from January 2022²².

The strong demand for organic products makes organic production a promising investment sector in Ukraine. The country's legislation aligns with EU standards, and the cost of arable land rent is low.

Enhance food quality and safety official control.

Strengthen and build capacity of the food safety control, auditing rules and laboratory competencies in line with DCFTA and EU accession. Furthermore, increase food safety and quality awareness at fruit processor level to enhance the food quality and safety compliance. Food safety and control related challenges are in more detail addressed in the sector wide “food quality and control” action plan.

Drive the adoption and active implementation of regulatory changes within the industry.

- **To implement the new EU Organic Regulation** which has started to apply from January 2022. The regulation aims to revise and strengthen the EU rules on organic production and the labelling of organic products in relation to: a. the control system; b. the trade regime; and c. production rules. To help organic producers and traders, competent authorities and control bodies navigate these regulations, IFOAM Organics Europe has [developed guidelines to the EU Organic Regulation](#). IFOAM Organics Europe is the European umbrella organization for organic food and farming.

21 Source: MMR: Organic Berries Market: Global Industry Analysis and Forecast (2023-2029)

22 Source: [EU rules on producing and labelling organic products \(from 2022\)](#).

- **To control emissions from fluorinated greenhouse gases (F-gases)**, including hydrofluorocarbons (HFCs) - which are widely used as coolant-, the EU has adopted two legislative acts: the F-gas Regulation and the MAC Directive. The EU F-gas Regulation is being updated with a proposal from the Commission on April 5, 2022. The Euro-

pean Parliament approved the legislative resolution on January 16, 2024. The proposal aligns the F-gas Regulation with the European Green Deal, European Climate Law, international obligations on HFCs under the Montreal Protocol, and lessons learned from progress²³.

ACCELERATE GREEN RECOVERY OPPORTUNITIES BY

- **Enhance energy independence to counter power outages.** Promote renewable and smart energy solutions like solar energy.
- **Increase and modernize cold storage with energy efficient techniques.** New food freezing concepts improves quality, ensures safety, saving energy and reducing carbon emissions. Identify, research and pilot new freezing technologies and methods applicable to food processing. For example, isochoric freezing.
- **Support the transition to eco-friendly (non-HFC) and energy efficient coolants.** Support development of a country policy (incl. deregulation) for transition/replacement of HFC systems in line with the above-mentioned new EU F-gas Regulation.

Advance processing modernization, especially for smaller enterprises, and enhance the equipment and machinery of facilities including the modernization of the current hydrofluorocarbons (HFCs) based cooling and freezing technology into more energy efficient and eco-friendly options. Modernizing processing facilities allows for the production of consistently higher-value (fresh) products, and where possible replace manpower for machine power.

23 Source: [EU legislation to control F-gases](#)

SECTOR SWOT ANALYSIS

In below table 1 the key strengths, weaknesses, opportunities and threats (SWOT) are listed.

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Agro climatic advantages: Ukraine's fertile soil, abundant water, and favorable climate support diverse fruit and berry cultivation. • Diverse production: Ukraine produces a variety of high-quality fruits and berries. • Resilience: Despite war challenges, Ukraine's berry sector maintains production and exports, with a relatively good season in both quality and quantity, albeit at lower prices. • Fruit processing, particularly for juices, is well established in Ukraine, with both local and international producers making juices and concentrates from locally sourced fruits. 	<ul style="list-style-type: none"> • High export quality processing is rare to find among Ukrainian SMEs • Some enterprises offer retail packaging, but it tends to be basic and lacks variety.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Strong demand for fresh berries, growing at CAGR 3.7% till 2029²⁴ • Even stronger demand for Organic berries, growing at CAGR 6.3% till 2029. • Good opportunities for export to EU countries due to reduction of trade barriers. • Ukrainian enterprises focus on processing berries and fruits for ingredients rather than for retail, which is more lucrative but also more demanding, presenting an opportunity for growth. • The Ukrainian fruit and berry processing market still has areas that are relatively untapped, offering high growth potential for (foreign) investors. 	<ul style="list-style-type: none"> • Poland is the biggest buyer of berries from Ukraine, and this reliance proved risky, especially during the roadblock on the Polish-Ukraine border in 2023. • Ongoing Russian invasion and continuous Russian missile attacks on Ukrainian civilians, energy infrastructure and commercial enterprises, which disrupts electricity supplies, processing, supply chains, logistics and outflow of workforce. • Challenges include availability and cost of storage facilities, as well as high exchange rates for exporters. • Berry and fruit production are a long-term investment. With the current war related uncertainty growers are likely to switch to one-year crops. • The trend toward lower-sugar alternatives is causing a decline in juice consumption

²⁴ Source: Mordor Intelligence

INDICATIVE INDUSTRY INVESTMENT NEEDS

Through engaging with the private sector and industry association representatives, indicative investments needs are identified within the following main strategic areas relevant for the food industry: 1) Car-

bon Footprint Reduction 2) Waste Reduction and Recycling, 3) Renewable Energy 4) Energy Efficiency 5) Water Conservation 6) Packaging Innovation/upgrading 7) Reconstruction of the destroyed enterprises.

TABLE 5 - GREEN RECOVERY INVESTMENT NEEDS FOR **FRUIT AND BERRY** PROCESSING INDUSTRY

Source: UNIDO estimations of potential based on the interviews with market players.

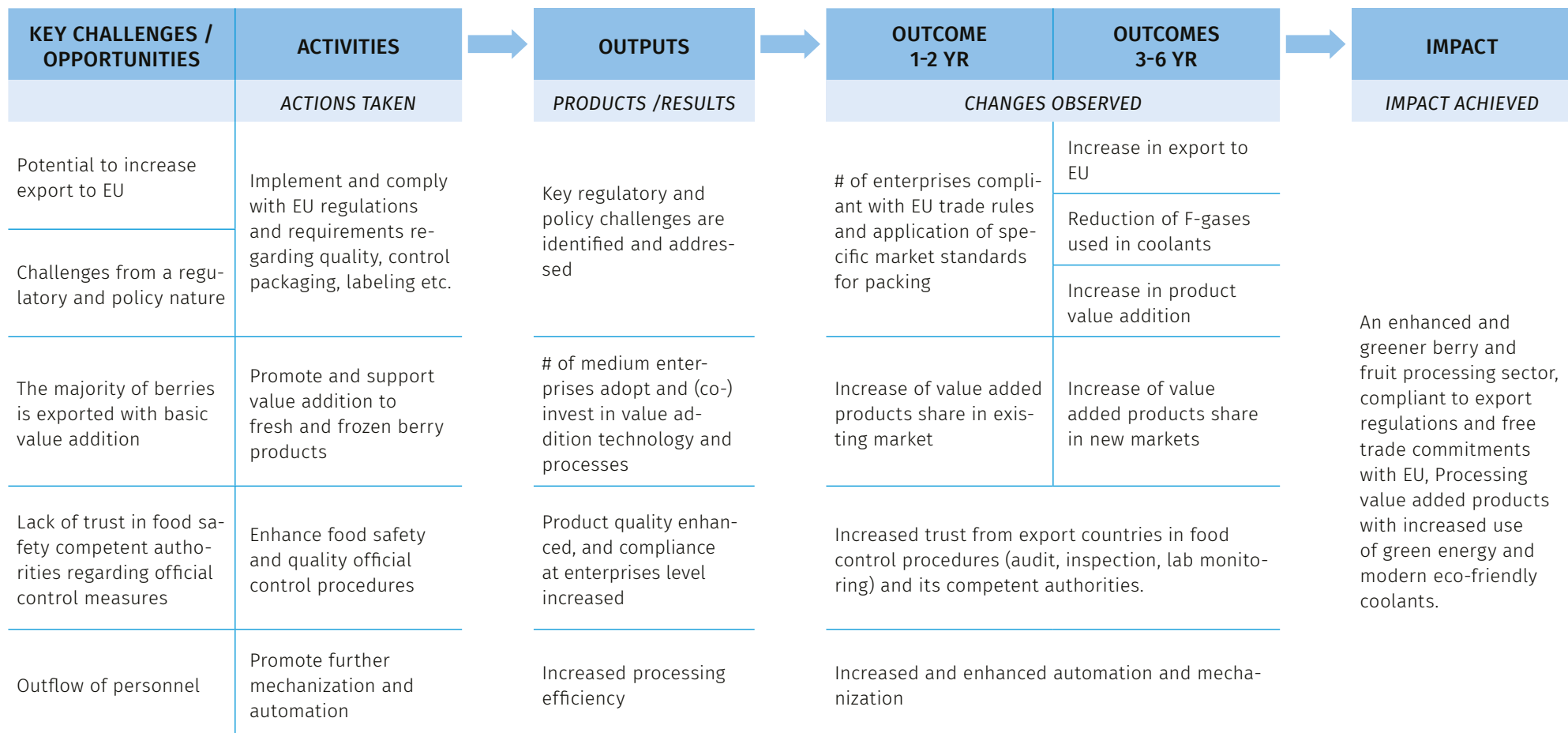
CO ₂ FOOTPRINT REDUCTION	WASTE REDUCTION, RECYCLING	RENEWABLE ENERGY	ENERGY EFFICIENCY	WATER CONSERVATION	PACKAGING UPGRADE	RECONSTRUCTION
Yes*	No	Yes	Yes	No	Yes	Not identified

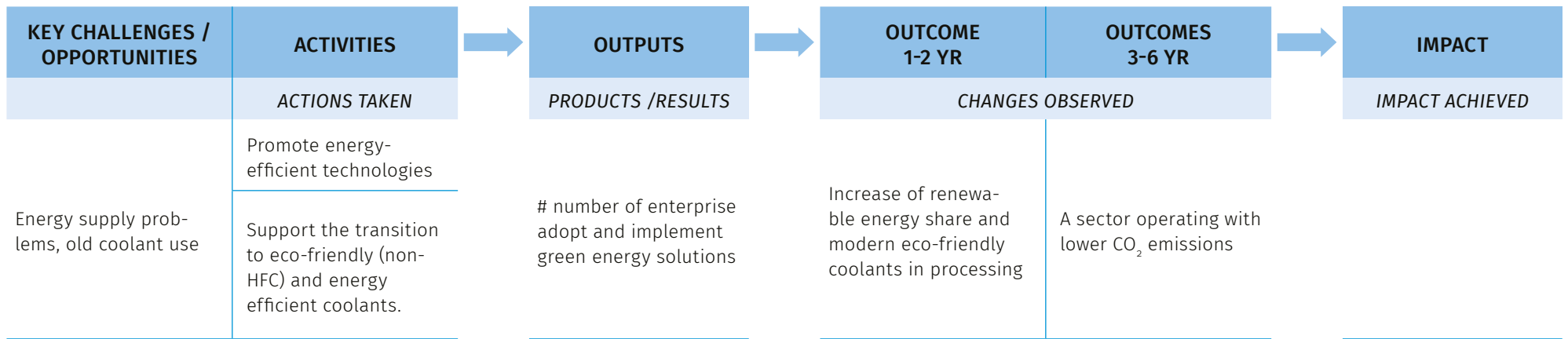
*Yes, means investment need was identified during discussions with stakeholders, but not yet quantified.

C. INDICATIVE PROJECTS

INDICATIVE THEORY OF CHANGE

This will summarize how the project intends to solve key issues and opportunities from Section B and achieve its objectives.





INDICATIVE PROJECT OVERVIEW

PROJECT RATIONALE

Despite the challenges of war, Ukraine's fruit and berry processing sector remains resilient, maintaining both production and exports. Ukraine maintains a trade surplus in frozen fruits and berries, as well as Fruit Juices, while experiencing a trade deficit in processed fruits and berries, including jams. The European Union (EU) stands as the top export destination. Frozen fruits and berries exhibit the most significant market demand growth at a 9% Compound Annual Growth Rate (CAGR), with processed fruit and berry sector following at a 4% CAGR.

The sector has promising investment opportunities in value addition and organic products which could lead to premium prices and further market penetration. However, the ongoing war and short-term uncertainty are preventing enterprises from making the necessary investments. Limited financial resources and a lack of credit and investment support options further hinder investment efforts. Furthermore, commitment and compliance with food safety and quality standards seems to be an additional challenge for many enterprises.

PROJECT GOAL

The objective for the environmentally friendly improvement of Ukraine's fruit and berry processing industry is to enhance the processing sector using efficient and sustainable processing technologies to create dependable and high-quality food products while ensuring, food safety standards, minimize and reduce the environmental impact and increasing exports.

The EU export market is substantial and expanding, but it is also becoming more demanding, with increasing quality requirements under a variety of trade agreements and quality and packing regulations. Furthermore, as part of the EU accession process the industry in Ukraine needs to modernize with green and energy efficient technologies to reduce the environmental impacts. To address these requirements and enhance resilience to war-related shocks, investments in processing are necessary. Simultaneously, increase compliance to trade and quality audit obligations, achieving energy independence and transitioning to energy efficient and ecofriendly cooling and freezing techniques is crucial to enhancing competitiveness in processing berry and fruit products through increased value addition.

Under the “Build Back Better” principle, the Green recovery goals and objectives for the selected food industries are established for 2024-2029 and are aligned with the national priorities and the long-term vision in the sector, which will be reflected in the Agriculture and Rural Development Strategy once it is fully developed and finalized.

To contribute to the achievement of this objective the action plan will ensure that: 1: Implement and comply with EU trade agreements and regulations (Outcome 1); 2. The sector actively develops high-value products for diverse markets (outcome 2); and 3. The fruit and berry industry is increasingly energy independent with improved energy efficiency and use of renewable sources (Outcome 3).

PROJECT OBJECTIVE:	To enhance the fruit and berry processing industry using energy efficient and sustainable production and processing technologies to create dependable and high-quality food products while ensuring DCTFA and other export standards while minimizing and reducing the environmental impact.	
Project Outcomes - Components	Project Outputs	Project Activities
1. The sector actively implements and complies with EU trade agreements and regulations	1.1 Key regulatory challenges are identified and addressed.	<p>1.1.1 Identify key requirements and implications for fresh, wild and organic berry compliance in cooperation with partners active in that field.</p> <p>1.1.2 Support development of a country policy (incl. deregulation) for transition/replacement of HFC systems in line with new EU F-gas Regulation</p> <p>1.1.3 Support sector wide EU regulation awareness campaign</p> <p>1.1.4 Support in implementation of new requirements to:</p> <p style="margin-left: 20px;">A. implement the new EU Organic Regulation</p> <p style="margin-left: 20px;">B. control emissions from fluorinated greenhouse gases (F-gases).</p>
	1.2 Product quality enhanced, and compliance increased	<p>1.2.1 Develop and Organize awareness training on quality packing requirements and EU country specific preferences.</p> <p>1.2.2 Support x number of enterprise to quality (organic) standard audit readiness.</p> <p>1.2.3. Ensure and support participation of fruit and berry processing enterprises in “Food Quality and Control action plan”</p> <p>1.2.4 Ensure and support participation of fruit and berry processing enterprises in “Food Packaging industry” action plan.</p>
2. The sector actively develops high-value products for diverse markets.	2.1 Diversified Product Portfolio adapted to market demand	<p>1.3.1 conduct market need assessment for promising EU markets and products</p> <p>1.3.2 Support product processing pilots at selected enterprises.</p> <p>1.3.3 Support product (incl. packaging) innovation awards to stimulate product development</p>
	2.2 New markets in and outside EU are established	<p>2.1.1 Identify main issues hampering market penetration.</p> <p>2.1.2 develop and conduct a training/ technology transfer program in marketing, promotion, packaging labeling etc.</p> <p>2.1.3 Organize/participate in relevant international trade fairs in the target markets.</p> <p>2.1.4 Promote participation in business meeting events.</p> <p>2.1.5 Support Export product promotions in close cooperation with Industry associations</p>

3. The sector is energy independent and increasingly energy efficient from renewable sources	3.1 the Sector is adopting green processing technologies	<p>3.1.1 Identify main issues and equipment related to transforming the SME to green energy.</p> <p>3.1.2 Develop cost -benefit models to demonstrate the feasibility of green/energy efficient technology and the cost savings achieved.</p> <p>3.1.3 develop and conduct a training/ technology transfer program for the enterprises.</p>
	3.2 X number of SME processors are supported to apply for green energy incentives and subsidies	<p>3.2.1 Support SME in accessing green investment incentives (incl. EU green deal)</p> <p>3.2.2 Support industry in transition/replacement of HFC systems.</p>

INDICATIVE PROJECT BUDGET

The budget for the project depends on factors like the number of target enterprises, duration, and geographical coverage. To carry out the mentioned technical assistance activities, an estimated budget

of around 2-3 million Euros is required. This amount does not cover investment support cost and recurring costs, which must be secured separately to achieve the stated objectives and impacts.

3. ACTION PLAN FOR HONEY PROCESSING

A. SITUATION ANALYSIS

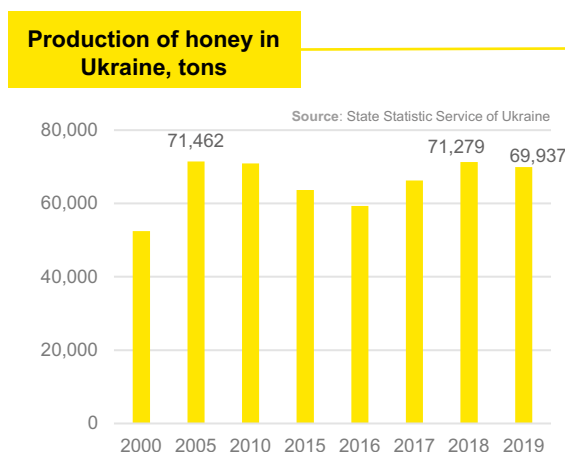
Basic facts about the industry. Ukraine has significant natural agro-ecological advantages for producing honey. The favourable climate, distinct seasons and a wide range of flowering plants allow for significant honey production. These factors make Ukraine one of the largest honey-producing countries in the world and ranked 5th in the world's honey exporters before the war. The sector is predominantly charac-

terized by small and medium-sized enterprises. It is estimated that about 100 000 beekeepers do this business commercially. Additionally, some rural households keep bees for own consumption and sell honey at local markets.

Figure 6 showcases the total production of honey in Ukraine.

FIGURE 6 - TOTAL HONEY PRODUCTION IS ABOUT 70 THOUSAND TONS PER YEAR BEFORE THE WAR²⁵

Source: [Ukraine Invest](#)



Regarding the regional structure, around 60% of total honey production is provided by 8 Ukrainian regions - Vinnitsa, Dnipro, Zaporizhzhia, Zhytomyr, Mykolaiv, Poltava, and Kirovograd. At the same time,

western regions (Volynska, Ternopil, and Khmelnytsky) almost doubled the honey production due to the proximity to the EU²⁶.

EXPORT

There is a growing worldwide demand for honey, with a CAGR of 4.9%. Export of Ukrainian honey is mostly non branded bulk, which requires basic processing.

In 2021, Ukraine exported honey for USD 144 million²⁷, as can be seen under Figure 7 below, while in 2022 exports reached USD 120 million²⁸.

25 Source: <https://ukraineinvest.gov.ua/wp-content/uploads/2021/08/FDI-Strategy-Section-2-High-Value-Agriculture-ENG.pdf>.

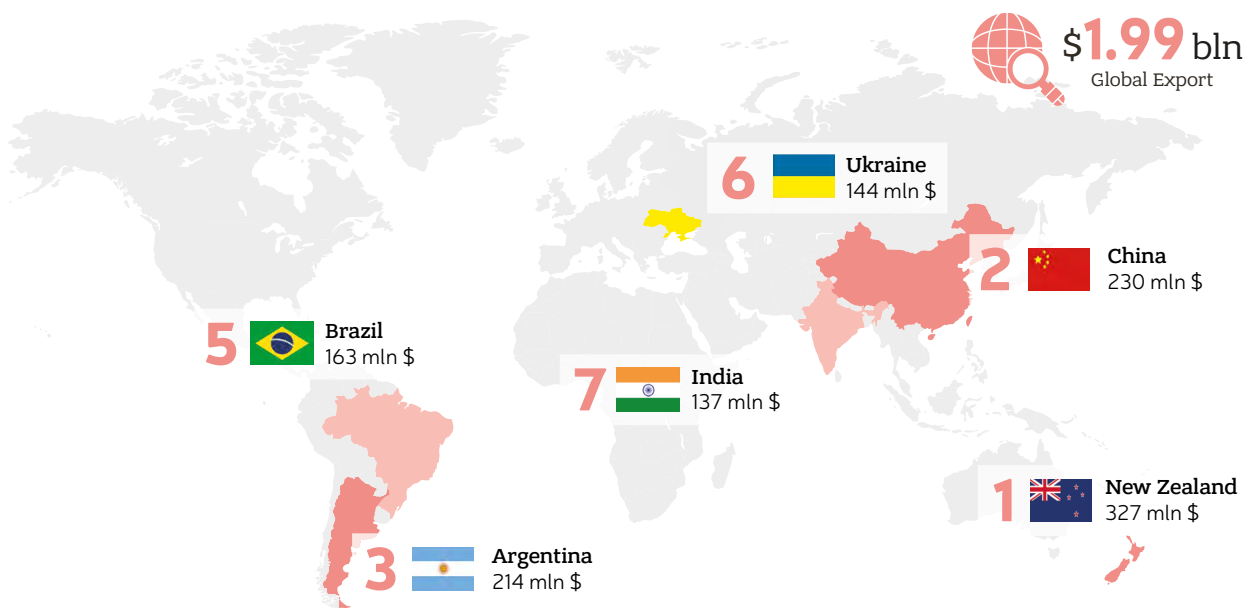
26 Source: https://pdf.usaid.gov/pdf_docs/PA00TVIV.pdf

27 Source: GrowUkraine 2022 (<https://minagro.gov.ua/en/investoram/eksportne-portfolio>)

28 Source: <https://agroportal.ua/publishing/analitika/zalivayemo-medom-yevropu-bagato-i-deshevo-chi-zminit-galuz-strategiyu-eksportu>

FIGURE 7 - MAJOR HONEY EXPORTERS AND THE POSITION OF UKRAINE IN 2021

Source: [GrowUkraine 2022](#)



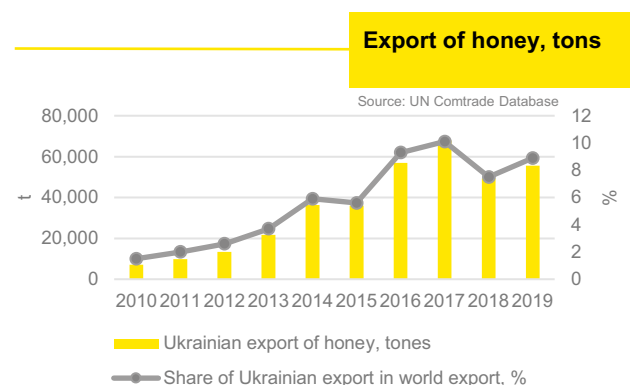
Exports of honey has been growing for many years, as can be seen under Figure 8 below. In 2023, export reached about 55 thousand tones despite the war (up from about 48 thousand tones in 2022). At the same time, the average price in 2023 went down to \$2.19/kg from \$2.85/kg in 2022²⁹.

It is the European Union that remains the key market for Ukrainian honey. The share of EU countries in total Ukrainian honey exports in 2021 was 88%, in 2022 - 89%, and in 2023 - 93%³⁰ (while main destination countries are Germany, Poland, France, Spain, Italy, Belgium).

According to UAHEP (Ukrainian Association of Honey Exporters and Producers (founded in 2010), out of a total 20 exporting companies, about 12 companies ensure stable export deliveries – twice per month. As for retail orientation, only 3 companies in Ukraine export honey properly processed and packaged for retail.

FIGURE 8 - EXPORT OF HONEY 2010 - 2019

Source: Ukraine Invest.



According to UAHEP, the EU remains the main market also because the deliveries by the sea to other markets like Japan, Asia, North America were cut off by the full-scale Russian invasion. It is not cost efficient now to export honey to these markets via Europe.

29 Source: <https://agroportal.ua/publishing/analitika/zalivayemo-medom-yevropu-bagato-i-deshevo-chi-zminit-galuz-strategiyu-eksportu>

30 Source: <https://agroportal.ua/publishing/analitika/zalivayemo-medom-yevropu-bagato-i-deshevo-chi-zminit-galuz-strategiyu-eksportu>

According to UAHEP, Ukraine reached its export potential in bulk honey and a new phase of development will be processing and packaging the honey for the retail market. However, it will require expertise/knowledge, investment in new processing and pa-

ckaging equipment, in quality product development and proper honey blending, food safety, in business development, in marketing and promotion, certification, labelling.

RELEVANT INDUSTRY SPECIFIC SUPPORT PROGRAMS

Before the full-scale Russian invasion, both individual beekeepers and business entities were entitled to receive budget subsidies pursuant to the Procedure for Using Funds Provided in the State Budget for State Support of Animal Husbandry Development and Processing of Agricultural Products, approved by Resolution of the CMU No. 107 dated 7 February 2018. The state aid was granted for entities that own from 10 to 300 bee colonies in the amount of UAH 200 (about USD 7.15) per bee colony, with a cap of UAH 60 000 (approx. USD 2 145). In 2020, according to the Deputy Minister of Economic Development, Trade and Agriculture, the total amount of state support granted was UAH 239 440 200 (about USD 8.570 million). The aid was provided to 23 430 registered applicants³¹.

Beekeepers willing to get state aid should obtain veterinary and sanitary passports for all their apiaries and register them as facilities according to the procedures indicated above. In addition to documents confirming fulfillment of these requirements, the applicant must also provide statistical reports on the production of bee products and documents confirming the opening of the bank account. Local community councils gather such information and transfer it to the Ministry. The Ministry could further distribute grants within the limits of available budget³² (provided funds are available). State subsidy for beekeepers was transferred to Diia digital application. Individual beekeepers and business entities - owners of bee colonies have the right to receive state support (subsidy) for bee colonies on an irrevocable basis. In order to receive such a subsidy, it is necessary to apply to the local community body at the location of the apiary with the necessary documents³³.

31 Source: <https://ukraineinvest.gov.ua/wp-content/uploads/2021/08/FDI-Strategy-Section-2-High-Value-Agriculture-ENG.pdf>

32 Source: <https://ukraineinvest.gov.ua/wp-content/uploads/2021/08/FDI-Strategy-Section-2-High-Value-Agriculture-ENG.pdf>

33 Source: <https://diia.gov.ua/>

B. HONEY PROCESSING INDUSTRY SPECIFIC CHALLENGES, OPPORTUNITIES, SWOT

KEY CHALLENGES

The sector is predominantly characterized by small and medium-sized enterprises, producing honey with basic processing for the bulk market, leading to the following challenges:

ENABLING ENVIRONMENT, INFRASTRUCTURE CHALLENGES AND CONSTRAINTS

- 1. Enabling environment:** As Ukraine is moving toward the EU accession, the country needs to align its policies, standards and requirements with the EU ones, including but not limited to EU Directive 2001/110/EC. Generally, Ukraine lacks a comprehensive strategy of honey processing industry development to leverage existing bulk honey exports success, move towards more value addition, high retail quality.
- 2. Food Safety and Quality:** Ukrainian state laboratories lack EU accreditation; Ukrainian laboratories are not good enough to check honey for export. Honey is one of the products, which is easy to counterfeit. It is easy to sell sugar syrup blended with honey. Competition with cheap and fake honey makes it difficult for quality honey to find its way to the final consumer. In addition to laboratory tests, the traceability system should be improved to prevent counterfeited honey. It is also necessary to increase the effectiveness of state control measures to verify the traceability system both by the competent authority and by honey producers' associations.
- 3. Ease of doing business:** Enterprises note complexity to plug into electricity grid. Compared to the neighbouring countries, it takes the longest time and cost for businesses to prepare, approve the project to get all necessary permits, connect to the electricity grid, and obtain green tariff (if it is a renewable energy project). The same is equally applied to waste treatment, wastewater treatment projects which are difficult and time consuming to prepare, approve with authorities, and set into motion, as enabling environment is not business friendly, and requires deregulation to make it faster, cheaper for business to operate.
- 4. Lack of the national register/data base of botanic and geographic origin of honey** is a constraint for the stronger sector development, traceability, consumer awareness, marketing and exports. After development, approval and launch this national register/data base of botanic and geographic origin of honey can be integrated with the laboratories network in the EU.
- 5. Due to low institutional capacity,** there are unresolved challenges and constraints mentioned above. Also, there is lack of fruitful collaboration, constructive and ongoing policy and stakeholder dialogue between government, business associations, market players, beekeepers, local communities to address challenges, constraints, sector problems on a continuous basis.

SME LEVEL CHALLENGES AND CONSTRAINTS

- 1. Technology:** The adoption and investment in advanced retail-oriented processing and packaging equipment and practices are currently at a low level within the sector. According to APK Inform survey, honey quality control system was fully implemented at 38% of respondents' enterprises. 50% implemented partially, while 12% did not implement at all, which represents area for improvement.
- 2. Equipment age:** According to APK Inform survey, 63% of respondents have equipment 5-10 years old, 38% - more than 10 years, which represents area for modernization/upgrade. (Origin of the equipment -88% bought it from the EU, 25% from Ukraine).

3. Marketing: Limited knowledge of foreign consumer markets, retail market requirements, certification, food safety and insufficient resources for promoting and establishing market linkages with export markets pose significant challenges.

4. Investment: The ongoing war and short-term uncertainty are preventing enterprises from making investments into retail packaged honey, as the bulk honey production reached its limits. Limited financial resources and investment support options further hinder investment efforts.

5. Martial law challenges of honey processing SMEs: According to APK Inform survey, 75% of respon-

dents noted outflow of workers, 88% have problems with logistics, 88% have problems of energy supply, 100% noted demand decrease, 38% experience problems with raw materials.

6. Export problems of honey processing SMEs: According to APK Inform survey, 38% of respondents have logistics problems, 25% experience difficulties with certification.

7. Standards: As there are many food production standards - for example, Organic Standard, FDA, IFS Food, FSSC 22000, BRC, Halal, etc. - often SMEs lack knowledge, skills to implement them, and technology to meet standards of export markets.

KEY OPPORTUNITIES

1. Food safety and control: Improving State Control and Laboratory Quality: Enhancing state control policies and the quality of laboratory testing capable of identifying the botanic and geographic origin of honey. Investing in origin identification (laboratory testing) ensures Ukrainian honey's authenticity, where botanic origin relates to the primary plant source, and geographical origin specifies the collection region. Enhance the food control institutions in line with EU standards and methodologies can foster trust and compliance needed for success in the EU single market. The existing traceability laws and regulations in Ukraine is a good basis to build on which can boost honey's export in EU retail.

2. Product quality improvement: investing in advanced and sustainable processing methods (filters, pasteurization, packaging and storage) to meet EU standards for both B2B and B2C markets can lead to higher quality products achieving higher prices. Additionally, investments in branding, sustainable packaging for retail consumers, marketing and promotion, business development have the potential to unlock export sales in the EU. According to APK Inform survey, 50% of respondents would like to maintain current volumes of business, 50% of honey processing SMEs plan expansion. Interestingly enough, out of those who plan expansion: 50% would like to design and install capacities for new products, 50% would like to increase in production volumes.

3. Retail Packaging, Marketing and Branding: There is a growing worldwide demand for honey, with a CAGR of 4.9%. When branding is paired with honey retail quality improvements, value addition and standardisation, market expansion and diversification is achievable. According to UAHEP (Ukrainian Association of Honey Exporters and Producers), on average about USD 1 million per enterprise will be needed to install a retail processing and retail honey packaging line for some leading bulk honey producers. For systematic deliveries to the EU, retail market business development, marketing, promotion in the EU, another USD 1 million is estimated to be needed per enterprise to build the value chain and supplies.

4. Organic honey: The growing consumer demand for organic honey presents an opportunity for the sector to achieve premium prices.

5. International cooperation is a good opportunity for further SME development: According to APK Inform survey, 63% of respondents' enterprises consider the possibility of cooperation, 37% - do not rule out such a possibility. The desired types of assistance from international companies (% of those who formed such needs) include: 60% of respondents would like assistance to purchase equipment, 20% welcome assistance to enter/develop export markets, 20% would attract capital injection from international companies.

6. Alternative/renewable energy supply systems:

With ongoing full scale russian military invasion and electricity disruptions, honey processing SMEs would like to have alternative/renewable energy supply systems for smooth and continuous production, which is a good opportunity for green/eco-friendly production and to decrease cost of electricity. According to APK Inform survey, (% of those that analysed various options and plan to

improve energy supply) 50% of respondents would like to have diesel generators as a back-up support, 75% would like to have solar panels, 25% - wind turbines to power their facilities.

- 7. Due to lack of advanced/retail honey processing technologies and available relatively old equipment, there is an **opportunity for technology, R&D, technical/managerial skills development, equipment and knowledge upgrade.**

TABLE 6 - GREEN RECOVERY INVESTMENT NEEDS AND POTENTIAL FOR HONEY PROCESSING INDUSTRY, IN USD MILLION

Source: Ukrainian association of honey exporters and producers (UAHEP); renewable energy is not included.

CO ₂ FOOTPRINT REDUCTION	WASTE REDUCTION, RECYCLING	RENEWABLE ENERGY	ENERGY EFFICIENCY	WATER CONSERVATION	RETAIL PACKAGING UPGRADE	RECONSTRUCTION OF DESTROYED FACILITIES	TOTAL
No	No	Yes	Yes	No	30	25% of honey processing facilities	30

SECTOR SWOT ANALYSIS

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Ukraine is one of the world leaders in exporting honey. Mostly, it is bulk honey. • There are only 3 companies processing honey for final retail consumers in export markets, which can potentially increase their exports. Their experience and lessons learned can be aggregated and shared, replicated and potentially scaled among other exporters of bulk honey to engage in processing honey for final consumers in export markets and increase exports. 	<ul style="list-style-type: none"> A. Lack of advanced/retail honey processing technologies, R&D and skills/knowledge. Companies find it difficult to raise any investment into processing of honey for the final consumers in foreign markets due ongoing russian invasion. B. Lack of beekeeper’s collaboration to be united into functional and economically strong cooperatives to reach economies of scales and strengthen their value chains. C. Due to 1) a generally low technology/R&D level of honey processing sector, 2) a generally low level of the honey production regulation alignment with the EU Directive 2001/110/EC relating to honey, 3) a generally low level of state policy and state support/ incentives on cleaner production, circularity, renewable energy options, so honey processing sector is constrained on its way to sustainable growth.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Global honey consumption is steadily growing, which can help Ukrainian honey processing growth for exports (not only in bulk but also packaged for the final retail consumer), where EU is the dominant market for Ukraine. • Ukrainian exports have proven a positive track record, which can be further expanded and leveraged upon. • Investment in value addition, processed retail product quality for the final consumer according to the EU standards, better (innovative) packaging, marketing, promotion can unlock the potential of export sales. • Growing consumer demand for Organic honey presents opportunities for the sector and can attract premium prices. 	<ul style="list-style-type: none"> • Ongoing Russian invasion and continuous Russian missile attacks on Ukrainian civilians, energy infrastructure and commercial enterprises, which disrupts electricity supplies, honey processing, supply chains, logistics. • Trade restrictions/embargos, tariffs, and non-tariff barriers can limit access to export markets. The sector further growth relies on exports, so disruptions in trade agreements can have significant economic impact. • Ongoing Russian invasion disrupts or stops sea shipments to Asia, Japan, North America, Middle East making it hard for Ukrainian honey processors to supply to these markets. This increased pressure on the Western border crossings, causing delays.

C. HONEY PROCESSING GREEN RECOVERY INDICATIVE PROJECT OVERVIEW

PROJECT RATIONALE

Being one of the world leaders in honey production and currently exporting bulk honey mainly to the EU countries, Ukraine has reached its potential with bulk honey exports. The honey processing industry is on the verge of an upgrade – higher quality, value added, and retail-oriented honey, packaged, labelled, certified in accordance with the EU standards and requirements (i.e. composition and quality standards, labelling requirements, production and processing standards, traceability, additives requirements). The main benefits of the honey processing industry upgrade include higher prices and revenues for properly packaged and labelled honey (with all the standards complied with for retail) compared to bulk prices, improved/strengthened value chains, technological upgrade allowing to cater for EU and other markets (for example, Japan, Asia, where the bulk honey was supplied to before the war).

This new phase of honey processing industry development is constrained by the following factors – ongoing war, lack of access to long term finance

PROJECT OBJECTIVE

The Project's overall objective is to **revitalize Ukrainian honey processing industry** through **1) at regulatory level** - improving institutional capacity, enabling environment, infrastructure (including laboratories, their reliability, accreditation, and acceptability of test results in the EU), standards and regulations in Ukraine aligned with the EU regulations and EU Green deal strategy (including processed honey quality and food safety), **2) at sector level and private sector level** – a) identifying eco-friendly and resource efficient honey processing technologies/solutions and packaging equipment for modernizing, improving/

and investment, lack of knowledge and skills of the modern honey processing and packaging technologies to comply with the EU standards, lack of state control policies and the quality of laboratory testing capable of identifying the origin of honey (incl. botanical and geographic identification), lack of harmonization of Ukrainian standards with the EU standards on Ukraine's path to join the EU, lack of knowledge and skills of the EU honey processing best practices and technologies, lack of knowledge and skills how to penetrate and operate successfully in foreign retail markets with specific standards, lack of marketing and promotion capacity needed to expand honey in EU retail (and other retail markets), lack of state support/incentives on cleaner production, circularity, renewable energy options, lack of cooperation with the European federation of honey packers and distributors ([F.E.E.D.M.](#)) and other relevant organizations engaging with policymakers on issues affecting the apicultural and honey processing industry, sharing information on best practices.

introducing, retail value addition and retail product development; b) promoting export trade of properly processed, packaged, labelled and certified, retail oriented honey to EU (and other retail markets, for example, Japan, Asia, North America, Middle East), **3) at private sector level** - facilitating green recovery and modernization upgrade (including cleaner production, circularity, renewable energy options) to improve competitiveness and export trade in a sustainable way with advisory and investment support of the private sector players.

Project Outcomes - Components	Project Outputs	Project Activities
<p>1. Improved institutional capacity and honey processing sector enabling environment/regulation</p>	<ol style="list-style-type: none"> 1. Improved state control; Ukrainian certification of processed and packaged honey for retail is made according to the EU standards and requirements; 2. Ukrainian laboratories obtain EU accreditation, become trustworthy in the EU, accepted by the EU. 3. Developed national register/database of the honey botanic and geographic origin identification, and harmonized with and accepted by the EU. 4. Approved state economic program to support the development of honey processing industry up to 2030. 5. Approved national operating work plan for the honey processing industry for the 4-year period (2024 –2028). 	<ol style="list-style-type: none"> 1.1. Research, analyse Ukrainian and EU standards and requirements (incl. Directive 2001/110/EC relating to honey), prepare gap analysis and recommendations, develop an actionable strategy and a road map for harmonization of the Ukrainian regulations with the EU one. 1.2. Evaluate and develop capacity of the government institutions (Ministry and state authorities) on designing and implementing honey processing and packaging harmonizing regulations. 1.3. Contribute to the design and approval of the state economic program to support the development of honey processing industry up to 2030. 1.4. Contribute to the design and approval of the national operating work plan for the honey processing industry for the 4-year period (2024 –2028). 1.5. Design, pilot test, and launch a comprehensive catalogue – the national honey botanic and geographic origin identification database/register approved and updated at the national level. This will also help Ukraine harmonize with the EU.
<p>2. Improved knowledge of best practices, safe and eco-friendly cost-efficient solutions, honey processing technologies and packaging for retail.</p>	<ol style="list-style-type: none"> 1. Several best practices/ options and technology solutions identified, publicized and shared for small, mid-size and large honey processors. 2. Ukrainian honey processors supported with advice on cost-efficient practices and technology options/ solutions. 	<ol style="list-style-type: none"> 2.1 Research, collect, analyse/evaluate, compare and identify some best cost-efficient practices and technology options/solutions (equipment, technology, environment friendly, resource efficient for small, mid-size and large enterprises) for sustainable and safe honey processing for retail in collaboration with and with engagement of Ukrainian and other specialized equipment producers, Packers’ Club, advisors, engineers and technologists, honey processors. 2.1 Renewable energy needs and capacity assessment and research. 2.1 Plan and launch stakeholder dialogue and awareness raising campaign on all of the above. 2.1 Design and implement training programs for different audiences on the above topics.

<p>3. Ukrainian enterprises improved capacities, knowledge and increase use of identified and applied best practices, safe and eco-friendly cost-efficient solutions (incl. renewable energy), honey processing technologies and packaging for EU retail. Ukrainian install renewable energy solutions and reduce energy consumption by ___ /year.</p>	<ol style="list-style-type: none"> 1. Ukrainian honey processing companies supported with financing and with technology/ equipment upgrade and installations are able to manufacture high quality and safe honey products for retail according to the EU honey retail standards and requirements (including packaging, labelling, traceability, renewable energy installations, etc.). 2. Ukrainian honey processing companies supported with technology upgrade and renewable energy solutions are able to reduce energy consumption and strengthen energy security. 3. Ukrainian honey processing enterprises are able to compete in international markets with products complied with food safety, food quality standards. 	<ol style="list-style-type: none"> 3.1. Design and implement a competitive selection program of honey processors (incl. capacity assessment of individual enterprises) to transition to retail processing and packaging standards with a support from donors/UNIDO. 3.2. Support the design and capacity identification of the of several renewable energy solutions (small, mid-size, large) for honey processing enterprises in cooperation with market players, business association, consulting engineers. 3.3. Design and implement co-financing program development for processing & packaging equipment, and renewable energy solutions for honey processors (eligibility and selection criteria, investments supported, grant ceilings and co-financing requirements, implementation modalities, financing structure, identification and selection of co-financing partners, etc). 3.4. Design and implement technical trainings on business planning, investment needs assessment, technologies and their benefits, upgrade requirements and innovations. 3.5. Search for and identify procuring partners, initiate and implement procurement – equipment and packaging suppliers, technologists, engineers in collaboration with honey processors, with Packagers Club, Honey Association in order to implement some best cost-efficient practices and technology options/solutions (resource efficient, environment friendly, equipment, technology) identified in phase 2 above. 3.6. Procure and install equipment as per conducted procurement and as per designed co-financing program mentioned above. 3.7. Plan and launch stakeholder dialogue and awareness raising campaign on all of the above.
<p>4. Ukrainian honey processing enterprises are ready and trade with partners in the EU countries. Ukrainian retail honey products are aligned with EU requirements, certification.</p>	<ol style="list-style-type: none"> 1. Ukrainian enterprises are ready and capable to supply to the EU retail market with knowledge of the EU standards, certification. 2. Planned fairs and exhibitions have been conducted with participation of Ukrainian players, new contracts with EU partners concluded. 3. Ukrainian enterprises are aware of the Green Deal, and aware of technologies, necessary processes as part of the EU accession. 	<ol style="list-style-type: none"> 4.1. Design and implement training programs for Ukrainian enterprises on export promotion, marketing, market research and studies, labelling, certification, business development, logistics, business planning and investment needs assessment, EU Green Deal, etc. in collaboration with Ukrainian market players, UAHEP and Packagers' Club. 4.2 Design and implement training programs for Ukrainian enterprises on international standards Organic Standard, FDA, IFS Food, FSSC 22000, and Halal. 4.3 Design, plan and implement export trade promotion programs and campaigns of Ukrainian honey processors, in collaboration with Ukrainian market players, UAHEP, Packagers' Club, European federation of honey packers and distributors (F.E.E.D.M.). 4.4 Plan and launch awareness raising campaign for market players on some topics mentioned above in collaboration with UAHEP and Packagers' Club.

4. ACTION PLAN FOR GRAIN PROCESSING

A. SITUATION ANALYSIS

Basic facts. The grain processing sector is presented by the following products: flour with by-products; bakery and flour products, pasta; cereals and flakes; and malt, starch and inulin – from wheat, corn, rye, buckwheat, oat, rice and so on. The sector is supplied by Ukrainian raw materials and the share of domestic wheat consumption is about 35-40%, corn – about 20% mostly being stable in volumes. Before the full-scale Russian invasion, Ukraine was the fifth ranked wheat exporter in the World, third - barley exporter, fourth – corn. In 2023, 11% more grain was harvested than in 2022 and there is a tendency to reduce spring crops, the areas under corn. The sown winter wheat (prevailing type of wheat in Ukraine, soft; spring wheat - durum) area under harvest 2024 is 6% less than in 2023³⁴. Distribution of wheat on milling/feed was 60/40; there is a trend for reducing the quality, that is reinforced by the difficulty of farmers' access to seeds, fertilizers and plant protection products (PPP).

Consolidation of the flour production in Ukraine accordingly to pre-full-scale Russian invasion data is rather high. The top-ten flour producers provide more than 50% of the total statistically covered output (which due to different estimations was about a half of consumption), the industry accounts for more than 200 enterprises. A lot of small enterprises with not-mass-market flour are not statistically reported. Bread and bakery production in Ukraine is less concentrated due to many small “near home” bakeries and bakeries in supermarkets. Pasta production is comprised of approximately fifty enterprises. Starch production from cereals and soybeans has about 30 enterprises, with the industry being highly concentrated (open sources). Malt is highly concentrated, there are two to three global leaders operating in Ukraine. According to open sources, in 2021 there was one inulin enterprise and three gluten producers. The overall sector is well-organized in associations

and represented by: the “Millers of Ukraine” Union (flour, pasta, cereals), the All-Ukrainian Association of Bakers (bread and bakery products) and some smaller unions in this industry, and the Association “UKRKONDPROM” (confectionery, food concentrates, starch products and coffee).

The present technologies range from long outdated to modern technology. The sector is well advanced in implementing food safety and quality systems. Geographically, flour and bread/bakery production are present in all regions (oblasts) of Ukraine. Comparing with some other industries presented in the Roadmap, grain processing has less waste and less possibilities to implement green energy systems based on waste processing, but energy-saving and renewable energy systems (solar and other types) are relevant also for grain processing enterprises.

According to the State Statistic Service, the overall profitability of the flour milling and cereals, flakes production, starches, and starch products industries was mixed in 2021/2022. While there were profits in these sectors, there were also losses specifically in flour/cereals production. However, the starch and starch products industry showed profitability in 2022. Production of bread, bakery and flour products in 2021 and 2022 were profitable in total with increasing of profits during the first year of full-scale invasion has increased significantly due to surge in demand for long-term storage products.

The production output of flour and flour-based products shows downward trend in the last years – due to meaningful statistically uncovered sector (All-Ukrainian Association of Bakers estimates the share of statistically uncovered market before the full-scale Russian invasion as more than 50%) and a decreasing population, changes in diet to be healthier. The industry meets the demand on organic, gluten-free, whole-grain milling products, specific types of bre-

34 Source: <https://minagro.gov.ua/>

ad like buckwheat, frozen flour products and frozen bakery products (in this case - for retail and cafes).

According to estimations of the Union "Millers of Ukraine", the volume of flour production in 2023 is the same as in 2022 (1,1 million tons) and 0,1 million tons less than in 2021. Despite challenges such as occupied territories and a decline in the domestic market's purchasing power, the industry showed resilience. This was due to increased domestic demand and exports for certain products, which offset declines caused by humanitarian aid imports during the initial stages of the full-scale Russian invasion. Flour exports rose to 138,100 tons in 2023 from 74,700 tons in 2022 and 105,700 tons in 2021. This increase was influenced by EU Autonomous Trade Measures, which

INVESTMENTS AND ACCESS TO FINANCE

Caused by ongoing Russian invasion complicated and costly logistics of grain, energy outbreaks, with downward global price trend created an interest for

EXISTING SUPPORT PROGRAM

State support to the grain processing industry is available through: 1) Affordable loans "5-7-9" – compensation of interest rates payments up to 5, 7, or 9 % depending on type of credit or industry. Program focused on micro, small and medium enterprises³⁵; 2) Grants for processing development (up to 8 mln UAH)³⁶; 3) programs³⁷ of Export-Credit Agency of Ukraine according to list of supported products³⁸. In addition, in 2024 it is planned to launch the program of

changed the status of flour from being part of the grain quota before 2022. According to State Statistic Service data, the milling-cereals industry, starch, and starch products' value increased by 11% from January to September 2023 compared to the same period in 2022.

Grain processors must follow technical regulations and standards for product safety. They'll need help developing these specifications.

Products for export goes both for private label and as ingredients, as well under Ukrainian enterprises trademarks. The main logistics option for domestic and export logistics currently is by roads (trucks).

grain processing development in Ukraine from big and small players, existing and new.

domestic demand on Ukrainian goods support, and Industrial parks support³⁹.

Also, some support programs are available if enterprise meets the criteria, for example, microfinance and grants for veterans, EU for Business programs. USAID support programs include among other programs cofinancing for medium and big processing enterprises⁴⁰ - up to \$500 000; capacity building grants for export promotion and trainings – on competitive basis; export-oriented grain, oil, legu-

35 Source: <https://zakon.rada.gov.ua/laws/show/28-2020-%D0%BF#Text>

36 Source: <https://diia.gov.ua/services/grant-na-pererobne-pidpriyemstvo>

37 Source: <https://www.eca.gov.ua/produkty/rishennya-dlya-eksporteriv/>

38 Source: <https://zakon.rada.gov.ua/laws/show/1792-19#Text>

39 Source: <https://www.unian.ua/economics/agro/derzhpidtrimka-agrarijiv-v-radi-ozvuchili-povniy-perelik-program-12565335.html>

40 <https://www.me.gov.ua/News/Detail?lang=uk-UA&id=3ce5922f-0bf0-4419-a8a1-af9a7893c47a&title=SeredniYVelikiPere-robnPidrimstvaMozhutOtrimatiGrantDo-500-TisVidUsaid>

mes processing program – grants up to 100 000 000 UAH⁴¹;
 On Resource Liga.net estimations⁴², the minimum investments for with 20 MT capacities of daily grain

processing: flour mill - \$150 000; cereals production - \$70 000, plus \$75 000 for flakes production; pasta production - \$340 000 in addition to flour mill.

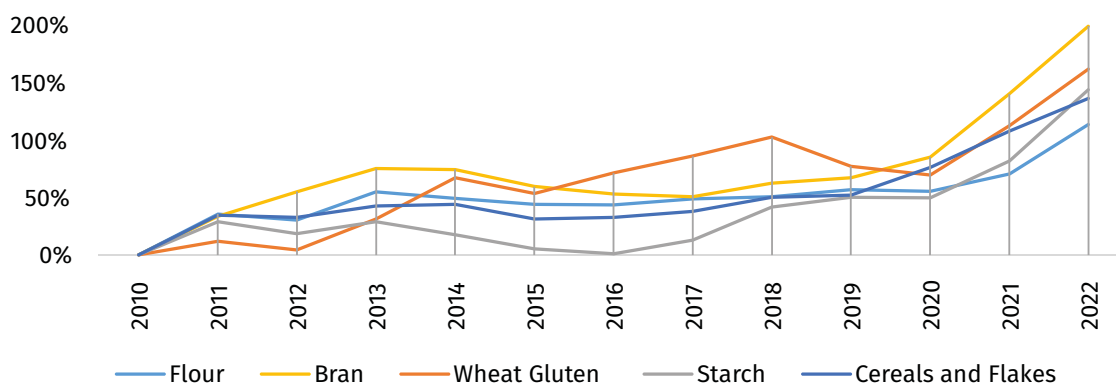
EXPORT

Since 2000, the value of world trade in flour has increased by 5.5 times, and other grain processing products by 8.4 times. The growth rates of trade volumes

of basic grain processing products are already ahead of the growth rates of flour trade volumes, as can be seen on Figure 9 below.

FIGURE 9 - DYNAMICS OF GRAIN MILLING PRODUCTS GLOBAL TRADE

Source: Union of Millers, UN Comtrade



For \$1 grain processing products trade there is \$3 ready-to-eat (finished) flour products trade. In 2022 the finished products trade volume is estimated at \$50 billion. In 2022, the volume of flour trade is estimated to be 14.8 million tons or \$7.7 billion⁴³.

The Ukrainian grain processing products export performance differs per product. In structure of grain groats and flakes – 16,5%, wheat flour – 10,3%. – see the diagram below.

The share of grain processed products in the global market varies from 0,65% to 1,5% depending on the product, export of bakery products is insignificant. Number of export markets – 120 in 2022 with the share of European Union in export structure 38,7% and Europe in total 57,1%. Position in Global markets in 2022 were: wheat flour – 17, malt, starches, inulin – 16, pasta – 18, cereal groats and flakes – 13⁴⁴.

41 <https://www.prostir.ua/?grants=prohrama-usaid-ahro-nadast-703-mln-hryven-na-rozvytok-eksporto-orijentovanoji-pere-robky-zernovyh-olijnyh-ta-bobovyh-kultur>

42 <https://ukragroconsult.com/news/moloty-derty-plyushhyty-chy-lipyty-yaka-pererobka-zerna-najvygidnisha/>

43 Source: Union of Millers, UN Comtrade

44 Source: Grow Ukraine, 2023

FIGURE 10 - STRUCTURE OF UKRAINIAN GRAIN PROCESSED PRODUCTS EXPORT (2022, IN VALUE)

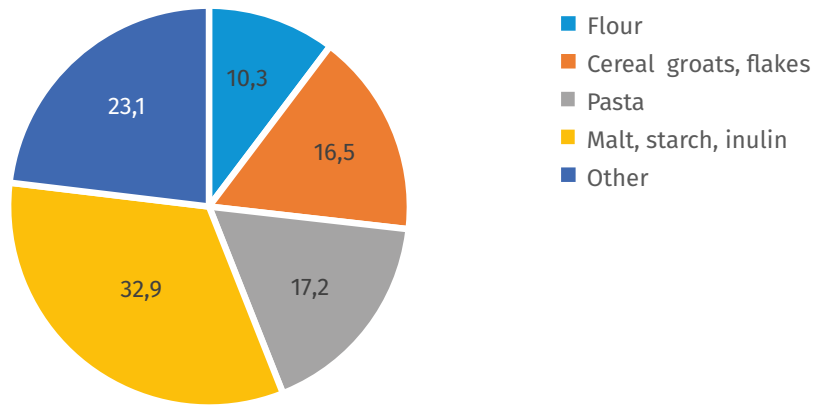


FIGURE 11 - DYNAMICS OF TRADE, \$MLN⁴⁵

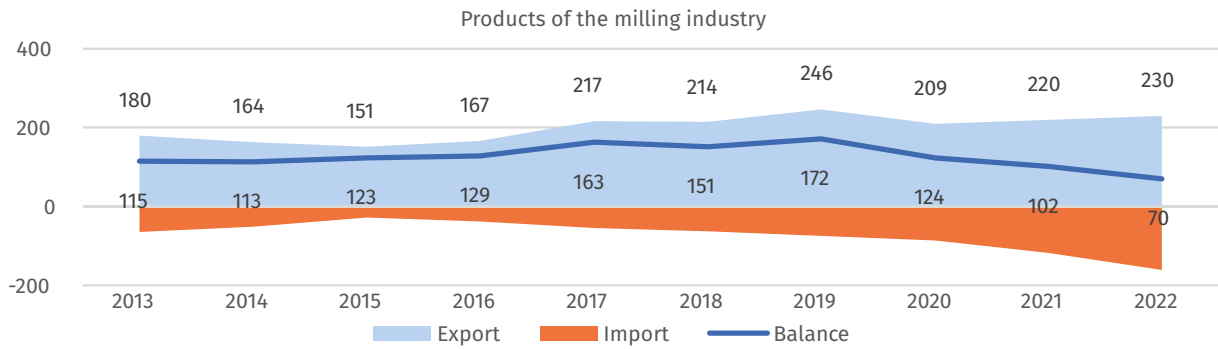


FIGURE 12 - MALT, STARCHES, INULIN

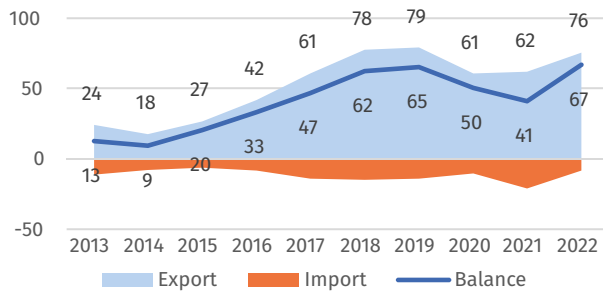


FIGURE 13 - PASTA

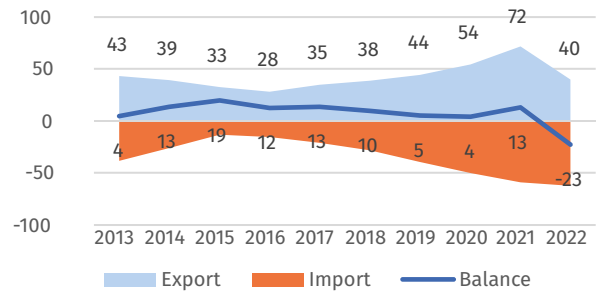


FIGURE 14 - CEREAL GROATS AND FLAKES

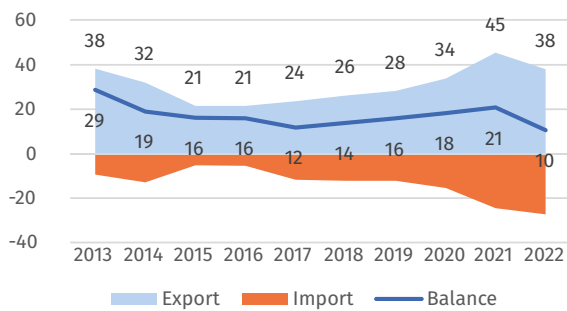
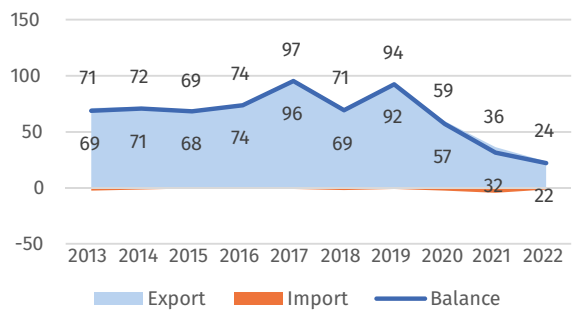


FIGURE 15 - WHEAT FLOUR



45 Source: Grow Ukraine, 2023

According to the Survey⁴⁶, among those enterprises, whose export is less than 70% of their production, do plan to increase export of flour – 36%, groats – 50%, bread – 17% with main prospective export direction – Europe, then – East and South Asia.

Global market shows a potential for grain processing products development, as can be seen under Table 7. Forecasts of consulting agencies varies one from another for same products but show the growth with different rates.

TABLE 7 - FORECAST FOR GRAIN PROCESSING PRODUCTS GLOBAL MARKET

MARKET	GLOBAL MARKET SIZE, USD BLN			CAGR, %	SOURCE
	2022	2023	2032		
Flour	165,69		238,28	3,7	https://www.factmr.com/report/2248/flour-market
Whole wheat flour	72,71		130,34	6,7	https://www.futuremarketinsights.com/reports/whole-wheat-flour-market
Bran		78,83	151,02	8,5	https://www.polarismarketresearch.com/industry-analysis/bran-market
Pasta	66,36		99,24 (2030)	5,47	https://www.fortunebusinessinsights.com/pasta-market-102284
Bakery products		515,9	692,9	3,2	https://www.imarcgroup.com/bakery-products-market
Gluten-Free Bakery products	1,9		2,01	5,17	https://www.sphericalinsights.com/reports/gluten-free-bakery-market
Frozen bakery products		31	43,7	3,8	https://www.imarcgroup.com/frozen-bakery-products-market
Breakfast cereals		105,0	147,1	3,7	https://www.imarcgroup.com/breakfast-cereals-market
Organic cereals		20,73	42,04	8,2	https://www.polarismarketresearch.com/industry-analysis/organic-cereals-market
Whole grain and high Fiber foods	44,3		85	6,7	https://www.factmr.com/report/whole-grain-and-high-fiber-foods-market
Wheat Protein			9,89	4,5	https://www.polarismarketresearch.com/press-releases/wheat-protein-market
Wheat Gluten	12,8		17,3	9,1	https://www.futuremarketinsights.com/reports/wheat-gluten-market
Wheat starch		4,1	5,3	2,7	https://www.imarcgroup.com/wheat-starch-processing-plant
Corn starch	20,42		40,14 (2031)	7,8	https://straitresearch.com/report/corn-starch-market

46 Source: UNIDO 2023 Survey: Characteristics, problems and needs of enterprises in the food industry of Ukraine

B. KEY CHALLENGES

Manufacturers of grain processed products in Ukraine continue to operate in the context of the war, adjusting their strategies to the realities of the current situation. Challenges they face are rather common for all food industry, the most significant ones identified by the surveyed grain processing industries enterprises in order of importance are⁴⁷:

1. Shortage of qualified personnel due to migration or conscription, affecting 89% out of 100% respondents depending on the industry.
2. Logistic issues, noted by 89% out of 100% respondents.
3. Energy supply problems are also significant, impacting 56-79% of those surveyed.
4. Decrease in demand on products, impacting 50-71 of respondents, depending on industry.
5. Complicated supply of raw materials, up to 25-44% of respondents.

Challenges from a regulatory and policy nature are compliance with EU regulations and lack of knowledge and awareness on EU market and production conditions and regulations, lack of comprehensive grain processing industry development view (strategy) including grain revitalization issues; insufficient institutional capacity for in the dialogue on NGOs level in EU, with Ukrainian stakeholders.

Market: 1) the domestic consumption and production of wheat flour, bread and pasta is on a downward trend, that is caused by population decline, turning to a more healthy diet based on tastes differentiation, and constant decrease of the share of statistically covered production of bread and bakery products connected with the increase in the of unreported (volumes) production in retail, small cafes, so on (about 50% and more according to different estimations); 2) underdeveloped production of

specialized types of flour and blends (for hotdogs, baguette, brown bread croissants, pasta, pizza etc), fortified; 3) logistics disruptions, complicated export through the western border and ports, and changes in the destination export structure; 4) retail-suppliers relationships, especially important for perishable goods; 5) meeting the =EU market conditions and adaptation to Green Deal requirements; 6) possible changes in EU trade policies; 7) packaging.

Technologies: 1) The access to input technology is reduced and interrupted, having a negative effect on grain quality; 2) milling technologies are oriented toward traditional flour standards, necessitating equipment upgrades to expand the product range – specialized flour blends. There is a deficiency in research and development, including starch utilization; 3) general lack of energy-saving and resource-effective technologies – especially boilers, water quality, energy-saving; 4) lack of skilled workforce; 5) age of equipment more than 10 years – 43 % of flour enterprises – respondents, 40% - groats producers – respondents, 75% - pasta and 61% - bread producers, confectionery (in total) – 64% with origin of equipment mostly from EU⁴⁸; 6) level of implementation of complex automatization in flour production – 57%; groats – 60%, pasta – 75%, 61% - bread production, confectionery – 64%⁴⁹.

Investments: 1) low access to financing (from 50% up to 75% of respondents with 100% responses concerning high interest rates); 2) among development problems on the first place – shortage of personnel (50-100%), difficulties with attracting the investments (20-33%), decrease in demand for products (18-67); 3) among those respondents planning expansion and development of their enterprises for short-term development, require less significant investments (from \$100,000 to \$500,000) in flour production (25%), bread producers (17%), more than \$1 mln – in

47 Source: UNIDO 2023 Survey, Characteristics, problems and needs of enterprises in the food industry of Ukraine

48 Source: UNIDO 2023 Survey, Characteristics, problems and needs of enterprises in the food industry of Ukraine

49 Source: UNIDO 2023 Survey, Characteristics, problems and needs of enterprises in the food industry of Ukraine

flour production (50%), groats (25%), bread (17%)⁵⁰; 4) reduced access to new technologies due to war risks (100% payments in advance, delivery and chef-mon-tage problems).

Food Safety and Quality: According to the UNIDO 2023 Survey, lack of knowledge about the needed certifications and market access, especially for small and medium enterprises. Equipment and methods

KEY OPPORTUNITIES

Market and product development: 1) Developing new products according to consumer trends, including healthy/organic food, special products like gluten-free, sugar-free, plant-based, products with consumption caused the martial law demand like semi-ready eat and with long-term expiration date; development of the frozen products segment – for exports, supply to retail and HoReCa, home consumption with development the culture of fresh bakery products easy home cooking; extrusion technologies; for the pasta industry, where focus is on inputs and development of products such as noodles production; 2) diversification of traditional (standard) flour to specialized flour and flour blends to meet specific consumer preferences of final bakery products, and consumers preferences, including fortified flour; 3) knowledge exchange with EU business associations and producers, maintenance of communications and strong business relationship with the EU and other export markets representatives, B2B, B2C; 4) capacity building of industries associations; 5) container logistics (insurance, affordability); 6) support sustainable packaging (including measures of Packaging Action Plan); 7) foreign market promotion.

Technologies: 1) creating specialized value chains with farmers growing specific wheat varieties for the milling industry and consumer preferred products (for further processing); 2) implementing modern ful-

used by Ukrainian laboratories, including enterprises laboratories do not always meet the needs of manufacturers in to credible certify product quality. Level of implementation of quality control and safety systems is (by self-estimation of surveyed enterprises) fully implemented in all production, except pasta production, where the level is 75%.

ly automated technologies as a response to resource and energy efficiency, reducing pollution, and creation of the inclusivity (for disabled people, to meet the lack of personnel challenge) workspace; modernization, especially for smaller enterprises; 3) knowledge and skills development, including technologies, standardization, laboratory processes, marketing, EU requirements; 4) promoting the adoption of energy-efficient technologies and energy systems based on renewable sources (25-44% found existing energy systems sufficient; from 36% to 50% of surveyed enterprises of grain processing industry analysed alternative options, and among priority types of alternative energy supply are diesel generators and solar panels, for bakeries – added waste power plants), energy and recourse audits⁵¹; 5) survey showed that from 29% up to 50% implemented the measures to increasing the environmental friendless, from 10% to 29%- planning the implementation, that highlighted potential for green revitalization measures implementation in industry⁵².

Investments⁵³: among surveyed enterprises of the grain processing industry: 1) 29% up to 40%, plan to extend activities in directions: a) introduction of capacities for new products (33-75%) and b) increase in production volumes (25-67%), modernization (25%); 2) form of investments varies from industry to indus-

50 Source: UNIDO 2023 Survey, Characteristics, problems and needs of enterprises in the food industry of Ukraine

51 Source: UNIDO 2023 Survey, Characteristics, problems and needs of enterprises in the food industry of Ukraine

52 Source: UNIDO 2023 Survey, Characteristics, problems and needs of enterprises in the food industry of Ukraine

53 Source: UNIDO 2023 Survey, Characteristics, problems and needs of enterprises in the food industry of Ukraine

try and include capital injection, purchase of equipment, lending, development of export markets.

Food safety and Quality: Accordingly, to “Food Safety” Action Plan, but at least 1) audit of quality/safety control systems with recommendations and better

understanding of the international standards and food legislation, both general and specific; 2) providing the necessary laboratory analysis and increasing the capacity of state control institutions and state laboratory quality in line with EU standards and methodologies.

SECTOR SWOT ANALYSIS

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Grain processing industry is oversupplied with primary raw materials by Ukrainian production. • Quality/safety control systems are widely implemented and enterprises are regularly audited. • Diverse structure of enterprises that allows to implement different economic and production models. • Last updated technologies in part of enterprises. • Well organized association structure and public-private cooperation. • Export various products to different destinations. • Organic/specific products 	<ul style="list-style-type: none"> • Undeveloped variability of flour types. • The flour milling sector is not yet capitalizing on the strong WW growth mentioned in opportunities • The sector is not yet fully ready for new consumer trends, • Soft wheat as prevalent kind of domestic supply raw materials • Lack of knowledge on EU market functioning and green revitalization technologies. • Due to full-scale Russian invasion lack of access to technologies and equipment, including sustainable packaging. • Moderately outdated technologies on part of industries enterprises • Shortage of personnel caused by full-scale Russian invasion

OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • There is a strong and growing global demand for grain processing products, increasing the global markets. • Diversification of flour types (specialities, fortification, individual quality). • Extension and diversification of extrusion products manufacturing. • Potential entering gluten market (0% share of Ukraine in global market). • Innovations and development of new and special bakery products, frozen (as response for trend “eat fresh”, direct-to-consumer sales and online retail), continuation of healthy and natural trends (incl. sustainable packaging), low-calories, gluten-free and plant-based. • Automatization of production processes in aims of personnel inclusiveness, energy efficiency, pollution decreasing, quality increasing. • Development of organic grain processing products export. • Cooperation with humanitarian organisations, WFP UN for domestic consumption and global humanitarian demand • Wheat durum cluster creation for ensuring the supply for grain processing enterprises (flour, pasta). 	<ul style="list-style-type: none"> • Caused by full-scale Russian invasion: <ul style="list-style-type: none"> ▪ disruption in electricity supplies, (especially important for bakeries operating 24/7), supply chains, logistics; ▪ narrowing of the domestic market; ▪ lack of working capital and access to finance; possible increasing of taxes, insufficient workload of production capacities; ▪ decline of volumes of wheat production; ▪ disruptions in export logistics: temporary unavailable Azov Sea ports (bran export before the full-scale Russian invasion), roadblocks on EU-Ukrainian border when the main option for export is trucks, high prices for containers logistics. • Possible tariff and non-tariff barriers can limit access to export markets. • Downward trend in Cereals, Wheat prices: the FAO Cereal Price Index averaged 120.1 points in January 2024, 20.4 points less from February 2022.⁵⁴ Grains and Oilseeds Index (GOI) wheat sub-Index for 25 Feb 2024 equal to 205.4 that is the lowest level from Oct 2020⁵⁵. • Decline of wheat quality due to decreasing use of fertilizers and PPP utilization since of low profitability of wheat production

54 Source: [FAO Cereal Price Index](#)

55 Source: [AMIS outlook](#)

INDICATIVE INDUSTRY INVESTMENT NEEDS

Through engaging with the private sector and industry association representatives, indicative investments needs are identified within the following main strategic areas relevant for the food industry: 1) Carbon Footprint Reduction 2) Waste Reduction and Recycling, 3) Renewable Energy 4) Energy Efficiency

5) Water Conservation 6) Packaging Innovation/upgrading 7) Reconstruction of the destroyed enterprises. Table 8 showcases the green recovery investment needs and potential for the grain processing industry.

TABLE 8 - GREEN RECOVERY INVESTMENT NEEDS AND POTENTIAL FOR GRAIN PROCESSING INDUSTRY, IN USD, TH

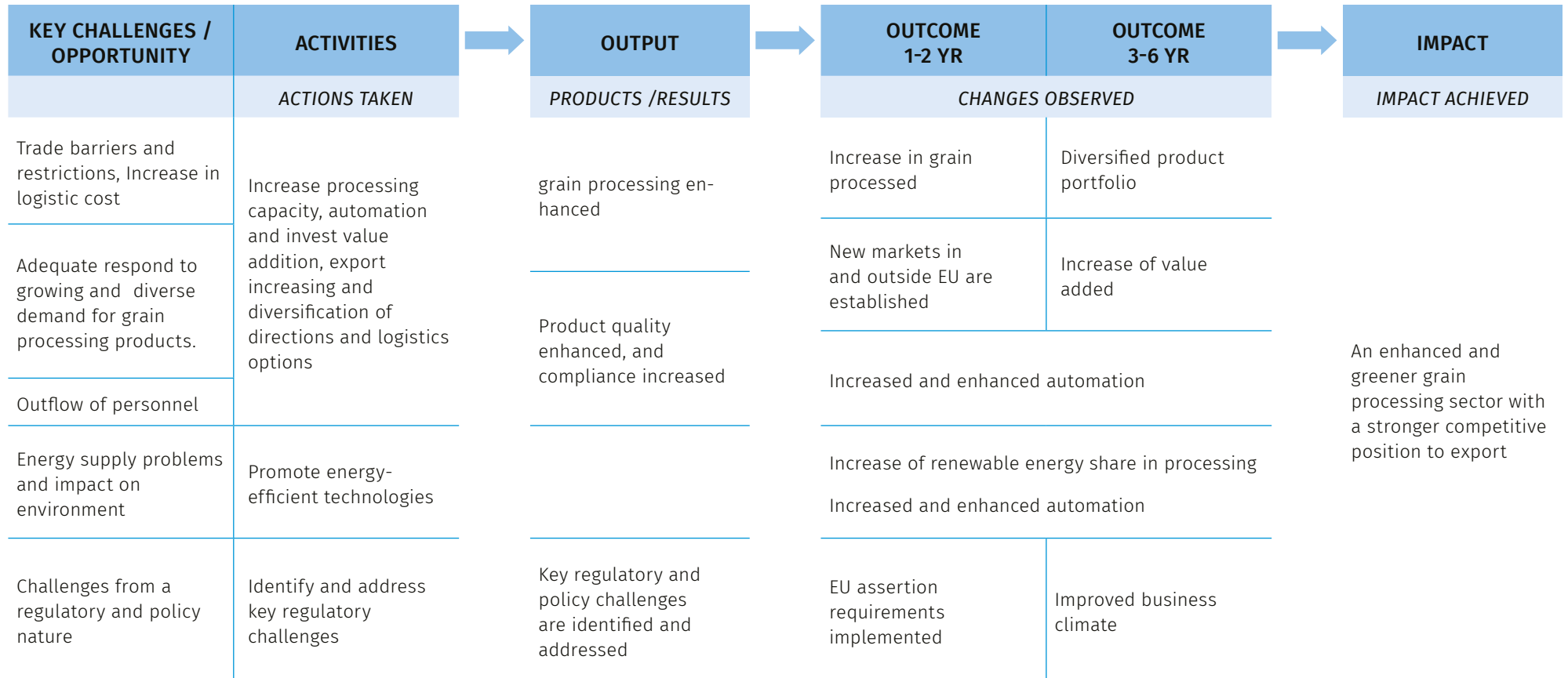
Source: UNIDO estimations based on interviews with market players, heads of Industries Associations

CO ₂ FOOTPRINT REDUCTION	WASTE REDUCTION, RECYCLING	RENEWABLE ENERGY	ENERGY EFFICIENCY	WATER CONSERVATION	PACKAGING UPGRADE	RECONSTRUCTION OF DESTROYED FACILITIES	TOTAL
Milling Industry* (flour, cereals, flakes)							
9 600	4 400	5 300,	44 700	2 250	4 360	27 900	98 510
Bakery Industry							
770	10 811	17 568	41 487	31 554	5 405	30 270	137 865

C. INDICATIVE PROJECTS

INDICATIVE THEORY OF CHANGE

This will summarize how the project intends to solve key issues and opportunities and achieve its objectives.



INDICATIVE PROJECT OVERVIEW

PROJECT RATIONALE

Ukraine holding the position of the one of the world's leaders of grain export (5%) taking about 1% of global grain processed products trade. Due to ongoing Russian invasion the export of grain facing numerous limitations making farmers (grain producers) vulnerable in incomes and possibilities of continuing the economic activities. Logistic changes significantly increased the complexity and cost of logistics. The grain processing sector facing new consumer trends, requirements for production process, environmental issues, energy efficiency, workforce shortage, lack of knowledge and skills, business relationships with EU partners. More and more participants of grain value chain considering the extension of grain processing and looking for new domestic niches and foreign

markets, option for logistics and technological modernization.

Key benefits of grain processing green modernization are: improvement of enabling conditions; increasing resource effectiveness, decreasing the impact on environment, inclusive working environment, improved product quality, packaging and competitiveness of products, better alignment with the EU and green deal strategy.

Under the “Build Back Better” principle, the Green recovery goals and objectives for the selected food industries are established for 2024-2029 and are aligned with the national priorities.

PROJECT GOAL AND OBJECTIVES

The goal for the green recovery of Ukraine's food industry is to revive, reconstruct, and enhance the Grain processing sector using efficient and sustainable processing technologies to create demandable and high-quality food products while ensuring food safety standards and minimize environmental impact.

To contribute to the achievement of this objective the action plan will ensure that:

1. The grain processing sector actively produces new products with enhanced quality to diverse markets in and outside EU, domestic (Outcome 1)
2. The sector successfully entered new markets in and outside EU (Outcome 2)
3. The sector is increasingly energy independent and less impacted on environment with improved energy efficient and automatization (Outcome 3)
4. The key regulatory challenges are identified and addressed (Outcome 4).

PROJECT OBJECTIVE:	To revive, reconstruct, and enhance the grain processing sector using efficient and sustainable processing technologies to create dependable and high-quality food products while ensuring food safety standards and minimize and reduce environmental impact, increasing exports	
Project Outcomes - Components	Project Outputs	Project Activities
1. The sector actively produces new products to diverse markets.	1.1: R&D and science in grain processing enhanced	<p>1.1.1 Support knowledge exchange with EU and WW knowledge centers together with NGOs of the Sector</p> <p>1.1.2 Support feasibility studies on new technologies and products including frozen products.</p> <p>1.1.3 Feasibility study on expansion of domestic production of gluten and enzyme ingredients for the flour and bread industries</p> <p>1.1.4 Support technical pilots based on feasibility outcomes</p> <p>1.1.5 Develop, plan and conduct a training/ technology transfer program for the enterprises</p> <p>1.1.6 Support Grain processing Knowledge/Training Centre creation and functioning with engaging relevant Universities, Industry NGOs, enterprises and technology suppliers</p>
	1.2 Product quality enhanced, and compliance increased	<p>1.2.1 Implement awareness training on quality requirements for EU market</p> <p>1.2.2 Support market players to quality standard audit readiness.</p> <p>1.2.3. Support of organization of clusters to produce grain (durum wheat) with a given quality and further processing into finished products</p> <p>1.2.4 Ensure participation of grain processors in “Food Safety action plan”</p>
	1.3 Diversified Product Portfolio adapted to market demand	<p>1.3.1 Conduct market need assessment for promising EU markets and products</p> <p>1.3.2 Research, identify and support product processing pilots at selected enterprises.</p> <p>1.3.3 Stimulate innovation product development</p> <p>1.3.4 Ensure participation in “Skill and Knowledge program”</p> <p>1.3.5 Development of standards for products (including technical conditions)</p>

2. New markets in and outside EU are established	2.1. New Business Relationships to tap into new opportunities for growth	<p>2.1.1 Identify and analyze main issues hampering market penetration.</p> <p>2.1.2 Organize/participate in relevant international trade fairs in the target markets</p> <p>2.1.3 Participate in business meeting events</p> <p>2.1.4 Implement awareness training on standards and packing requirements, EU country specific preferences and regulations. Ensure participation in “Packaging” Action Plan Program.</p> <p>2.1.5 Support Export product promotions in close cooperation with NGOs and the European relevant industry entities.</p> <p>2.1.6. Maintenance the membership and cooperation of Ukrainian industry NGOs with the EU ones</p>
	2.2. Improved communication and coordination between processors, retail, and consumers.	2.2.1 Improve coordination between processors, retail , and consumers in order of approximation of Ukrainian legislation to EU regulation and practices
3. The sector is energy independent and less impacted on environment with improved energy efficient and automatization	3.1 the Sector is adopting green processing technologies	<p>3.1.1 Identify and Analyze main issues related to transforming to use green energy.</p> <p>3.1.2 Identify and Analyze best available modern technologies / solutions and equipment. Develop cost -benefit models to demonstrate the feasibility of green technology and the cost savings achieved.</p> <p>3.1.3 Disseminate obtained knowledge, support knowledge transfer and technology adoption.</p> <p>3.1.4. Development of economic evaluation and assessment for green technological modernization of industry enterprises</p> <p>3.1.5. Development of appropriate financial instruments for upgrading technologies and equipment</p>
	3.2 X number of processors are supported to apply for green energy incentives and subsidies	<p>3.2.1 Inventory green technology relevant support programs.</p> <p>3.2.2. Support in accessing green investment incentives (incl. EU green deal)</p> <p>3.2.3. Development and support of a system of environmental monitoring and management at the enterprises of the industry and control of emissions, preliminary audit</p>

4. New markets in and outside EU are established	4.1 Key regulatory and policy challenges are identified and addressed	<p>4.1.1 Inventory and assess impact of current policy and regulatory framework on the sector and its full utilization of green potential, prepare gap analysis and recommendations</p> <p>4.2.2 Develop policy briefs and contribution to the relevant documents</p> <p>4.2.3 Provide capacity training for industry association members in advancing industry agenda and representativeness of interests .</p> <p>4.2.4. Analysis and increasing the capacity of involved state authorities</p>
	4.2 EU assertion requirements are implemented	<p>4.2.1 Inventory and assess impact of EU assertion for grain processing industry.</p> <p>4.2.2 To meet the EU certification requirements, initiate and implement a training/technology transfer program for the enterprises.</p>

INDICATIVE PROJECT BUDGET

The budget for the project depends on factors like the number of target enterprises, duration, and geographical coverage. To carry out the mentioned technical assistance activities, an estimated budget of

around 3 million Euros is required. This amount does not cover investment support cost and recurring costs, which must be secured separately to achieve the stated objectives and impacts.

5. ACTION PLAN FOR FOOD QUALITY AND SAFETY

A. SITUATION ANALYSIS

Ukraine and the EU have been gradually expanding cooperation and liberalizing their mutual food trade since the Association Agreement (AA), including the Deep and Comprehensive Free Trade Area (DCFTA), entered into force in 2016.

The AA, including the DCFTA, contains provisions requiring Ukraine to harmonize its national legislation with Chapter 12 of the EU acquis (food safety and veterinary and phytosanitary policy). This requires a comprehensive strategy for the implementation of Chapter 4 of the AA on sanitary and phytosanitary measures.

There are 216 EU legal acts that need to be implemented into Ukrainian legislation, as the sanitary and phytosanitary sector is one of the most complex under the AA/DCFTA. As of June 2022 (the date of the latest analysis), Ukraine has achieved full approximation with more than 80 EU acquis, with work on approximation with 69 more in progress. The legal framework consists of the Law on Food Safety and Quality (2015) on State Control (2017) and the Law on Feed Safety and Hygiene (2017), which introduce sanitary control at the national border and set standards for feed safety. This framework also includes the law on consumer information (2019), the law on veterinary medicine (2021), and the law on animal waste not intended for human consumption (2021). There is still no phytosanitary legislation, and animal health and welfare legislation need to be finalized and implemented.

The Ministry of Agrarian Policy and Food of Ukraine (MAPF) is responsible for food safety, veterinary and phytosanitary policy. A single competent authority has been established to deal with state control along the entire food chain. The SSUFSCP (SSUFSCP) is the executive body responsible for implementing the Ministry's policy and is responsible for risk-based inspection control throughout the network of subnational entities at the regional (oblast) and sub-regional levels.

Ukraine has approved laboratories to perform official laboratory tests for sanitary and phytosanitary control, and most of them are accredited according to DSTU ISO/IEC 17025 (Ukrainian version of ISO/IEC 17025). The capacity of laboratories and the number of accredited laboratory methods for testing are minimally sufficient, but there is a need to expand them, especially with regard to food exports.

The work on intensifying Ukraine's involvement in the TRACES system needs to be accelerated as much as possible. TRACES is the European Commission's online platform for sanitary and phytosanitary certification required for the importation of animals, animal products, food and feed of non-animal origin and plants into the EU, and the intra-EU trade and EU exports of animals and certain animal products. The gradual implementation of the TRACES electronic certification system in Ukraine continues, and electronic certification of goods intended for export to the European Union is ensured. Since January 15, 2024, 7 forms of certificates have been adapted and integrated into the TRACES system in Ukraine. Recommendations for registering market operators in the TRACES NT system have been developed.

In the area of food safety in general, Ukraine has made substantial progress and increased the number of export authorizations for a number of products exported to the EU by achieving compliance with EU norms and requirements. Ukraine seeks to gradually harmonize its legislation with EU requirements for all agricultural products. This requires intensified work and progress in accordance with the DCFTA provisions.

Legislative changes to food safety regulations were introduced. Following the adoption of the legal framework in 2017, more than 30 secondary acts were adopted to harmonize with the EU acquis. A national institute for registration of veterinary drugs and feed additives was established. The Law on Feed Safety and Hygiene (2017) and its 20 secondary acts

contributed to the improvement of alignment with the EU acquis.

A system for the identification, registration and, especially, control of animal movements (including a central database) would provide opportunities for more effective planning and implementation of appropriate animal health measures. Ukraine does not have a system for identification and registration of sheep, goats, pigs and equines. Official controls aimed at enforcing animal registration and identification legislation, including control of cattle markets, need to be improved. Existing procedures are not sufficiently harmonized across the country and need to be aligned with EU legislation.

With regard to placing food, feed and animal by-products on the market, the country's official food and feed control system is still not fully aligned with the EU acquis and generally needs to be properly implemented. Administrative capacity at all levels is developed. With regard to inspection services, there is room for increasing the professionalization of staff and transparency of procedures, as well as improving quality assurance through inter-laboratory comparative tests.

Control of goods at the time of import is based on a risk-based approach. Inspection and approval of imports to Ukraine of each facility in exporting countries has been replaced by an audit of the control system of the exporting country as a whole.

Training of SMEs in the food sector on the specific quality and safety requirements of the EU should be provided. Ukraine has updated its food safety monitoring plan. State control over food safety is becoming more systematic and risk-based, but elements such as risk analysis and the assessment and management system need to be strengthened, and a food safety database should be integrated. Ukraine is a full participant in the Rapid Alert System for Food and Feed (RASFF), but it is not a member of the RASFF network.

The legal and regulatory framework governing phytosanitary policy consists of the Law on Plant Quarantine of 2017 and a number of other relevant resolutions of the Cabinet of Ministers, which regula-

te, inter alia, inspection and certification. Electronic certification procedures have been introduced.

Ukraine demonstrates an average level of preparation in phytosanitary area.

Organic production in Ukraine has been developing continuously over the past five years, with both the number of processors and the area of cultivated land increasing. In the period 2019-2023, a number of legislative provisions were introduced to the main law on the basic principles and requirements for the production, circulation and labeling of organic products, adopted in 2018. These provisions form the necessary legislative framework for the implementation of the national organic production system. Certification of producers in accordance with Ukrainian legislation in the field of organic production has been launched. The certification body was accredited. Three registers have been created: approved operators, organic seeds, and approved control bodies.

Ukraine has adopted the Law "On Materials and Objects in Contact with Food", which will come into force in November 2025. This law defines the requirements for food packaging and any materials that come into contact with food and is aimed at strengthening the protection of health and consumer interests. It is about establishing safety requirements for: packaging materials such as paper, cardboard, foil, film, glass, wood, textiles, plastic, etc.; tableware and kitchen utensils and the materials from which they are made (ceramics, metal, glass, etc.); materials contained in the packaging (paints, glues, varnishes, silicones, waxes, resins, etc.).

The draft law applies to manufacturers of almost any materials and items that come into contact, may come into contact or are intended to come into contact with food - manufacturers of containers and packaging for dairy, meat, confectionery, alcohol and other products, manufacturers of kitchen utensils, furniture, equipment, etc.

A 2022 Ukrainian law on public health introduces the "One Health" concept, which should lead to better communication between the health agency, veterinarian service, and food safety authorities. The law on public health is partly aligned with the EU.

According to APK-Inform survey:

- Quality control: 91% of the surveyed enterprises showcase a robust implementation of quality control systems, fully or partially embracing the principles of the HACCP system.
- Certification: Initial analysis reveals that at least 37% hold certification according to the ISO 22000/DSTU ISO 22000 standard. Additio-

THE IMPACT OF THE WAR

As per the 1st of January 2024, the total amount of registered food business operators (FBOs) was 259 193. In 2023 967 FBOs' facilities were shut down.

In general, Ukraine continues to fulfill its obligations to harmonize its food legislation with the European one. However, the entry into force of certain requirements has been postponed until the end of martial law. For example, the law on veterinary medicine, requirements for the safety and quality of raw milk, etc.

During martial law, scheduled measures of state supervision (control) over compliance with the legislation on food, feed, animal by-products, animal health and welfare are prohibited. List of grounds for unscheduled measures

- application of food business operator;
- an individual's appeal about a violation that caused damage to his or her rights, legitimate interests, life or health, the environment or state security;
- the order of the Prime Minister of Ukraine to inspect the employer in connection with the identified systemic violations;
- verification of the employer's compliance with the instructions, orders or other administrative documents to eliminate violations of the law issued as a result of the previous supervision (control) measure;

nally, almost 8% boast certification under FSSC 22000.

- Compliance: Given the extensive implementation of quality control, product safety systems, and certification, these enterprises are subjected to rigorous control measures and inspections. Notably, 80% affirm their regular participation in external audits and inspections.

- detection of non-compliance or reasonable suspicion of non-compliance based on notifications received from central executive authorities.

This approach reduces the regulatory burden on FBOs and saves budgetary funds. On the other hand, the absence of inspections for a long time may cause threats to food safety. This is especially true for high-risk businesses and food exporters. In the latter case, this may negatively affect both Ukraine's image and economic performance. Therefore, it may be advisable to resume planned official control measures for certain categories of market operators.

According to the State Service of Ukraine on Food Safety and Consumer Protection (SSUFSCP), as of July 1, 2023, the state laboratories of the SSUFSCP suffered damage in the amount of UAH 38,991,876 (USD 1 013 302). In the context of the war in Ukraine, insufficient state funding, inability to attract third-party investments, a decline in the overall demand for testing laboratories, and a lack of highly qualified laboratory workers, the efficiency of a significant number of state testing laboratories of the SSUFSCP is declining.

Reducing the number of employees of the SSUFSCP by 927 persons in 2023. The total number of employees is 6,843.

The Food safety support programs active in Ukraine as for March 2024⁵⁶ are listed in the below Table 9.

⁵⁶ For more information on technical assistance projects, see the Roadmap.

TABLE 9 – FOOD SAFETY SUPPORT PROGRAMMES IN UKRAINE

PROJECT NAME	BENEFICIARY	IMPLEMENTOR
German-Ukrainian agropolitical dialogue	Ministry of Agrarian Policy and Food of Ukraine	GFA Consulting Group GmbH/IAK Agrar Consulting Gmb
Development of dairy business in Ukraine	Min Agri and food of Ukraine, Dnipropetrovska oblast state administration, Lvivska oblast state administration	Canadian NGO for cooperation and development (SOCODEVI)
Improvement legislation, control and awareness in the field of food safety, animal health and welfare in Ukraine	SSUFSCP ; MAP	OCA Global Consulting and Technical Advisory Services S. L. U. (Spain) led a consortium consisting of D. M. I. (France), Weglobal (Italy), Institute of Rural Development (Ukraine) and EVOLUXER S. L. (Spain)
Development of trade with higher value added in organic sector and in dairy sector	MAP; SSUFSCP	Research institute of organic agriculture (FiBL)
Introduction of the common system of sanitary and epidemic control in Ukraine, phase 2	SSUFSCP, Ministry of Health of Ukraine	Black & Veatch Special Projects Corp.
The USAID Agriculture and Rural Development Program (AGRO)	Ministry of Economic Development, Trade and Agriculture of Ukraine	Chemonics International Inc.
The Swiss-Ukrainian DECIDE project - "Decentralization for the development of democratic education"	Ministry of Education and Science of Ukraine; Ministry of Development of Communities and Territories of Ukraine; State Service of Education Quality; Ivano-Frankivsk State Administration; Luhansk ODA (Luhansk Oblast Military-Civil Administration); Odesa Regional State Administration; Poltava Regional State Administration	NGO "Development of Civic Competencies in Ukraine"; Zurich University of Education
Approximation of the national legislation of Ukraine in the field of state supervision (control) of GMOs in open systems, protection of rights to plant varieties, seed production and nurseries to European norms and standards	SSUFSCP	The State Protection Service of the Republic of Latvia (SPPS) and The Polish State Plant Health and Seed Inspection Service (SPHISI, PIORIN) (Poland), The Polish Research Centre for Cultivar Testing (COBORU) (Poland), Naktuinbouw (Netherlands)

PROJECT NAME	BENEFICIARY	IMPLEMENTOR
Food policy and EU law	Ministry of Education and Science of Ukraine	National University of Bioresources and Nature Management of Ukraine
German-Ukrainian professional dialogue on the sustainable development of the fruit and vegetable sector	Ministry of Education and Science of Ukraine	GFA Consulting Group GmbH (GFA Consulting Group GmbH) ADT Project Consulting GmbH (ADT Project Consulting GmbH)
The Agriculture Resilience Initiative – Ukraine (AGRI-Ukraine)	Ministry of Agricultural Policy and Food of Ukraine	Chemonics
"Institutional and Policy Reform of Smallholder Agriculture (IPRSA)".	Ministry of Agricultural Policy and Food of Ukraine, Ministry Environment Protection and Natural Resources	NIRAS
Support the functioning and strengthening of value-added chains in agriculture, fisheries and forestry, as well as supporting their adaptation to the new environment.	Ministry of Agrarian Policy of Ukraine	FAO (Food and Agriculture Organization of the United Nations)

B. INDUSTRY SPECIFIC KEY CHALLENGES AND OPPORTUNITIES

KEY CHALLENGES

GENERAL

Continued harmonization of Ukrainian and European food legislation. Food safety and control standards and procedures are not fully aligned with EU requirements. Efforts are being made to improve existing food safety and control standards and procedures. However, the official system of food and feed control is not fully harmonized with the EU, which leads to distrust on the part of European authorities in the results of official control measures. Further harmonization of key provisions with EU legislation is needed, in particular in the areas of animal health, animal welfare, and phytosanitary measures. Ukraine needs to monitor the evolution of the EU acquis to ensure consistency. For example, it is necessary to complete the process of updating the Law of Ukraine On State Control over Compliance with Legislation on Food, Feed, Animal By-Products, Animal Health and Welfare in accordance with the EU Regulation) No. 2017/625 of March 15, 2017 on official control and other official activities carried out to ensure the application of food and feed law, rules on animal health and welfare, plant health and plant protection products. Make appropriate changes to the risk-based approach to official control. This may also apply to legislation on GMOs, flavors, and food additives.

Enhancement of the activities of laboratories authorized to conduct official control measures. The need to improve the quality of these laboratories is highlighted by representatives of associations from various food industry sectors, especially export-oriented ones: sunflower oil production, berry and fruit processing, honey production, sugar production. Laboratories designated to perform the official control function should be better equipped and the scope of accreditation should be expanded to meet the needs of market operators. All attempts to reorganize state laboratories of the SSUFSCP focused exclusively on reducing their total number by merging or liquidating them in order to reduce state budget expenditures on their maintenance. Unfortunately, these reforms

did not include measures aimed at increasing the production and financial efficiency of the remaining laboratories, and therefore, in the absence of changes in legislation, subordination and the financing system, they were not effective.

The following problems exist in the system of functioning of the network of state testing laboratories of SSUFSCP :

- Outdated laboratory equipment, insufficient quantity, outdated test methods.
- Inadequate remuneration of specialists of state laboratories in accordance with modern requirements, which leads to shortage of qualified personnel.
- Lack of financial resources and inefficient use of material, financial and human resources of laboratories.
- Inadequate coordination and control over the work of regional state laboratories of the SSUFSCP .
- Insufficient number and limited resources for national reference laboratories.
- Inadequate premises and equipment.
- Ineffective format of interaction between state testing laboratories and service customers: no service approach to service delivery; low level of digitalization of service delivery processes, lack of flexibility of state testing laboratories in terms of the cost of laboratory services for consumers.
- Corruption risks in laboratory testing - possible impact on test results.
- Any problems or lack of capacity with the State Control auditors??

Support in improvement of procedures by state control and surveillance of food business operators (FBOs) by the competent authority.

Currently, Ukraine has implemented a risk-based approach to official control measures in accordance with the Law of Ukraine 2042 "On State Control over Compliance with Legislation on Food, Feed, Animal By-Products, Animal Health and Welfare". According to this law, there are three methods of official control: state laboratory monitoring, inspection, and audit. State control measures are carried out at enterprises in accordance with the degree of risk of each individual facility, which is determined based on previously established criteria.

With the implementation of such a risk-based approach in practice, specialists of the SSUFSCP often face the following challenges:

- lack of specialization of state inspectors and, as a result, difficulties in providing an objective assessment of the situation at the enterprise;
- lack of flexibility in action plans regarding planned state control measures;
- lack of a clear procedure for conducting audits of procedures based on the principles of hazard analysis and critical control points (HACCP) and inspections.

Support small and medium-sized enterprises (SMEs) and strengthening the role of producers' associations as service providers.

The SMEs require training on precise EU safety and quality standards, access to national and EU and national markets.

The role of associations as service providers in the field of ensuring food safety and quality, food legislation and compliance with international standards should be strengthened.

INSUFFICIENT NUMBER OF BORDER INSPECTION POSTS

Due to the insufficient number of border inspection posts, the waiting time for transport at the border increased up to 10 days.

Due to the Association Agreement, Ukraine has increased bilateral trade with the European Union. Integration into the EU's internal market will undoubtedly have a positive impact on the further growth of our trade. The workload at border inspection points (BIP) increase. All of this requires the development of BIPs - both the opening of new ones and the modernization of existing ones.

First of all, this concerns the development of infrastructure, the quality of access roads, the arrangement of service areas and the increase in throughput capacity.

The issue of the development of the BIPs is one of Ukraine's criteria for joining the European Union

The BIP must have a suitable location at the point of entry determined by the customs authority.

The arrangement of the BIPs will ensure the implementation of the provisions of the Law of Ukraine "On State Control over Compliance with Legislation on Food, Feed, Animal By-Products, Animal Health and Welfare".

Border inspection posts will control food safety based on EU requirements and best practices and monitor the compliance of products with sanitary and phytosanitary measures.

As part of the project of the Program "Accelerating Private Investment in Agriculture in Ukraine" implemented jointly with the World Bank, preparatory work was carried out to build border inspection posts (BIPs). The program envisaged the construction of ten such posts by the end of 2023. However, the war prevented further implementation of the program. Now the Ukrainian government is making efforts to resume it.

Currently, there are no designated border inspection posts on the territory of Ukraine, and control is carried out at destination customs offices within the country, which is contrary to EU legislation.

b. SPECIFIC CHALLENGES RELATING TO THE PRIORITIZED SUB-SECTORS

Dairy

- There is a need to introduce a clear traceability system.
- Distrust of the competent authorities of European countries in the results of tests conducted by Ukrainian laboratories that carry out official control.
- Insufficient knowledge of raw milk safety and hygiene requirements. This is especially true for raw milk production in small farms and households. Insufficient participation of milk producers in the Milk Module monitoring system. "Milk module" is a software application that facilitates the cooperation of food business operators with laboratories and the competent authority in order to fulfill the requirements of the new hygiene legislation through the generation and further analysis of the results of laboratory tests.
- Due to the insufficient number of border inspection posts, the waiting time for transport at the border increased up to 10 days.

Fruits and berries processing

- There is a shortage of reliable, high-quality laboratories accredited by premium market countries for conducting microbiological safety tests. Ukrainian state laboratories lack EU accreditation, resulting in rigorous border checks.
- SME owners are not ready to invest in the implementation of food safety and quality standards. Often, HACCP documents are in order, but actual food safety is not ensured (which can be revealed during an audit). Therefore, food safety issues remain relevant. State food safety control of the berry sector is almost absent. An EU audit report on the state control was negative (dated May-June 2021), which can be the basis for the state policy changes/improvements¹.

- Food safety and quality practices need to be improved (understanding, knowledge, equipment, technology) at both state control level and at an enterprise level.

Grain processing

- Lack of knowledge about needed certifications and market access.
- Equipment and methods used by Ukrainian laboratories do not meet the needs of manufacturers in to credible certify product quality.

Honey processing

- Ukrainian laboratories are not good enough to check honey for export. Honey is one of the products, which is easy to counterfeit. It is easy to sell sugar syrup blended with honey. Competition with cheap and fake honey makes it difficult for quality honey to find its way to the final consumer.
- Improve state control policy over food safety of honey in line with the EU audit/standards requirements/methodologies.
- Modernize state laboratories and their methodologies/approaches to harmonize with the EU ones, conduct state laboratories accreditation/certification in order to make their test results acceptable to the EU clients.

Poultry, chicken eggs and egg products

- New animal welfare legislation, which will come in force in 2026, requires about 1 billion of investments in improving of poultry housing. This will affect access to primary production goods: increase prices, and the availability of sufficient primary production facilities⁵⁷.
- Lack of confidence by European competent authorities in the findings of tests conducted by Ukrainian laboratories responsible for official food safety and quality control.

⁵⁷ For more information, see Poultry and Eggs products Action plan

Sugar

The challenges are related to sugar exporters:

- Laboratories in Ukraine are not accredited for all safety and quality indicators required by European regulations on sugar. If some laboratories are accredited for the relevant testing, they often conduct research in accordance with national standards, but not international. The involvement of foreign based laboratories in testing increases the cost of production and is accompanied by the cost of transportation of samples and loss of time.
- Exporters also have difficulties with interpretation of the European food legislation

Vegetable oils

- The scope of accreditation of Ukrainian laboratories is too limited and manufacturers are forced to use the services of foreign laboratories to cover the entire range of laboratory tests.

KEY OPPORTUNITIES

The roles and responsibilities of central executive authorities in the field of food safety and consumer protection are clearly defined, which allows for the formation and implementation of policy in this area. The Ministry of Agrarian Policy is responsible for food safety, veterinary and phytosanitary policy. A single competent authority has been established to deal with state control along the entire food chain. The SSUFSCP (SSUFSCP) is the executive body responsible for implementing the Ministry's policy and is responsible for risk-based inspection control throughout the network of subnational entities at the regional (oblast) and subregional levels.

Objective criteria for authorizing a laboratory for the purpose of official control have been established; the legislation approves the possibility to involve not only laboratories within the structure of the controlling body, but also other laboratories, including private ones, that meet the established criteria for the purposes of official control. Ukraine has appro-

Food packaging

The Law "On Materials and Objects in Contact with Food", which will come into force at the end of 2025, is very important in terms of preventing hazards from entering the food supply from packaging materials. So far, this issue has not been addressed at the legislative level in Ukraine. Manufacturers of packaging materials do not currently have the necessary knowledge and skills to implement measures to prevent food contamination. On the other hand, food business operators, as a rule, also do not pay sufficient attention to this problem, limiting themselves to the declaration of the supplier of packaging materials on their suitability for use in the food industry. Such declarations are not effective in view of the situation in the packaging materials industry as described above. In addition, packaging manufacturers also lack knowledge of international standards for the quality of packaging materials, and do not have sufficient access to accredited laboratories that would implement modern methods of testing packaging materials and provide objective and reliable results.

ved laboratories to perform official laboratory tests for sanitary and phytosanitary control, and most of them are accredited according to DSTU ISO/IEC 17025 (Ukrainian version of ISO/IEC 17025). The capacity of laboratories and the number of accredited laboratory methods for testing are minimally sufficient, but there is a need to expand them, especially with regard to food exports.

In cooperation with the EU-funded project "Improvement of legislation, control and awareness in the field of food safety, animal health and welfare in Ukraine", a concept for reforming the network of state testing laboratories of the SSUFSCP is being developed.

Improving food control institutions in line with EU standards and methodologies can help build trust and compliance necessary for success in the EU single market.

Investments in food safety, product quality and innovation/research, advanced (deeper) food processing technologies, better (innovative) packaging, marketing, promotion can unlock the potential for export sales.

Organic products: Growing consumer demand for organic exports provides the sector with an opportunity to achieve premium prices.

In general, the harmonization of Ukrainian and European food legislation is proceeding satisfactorily. The basic principles of the legislation have been implemented, and the control system is risk-oriented. This creates good conditions for exporting food products to the EU and other countries. This is evidenced by the wide range of products already imported to the EU. There is also room for improvement in certain food sectors, such as pork and beef production. This is a good opportunity to increase the export potential of the whole food industry.

Fruits and berries processing

A fair number of Ukrainian producers of both wild and cultivated berries meet organic standards, presenting an opportunity for expanding organic processing and marketing into EU.

Dairy

The steady upward trend in the share of extra quality milk creates the potential to improve the quality of dairy products on the Ukrainian market.

Grain processing

- Export opportunities for the industry could be significantly enhanced with a better understanding of the requirements of international standards and food legislation, both general and specific. Provided that there is the capacity (human and infrastructure) to implement these requirements in practice.
- An important component of the implementation of these requirements is monitoring their effectiveness, which is realized through cooperation with laboratories that can provide a list of necessary tests.

Honey processing

Increasing the quality of laboratory tests that can identify the botanical and geographic origin of honey and that are in line with EU standards and methodologies can help build trust and compliance. Investing in origin identification (laboratory testing) guarantees the authenticity of Ukrainian honey, where botanical origin refers to the primary plant source and geographical origin indicates the region of collection.

Existing laws and regulations on traceability in Ukraine could help to increase honey exports to EU retailers.

Poultry eggs

Implementation of the program "[Requirements for poultry farming without the use of antimicrobials](#)", which was developed by the Union of Poultry Breeders of Ukraine with the support of FAO, the European Bank for Reconstruction and Development and the SSUFSCP. 5 poultry farms have already implemented the program's requirements. Further implementation of this program will increase customer and consumer confidence in the products both in the domestic market and in the European Union.

Implementation of the new Ukrainian legislation on animal health and welfare, which will come into force in 2026, provides for full compliance with EU food legislation and increases export opportunities.

Sugar

- SMEs lack knowledge, skills to implement internationally recognized safety and quality standards and technology to meet them of target markets.
- Ukrainian state laboratories lack necessary equipment and methods to match/align with the EU standards/methods. In addition to laboratory tests and methods, the traceability system should be improved to be aligned with the EU requirements.
- Knowledge of the practical aspects of implementing traceability along the entire food chain in the sector needs to be improved.

Vegetable oils

Support packaged vegetable oil (for retail) and establish sustainable export value chains. This includes retail product development, marketing, labelling, retail packaging, obtaining export licensing and certification, ensuring compliance with food safety standards, adhering to DCFTA requirements, and meeting EU accession and regulation criteria.

Packaging

The harmonization of Ukrainian and European legislation on the safety of packaging materials may contribute to the development of the export potential of packaging manufacturers.

SECTOR SWOT ANALYSIS

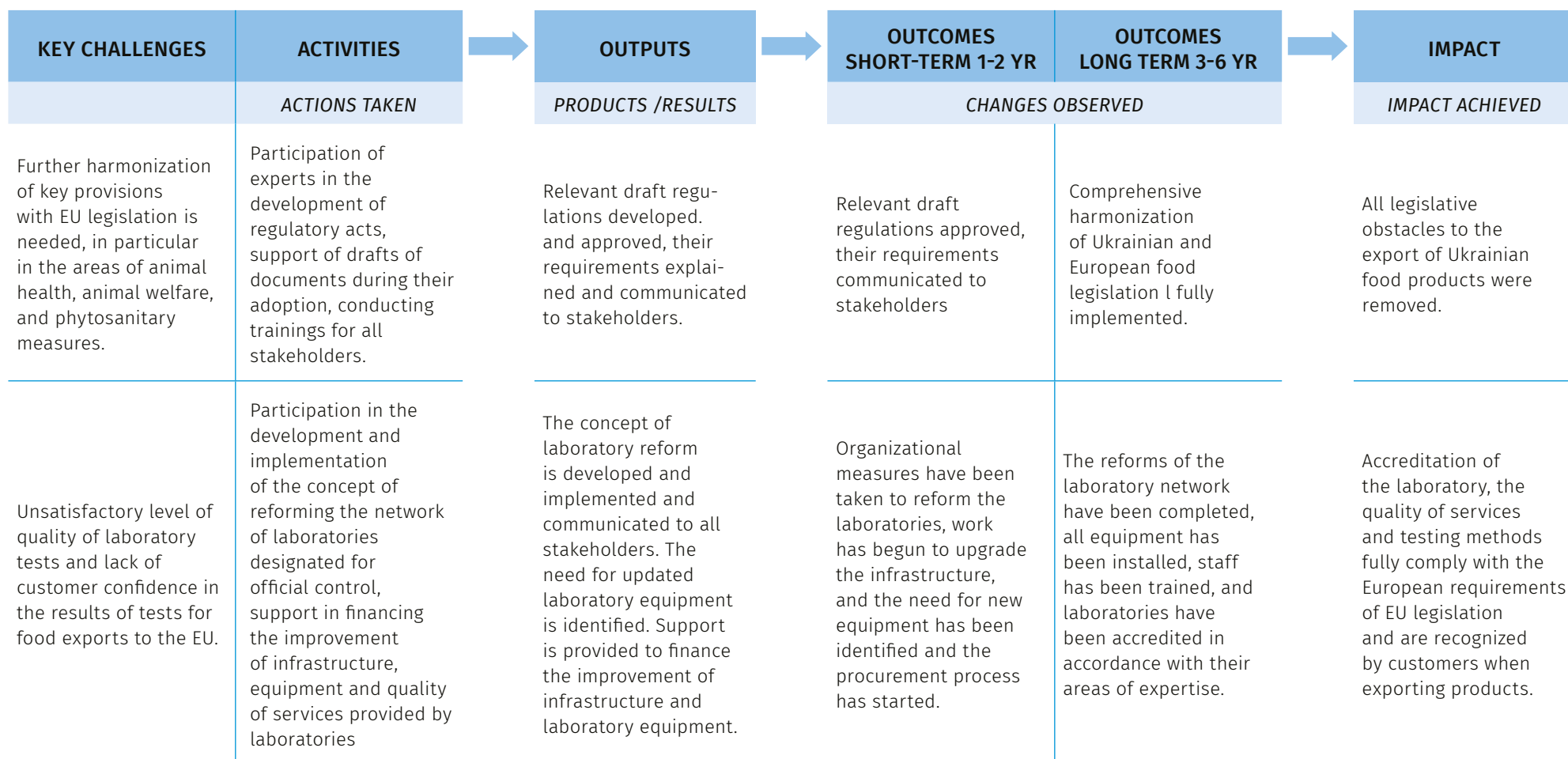
STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Developed and implemented a food safety policy for the institution aimed at protecting the health and rights of consumers. • Clear criteria for the laboratories that can be approved for official control have been developed. • Due to the harmonization of Ukrainian food legislation with the European one and the establishment of basic requirements for a risk-based approach to official control measures, opportunities for food exports have been expanded. • State inspectors who carry out official control measures have basic knowledge of food safety and quality, methods of inspections, audits, and laboratory monitoring. • Support of institutions' activities by technical assistance projects. 	<ul style="list-style-type: none"> • Food safety and control standards and procedures are not fully aligned with EU requirements. • The need to improve the quality of laboratories authorized to conduct official control measures is highlighted by representatives of associations from various food industry sectors, especially export-oriented ones. • Lack of specialization of state inspectors and, as a result, difficulties in providing an objective assessment of the situation at the enterprises. • The small and medium food processors require training on precise EU safety and quality standards, access to national and EU and national markets. • The lack of sustainability of producer associations may be an obstacle to the significant development of their potential as service providers.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Good opportunities for export to EU and other countries due to the reduction trade barriers, as well as to third countries. • Improvement food control institutions in line with EU standards and methodologies can help build trust and compliance necessary for success in the EU single market. • Investments in food safety, product quality and innovation/research, advanced (deeper) food processing technologies, better (innovative) packaging, marketing, promotion can unlock the potential for export sales. • Organic products: Growing consumer demand for organic exports provides the sector with an opportunity to achieve premium prices. • Revival of the domestic food market as a result of adaptation to war conditions and partial return of temporarily displaced persons to Ukraine after the war 	<ul style="list-style-type: none"> • Lack of adequate funding to improve the infrastructure and operations of state laboratories. • There are not enough border inspection posts at the borders with the countries of the European Union. • Lack of a fully-fledged risk assessment unit in the structure of the SSUFSCP. • Lack of a proper assessment of the needs of laboratories involved in official control to improve infrastructure and equipment. • Threats associated with a full-scale war, such as the destruction of infrastructure, reduction of the human resources of the SSUFSCP, and decrease in funding.

C. INDICATIVE PROJECTS

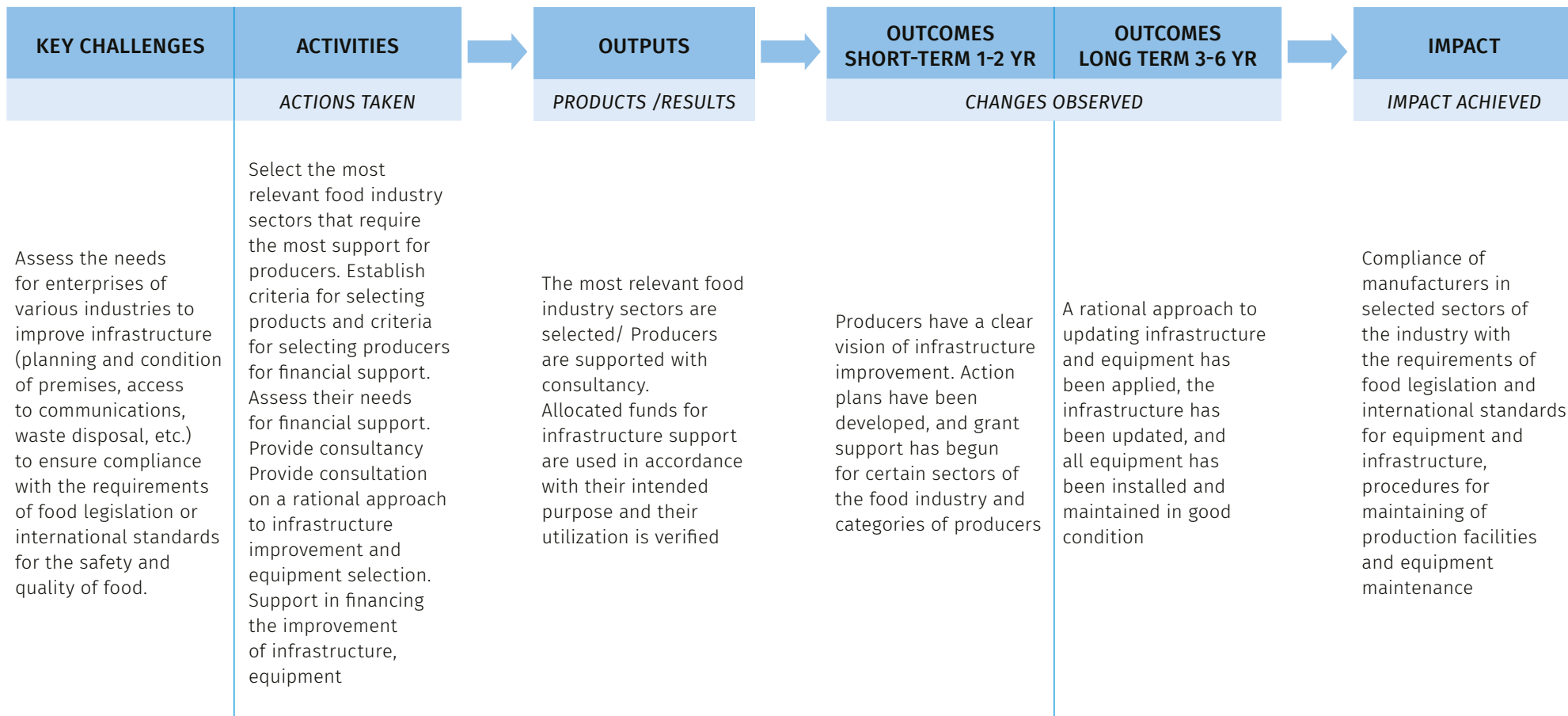
INDICATIVE THEORY OF CHANGE

This summarizes how the project intends to solve key issues and opportunities from Section B and achieve its objectives.

INDUSTRY-WIDE APPROACH

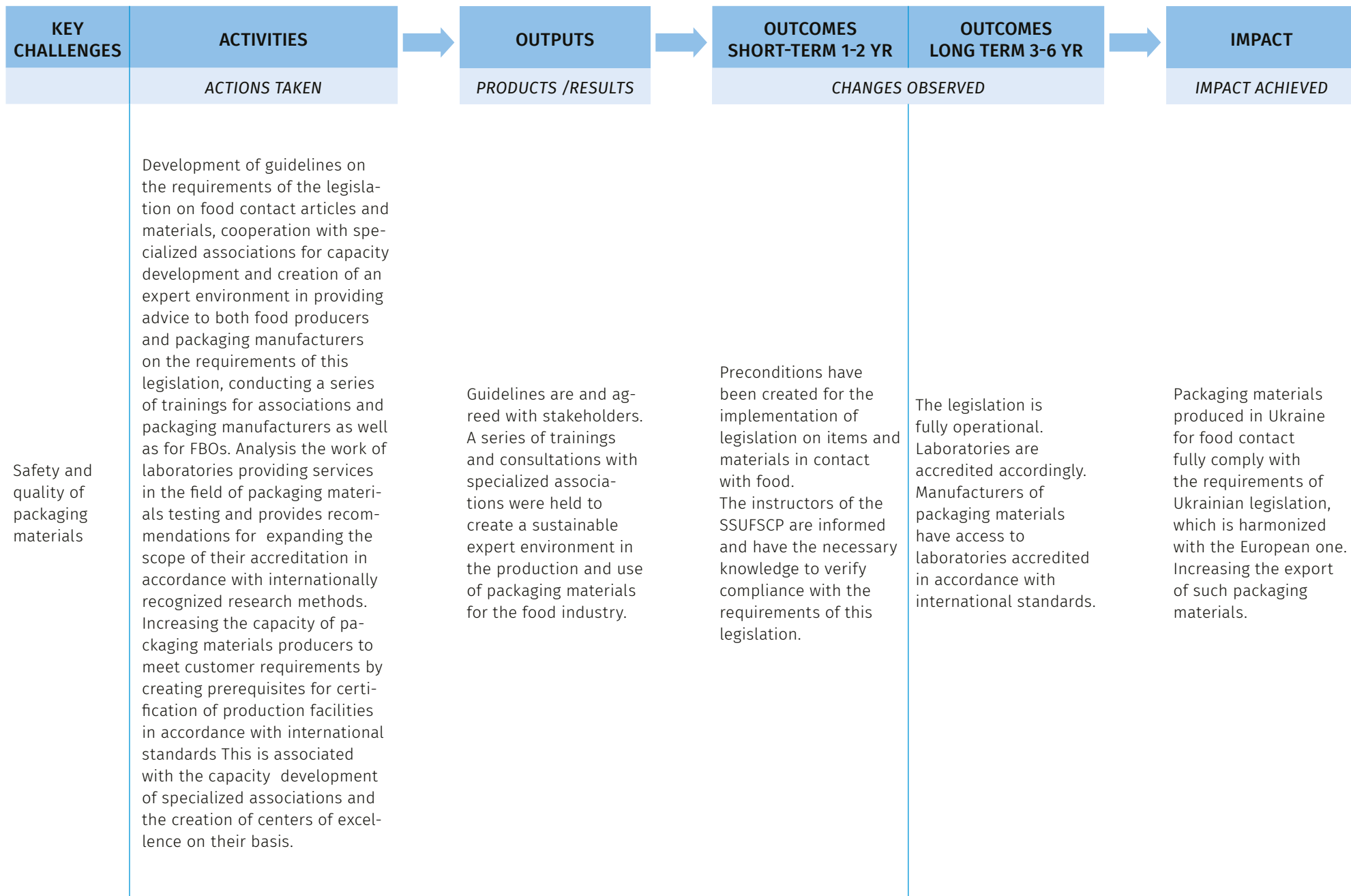


KEY CHALLENGES	ACTIVITIES	OUTPUTS	OUTCOMES SHORT-TERM 1-2 YR	OUTCOMES LONG TERM 3-6 YR	IMPACT
	ACTIONS TAKEN		CHANGES OBSERVED		
Support in improvement of procedures by state control of food business operators (FBOs) by the competent authority.	Participate in the development of standard operating procedures (SOPs) for conducting state control activities such as audits and inspections, laboratory monitoring. Raising funds for the establishment of new border inspection posts and proper equipment of existing ones	<p>The SOPs is developed, series of trainings for state inspectors are done.</p> <p>On-line official control database with dedicated digital tools to manage all official control related activities is developed and implemented.</p> <p>There is a sufficient number of properly equipped border inspection posts.</p>	Transparent procedures for conducting state control measures, are adopted, state inspectors are trained. Control procedures at the border are fully compliant with European food legislation	Standard operating procedures are implemented on an ongoing basis, their effectiveness is verified and appropriate changes are made as necessary. Staff knowledge is regularly updated. The passage of goods across the border is carried out without complications and delays.	State control procedures ensure an objective assessment of FBOs. State control measures are carried out in accordance with the transparent procedures. Control system at border inspection posts harmonized with EU legislation.
Support SMEs in implementation of legislation requirements and international standards by strengthening the role of producers' associations as service providers.	Capacity development of specialized associations to create an expert environment for providing consulting services to producers.	Specialized associations and other NGOs provide services to advise SMEs on various aspects of their activities	SMEs have sufficient knowledge to meet the requirements of food legislation and customers requirements.	SMEs have access to new technologies for manufacturing high value-added products and to ongoing advisory support.	Expanding sales channels for SMEs.



SECTOR SPECIFIC APPROACH

KEY CHALLENGES	ACTIVITIES	OUTPUTS	OUTCOMES SHORT-TERM 1-2 YR	OUTCOMES LONG TERM 3-6 YR	IMPACT
	<i>ACTIONS TAKEN</i>	<i>PRODUCTS /RESULTS</i>	<i>CHANGES OBSERVED</i>		<i>IMPACT ACHIEVED</i>
Food safety and consumer information for poultry, chicken eggs and egg products	<p>POULTRY: Support in implementation of program "Requirements for poultry farming without the use of antimicrobial agents" for wider range of establishments.</p> <p>EGGS: Support in implementation of new rules on the requirements for chicken eggs are coming in force in 2028. The rules establish requirements for grading, labelling, packing, traceability of eggs, record keeping and providing the information to consumers or other food business operators</p>	<p>Relevant guidelines are developed and implemented and tested at pilot enterprises. Eggs producers are informed about changes in the legislation on egg labeling.</p> <p>Producers are aware about the rules for participation in the program of farming without the use of antimicrobial agents".</p> <p>The need for changes in egg handling processes and the amount of investment is assessed.</p> <p>Support in financing is provided</p>	<p>Producers of eggs and egg products are informed of the need to change the labeling of eggs. Relevant guidelines are developed and implemented.</p> <p>Ensuring the safety of food products (poultry meat, eggs). Compliance with the requirements of the legislation on safety and some quality indicators of food products. Introduction of voluntary standards. Responsible attitude of manufacturers to ensure the health of consumers</p>		Increasing the trust of consumers to the products and producers of the industry. Ensuring that consumers are provided with correct food information on consumer packaging
Enhancement the traceability systems in the dairy and honey sectors.	Provide recommendations to ensure traceability in the sector.	Guidelines for implementing traceability in the dairy and honey sectors throughout the food chain are developed and agreed with stakeholders.	<p>FBOs are aware of traceability requirements and practical tools for its effective implementation.</p> <p>Effective traceability system is implemented by all FBOs along the entire food chain</p>		Implemented traceability measures prevent the appearance of counterfeit honey and dairy products on the market.



D. INDICATIVE PROJECT OVERVIEW

PROJECT RATIONALE

Ukraine has signed an AA with the EU, which requires it to align its food safety and veterinary and phytosanitary policy with the EU acquis.

Ukraine has made progress in approximating its legislation with the EU, but still faces gaps and challenges in some areas, such as phytosanitary legislation, laboratory capacity, used technology, and animal welfare.

Ukraine has reformed its institutional and regulatory framework for food safety, creating a single competent authority, a risk assessment sector, and a na-

tional control plan. Administrative capacities need strengthening, and coordination among institutions involved in food safety should be improved.

Progress has been made, with more than 80 EU legal acts fully adopted by Ukraine, but challenges remain, especially in phytosanitary legislation adoption.

Ukraine has increased its exports of some agricultural products to the EU by complying with EU rules and requirements and aims to expand its market access for more products.

PROJECT GOAL

The overall goal of the projects is to facilitate Ukraine's fulfillment of its obligations under the AA, including the DCFTA, through full harmonization of Ukrainian and European food legislation, full imple-

mentation of the harmonized legislation, creation a more competitive market for safe and quality food products that meet the needs of consumers..

PROJECT OBJECTIVES

- Expand export opportunities for Ukrainian producers by introducing international standards.
- Increase the trust of consumers to the products and producers of the industry. Ensuring that consumers are provided with correct food information on consumer packaging. Increased export potential of Ukrainian producers, including small and medium-sized ones, by improving their infrastructure, production methods and process control.
- Increased capacity of producers' associations as service providers, especially in the field of food legislation, implementation of international standards and application of new technologies. Improved understanding of legal requirements and standards by producers, preventing non-conformities and unnecessary costs of compliance.
- Improving the knowledge of state inspectors about the scope and methods of official control measures. Unification of official control procedures, promotion of risk-oriented control and objective assessment of enterprises through the introduction of standard operating procedures.
- Improving the accuracy of testing, the reliability of results and the quality of services provided by laboratories authorized to conduct official control measures. Increased client confidence in the results of laboratory tests of food products, including for food export. Producers have access to the services of accredited laboratories to implement their internal laboratory monitoring plans and to conduct tests to meet customer requirements. This improves food safety control measures.
- Increase producers understand the legal requirements and standards for infrastructure sufficient to carry out technological processes and ensure compliance with hygiene requirements. They apply best practices to implement these requirements. Producers have access to infor-

mation and financial support to ensure adequate infrastructure and equipment.

- Rapid response to avoid the production and distribution of substandard products through the implementation of a traceability system

tailored to industry specifics. Implementation a reliable system for identifying and rectifying the reasons for non-compliance.

INDUSTRY-WIDE PROJECTS

Project Outcomes - Components	Project Outputs	Project Activities
<p>1. Comprehensive harmonization of Ukrainian and European food legislation according to AA/DCFTA.</p>	<p>1.1 Relevant draft regulations developed and approved.</p>	<p>1.1.1. Together with the beneficiary, identify priority regulatory documents. Establishment of working groups to develop draft laws and sublegal acts.</p> <p>1.1.2. Participation of experts in the development of draft regulatory acts, support of drafts of documents during their adoption.</p>
	<p>1.2. New requirements communicated to stakeholders.</p>	<p>1.2.1. Preparation of a series of training and information materials on the new legislation and practical aspects of its application,</p> <p>1.2.2. Conducting trainings for all stakeholders.</p>
<p>2. Reform of the network of laboratories approved for official control. Improvement of FBOs' access to laboratory services.</p>	<p>2.1. The concept of laboratory reform is developed in cooperation with SSUFSCP and implemented and communicated to all stakeholders.</p>	<p>2.1.1. Assessment the general level of compliance with international standards of laboratories authorized for official control.</p> <p>2.1.2. In cooperation with other stakeholders (MAP, SSUFSCP), development and implementation of the concept of reforming the network of laboratories designated for official control.</p> <p>2.1.3. Participation in development of network of national reference laboratories and identifying the needs for their accreditation areas.</p>
	<p>2.2. Laboratories conduct testing in accordance with their scope of accreditation using modern internationally recognized test methods.</p>	<p>2.2.1. The needs for updated laboratory equipment is identified.</p> <p>2.2.2. Support in financing the improvement of infrastructure, equipment and quality of services provided by laboratories.</p> <p>2.2.3. Staff has been trained, and laboratories have been accredited in accordance with their areas of expertise.</p>
	<p>2.3. Development a network of laboratory services for FBOs to implement internal risk-based laboratory control and monitoring plans.</p>	<p>2.3.1. Assess the access of FBOs to laboratory services and analyze gaps and non-conformities.</p> <p>2.3.2. Conduct a series of trainings for FBOs and representatives of NGOs to provide knowledge on rational approaches to the organization of risk-oriented internal laboratory control and monitoring.</p> <p>2.3.3. Development Guidelines for internal laboratory control and monitoring.</p> <p>2.3.4. To improve the quality of services provided to FBOs by state and commercial accredited laboratories. To provide trainings and consultations to laboratories on the implementation of quality management systems.</p>

3. Risk-based procedures of official control	3.1. Update and implementation a regulatory framework to ensure a risk-based approach to official control of the enterprises.	<p>3.1.1. Participate in revision of the resolution of the Cabinet of Ministers of Ukraine defining the categorization of enterprises and the frequency of planned state control measures in order to introduce a risk-based approach.</p> <p>3.1.2. Participate in the development of standard operating procedures (SOPs) for conducting state control activities such as audits and inspections, laboratory monitoring.</p>
	3.2. Conduct training for state inspectors on the specifics of controlling system pre-selected sectors of the food industry.	<p>3.2.1. To analyze the gaps in the knowledge of state inspectors on the methods of controlling certain food industry sectors and identify priority areas for training. For example, processing of non-animal origin products, catering, flexible approach for control of SMEs.</p> <p>3.2.2. Delivery of a series of trainings such as hazards specific to the sector, risks of their occurrence in the finished product, cooperation with primary producers to control certain hazards, peculiarities of state laboratory control in the sector, peculiarities of inspections and audits of procedures based on HACCP principles, requirements for traceability.</p> <p>3.2.3. Study of practical aspects of official control measures for state inspectors at pilot enterprises</p>
	3.3. There is a sufficient number of properly equipped border inspection posts.	<p>3.3.1. Developing a strategy and a plan, Raising funds for the establishment of new border inspection posts and proper equipment of existing ones.</p> <p>3.3.2. Support in implementing risk-based control procedures at border inspection posts.</p>
	3.4. On-line official control database with dedicated digital tools to manage all official control related activities is developed and implemented.	<p>3.4.1. Funding and support in software development.</p> <p>3.4.2. Training of state inspectors and other SSUFSP project officers on the use of the software</p>
4. Provide SMEs in different sectors with sufficient knowledge to meet the requirements of food legislation and customer's requirements.	4.1. SMEs have the opportunity to gain knowledge about flexible approach of food legislation for small producers.	<p>4.1.1. Select the sectors and assess the need and provide small producers with the necessary knowledge.</p> <p>4.1.2. Support small processors to have sufficient knowledge to meet the requirements of food legislation and food safety and quality standards.</p>
	4.2. Sustainable development of services for small producers	<p>4.2.1. Cooperation with specialized associations and other NGOs to make them service providers for small producers on various aspects of their activities.</p> <p>4.2.2. SMEs have access to knowledge for manufacturing high value-added products and to ongoing advisory support.</p>

5. Compliance of manufacturers in selected sectors of food industry with the requirements of food legislation and international standards for equipment and infrastructure, procedures for maintaining of production facilities and equipment maintenance	5.1. Assess the needs for enterprises of various industries to improve infrastructure (layout and condition of premises, waste disposal, etc.	5.1.1. Establishment criteria for selecting products and criteria for selecting producers for financial support. 5.1.3. Assessment needs for financial support.
	5.2. Support in financing the improvement of infrastructure, equipment.	5.2.1. Provide consultation on a rational approach to infrastructure improvement and equipment selection. 5.2.2. Implementation of grant support for certain sectors of the food industry and categories of producers.

INDUSTRY-WIDE PROJECTS

Project Outcomes - Components	Project Outputs	Project Activities
6. Involvement of poultry and egg production enterprises in the implementation of farming without the use of antimicrobial agents. Correct labeling of eggs and egg products	6.1. Support in implementation of program "Requirements for poultry farming without the use of antimicrobial agents" for wider range of establishments.	6.1.1. Update SOP for farming without the use of antimicrobial agents. 6.1.2. Provide training for FBOs. 6.1.3. Capacity development of relevant associations to provide consulting support to enterprises in implementation farming without the use of antimicrobial agents.
	6.2. Support in implementation of new rules on the requirements for chicken eggs are coming in force in 2028.	6.2.1. Eggs producers are informed about upcoming changes in the legislation on egg labeling, packing, traceability of eggs, record keeping and providing the information to consumers. 6.2.2. Relevant guidelines are developed and tested at pilot enterprises. 6.2.3. Assessment the needs for changes in egg handling equipment and the amount of investment. 6.2.4. Support in financing the necessary equipment upgrades.
7. Enhancement the traceability systems in the dairy, sugar and honey processing sectors.	7.1. The requirements of food legislation and international standards for the introduction of traceability in the dairy and honey sector are understood by stakeholders and implemented on a regular basis.	7.1.1. Developing guidelines for implementing traceability in the dairy and honey sector. 7.1.2. Raising awareness of food business operators in the practical aspects of traceability implementation. 7.1.3. Conducting a series of trainings for trainers on the practical aspects of traceability implementation.

8. Ensuring the safety and quality of packaging materials	8.1. Compliance with the legislation on items and materials in contact with food.	<p>8.1.1. Delivery a series of trainings and consultations with specialized associations to create a sustainable expert environment in the production and use of packaging materials for the food industry.</p> <p>8.1.2. Development of guidelines on the requirements of the legislation on food contact articles and materials</p> <p>8.1.3. Cooperation with specialized associations for capacity development and creation of an expert environment in providing advice to both food producers and packaging manufacturers on the requirements of the legislation.</p>
	8.2. Increase the export potential of packaging materials producers	<p>8.2.1. Increasing the capacity of packaging materials producers to meet customer requirements by creating prerequisites for certification of production facilities in accordance with international standards.</p> <p>8.2.2. Accreditation of laboratories to meet requirements of international standards for packaging material testing.</p>

ESTIMATED BUDGET

1. Providing technical support to improve legislation and build the capacity of government institutions and industry associations is not costly. Costs are mainly related to the work of consultants and experts, trainings, pilot training inspections of enterprises and study visits to familiarize them with best practices. The indicative budget of these activities 2-3 million EURO. The cost estimate for the implementation of BIPs and digital tools for the official control measures should be assessed separately in close cooperation with the SSUFSCP and based on best practices in the EU.
2. Activities related to developing an accessible network of laboratories and improving their infrastructure and equipment are quite resource intensive. To optimize costs and estimate them more accurately, a detailed analysis of laboratory testing needs for each industry is required and the capacity of existing laboratories should be assessed. The creation of favorable conditions for the development of a network of commercial laboratories is related to the overall economic situation, the development of the export potential of the industry, the activities of enterprises to implement risk-based laboratory monitoring and the training activities of industry associations.
3. At this stage, it is difficult to separately estimate the needs for funds to improve the infrastructure and equipment of enterprises in terms of compliance with food legislation or standards, as they depend significantly on both the industry and the type of standard. For this purpose, it is recommended to consult with associations and provide tailor made support to enterprises. Resources should be determined in conjunction with research on the needs of other components of green recovery investments and programs.

6. ACTION PLAN FOR THE FOOD PACKAGING INDUSTRY

SITUATION ANALYSIS

In the early 1990s, a lack of modern packaging hindered Ukrainian food product competitiveness. Addressing this issue not only made Ukrainian products competitive globally but also spurred the domestic packaging industry's development. The Ukrainian market gradually started to be filled with domestically manufactured food products, reaching a share of 70-80% in certain sectors. This was facilitated by the development of modern food and beverage processing methods in Ukraine, aimed at extending the shelf life of products. It involved the use of efficient packaging materials, contemporary packaging types, technologies, and equipment for their production. This was a response to the increased competition of these products in the Ukrainian market.

At the same time, both positive and negative trends in the development of the economy have been outlined. The population from rural areas was moving to the cities. The total population of the country was decreasing every year. The structure of retail trade was changing with the emergence of supermarkets, focusing on consumer and transportation packaging. The dominant trend in a market economy is the increasing preference for marketing ideology (to satisfy the customer by selling them the products they need), which has replaced the production-oriented ideology regardless of market needs. This caused an increase in packaging consumption per capita, which by the end of 2020 had reached 80-85 kg per year. This is less than the average in Europe. However, most of the food products were already purchased in modern packaging.

During this period, there was active development in the production of packaging materials and packaging driven by the use of modern technologies and equipment. Manufacturers of packaging equipment appeared along with companies that began producing capping and functional packaging materials, printing inks and other auxiliary products.

The production of packaging products in Ukraine is high-tech and focused on the reduction of material and energy resources. As a result, over the last 15 years, the production and consumption of packaging in Ukraine has increased by 3-3.5 times. Professionals from various fields involved in the development, manufacturing, testing, and distribution of packaging products in Ukraine possess professional expertise in multiple aspects of creating and producing packaging materials, containers, packaging technologies, and equipment. Today, thousands of different types of packaging are manufactured in Ukraine using modern domestic and foreign packaging materials. These processes utilize technologies and equipment from global industry leaders.

Impacts of the war on the packing sector. During the first weeks of Russia's war in Ukraine, the enterprises located in the cities affected by the hostilities were shut down, and some of them were damaged. This includes the eastern, southern, and northern regions (Kyiv and Kyiv, Odesa, Kherson, Kharkiv, Sumy, Chernihiv, Luhansk and Donetsk regions). Leading Ukrainian packaging industry enterprises, including Vetropack Gostomel Glass Factory, Rubizhne Cardboard and Package Mill, the manufacturer of polymer packaging Plast-Box in Chernihiv, were completely or partially destroyed.

Many enterprises in the eastern, northern, and southern regions of Ukraine ceased operations for various reasons, including a shortage of raw materials, equipment spare parts, and a lack of workers who went to defend Ukraine. In other sectors, enterprises made efforts to maintain their operations, although a few had to reduce their production capacity. Many of them encountered a critical shortage of raw materials, including cellulose, waste paper, glass, polyolefin polymers, and polyethylene terephthalate. Additionally, curfews, frequent and prolonged air-raid warnings, and ongoing missile attacks led to reduced working hours and productivity, making logistics

more challenging. All of these factors contributed to an increase in production costs.

The demand for long-term storage products mainly packaged in complex barrier packaging has increased.

Most packaging facilities that produce various materials and equipment were shut down and inactive, particularly in cities affected by hostilities. Nevertheless, some packaging companies resumed their operations in early March 2022, making efforts to restore their damaged facilities. They experienced a shortage of raw materials, and some had to reduce production because their workers joined the army. However, the delivery of packaging products to manufacturers of food, pharmaceuticals, personal care items, and other products has already commenced.

As a consequence of the military actions by Russian invaders in Irpin, production facilities and warehouses containing finished products were destroyed. Additionally, the offices and premises of Ukrainian companies were damaged, including Planet Plastic, a producer of polymer products for agriculture, construction, and food packaging materials, and Technocom, a manufacturer of concentrates, compounds, and additives for polymeric packaging materials. Despite significant losses and risks, the company management decided to resume production as soon as possible. After some time, Planet Plastic resumed the supply of essential, high-quality products for grain storage, including greenhouse films. Meanwhile, Technocom continued to provide high-quality color concentrates (masterbatches) for packaging material production. The production of polymer packaging by the Polish company Plast-Box in Chernihiv was completely destroyed.

The parent company provided shelter for Ukrainian workers and their families by offering jobs at its factories in Poland. While actively operating in the Ukrainian market, the Polish company continues to supply its packaging products to Ukrainian manufacturers of food, paints, and other products.

While Kherson was temporarily under Russian occupation, one of Danone's two Ukrainian plants in the city ceased operations, and assistance was provided to evacuate workers. Several fermentation tanks and

the roof of the administrative building were damaged by hostilities. Subsequently, the company's management relocated part of the production facilities to another plant in the Poltava region. This allowed the company to resume the production of products like Activia, Danone, and Rastishka.

The Kyiv Cardboard and Paper Mill, a leading producer of cardboard packaging located in Obukhiv, Kyiv region, established the Charitable Foundation "Cartonnik". The plant's workers assisted with humanitarian logistics, delivering products to the plant and medical supplies to hospitals in Kyiv and Obukhiv, and even baked and distributed bread during the logistical challenges in the early days of the war.

The Club Packagers of Ukraine unites manufacturers and consumers of packaging products to solve strategic tasks and urgent problems of the development of the packaging industry of Ukraine since its establishment in 1996. This is achieved with the help of various information measures that provide representatives of the packaging industry with informational materials about packaging to increase the production and export of modern, high-quality packaging products. Among the members of the Club of Packers are manufacturers of polymer, metal, glass and cardboard packaging, machine building enterprises, universities and research institutes, advertising, publishing and commercial firms, exhibition centers. The Club Packagers of Ukraine represents the country on the global stage as a full-voting member of the World Packaging Organisation (WPO) since 1998. Every year, WPO organizes the WorldStar Awards competition. The purpose of the competition is to promote innovation for the development of packaging in various sectors, proving that good packaging can be a significant solution to many modern problems, especially sustainable development, extending the shelf life of food products. Ukrainian companies have been participating in the competition since 1998. During this time (from 1998 to 2024) 131 samples of packaging from Ukrainian companies took part in the WorldStar competition, and 64 samples of packaging from 26 companies became winners. Before reaching the global stage, Ukrainian companies compete on a national level, a competition organi-

zed by the Club Packagers, and the winners qualify to participate in the World Stars. Since the establishment of the Ukrainian packaging competition 3,187 samples of packages and labels, as well as 1,156 student designs, took part in the competition. As a result, over 25 years, the number of participants in the competitions is 292 Ukrainian manufacturers of

packaging and labels from 54 cities of Ukraine and 24 universities and academies. In 25 competitions, the jury recognized 487 samples of packaging and labels and 400 student designs of packaging products as winners. Lastly, Ukraine has a number of packaging industry associations, such as the Glass of Ukraine Association.

B. INDUSTRY SPECIFIC KEY CHALLENGES AND OPPORTUNITIES

KEY CHALLENGES

In recent years, the packaging industry in Ukraine has faced numerous challenges, including heightened risks, regulatory unpredictability, corruption within state institutions, currency instability, and a lack of systemic reforms. These challenges have created technological and organizational risks for businesses in the industry.

Firstly, almost all enterprises in the packaging industry primarily use imported raw materials. They import cellulose and even waste paper, paper and cardboard, nearly all polymers and additives, aluminum foil, tinplate, and other raw materials. Manufacturers of glass bottles and cans are an exception, though they also frequently experience shortages of glass, which sometimes has to be imported.

Secondly, Ukraine has not yet established a state policy or legislative framework for packaging and packaging waste. It can be said that in a market-oriented environment, the packaging industry in Ukraine can be described as self-regulated, with information support provided by several professional associations.

Following a study conducted to address the challenges of the packaging industry of Ukraine, below key challenges are summarized:

- The production volumes of packaging products in 2022, compared to 2021, decreased in the majority of the surveyed companies (80%) by 10 – 55% as well as sales volumes of packaging products in the domestic market decreased by 10 – 50% and in other countries by 40 – 90%.
- In 2022, compared to 2021, the surveyed companies decreased the number of orders for packaging products from their customers, as well as companies reduced the number of orders for raw materials, auxiliary materials, spare parts for equipment, although the number of suppliers did not change.
- The majority of the surveyed companies (78%) plan to implement innovative "green" technologies, but 62% of companies lack the financial resources to acquire such technologies, and 25% of companies have not yet resolved the issue of selling "green" products.
- Only 46% of the surveyed companies have a business strategy for the development of their production over the next 3-4 years, while the rest are still in the process of developing one. Meanwhile, the majority of companies (78%) plan to expand their production by using new technologies and equipment, while 72% intend to develop and produce new types of packaging products.
- To implement these business strategies, almost all of the surveyed companies require additional financial resources. Meanwhile, 31% of companies require resources ranging from \$1 to 3 million, 28% require between \$3 to 10 million, and an additional 25% of companies need financial resources within the range of \$0.3 to 1 million.
- The majority of companies (75%) export packaging products to other countries. In order to start their export activities and increase their export volumes, 25% of the companies lack the necessary financial resources, while 20% of the companies lack knowledge of the regulatory framework.
- Among the many problems that hinder the surveyed companies from restoring and developing their businesses, 67% of companies cited the lack of forecasts regarding the situation in Ukraine, 47% pointed to the shortage of qualified employees, 39% mentioned the competitive practices that reduce company profitability, and 36% referred to inefficient, lengthy, and costly logistics.

- The vast majority of the surveyed packaging companies had neither undertaken nor had any plans to relocate their businesses, either within Ukraine or abroad.
- After February 24, 2022, the number of qualified employees decreased by 10-40% in the majority of the surveyed companies (69%) At the same time, 72% of companies report that between 3% and 15% of their employees have moved to other regions of Ukraine or other countries, and 78% of the surveyed companies have lost between 2% and 20% of their employees due to their mobilization into the Armed Forces of Ukraine and the Territorial Defense Force.
- The vast majority of the surveyed companies face challenges with personnel. However, 70% of companies continue to train their employees in the usual way as they did before. Other companies believe that they are stable in their competencies, and additional training is not currently necessary for them.
- In addition to the need to retain the company's employees, the priority directions of staff training in the majority of companies are aimed at exploring the possibilities of entering new markets for their products in other countries (95%) and expanding sales of products in the domestic market (50%).

SECTOR SWOT ANALYSIS

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Existing infrastructure • Consumer awareness on sustainable packaging exists • Existing industry associations promoting packaging as an important industry tool • Existing packaging competition commemorating Ukrainian packaging innovation, academia and industry level 	<ul style="list-style-type: none"> • Number of damaged enterprises • Reliance on imports of raw packaging material to meet the consumer demand • No established state policy or legislation on packaging and packaging waste • Lack of packaging testing laboratories certified to EU requirements
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Ukraine's accession to the European Union and compliance with relevant regulations and legislations (e.g. EU Green Deal, Packaging and Packaging Waste Regulation) • Access to export markets for SMEs with adequate packaging requirements • Integration with a number of EU and global partners 	<ul style="list-style-type: none"> • Ukraine's accession to the European Union and compliance with relevant regulations and legislations (e.g. EU Green Deal, Packaging and Packaging Waste Regulation)

C. INDICATIVE PROJECT

The proposed intervention aims at addressing local needs and priorities by upgrading technical competences of the packaging sector, as well as, improving the packaging practices of the beneficiary sectors. Therefore, the proposed intervention contributes to the competitiveness of the food and agri-business sector and reduction of food loss and waste (FLW). The objective of a packaging related intervention is to enable the local private sector, particularly agri-businesses, to enhance current practices through value addition by improving packaging practices and simultaneously comply with requirements set by competent authorities in food safety as well as local and international buyers and reduce the levels of FLW. The intervention does not differentiate between private sector stakeholders when it comes to access to packaging related services, however, it recognizes the needs to address packaging related practices of small and medium enterprises (SMEs) through UNIDO's Value Chain Development Approach. Consequently, the intervention also analyzes and addresses technical needs of SMEs, such as labeling, marketing, traceability, or product testing. As an outcome, the local agri-business reduces

FLW of local produce, becomes more competitive by adding value through better branding and marketing of their products, and is able to comply with food safety and technical requirements at local and international level, by addressing the needs stipulated by the Sanitary and Phyto-Sanitary (SPS) and Technical Barriers to Trade (TBT) agreements of the World Trade Organization (WTO). In addition, the intervention also improves public health practices by reducing the number of foodborne illnesses.

In this regard, UNIDO promotes and supports the set-up of public-private partnerships (PPP) and private sector driven service centers, and the establishment and upgrading of Centers of Excellence (CoEs) across agro-value chains in order to ensure the provision of specialized services needed for the development of targeted agro-value chains and industries. The establishment of a Center of Excellence on Packaging (CEP) lies at the core of UNIDO's Sustainable Food Packaging Approach (SFPA), Figure 16, ensuring the provision of specialized training services, disseminating best practices, and promoting packaging as an important industry tool.

FIGURE 16 - UNIDO'S SUSTAINABLE FOOD PACKAGING APPROACH



CEP supports all operators concerned with packaging including manufacturers, users, converters, designers, testing institutions, and academia which can be seen under Figure 17. CEP will 1) address key issues across the packaging value chain, from improving packaging and labeling to increasing market access of products to regional and international markets. Most importantly, CEP will 2) disseminate best practices and promote technology transfer to reduce FLW, taking into consideration environmental and social risks. 3) The set of technical services provided by CEP will be designed in close coordination with private sector and could include the following: training & educational programmes, testing services, advisory services on labelling, marketing & branding, structural design & packaging optimization, sustain-

able packaging materials. In addition, CEP will 4) be responsible for organizing national student and industry level packaging competitions to foster local packaging innovation. CEP shall also 5) act as a central point of information (newsletters, website, social media, and conferences) on global packaging trends, international packaging events and forums as well as promote the importance of packaging to various economic sectors. Within the “Industrial capacity-building, policy advice and diagnostics for the green recovery of Ukraine” UNIDO project in Ukraine, a strategy and business plan has been developed for the Club Packagers of Ukraine to take initial steps towards becoming a CEP.

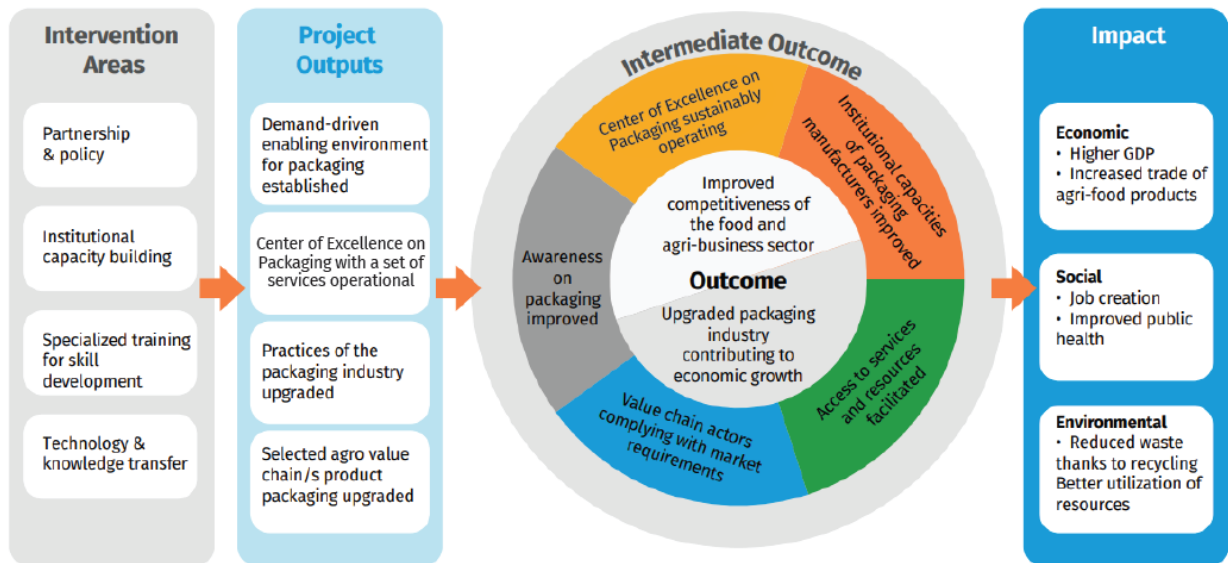
FIGURE 17 - ROLES OF THE CENTER OF EXCELLENCE ON PACKAGING



Establishing a CEP has a threefold impact. Firstly, the economic impact leads to a higher GDP and an increased trade of agro-food products. Secondly, the social impact contributes to job creation and improved public health. Thirdly, the environmental impact leads to better utilization of resources and reduced waste as a result of recycling. Moreover, the approach improves the competitiveness of the food and agri-business sector by reducing FLW and upgrades the packaging industry which is contributing to economic growth. To achieve the abovementioned, UNIDO intervenes at the partnership and policy level, as well as through institutional capacity building, specialized training for skill development,

and technology and knowledge transfer. Resulting in an established demand-driven enabling environment for packaging, an operational CEP is established with a set of services, upgraded practices of the packaging industry, and upgraded targeted agro value chain/s product packaging. Moreover, improving institutional capacities of packaging manufacturers, facilitating access to services and resources, ensuring target value chain actors comply with market requirements, and improving the general awareness on the importance of sustainable packaging. The comprehensive Theory of Change model can be seen under Figure 18.

FIGURE 18 - ESTABLISHING A CENTER OF EXCELLENCE ON PACKAGING THEORY OF CHANGE



Nevertheless, as building the capacity of the identified center takes time, in parallel the intervention will work to address the previously identified challenges facing Ukraine, such as: a) supporting packaging related education programmes for students and industry professionals to educate the workforce, b) identify investment opportunities to attract financing, c) identify alternatives for raw packaging materials in Ukraine, d) support the development of a national policy and regulation on packaging.

Such an intervention contributes to the following SDGs:

- SDG 2 – Zero hunger
 - Sustainable food packaging contributes to increased access of food in urban and remote regions through facilitation of efficient and safe distribution of fresh and manufactured food, and by extending their shelf life through food packaging technology
- SDG 3 – Good Health & Well-being
 - The use of food grade packaging protects the food from outside environmental influences, such as fungi, bacteria, and toxic contamination, and ensures access to safe food that is integral for good health and wellbeing
- SDG 4 – Quality Education
 - The established CER provides education on packaging in the local market
- SDG 8 – Decent Work and Economic Growth
 - Improving local practices allows for distribution of safer food for sustainable and resilient business with increased market access
- SDG 9 – Industry, Innovation, Infrastructure
 - Promoting technology & knowledge transfer and innovation in the packaging industry enhances the competitiveness of the food and agri-business industry
- SDG 12 – Responsible Consumption and Production
 - By using exactly the amount of raw packaging material needed to protect the food, prevents overusing of raw packaging material and underusing which would lead to food waste as the food would not be sufficiently protected

<p>PROJECT OBJECTIVE:</p>	<p>Enable the local private sector, particularly agri-processing businesses, to enhance current practices through value addition by improving packaging practices and simultaneously comply with requirements set by competent authorities in food safety as well as local and international buyers and reduce the levels of FLW.</p>	
<p>Project Outcomes - Components</p>	<p>Project Outputs</p>	<p>Project Activities</p>
<p>1. Government of Ukraine supported in developing a national legislative framework on packaging</p>	<p>1.1: Established national legislative framework on packaging</p>	<p>1.1.1 Review and analyze the current relevant regulations on food safety and packaging</p> <p>1.1.2 Provide recommendations on the current relevant regulations on food safety and packaging</p> <p>1.1.3 Conduct training and capacity building for the civil servants on the importance and roles of packaging</p> <p>1.1.4 Develop a draft national legislative framework on packaging for the government of Ukraine</p> <p>1.1.5 Hold a validation workshop for the developed national legislative framework</p>
<p>2. Self-sustainable packaging service center with a technical portfolio established</p>	<p>2.1: Established Center of Excellence on Packaging (CEP)</p>	<p>2.1.1 Define the corporate set-up and the business model of the CEP</p> <p>2.1.2 Design the technical service portfolio of the CEP</p> <p>2.1.3 Conduct capacity building and specialized training to the staff of the CEP</p> <p>2.1.4 Provide the needed equipment to the CEP to conduct packaging testing.</p> <p>CEP badly needs some fruitful collaboration with other relevant business associations – Ukrainian Association of Bakers, Union of dairy processors, Ukrainian berry and fruit association, etc.</p>
<p>3. SMEs comply with national and international regulations</p>	<p>3.1: Improved packaging practices of SMEs part of the targeted value chain/s</p>	<p>3.1.1 Conduct technical training to SMEs along the priority value chain/s to improve their packaging practices</p> <p>3.1.2 Provide the necessary equipment to relevant SMEs for packaging testing along the priority value chain/s</p> <p>3.1.3 Provide technical training on the use of new packaging and labeling equipment</p> <p>3.1.4 Disseminate the results and best practices from the targeted value chain/s enterprises</p> <p>3.1.5 Conduct study tours and twinning arrangements with local and international SMEs</p> <p>3.1.6 Create B2B linkages between relevant SMEs</p>

4. Innovation in the packaging sector fostered	4.1 Advanced packaging innovation among the private sector and academia	<p>4.1.1 Scale the academia packaging competition in Ukraine</p> <p>4.1.2 Scale the private sector packaging competition in Ukraine</p> <p>4.1.3 Commemorate the winners of the packaging competition through apprenticeships/on-site training, research grant distribution, and mentorship</p>
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Indicative Project budget: The budget for the project depends on factors like the number of target enterprises, duration, and geographical coverage. To carry out the mentioned technical assistance activities, an estimated budget of around 3-4 million EUR is required. This amount does not cover investment support cost and recurring costs, which must be secured separately to achieve the stated objectives and impacts.

Annex – Club Packagers Report

To collect information from manufacturers of packaging materials, packaging, packaging equipment, and companies offering printing services, we designed a questionnaire. Subsequently, this questionnaire was distributed to 79 packaging companies in Ukraine after negotiations with the enterprise managers. The questionnaire consists of five sections. The first section provides an overview of general company information, including its type of production activity and details about its employees. The second sub-

section addresses the company's production activities before and after February 24, 2022. The third section identifies and details the company's post-February 24, 2022 problems, including aspects like business development, potential relocation, interactions with state authorities, and required assistance. The fourth section includes questions about the company's export activities and the challenges it encounters. The fifth section focuses on the company's future business development plans. This includes potential expansions or changes in activities, the adoption of innovative 'green' technologies, financial resource requirements, personnel training plans, limitations in current operations, and necessary assistance. Thirty-seven companies responded to the questionnaires, accounting for 47% of the total number of companies to which questionnaires were sent. The questionnaires were completed by eleven company owners (30%), sixteen directors (44%), five top managers (13%) and five other employees (13%).

7. ACTION PLAN FOR POULTRY AND EGG PRODUCTS

A. SITUATION ANALYSIS

Prior to the war, Ukraine ranked as the 20th largest producer and the 7th largest exporter of poultry products. Industrial chicken production in Ukraine is concentrated. The largest producer, MHP SE, controls over 70% of the market. Five mid-size companies control between 2 and 6 percent of the market each, with the remaining share split among many very small producers. Most producers are vertically integrated. They grow their own crops, produce feed, and grow and slaughter chicken.

Production: The majority of Ukrainian chicken production is concentrated in central, central-western, and northern Ukraine. Although ongoing warfare did not impact poultry production directly, some Central Ukraine based midsize producers are situated in close proximity to the frontline. None of MHP's production facilities situated in north-central and west-central Ukraine were directly impacted by the warfare.

In spring 2022, military actions and temporary occupation disrupted the operation of one of Europe's largest poultry farms in the Kherson region, capable of housing up to 6 million poultry. Consequently, the sales volume of domestically produced products decreased, impacting the overall financial results of the industry. Household production decreased in 2023 predominately due to the Russian occupation of some Ukrainian territories in the south and east.

Several farms in Donetsk, Kherson, Sumy and Mykolayiv regions were destroyed including the largest and most modern local poultry farms near Kherson (Chornobayivka) which was left without electricity, and consequently 4 million of poultry were lost in December 2022.

Egg production decreased already before the war by 40% during 2020-2021 due to high feed prices making some farms unprofitable. But Ukraine remains one of the largest producers of eggs in the world.

Consumption: Most of Ukraine's poultry production is for the domestic market, and poultry will remain the cheapest protein available to the population. Poultry consumption saw a significant decline in 2022 due to refugees leaving the country and the loss of consumers in occupied territories. With a slowdown in population outflow by November 2022, chicken meat consumption started stabilizing. Despite an additional 420 thousand people leaving by July 2023, the impact on consumption was relatively small. The Ukrainian currency, after a major devaluation in 2022, stabilized and regained some strength by July 2023. While this is expected to aid in domestic poultry consumption recovery, the impact may not be significant due to ongoing risks of further devaluation⁵⁸.

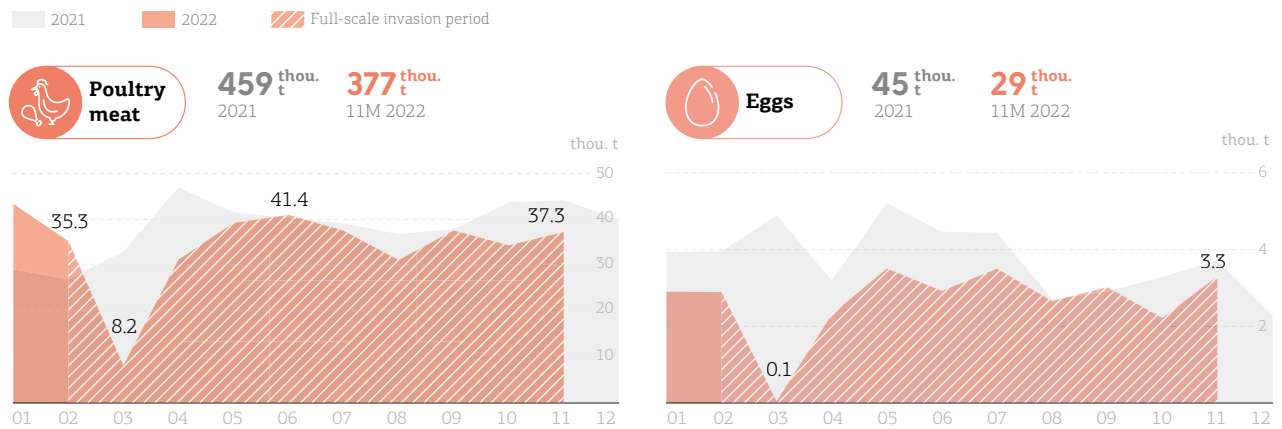
Export: Ukraine remained the seventh largest global poultry meat exporter in 2022 and is likely to retain its place in 2023 and 2024. Exports will continue to be focused on the two major destinations: the EU and the Middle East. Both markets are lucrative and set high import requirements both in terms of food safety and quality of exported chicken meat and products. Poultry and egg export can be seen under Figure 19.

About 40% of industrial poultry production is exported, chilled or frozen. The removal of quotas and tariffs in 2023, led to an increase of 50% of poultry export, compared to 2022. After the war started, the EU border, and the border with neighboring Moldova, became the only available export route for Ukrainian poultry products. Because of this, the majority of Ukrainian poultry meat exports became subject to EU transshipment rules. All major Ukrainian poultry meat exporting facilities were already EU-approved, so new regulations did not impact their export flows. Additional smaller Ukrainian facilities became EU-listed throughout 2022 and 2023, with their total

⁵⁸ Source: USDA: Ukraine, Poultry and Products Annual, August 1, 2023

FIGURE 19 - POULTRY AND EGG EXPORT

Source: State Statistics Service of Ukraine



number reaching nine in April of 2023. The European Commission (EC) and Ukraine also reached an agreement on the transit of products from non-EU approved facilities. Moreover, three egg processing enterprises and five egg packaging centers have received approval for export to the EU single market. Removal

of quotas and tariffs led to an increase of 45% of egg export to EU in 2023, compared to 2022.

Due to continued trade regime liberalization, the EU will replace the Middle East as Ukraine’s major export destination market in 2023.

THE IMPACT OF THE WAR

Serious disruption of the key production and processing processes caused by blackouts and power outages. Difficulties in preparation of feed and harvest fodder crops due to active warfare, agricultural machinery destruction and mining of fields. Veterinary drug prices increased.

Specific support programs. At the time of compiling this report there are a number of livestock specific support programs identified such as the “Improvement legislation, control and awareness in the field of food safety, animal health and welfare in Ukraine” Project⁵⁹. The Project is EU funded and aims to build capacity of the Ministry of Economic Development, Trade and Agriculture of Ukraine and the State Service of Ukraine on Food Safety and Consumer Protection in designing and implementing key reforms under the Association Agreement and the Deep and Comprehensive Free Trade Area (DCFTA) between Ukraine and the EU, improving the food safety control system, veterinary and animal welfare to ensure compliance with EU requirements⁶⁰. Other support projects and initiatives which are relevant to the green recovery of the sector as a whole are listed in the roadmap⁶¹.

Outlook 2024, all war-related production and market challenges are expected to remain in place: the industry will face increasing production costs, energy shortage, domestic consumption decline due to the refugee crisis, and logistical export problems. The most important factor that helps to balance all the negatives also remains in place. Ukraine’s feed price remains significantly below the world price. Feed cost is responsible for up to 70 percent of poultry production costs.

59 Source: State Service of Ukraine on Food Safety and Consumer Protection

60

61 Green recovery roadmap: table 3: active projects and initiatives related to green recovery.

B. INDUSTRY SPECIFIC KEY CHALLENGES AND OPPORTUNITIES

Poultry producers in Ukraine continue to operate in the context of the war, adjusting their strategies to the realities of the current situation.

KEY CHALLENGES

The primary challenges identified by the surveyed⁶² poultry processors in conducting business during wartime are as follows:

1. The outflow of personnel because of migration or conscription, affecting 83% of respondents, stands out as the predominant challenge.
2. Followed by logistic and energy supply problems, noted by 67% of the respondents.
3. Problems with raw materials and production inputs 58% of the respondents and a decrease in demand, impacting 50% of those surveyed, are also significant.

The sector is confronted by the following challenges:

The animal welfare legislation, which will come into force in 2026, requires enormous investments for improving poultry housing. In June 2014, the EU and Ukraine signed a deep and comprehensive free trade agreement (DCFTA), as part of a wider association agreement. The provisional application of the DCFTA started almost two years later, in January 2016, considerably liberalizing trade flows between both countries. Since then, there has been a substantial increase in exports to EU, with little progress made in animal welfare. On February 18, 2021, after more than 5 years of DCFTA implementation, Ukraine adopted a ministerial order to align with the EU acquis on animal welfare. The legislation's main weakness from EU point of view is that it will only be enforced from 2026, this to allow enough time for the poultry industry to make the necessary animal welfare investments in the industry.

Until recent the poultry industry of Ukraine has been protracting the implementation of the animal welfare legislation as part of the DCFTA. Most producers are unaware of the urgency and scale of investment required to comply with EU-equivalent animal welfare standards, essential for maintaining equal access to EU markets and fulfilling DCFTA commitments.

Food safety and control. There is a general lack of confidence by European competent authorities in the findings of tests conducted by Ukrainian laboratories responsible for official control. More efforts and support are needed on Ukraine side to strengthen its auditing rules and capacity. Without appropriate controls, new standards are unlikely to trigger the needed changes in the livestock sector and give the necessary trust.

Waste disposal and recycling is still a problem for the poultry and egg industry, especially for the small and medium size enterprises.

Water consumption and the availability of adequate clean water pose challenges for the poultry meat industry, which requires substantial amounts of (hot) water. For instance, producing 1 chicken breast (300g) necessitates a significant 1170 liters of water, while 1 egg (60g) requires 200 liters. Access to clean and sufficient water is becoming increasingly difficult for enterprises, particularly those closer to the frontline. The current situation, coupled with the effects of climate change leading to lower and erratic precipitation levels, may result in implications of water scarcity. This could emerge as a future challenge that has the potential to hinder the development of poultry production at both industry and backyard levels.

62 Source: UNIDO 2023 survey. Characteristics, problems and needs of enterprises in the food industry of Ukraine

Poultry production has a high level of automation but an aged machinery park. According to the results from a UNIDO survey⁶³, 67% of the enterprises surveyed indicate to have implemented automation for complex processes. In contrast, the average ma-

chinery and equipment utilized in poultry production are considered outdated. 67% of enterprises reported equipment aged between 5 and 10 years, while 58% of respondents indicated possessing machinery over a decade old.

KEY OPPORTUNITIES

Increase exports. There are opportunities for export to EU and other countries as there is a healthy global demand. Trade barriers have been lifted, especially in the sector of poultry meat production and especially for enterprises where the infrastructure meets European standards and fulfills the DCFTA commitments. All the large and most semi-large enterprises (9-15 in total) have been approved for exporting poultry to the EU over the past year. To expand the export base with additional medium-sized enterprises that meet the EU requirements, more effort is required from the sector itself. Additionally, there is a need for support in understanding the EU requirements.

Enhance poultry and egg packaging, labeling, tracking and tracing. This includes retail product packaging development, food labelling, retail packaging, obtaining export licensing and certification, ensuring compliance with food safety and packaging standards as required under the DCFTA commitments and new rules for eggs packing and labelling coming in force in 2028. Food packaging related challenges are addressed in more detail in the sector wide “packaging industry development” action plan.

The existing traceability laws and regulations in Ukraine is a good basis to build on which can boost poultry export in EU retail. Introduce practical and tested traceability applications of blockchain in the supply chain for improving the traceability of data. These include best practices in the tracking and tracing of poultry from "farm-to-fork"

Enhance food quality and safety official control. Strengthen and build capacity of the food safe control, auditing rules and laboratory competencies

in line with DCFTA and EU accession. Furthermore, increase food safety and quality assurance at local market/ Ensuring that food business operators. Consumers are provided with correct food information. Food safety and control related challenges are addressed in more detail in the sector wide “food quality and control” action plan.

Drive the adoption and active implementation of regulatory changes within the industry.

- The forthcoming animal welfare legislation, effective in 2026, demands significant investments for enhancing poultry housing. Leveraging the deep and comprehensive free trade agreement (DCFTA) signed between the EU and Ukraine in June 2014, actively engage with Ukraine to adapt its legislation in line with revisions under the EU Farm to Fork Strategy. This proactive approach aims to prevent ineffective investments, particularly in enriched cages as the trend is to transit to non-cage production systems. Tap into the European Commission, DG SANTE best practices for non-cage egg production systems pilot project⁶⁴. These best practices will provide practical support to egg producers to encourage them convert from cage systems to non-cage systems.
- Provide support for the upcoming implementation of new rules governing chicken eggs, scheduled to take effect in 2028. These rules encompass requirements for grading, labeling, packing, traceability, record-keeping, and information provision to consumers and other food business operators. Ensure consumers receive accurate food information.

63 Source: UNIDO 2023 survey. Characteristics, problems and needs of enterprises in the food industry of Ukraine.

64 Source: [Best Practice Hens – Best practices for egg production in non-cage systems](#)

- Expand and actively implement the program "Requirements for poultry farming without the use of antimicrobial agents" across a broader

ACCELERATE GREEN RECOVERY OPPORTUNITIES BY

- **Unlocking the vast potential of biogas/biomethane production**, converting chicken manure into biogas for electricity generation and heating in primary production facilities, incubators, slaughterhouses, and cutting plants. Capitalize on the financial viability of biomethane production, with projects showcasing a 50-90% IRR (internal rate of return) and rapid payback. Utilize chicken manure as a cost-free raw material, selling biomethane at a premium to the national gas pipeline. Additionally, create organic/natural fertilizers from residues of biogas/biomethane production, chicken feed residues, and chicken manure, meeting the high demand in Ukraine.
- **Enhance energy independence to counter power outages** by solarization, installing panels on poultry house roofs, prioritizing primary production. Promote renewable and smart energy

spectrum of establishments, contributing to sustainable and responsible practices in the poultry industry.

solutions like biogas production, and energy recycling. Advocate for improved regulatory environments in electricity project design, grid plug-in, waste management and treatment for enhanced sustainability. Support Implementation of the Carbon Certificates and Carbon trade (for export).

- **Promote water efficiency**, to reduce water consumption and re-use (waste) water.

Advance modernization. Promote modernization, especially for smaller enterprises, and enhance the equipment and machinery of facilities that are already well-automated with software. Modernizing processing facilities allows for the production of higher-value products per unit of weight/volume, and where possible replace manpower for machine power.

SECTOR SWOT ANALYSIS

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> Ukraine has some of the largest poultry producers in EU with a strong competitive position. Ukraine's feed price remains significantly below the world price. Feed cost is responsible for up to 70 percent of poultry production costs. The poultry meat world market size is estimated at 361.89 billion USD in 2024, and is expected to reach 386.76 billion USD by 2029, growing at a CAGR of 1.34% during the forecast period (2024-2029)⁶⁵. 	<ul style="list-style-type: none"> Most small and medium producers are unaware of the urgency and scale of investment required to comply with EU-equivalent animal welfare standards, essential for maintaining equal access to EU markets and fulfilling DCFTA commitments. Export to EU is dominated by a few super large and some mid-size enterprises, which makes the export base rather small and vulnerable, especially in times of the ongoing war. The poultry production is highly concentrated with one single enterprise is good for 70% of sector output
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> Good opportunities for export to EU countries due to the reduction of trade barriers, as well as to third countries. Expand the use of biogas as heating energy for primary production (incubators, etc.) as well as for slaughterhouses and cutting plants, where the big consumption of hot water is needed. Use biogas for production of electric power. Expand the use of solar energy, especially on the roofs of poultry housing to support directly the primary production. Increase water efficiency and conservation 	<ul style="list-style-type: none"> Power outage, increases prices for electricity and fuel. Non-compliance in time with EU-equivalent animal welfare standards could potentially undermine DCFTA support from EU farmers. Mistrust of the competent authorities of European countries in the results of studies of Ukrainian laboratories. Potential EU import ban. 5 Eastern European EU member states petitioned the European Commission (EC) to expand the existing import ban for grains and oilseeds to include poultry. So far no decision taken by EC Ongoing Russian invasion and continuous Russian missile attacks on Ukrainian civilians, energy infrastructure and commercial enterprises, which disrupts electricity supplies, processing, supply chains, logistics and outflow of workforce.

⁶⁵ Source: Mordor Intelligence

INDICATIVE INDUSTRY INVESTMENT NEEDS

Through engaging with the private sector and industry association representatives, indicative investments needs are identified within the following main strategic areas relevant for the food industry: 1) Carbon Footprint Reduction 2) Waste Reduction and Re-

cycling, 3) Renewable Energy 4) Energy Efficiency 5) Water Conservation 6) Packaging Innovation/upgrading 7) Reconstruction of the destroyed enterprises. Table 10 showcases the green recovery investment needs for poultry and egg processing industry.

TABLE 10 - GREEN RECOVERY INVESTMENT NEEDS FOR **POULTRY AND EGG** PROCESSING INDUSTRY, IN USD MILLION.

Source: Ukrainian Poultry association

CO ₂ FOOTPRINT REDUCTION	WASTE REDUCTION, RECYCLING	RENEWABLE ENERGY	ENERGY EFFICIENCY	WATER CONSERVATION	PACKAGING UPGRADE	TOTAL
40.5	108.1	175.7	189.2	74.3	36.5	624

C. INDICATIVE PROJECTS

INDICATIVE THEORY OF CHANGE

This will summarize how the project intends to solve key issues and opportunities from Section B and achieve its objectives.

KEY CHALLENGES / OPPORTUNITY	ACTIVITY	OUTPUT	OUTCOME 1-2 YR	OUTCOME 3-6 YR	IMPACT
	ACTIONS TAKEN		CHANGES OBSERVED		
Potential to increase exports	Implement and comply with EU regulations and requirements regarding animal welfare, packaging, labeling etc.	Key regulatory and policy challenges are identified and addressed	# of enterprises approved to export poultry meat products to EU	Increase in export to EU	An enhanced and greener poultry sector, compliant to export regulations and free trade commitments with EU, Producing with increased use of green energy and under water management regime.
Challenges from a regulatory and policy nature				A Poultry sector compliant to DCTFA commitments	
Lack of trust in food safety competent authorities regarding auditing	Enhance food quality official control and auditing procedures	Product quality enhanced, and compliance increased	Increase trust from export countries in food control competent authorities and auditing and control procedures		
Outflow of personnel	Promote further mechanization and automation	Increased processing efficiency	Increased and enhanced automation		
Energy supply problems	Promote energy-efficient technologies	# number of enterprise adopt and implement green energy solutions	Increase of renewable energy share in processing	A sector operating at lower CO ₂ emissions and with increased water efficiency	
High Water usage and future water scarcity	Promote water efficient technologies	# number of enterprise adopt and implement water management	Increased water efficiency and conservation		

INDICATIVE PROJECT OVERVIEW

PROJECT RATIONALE

Prior to the war, Ukraine held the position of the world's number seven exporter of poultry meat in 2021. However, the war severely reduced the number of domestic consumers due to migration and conscription and further reduced the spending power. It is expected that the domestic poultry consumption is currently stable with insignificant growth in 2024 as the population adjusts to the new economic environment and the Ukrainian economy tries to rebound with an estimated 3.5% GDP growth in 2023, after a 29% GDP drop in 2022⁶⁶. The short term and long-term market expansion for the poultry sector relies heavily on export markets, with EU leading, followed by the middle east.

The EU export market is substantial and expanding, but it is also becoming more demanding, with increasing quality requirements under a variety of trade agreements and quality and packing regulations. Furthermore, as part of the EU accession process the industry in Ukraine needs to modernize

PROJECT GOAL

The goal for the green recovery of Ukraine's poultry industry is to enhance the sector using efficient and sustainable processing technologies to create dependable and high-quality food products while ensuring, animal welfare, food safety standards and minimize and reduce the environmental impact.

with green and energy efficient technologies to reduce the environmental impacts. To address these requirements and enhance resilience to war-related shocks, investments in processing are necessary. Simultaneously, increase compliance to trade and quality audit obligations (e.g. the animal welfare regulations), achieving energy independence and transitioning to energy- and water-efficient, producing renewable sources like biofuel and biomethane is crucial to maintain competitiveness in processing with a shift towards green energy and a low carbon emission industry.

Under the “Build Back Better” principle, the Green recovery goals and objectives for the selected food industries are established for 2024-2029 and are aligned with the national priorities and the long-term vision in the sector, which will be reflected in the Agriculture and Rural Development Strategy once it is fully developed and finalized.

To help achieve this goal, the action plan will ensure that: 1. Promoting and diversifying export trade of proper quality, packaged, labelled and certified products to EU and other markets (Outcome 1); 2. The poultry sector is increasingly resource efficient and energy independent with improved energy efficiency and use of renewable sources (Outcome 2); and 3. The poultry sector is increasingly water efficient (Outcome 3).

66 Source: Worldbank, Ukraine country overview, December 2023

PROJECT OBJECTIVE:	To enhance the poultry sector using energy efficient and sustainable production and processing and packaging technologies to create dependable and high-quality food products while ensuring DCTFA and other export standards while minimizing and reducing the environmental impact.	
Project Outcomes - Components	Project Outputs	Project Activities
1. Exports increase, as the sector actively implements and complies with EU and other trade agreements and regulations.	1.1 key regulatory challenges are identified and addressed (incl. ease of doing business).	1.1.1 Identify key requirements and implications for animal welfare compliance. 1.1.2 Define a roadmap for implementation of the animal welfare roll-out 1.1.3 Support sector wide EU regulation awareness campaign 1.1.4 Support in implementation of new rules on the requirements for chicken eggs standards
	1.2 Product quality enhanced, and compliance increased	1.2.1 Organize awareness training on processed poultry and chicken egg product quality requirements for EU market 1.2.2 Support sector players to quality standard audit readiness. 1.2.3. Ensure participation of poultry enterprises in “Food Quality and Control action plan” 1.2.4 Ensure participation of poultry enterprises in “Food Packaging industry” action plan. 1.2.5 Support knowledge exchange between industry association and EU equivalent (the European Poultry Association, AVEC)
2. The sector is energy independent and increasingly energy efficient from renewable sources	2.1 the Sector is adopting green processing and packaging technologies	2.1.1 Identify main issues related to transforming the SME to green energy. 2.1.2 Identify and research relevant technologies and equipment 2.1.3 Develop cost -benefit models to demonstrate the feasibility of green technology and the cost savings achieved 2.1.4 develop and conduct a training/ technology transfer program for the enterprises.
	2.2 X number of SME processors are supported to apply for green energy incentives and subsidies	2.2.1 Design, agree upon and plan an SME investment support program. 2.2.2. Support SME program implementation in accessing green investment incentives (incl. EU green deal)
3. The sector is increasingly water efficient	3.1 the Sector is adopting water management technologies	3.1.1 Identify and research relevant technologies and equipment. 3.1.2 develop and conduct training/ technology transfer programs for the enterprises.

INDICATIVE PROJECT BUDGET

The budget for the project depends on factors like the number of target enterprises, duration, and geographical coverage. To carry out the mentioned technical assistance activities, an estimated budget

of around 2-3 million Euros is required. This amount does not cover investment support cost and recurring costs, which must be secured separately to achieve the stated objectives and impacts.

8. ACTION PLAN FOR VEGETABLE OIL PRODUCTS

A. SITUATION ANALYSIS

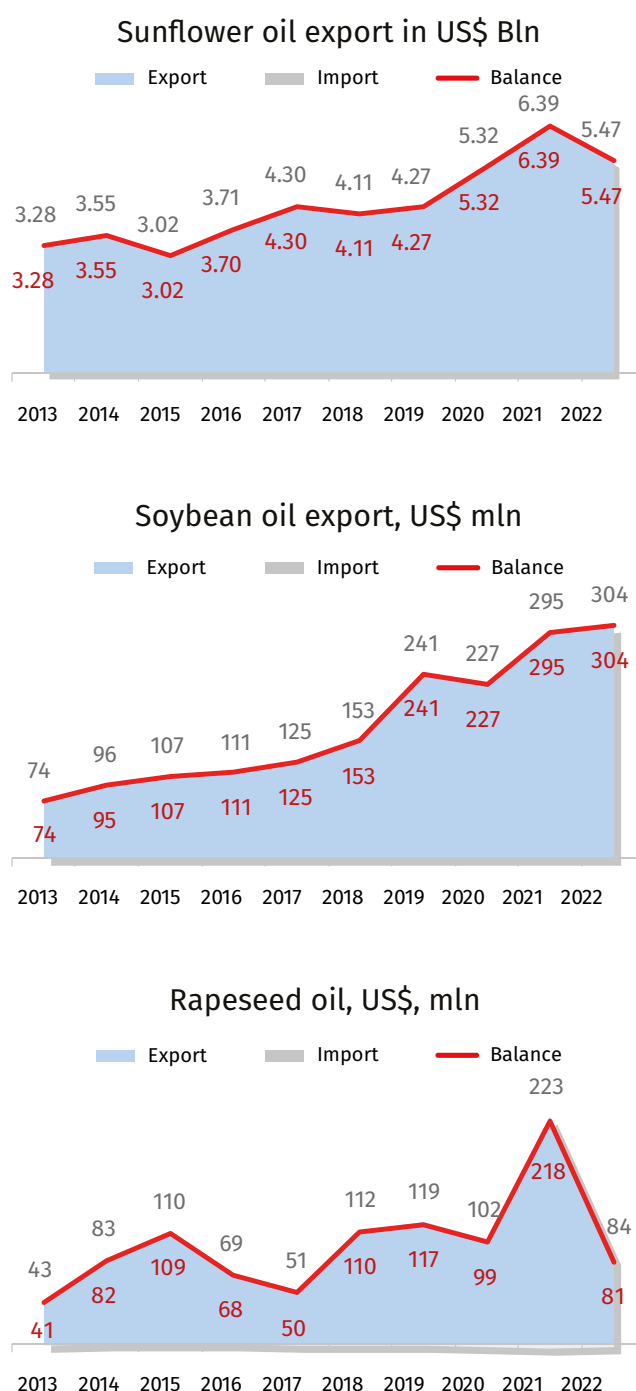
Ukraine has a thriving vegetable oil sector, characterized by robust production, extensive export markets, and technological advancements. The vegetable oil sector in Ukraine is dominated by the following products: Sunflower oil, Soybean oil and Rapeseed oil. Sunflower oil is by far the most important accounting for 90% of the total volume of processed oils in Ukraine. The oil processing sector is concentrated, with 45 professional factories responsible for 90% of production. In 2022, the oil processing industry had an estimated 597 active enterprises, down from 682 in 2021. Of these, 25-30 plants produce retail oil under 30-40 brand names. The sector is represented by Ukroliyprom Association which is an associative body that coordinates the actions of oil crushing plants in Ukraine. The industry relies on modern technologies and sources raw materials from Ukraine. The sector is well advanced in implementing food safety systems. Between 80-100% of the enterprises surveyed⁶⁷ indicate full implementation of quality systems (predominantly the HACCP system). At least 37% of the enterprise hold certification according to the ISO 22000/DSTU ISO 22000 standard.

Ukraine is the top exporter of vegetable oils worldwide. In 2021, Ukrainian sunflower oil exports accounted for 40% of global exports, while soybean oil made up 1.91% (ranked 10th globally) and rape seed oil comprised 1.03% (ranked 8th globally). The EU countries are one of the major importers of Ukrainian vegetable oils. Figure 20 showcases the vegetable oil export, including soybean and rapeseed oil.

Traditionally, 92 percent of raw agricultural products were exported by sea, a mode of transport now constrained by the ongoing conflict. Despite these logistical disruptions, oilseed exports saw a year-over-year increase in the 2022-23 financial year.

FIGURE 20 - VEGETABLE OIL EXPORT, INCLUDING SOYBEAN AND RAPESEED OIL

Source: Agricultural export portfolio of Ukraine. GrowUkraine 2022



67 UNIDO 2023 Enterprise survey

In the year 2022-2023, several key factors significantly influenced the sunflower seeds and oil markets as well as exports in Ukraine. The period saw a diminished harvest of sunflowers in 2022, coupled with a considerable surplus of sunflower seeds and oil from the 2022/23 season, initially perceived as a challenge. However, these surplus stocks effectively offset the decline in the 2022 sunflower harvest and, surprisingly, played a crucial role in facilitating industry operations. This surplus became instrumental in boosting sunflower oil exports during the 2022/23 season. Additionally, the notable increase in sunflower oil production in 2023 was driven by a substantial rise in domestic sunflower seed processing, spurred by a significant reduction in sunflower seed exports (unprocessed), amounting to 71% overall, with a particularly significant decrease of over 90% in the months of September to December 2023 compared to the same period in 2022.

For the 2023/2024 outlook, Ukroliyprom experts forecast an 18.8% increase in the production of all oil crops in Ukraine. This forecasted growth is attributed to a 12.1% expansion in the sowing area and a 5.7% average increase in productivity, primarily driven by a significant 15% rise in sunflower production, fuelled by favourable weather conditions. Despite an anticipated rise in production for the 2023/24 season, there is an

OILSEEDS MARKET PRICES

Global supply improves with price hitting a three-year low. In 2023, the yearly averages of all three price indices decreased compared to the previous year. Oilseeds and oil meals indices contracted by 19.2% and 4.2%, respectively, while the vegetable oil index saw a significant 32.7% drop, reaching a three-year low due to improved global supplies.⁶⁹ Figure 21 showcases the monthly international price indices for oilseeds, vegetable oils and oilmeals/cakes.

VEGETABLE OIL EXPORT 2022-2023

Source: Ukroliyprom Association 2023

Ukraine exported from September 2022 to August 2023, 5.6 million tonnes of **sunflower oil, marking a 25% increase** from the previous season, the Sunflower meal exports also surged, by a 27.3%.

Soybean oil exports in the 2022/23 financial year **rose by 18%**, and soybean meal exports increased by 19.4%.

Intensified rapeseed processing in 2023 led to a remarkable 20-fold increase in the export of rapeseed oil in July-August compared to the corresponding period in 2022.

expected decrease of 7-8% in the total sunflower oil production compared to 2022/2023. In 2023/24, exports are expected to decrease, given that surplus stock for processing is not anticipated this season. The export of sunflower oil is expected to decrease by 9% to 5.1 million tons and the export of refined sunflower oil is likely to decline by 8.6% (to 500,000 tons)⁶⁸.

The majority of enterprises active in oil processing has a high level of automation. According to the results from a UNIDO survey⁷⁰, in soy oil processing 80% of the enterprises surveyed indicate to have implemented automation for complex processes, followed by sunflower oil processors (56%) and rapeseed processors (50%). These figures suggest a considerable level of automation and modernization on one hand, while highlighting the potential for further advance-

68 Source: APK-Inform - <https://www.apk-inform.com/uk/analytics/oil/1539612>.

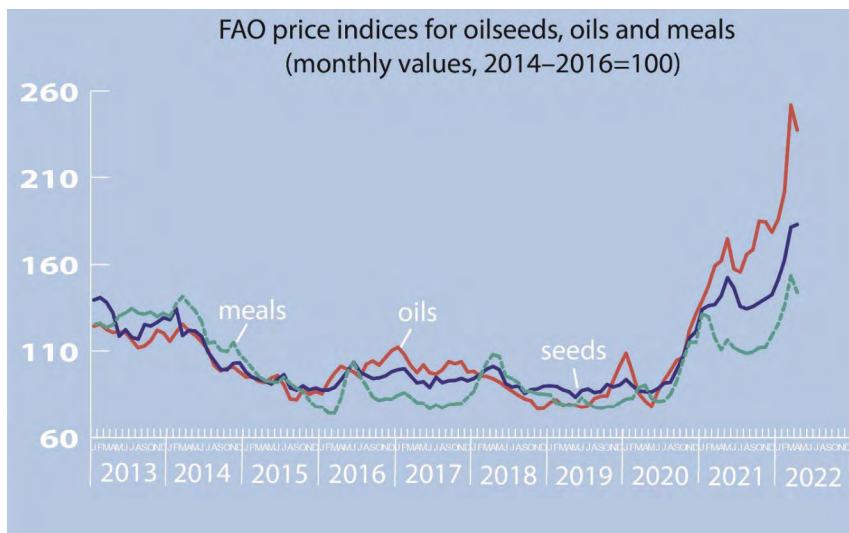
69 Source: FAO, Monthly price update oilseeds, oils and meals, January 2024.

70 Source: UNIDO 2023 survey. Characteristics, problems and needs of enterprises in the food industry of Ukraine.

ments, particularly for Small and Medium-sized enterprises involved in the processing of sunflower and rapeseed oil.

At the time of compiling this report there were no vegetable oil specific support programs identified. The ones which are relevant to the green recovery of the sector are listed in the roadmap⁷¹.

FIGURE 21 - THE MONTHLY INTERNATIONAL PRICE INDICES FOR OILSEEDS, VEGETABLE OILS AND OILMEALS/CAKES



71 Roadmap: table 3: active projects and initiatives related to green recovery.

B. INDUSTRY SPECIFIC KEY CHALLENGES AND OPPORTUNITIES

Sunflower oil producers in Ukraine continue to operate in the context of the war, adjusting their strategies to the realities of the current situation.

KEY CHALLENGES

The primary challenges identified by the surveyed⁴ food processors in conducting business during war-time are as follows:

1. Logistic issues, noted by 80-100% of the respondents, stand out as the predominant challenge.
2. Following closely is the outflow of personnel because of migration or conscription, affecting 70-80% of respondents.
3. Energy supply problems are also significant, impacting 30-50% of those surveyed.

The challenges related to unreliable energy supply are more prominent under the small and medium sized enterprises, this because the large enterprises (with annual revenue above 50 million USD) have the resources to react more quickly when the shelling of utility infrastructure began in 2022 and are therefore more energy independent than their smaller sized peers. The war led to the complete shutdown of businesses and the theft or destruction of equipment in the occupied areas. Approximately, 10-15 of the top 45 enterprises stopped completely since 2022.

The logistics issues are many and complicated, including blocked or damaged trade routes, higher fuel costs, various trade barriers and the need for more expensive export methods. While the Black Sea grain corridor was crucial, land exports constituted about 23% of total exports, with recent focus shifting to Danube ports. The outbreak of war in Ukraine and the blockage of ports meant sunflower seed was aggressively sold for export and the main buyers of Ukrainian raw materials were EU countries, while demand for sunflower from local European farmers fell sharply, leading to dissatisfaction and protests. In

April 2023, the five EU countries bordering on Ukraine imposed a temporary ban on the import of grain, oilseeds and other unprocessed agricultural products from Ukraine. This ban was lifted by the end of 2023 but the situation remains uncertain and new border blockages are to be expected. Facing these challenges in export unprocessed products, businesses like Epicenter Agro, Terra, Kulinichi, and Yuriya are considering investments in domestic processing facilities⁷². Investing in processing facilities allows for the production of higher-value products per unit of weight/volume, reducing reliance on logistics and a more optimal associated transport cost. Furthermore, with the EU imposing restrictions on specific grain and oilseed imports from Ukraine, businesses are increasingly motivated to invest in processing. As the EU did not, restrict the import of processed foods. The situation at various border crossing is changing rapidly with blockages ending and new ones starting. For Ukraine it is essential that borders to EU remain open and roads into Europe accessible for Ukraine trucks.

The departure of personnel has created challenges for enterprises, resulting in a reduction in processing and export support. Another 11% of businesses mentioned a lack of qualified personnel, hindering efforts to enhance efficiency and expand exports. The personnel shortage is particularly acute due to factors such as women leaving the country and men being involved in the war. Therefore, there is a pressing need to expedite the automation of processes wherever feasible to replace manpower with machines.

⁷² Source: World Bank. 2023. Private Sector Opportunities for a Green and Resilient Reconstruction in Ukraine: Vol.2 Sector Assessments.

Currently, the surveyed enterprises indicate having a variety of equipment from diverse origins and ages. The majority of the sunflower and soya processing enterprises have equipment aged over 5 years, in contrast the majority of rapeseed processors sur-

veyed report equipment under 5 years of age and thus assumed using more modern technology. To excel in oil processing and refining investments in modern and energy efficient machinery and equipment are required.

Challenges from a regulatory and policy nature are:

- Regarding soybeans, there is a need to comply with the EU Deforestation Regulation and obtain Deforestation Certification.⁷³
- Compliance with EU regulations: Ukrainian exporters may encounter challenges in aligning with the European Union's strict regulations, particularly in areas such as food safety, quality standards, and environmental sustainability. Meeting EU phytosanitary and quality standards for vegetable oil products is crucial, and compliance with these standards may pose challenges for the smaller Ukrainian exporters.
- Due to the substantial cost of electricity/biogas cogeneration projects, businesses find it significantly burdensome to allocate considerable

time and effort to secure project permits/approvals, connect to the electricity grid, and apply for and obtain state support through green feed-in tariffs. The overall system of permits/approvals for electricity grid connections requires deregulation to improve the ease of doing business, not only for the vegetable oil industry but also for other sectors.

- Although the EU is a single market, the individual member states have sometimes additional technical regulations. These technical barriers, such as differing product standards or labelling packing and recycling requirements, can present challenges for exporters seeking to meet EU market specifications.

KEY OPPORTUNITIES

Further increase domestic oil processing and refining. Currently the vast majority of exported vegetable oil is in a crude form, further processing and refining is done in the respective target market. An encouraging 25-30 plants (from a total of 760 plants active in 2021) produce retail oil under 30-40 brand names which constitutes of a 4-5% of the total oil processing enterprises. Ukraine significantly boosted grain oil exports in the season 2022-23 for sunflower oil +25.4% (– incl. refined sunflower oil (+7%)), for soybean oil +18% and a remarkable 20-fold increase for rapeseed oil. The processing experienced an intensification after neighboring EU countries restricted Ukrainian sunflower imports. Furthermore, higher-value products per unit of weight/volume is more optimal to better sustain export disruptions and increased logistics cost. This combined with a surplus

in raw material in the 2022-23 season, focus on oil refining was seen as one of the ways to solve current problems and continue the operation of the crushing industry. There is further scope for sunflower oil processing and refining, as the market demand is expanding with an CAGR of +6%.

The global rapeseed market is projected to register a CAGR of 3.3% during the forecast period (2021-2026). Apart from the food industry, rapeseed oil has a major application in personal care products such as oils, creams, and lotions. Rapeseed oil is also used as a carrier oil that is used topically.

The Soybean Oil Market size is estimated at USD 93.17 billion in 2024, and is expected to reach USD 155.86 billion by 2029, growing at a CAGR of 10.84% during the forecast period (2024-2029)⁷⁴.

73 Source: European Parliament legislative resolution of 19 April 2023

74 Source: Mordor Intelligence

Soybean oil's low cost, easy availability, and eco-friendly nature make it widely used in food, industry, and feed sectors, including applications like caulks and mastics for adhesives and sealants.

Diversify and increase value addition of vegetable oil. To meet the growing market demand and its diverse applications of sunflower, soya and rapeseed oil investment in processing techniques, efficiency and value addition is required.

Value addition in vegetable oil involves enhancing its economic value and consumer appeal through processes like refining, bleaching, deodorizing, hydrogenating, fractionating, or blending with other ingredients (fortifying). Additionally, creating by-products such as biodiesel, soap, cosmetics, or animal feed contributes to value addition.

To boost value addition in Ukraine's vegetable oil industry, it is important to:

- Investing in research and development to improve production and processing efficiency, quality, and innovation, meeting consumer preferences and reducing costs enhancing the competitiveness of Ukraine product on the world market.
- Diversifying the product portfolio with specialty oils, organic oils, non-GMO oil, Linoleic sunflower oil, functional oils, and nutraceuticals to increase competitiveness and tap into new market opportunities. For example, Phosphatide concentrate, a by-product of oilseed processing and oil production, serves as a valuable raw material for producing lecithin in the food and confectionery industry, as well as for compound feed and feed additives, like soya protein concentrate.
- Support packaged vegetable oil (for retail) and establish comprehensive export value chains. This includes retail product development, marketing, food labelling, retail packaging, obtaining export licensing and certification, ensuring

compliance with food safety standards, adhering to DCFTA⁷⁵ requirements, and meeting EU accession and regulation criteria. Food packaging related challenges are addressed in the sector wide “packaging industry development” action plan.

- Building new and strong business relations for the various oils in EU and other export markets. This can involve implementing technology, quality control measures, and effective communication channels to streamline the entire process and enhance overall product quality and safety.

Establishing robust and sustainable value chains connecting producers, processors, traders, and consumers to improve coordination, communication, and product quality and safety.

Promote the adoption of energy-efficient technologies and promote the utilization of energy systems based on renewable sources. This aims to enhance the energy independence of SMEs, strengthening their resilience against potential future shocks and interruptions in the energy supply. Support implementing cogeneration of energy, a practice that efficiently utilizes both electricity and thermal energy sources (for example, sunflower husk boilers). This approach enhances overall energy efficiency, reduces energy waste, and lowers production costs.

Advance modernization. Promote modernization, especially for smaller enterprises, and enhance the automation of facilities that are already well-equipped. Modernizing processing facilities allows for the production of higher-value products per unit of weight/volume, and where possible replace manpower for machine power.

In a significant development, the Ukrainian and Polish governments entered into an agreement in September 2022 to establish a pipeline with the capacity to transport 2 million tons of Ukrainian vegetable oil each year to Poland for export via the port of Gdansk.

⁷⁵ The Deep and Comprehensive Free Trade Areas are free trade areas established between the European Union, and Georgia, Moldova, and Ukraine

SECTOR SWOT ANALYSIS

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> Ukraine is one of the world leaders in Vegetable oil processing and export. Quality control systems are widely implemented and enterprises are regularly audited. Sunflowers are versatile, used to produce cooking oil, meal, and confectionery products from the same varieties. The oil, known for its high oleic and linoleic acids, is beneficial for heart health by reducing harmful cholesterol levels. The increased global focus on health has led to a rise in the popularity and production of sunflower oil. Specifically, linoleic sunflower oil, comprising 69% polyunsaturated essential fatty acids, is favoured in much of Europe for its neutral taste that enhances the flavour of food during cooking. 	<ul style="list-style-type: none"> The current installed processing capacity is stable in the last 5 years and is insufficient to increase substantially the crushing of oil seeds without substantial investments. The average installed equipment for soybean and sunflower processing is moderately outdated and would benefit from modernisation to energy efficient versions able to process and refine a variety of oil products, at a competitive price Export to EU is dominated by a few super large enterprises, which makes the export base rather small and vulnerable, especially in times of the ongoing war.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> There is a strong and growing demand for various vegetable oils, with more diverse applications for food, feed and industrial use. The global Sunflower Oil Market size is estimated at USD 35 billion in 2024, and is expected to reach USD 48 billion by 2029, growing at a CAGR of 6.05% during the forecast period (2024-2029)⁷⁶. Growing consumer demand for non-GMO and lower-saturated fat foods that meet dietary restrictions, such as vegan, kosher, or halal foods, and which offer a variety of health benefits. As a result, sunflower oil, non-GMO soybean and rapeseed oil consumption is on the rise among consumers seeking non-GMO products The increase usage of sunflower oil in bakery and confectionery products. Sunflower husk can be used for biofuel and for production of pellets. 	<ul style="list-style-type: none"> Trade restrictions/embargos/roadblocks, tariffs, and non-tariff barriers can limit access to export markets. The sector further growth relies on exports, so disruptions in trade routes and or agreements can have a negative impact. Ongoing Russian invasion and continuous Russian missile attacks on Ukrainian civilians, energy infrastructure and commercial enterprises, which disrupts electricity supplies, processing, supply chains, logistics. Oil seed prices are closely linked to the largest share in the mix and that is Palm oil and Soybean oil Potential decline in oilseed production as a result of the war, because of inaccessibility of farmlands as they are close to the frontline or in confiscated land and potential in the long term a reduction of arable land, because of mines, and contamination from warfare.

⁷⁶ Source: Mordor Intelligence

INDICATIVE INDUSTRY INVESTMENT NEEDS

Through engaging with the private sector and industry association representatives, indicative investments needs are identified within the following main strategic areas relevant for the food industry: 1) Carbon Footprint Reduction 2) Waste Reduction and Re-

cycling, 3) Renewable Energy 4) Energy Efficiency 5) Water Conservation 6) Packaging Innovation/upgrading 7) Reconstruction of the destroyed enterprises. Table 11 showcases the green recovery investment needs and potential for the vegetable oil industry.

TABLE 11 - GREEN RECOVERY INVESTMENT NEEDS AND POTENTIAL FOR **VEGETABLE OIL** INDUSTRY, IN USD

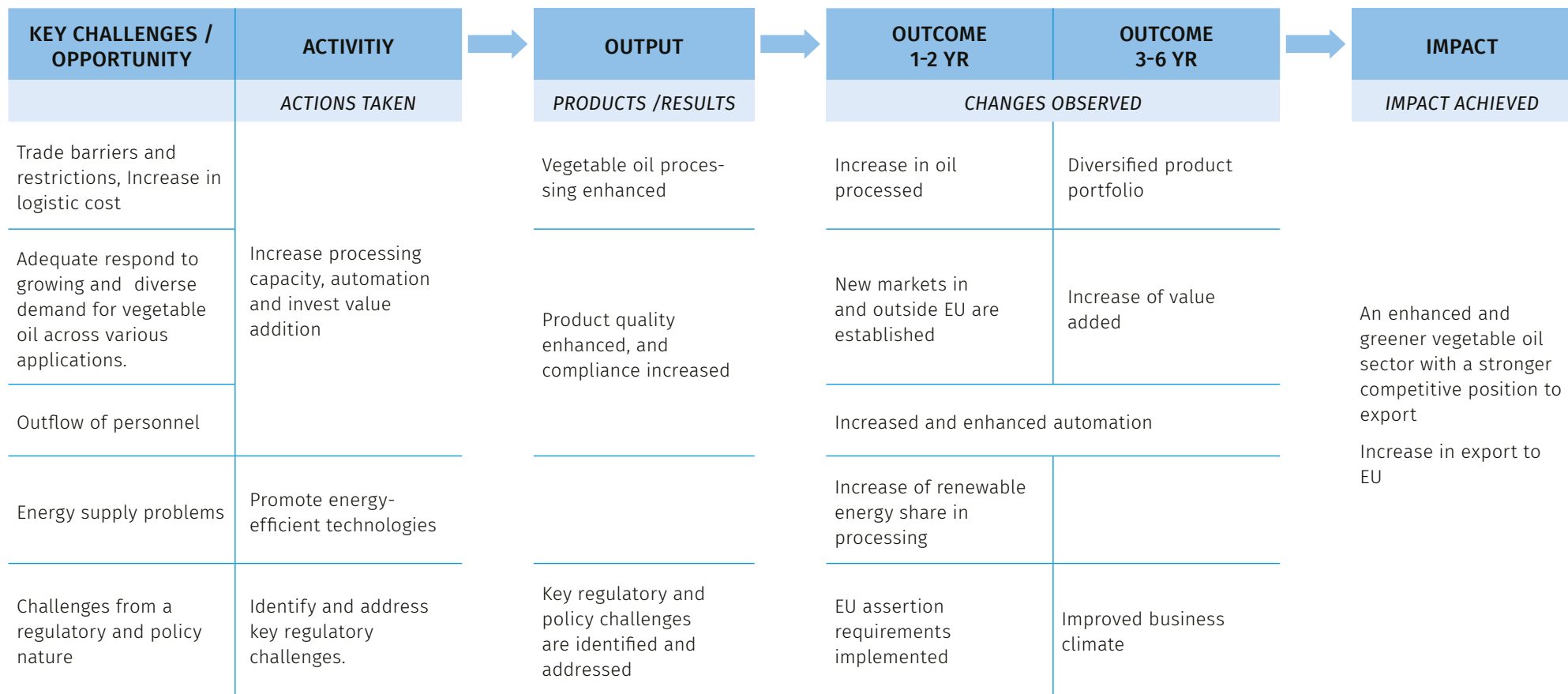
Source: UNIDO estimations based on interviews with market players, and assuming some 10 enterprises will be able to implement these projects, as many have already done proper modernizations.

CO ₂ FOOTPRINT REDUCTION	WASTE REDUCTION, RECYCLING	RENEWABLE ENERGY	ENERGY EFFICIENCY	WATER CONSERVATION	PACKAGING UPGRADE	TOTAL
Yes	Yes	200 000 000		20 000 000	Yes	220 000 000

YES means investment need was identified during discussions with stakeholders, but not yet quantified.

C. INDICATIVE PROJECTS

INDICATIVE THEORY OF CHANGE



INDICATIVE PROJECT OVERVIEW

PROJECT RATIONALE

Prior to the war, Ukraine held the position of the world's number one exporter of seed oils in 2021. Sunflowers were a crucial export commodity for Ukraine, contributing significantly to the national economy as a vital source of foreign currency earnings. The primary export destination was the EU, with a focus on oil seeds rather than processed oils.

However, the war disrupted the traditional export routes, leading to a major shift towards overland and overseas alternatives, utilizing various ports and transport methods. This change significantly increased the complexity and cost of logistics. In response to the heightened expenses, the industry intensified the processing of sunflower, soybean, and rapeseed into oil for export.

PROJECT GOAL

The goal for the green recovery of Ukraine's food industry is to revive, reconstruct, and enhance the Vegetable oil sector using efficient and sustainable processing technologies to create dependable and high-quality food products while ensuring food safety standards and minimize environmental impact.

To contribute to the achievement of this objective the action plan will ensure that: 1: The vegetable oil sector actively produces new vegetable oil products

The vegetable oil market is substantial and expanding, but it is also becoming more demanding, with increasing quality requirements and a diverse range of applications. To address this trend and enhance resilience to war-related shocks, investments in processing are necessary. Simultaneously, achieving energy independence and transitioning to energy-efficient, renewable sources is crucial to maintain competitiveness in processing with a shift towards green energy and a low carbon emission industry.

Under the “Build Back Better” principle, the Green recovery goals and objectives for the selected food industries are established for 2024-2029 and are aligned with the national priorities and the long-term vision in the sector, which will be reflected in the Agriculture and Rural Development Strategy once it is fully developed and finalized.

with enhanced quality to cater to diverse markets in and outside EU (Outcome 1); 2. The sector successfully entered new markets in and outside EU (Outcome 2); 3. The vegetable oil sector is increasingly energy independent with improved energy efficient (Outcome 3); and 4. The key regulatory challenges are identified and addressed while successfully implementing EU assertion requirements, improving export to EU (Outcome 4).

PROJECT OBJECTIVE:	To revive, reconstruct, and enhance the Vegetable oil sector using efficient and sustainable processing and packaging technologies to create dependable and high-quality food products while ensuring food safety standards and minimize and reduce environmental impact	
Project Outcomes - Components	Project Outputs	Project Activities
1. The sector actively produces new vegetable oil products with enhanced quality to cater to diverse markets.	1.1: R&D and science in vegetable oil processing enhanced	<p>1.1.1 Support knowledge exchange with EU and WW knowledge centers together with Ukrainian scientific and research Institute of oils and fats, National Academy of Agrarian Sciences of Ukraine</p> <p>1.1.2 Support feasibility studies on new technologies and veg oil applications.</p> <p>1.1.3 Support technical pilots based on feasibility outcomes</p> <p>1.1.4 Develop, plan and conduct a training/ technology transfer program for the enterprises.</p>
	1.2 Product quality enhanced, and compliance increased	<p>1.3.1 Conduct market need assessment for promising EU markets and products</p> <p>1.3.2 Research, identify and support product processing pilots at selected enterprises.</p> <p>1.3.3 Support product innovation awards to stimulate product development</p>
	1.3 Diversified Product Portfolio adapted to market demand	1.1.3 Support technical pilots based on feasibility outcomes
2. New markets in and outside EU are established	2.1: New Business Relationships to tap into new opportunities for growth	<p>2.1.1 Identify and analyze main issues hampering market penetration.</p> <p>2.1.2 Organize/participate in relevant international trade fairs in the target markets</p> <p>2.1.3 Participate in business meeting events</p> <p>2.1.4 Implement awareness training on packing requirements, EU country specific preferences and regulations in vegetable oil packing. Engage and collaborate with Packagers Club (a non-profit NGO) on packaging.</p> <p>2.1.5 Support export product promotions in close cooperation with Ukroliyprom Association and the European Vegetable Oil Association (FEDIOL) and other relevant industry entities.</p>
	2.2 Improved communication and coordination between producers, processors, traders, and consumers.	<p>2.2.1 Design, plan and implement a coordination and communication campaign, with existing communication technology to improve coordination between producers, processors, traders, and consumers.</p> <p>2.2.2 Identify and Support trade facilitation technology</p>

3. The sector is energy independent and increasingly energy efficient from renewable sources	3.1 The Sector is adopting green processing technologies	<p>3.1.1 Identify and analyse main issues related to transforming the SMEs to use green energy.</p> <p>3.1.2 Identify and analyse best available modern technologies / solutions and equipment. Develop cost -benefit models to demonstrate the feasibility of green technology and the cost savings achieved.</p> <p>3.1.3 Disseminate obtained knowledge, support knowledge transfer and technology adoption.</p>
	3.2 X number of SME processors are supported to apply for green energy incentives and subsidies	<p>3.2.1 Inventory green technology relevant SME support programs.</p> <p>3.2.2 Develop partnership with support program advice to enable Sector specific inclusion</p> <p>3.2.3. Support SME in accessing green investment incentives (incl. EU green deal)</p>
4. The key regulatory challenges are identified and addressed while successfully implementing EU assertion requirements, improving export to EU	4.1 Key regulatory and policy challenges are identified and addressed incl. ease of doing business	<p>4.1.1 Inventory and assess impact of current policy and regulatory framework on the Vegetable oil sector and its full utilization of green potential, prepare gap analysis and recommendations</p> <p>4.1.2 Support development of state policy, strategy and implementation plan to speed up green energy transformation</p> <p>4.1.3 Provide capacity training for industry association members in advancing industry agenda and lobby.</p>
	4.2 EU assertion requirements are implemented	<p>4.2.1 Inventory and assess impact of EU assertion on the Vegetable oil sector.</p> <p>4.2.2 To meet the EU certification requirements, initiate and implement a training/technology transfer program for the enterprises.</p>

INDICATIVE PROJECT BUDGET

The budget for the project depends on factors like the number of target enterprises, duration, and geographical coverage. To carry out the mentioned technical assistance activities, an estimated budget

of around 2-3 million Euros is required. This amount does not cover investment support cost and recurring costs, which must be secured separately to achieve the stated objectives and impacts.

9. ACTION PLAN FOR SUGAR INDUSTRY

A. SITUATION ANALYSIS

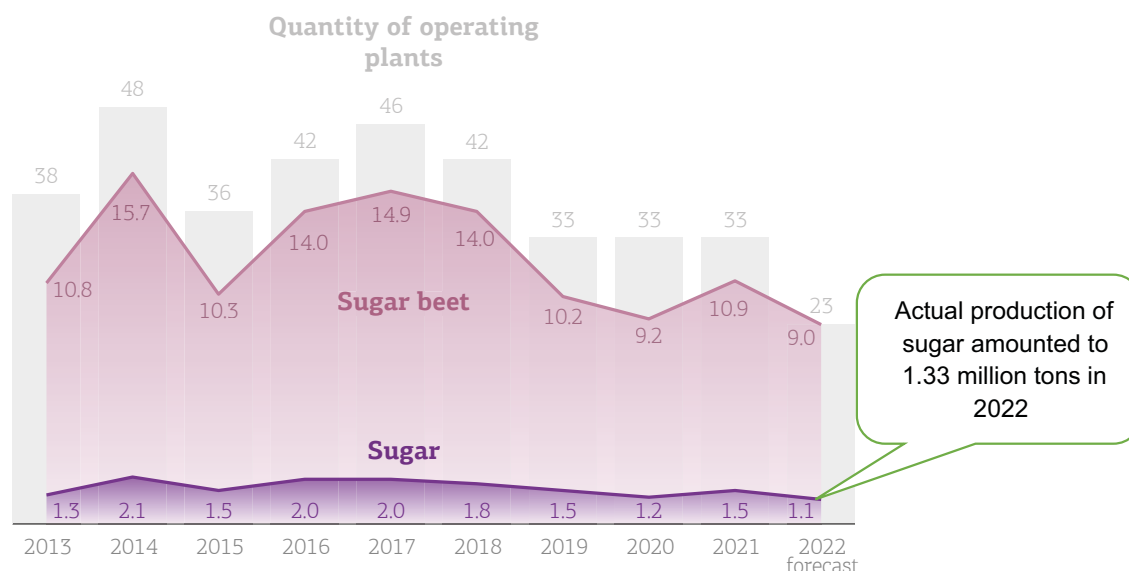
Basic facts about the industry. Ukraine has currently about 30 sugar processing enterprises⁷⁷ (down from 45 in 2017), which typically work about 2 months per year (being idle for 10 months), buying sugar beet harvest from local farmers and processing it. Enterprises may have their own sugar beet production (vertically integrated agricultural holdings) or work with farmers on a “given for processing”/tolling scheme. Historically, the reduction of sugar plants was caused by poor competitiveness/operational efficiency, by higher costs of energy component (40-45% share, natural gas, coal, fuel oil use) and sugar beet costs (cost increased from ~ UAH 55,000 three years ago to ~ UAH 75,000 per hectare in 2023). Higher natural gas/oil fuel/coal prices may result in a less competitive white sugar. Cost of sugar beet

takes about 60% in the cost of sugar production, the remaining is a processing cost, where the largest part is energy component (40-45%).

Overall, country sugar beet harvest amounts to about 10 million tons, out of which 1.33 million tons of sugar was produced in 2022 (120 thousand tons less than in 2021)⁷⁸, while 2023 sugar production forecast is 1.9 million tons⁷⁹ (growth during the war time). Sugar production is a factor of sugar beet harvest, the more the seeding area with favorable climate conditions the better the total sugar output. Domestic consumption is rather stable, estimated at ~1 million tons (each year). So, the remainder can be exported. Figure 22 showcases the sugar beet and sugar production dynamics.

FIGURE 22 - SUGAR BEET AND SUGAR PRODUCTION DYNAMICS

Source: Agribusinessukraine.com



77 Source: <https://www.ukrinform.ua/rubric-economy/3754559-v-ukraini-startuvav-novij-sezon-cukrovarinna.html>

78 Source: <https://agroportal.ua/blogs/virobnictvo-cukru-2023-prognoz-ta-ocinka-sezonu>

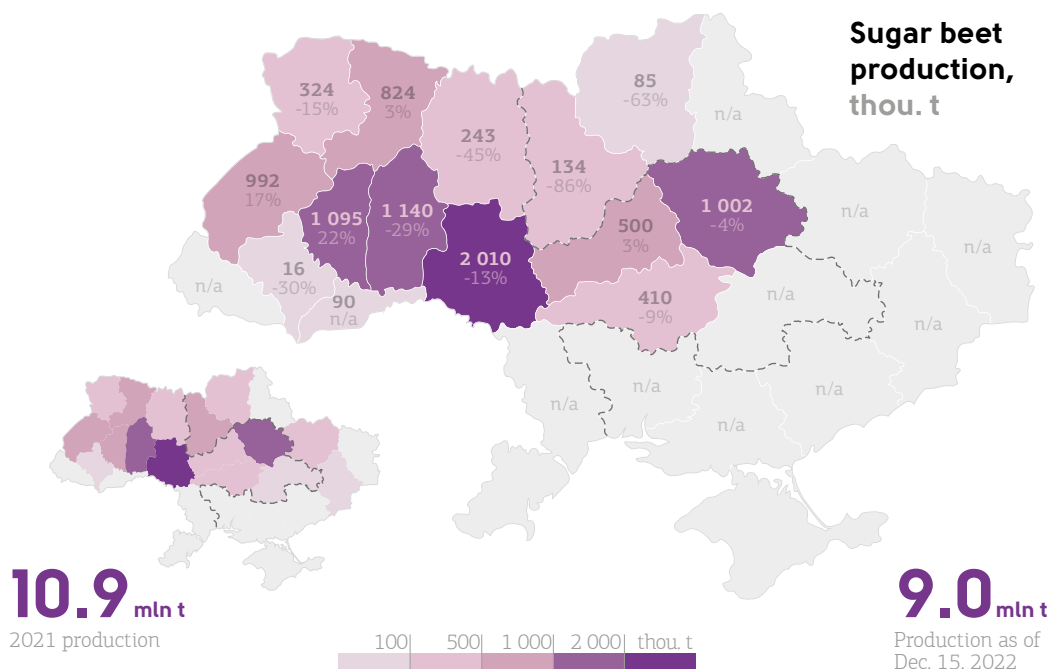
79 Source: <https://interfax.com.ua/news/economic/965557.html>

As for the regional structure, sugar beet production and sugar production are locally well interconnected and are located in the Western and Central regions

for the most part, as can be seen under Figure 23. Western regions have not been directly affected by the Russian full-scale invasion.

FIGURE 23 - GEOGRAPHY OF SUGAR BEET PRODUCTION.

Source: Agribusinessukriane.com



Overall, sugar production in Ukraine has grown during the war thanks to favourable agroclimatic conditions, helping farmers with better sugar beet yields. In 2023 sugar beet farmers got yield of about 50 t/ha, and grew sugar beet profitably despite the inputs cost rise.

Nonetheless, the ongoing war presents challenges to Ukraine's potential of sugar industry. It brings uncertainty and hinders investment in sugar plant modernization, cleaner production projects, in potential bioethanol and electricity production obtained from sugar pulp further processing.

The global consumption of sugar amounted to about 176 million metric tons in 2022/23, and is projected to increase to about 180.05 million tons by 2023/2024⁸⁰. According to FAO, global sugar consumption is set to expand by 0.8% in 2023/24, a slowdown compared to the growth recorded in the previous 3 seasons. The increase is mainly driven by population growth, while the slowing world economy and high sugar prices are expected to partly offset the upward effect of population on demand. FAO's preliminary forecast for the 2023/24 season pegs world sugar production at 175.5 million tonnes, down 3.6 million tonnes, or 2%, from the 2022/23⁸¹. Long term outlook estimations of sugar market will be to reach 219.2 million tons by 2032, exhibiting a growth rate (CAGR) of 1.4% during 2024-2032⁸².

80 <https://www.statista.com/statistics/249681/total-consumption-of-sugar-worldwide/>

81 https://www.fao.org/3/cc8589en/cc8589en_sugar.pdf

82 <https://www.imarcgroup.com/sugar-manufacturing-plant>

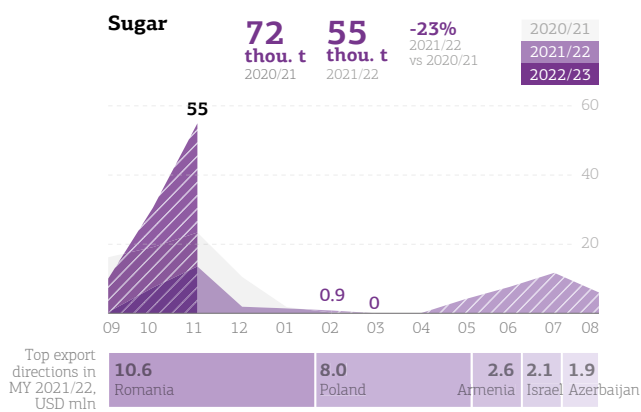
EXPORT

98% of Ukrainian sugar export went to EU countries in 2022. Ukraine's share in EU imports: 2020-2021 – 1%; 2022 – 15%.

In 2024 sugar exports are expected to be 320 000 tonnes to the EU countries (as per EU quotas for 2024, if introduced replacing free trade), which is about 17.7%

FIGURE 24 - SUGAR EXPORTS DYNAMICS AND TOP SUGAR EXPORT DESTINATIONS

Source: agribusinessukraine.com



In 2023, EU temporarily increased quota up to 500 000 tonnes for Ukrainian sugar, which made it attractive for Ukrainian sugar producers to export to the EU. On January 31, 2024, the European Commission officially proposed to extend for a year, until mid-2025, the free trade regime for Ukrainian exports⁸³. But it may not be as liberal as the previous 2 years. Quotas are most likely to be introduced for the most

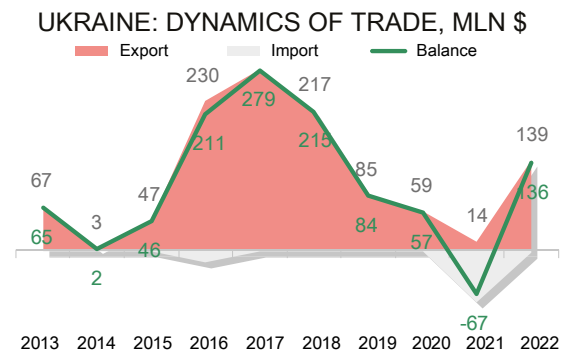
RELEVANT INDUSTRY SPECIFIC SUPPORT PROGRAMS

There is no state sugar support program in Ukraine. Before the full-scale Russian invasion, the government designed a concept to pay subsidy per 1 ha for sugar beet farmers to stimulate farmers to grow sugar beet with high cost of production, but due to the war this plan was not materialized.

of the 1.8 million tons estimated sugar production in Ukraine.

Sugar exports dynamics and top sugar export destinations are depicted on Figure 24 below.

FIGURE 25 - UKRAINE'S SUGAR TRADE DYNAMICS IN USD. SOURCE: GROW UKRAINE 2022



sensitive products – sugar, poultry, eggs. Talks are under way that sugar quota may be 320 000 tonnes.

Under changing quotas conditions, it is difficult for the Ukrainian sugar producers to develop sugar export market and invest for the long-term perspective due to instability, necessitating export market diversification.

However, EUR 12 million projects (as large investment projects) can receive state support – tax benefits, capital expenditure rebates, other privileges. It may be a useful and relevant state support, considering that renewable energy, energy efficiency, water conservation and modernization projects at sugar plants are capital intensive.

83 Source: <https://ua.news/ua/money/chez-yevropejski-obmezheniya-v-ukrayini-mozhut-zakritisya-tsukrovi-zavodi>

B. KEY CHALLENGES, OPPORTUNITIES AND SWOT

KEY CHALLENGES AND CONSTRAINTS

The sector is predominantly characterized by sugar plants with various levels of advancement. There are leading, modernized, sustainable sugar makers like Astarta, I&U Group (often financed by international financial institutions) which process sugar beet to extract higher sugar content (20%), often focusing

on exports. Less technologically advanced and old sugar plants can get minimal sugar content (14-15%) after processing, having less capacities to export. Ukrainian sugar industry has the following challenges:

ENABLING ENVIRONMENT, INFRASTRUCTURE CHALLENGES AND CONSTRAINTS

- 1. Enabling environment:** As Ukraine is moving toward the EU accession, the country needs to align its policies, standards and requirements with the EU ones, including but not limited to: A) Council Directive 2001/111/EC of 20 December 2001 relating to certain sugars intended for human consumption, Council Regulation (EU) No 1308/2013. Generally, Ukraine lacks a comprehensive strategy of sugar industry development, move towards better agricultural waste utilization, more energy efficient and circular sugar production, high sugar quality. B) with regards to large amounts of agricultural waste in sugar production (considered in the EU as animal feed), and high potential to produce renewable energy, granulated pellets and organic fertilizer from sugar pulp, Ukraine is expected to harmonize Ukrainian regulations/legislation with The European Union's Renewable Energy Directive (EU RED), particularly EU RED 2 (Directive 2009/28/EC) and EU RED 3 (Directive (EU) 2018/2001) on the promotion of the use of energy from renewable sources.
- 2. Changes in trade policies, quotas (especially in the EU),** tariffs, or market access can affect export flows and opportunities.
- 3. Food Safety and Quality:** Ukrainian state laboratories lack necessary equipment and methods to match/align with the EU standards/methods. In addition to laboratory tests and methods, the traceability system should be improved to be aligned with the EU requirements. Knowledge of the practical aspects of implementing traceability along the entire food chain in the sector needs to be improved. For this purpose, it is recommended to train and involve a group of specialists from appropriate associations in the sector. Food safety and Packaging related challenges are addressed in more detail in the sector wide Food quality and control Action Plan and Packaging industry Action Plan.
- 4. Ease of doing business:** Enterprises note complexity to plug into electricity grid. Compared to the neighbouring countries, it takes the longest time and cost for businesses to prepare, approve the electricity project to get all necessary permits, connect to the electricity grid, and obtain green tariff (if it is a renewable energy project). The same is equally applied to waste treatment, waste water treatment projects which are difficult and time consuming to prepare, approve with authorities, and set into motion, as enabling environment is not business friendly, and requires deregulation to make it faster, cheaper for business to operate. As for the green tariff, according to the past experiences, enterprises note: A) there is a risk that it can be changed, B) there may be delays or decrease in payments for the green energy.
- 5. Due to low institutional capacity,** there are unresolved challenges and constraints mentioned above. Also, there is lack of unified national green recovery sugar strategy, export and sugar value chain strategy, fruitful collaboration, constructive and ongoing policy and stakeholder dialogue between government, business associations, market players, local communities to address green recovery challenges, constraints, sugar sector issues on a continuous basis.

SME LEVEL CHALLENGES AND CONSTRAINTS

- 1. Technology:** The adoption and investment in energy and resources efficient technologies and advanced processing and packaging equipment are currently at a low level within the sector. However, according to APK Inform survey, control system was fully implemented by 100% of respondents' enterprises. As for level of automation - 75% of respondents' enterprises have complex automation, 25% have "1C" ERP system of various modifications.
- 2. Equipment age:** According to APK Inform survey, 63% of respondents have equipment up to 5-10 years old, 50% - 5-10 years, 38% - more than 10 years, which represents area for modernization/upgrade. (Origin of the equipment -88% bought it from the EU, 25% from Ukraine).
- 3. Marketing and market access knowledge:** Limited knowledge of foreign markets, market requirements, certification, food safety and insufficient resources for promoting and establishing market linkages with export markets pose significant challenges. On the other hand, EU quotas (and duties if quotas are exceeded) for Ukrainian sugar contribute to uncertainty to plan long term. According to APK Inform survey, enterprises exporting more than 30% of their sugar export their sugar to the EU (100%), 17% export to the Middle East countries.
- 4. Investment:** The ongoing war, short-term uncertainty, lack of access to long term affordable finance, and EU quotas are preventing enterprises from making investments into modernization/green modernization. Limited financial resources and investment support options further hinder investment efforts.
- 5. Martial law challenges of sugar plants⁸⁴:** According to APK Inform survey, 75% of respondents noted outflow of workers, 88% have problems with logistics, 75% have problems of energy supply, 25% noted demand decrease, 25% experience problems with raw materials.
- 6. Export problems of sugar:** According to APK Inform survey, 100% of respondents have logistics problems, 13% experience difficulties with certification, 38% - shortage of personnel, 13% - unattractive prices.
- 7. Standards/certification:** As there are many food production standards - for example, Organic certification, FDA, IFS Food, FSSC 22000, BRC, Halal, Kosher, etc. – often SMEs lack knowledge, skills to implement them, and technology to meet standards of target markets.

KEY OPPORTUNITIES

- 1. Food safety and control:** Enhancing the state control institutions and state laboratory quality in line with EU standards and methodologies can foster trust and compliance needed for success in the EU and other target markets. The existing traceability laws and regulations in Ukraine is a good basis to build on to help sugar exports in EU.
- 2. Product quality improvement and production expansion:** investing in advanced and sustainable sugar production methods to meet EU standards for both B2B and B2C markets can lead to higher quality products. Additionally, investments in sustainable packaging (incl. paper bags), marketing and promotion, business development have the potential to unlock export sales in the EU and other countries (provided the EU maintains large quotas or free trade). According to APK Inform survey, 13% of respondents would like to maintain current volumes of business, 75% of sugar makers plan expansion. Interestingly enough, out of those

84 One sugar plant appeared to have been in the illegally occupied territory in Kharkiv oblast (currently liberated), but Kharkiv oblast sugar plants don't work because there was no sugar beet seeding due to explosives objects and land mines contamination.

who plan expansion: 83% would like to undergo modernization, 67% would like to increase in production volumes⁸⁵, 17% would like to introduce capacities for new products.

3. **Packaging, Marketing and Branding:** only 1 Ukrainian sugar plant makes and sells sugar to final export retail consumers under own brand name “Radekhiv sugar” in proper packaging and labeling under proper food safety standards. Sugar quality, purity, and packaging standards may differ between countries, and exporters must meet these standards to ensure smooth exports. Most of Ukrainian sugar is exported in big bags/bags, not branded or intended for export customers, so proper packaging/labeling for exports may be an opportunity (paper bags), provided available quotas and favorable trade regime, while it will require investment into modernization, business and value chain development, certification, business development and promotion, deep knowledge of markets.

4. **International cooperation is a good opportunity for further SME development:** According to APK Inform survey, 75% of respondents’ enterprises consider the possibility of cooperation, 25% - do not rule out such a possibility. The desired types of assistance from international companies (% of those who formed such needs) include: 63% of respondents would like assistance to purchase equipment, 50% welcome assistance to enter/develop export markets, 50% would attract capital injection from international companies.

5. **Alternative/renewable energy supply systems:** With ongoing full scale Russian military invasion and electricity disruptions, sugar plants would like to have alternative/renewable energy supply systems for greener, cleaner, more efficient produc-

tion, which is a good opportunity to move away from coal, fuel oil, natural gas energy sources, decrease cost of electricity and carbon footprint. According to APK Inform survey, (% of those that analysed various options and plan to improve energy supply) 50% of respondents would like to have diesel generators as a back-up support, 100% would like to have solar panels, 100% would like to have sugar beet pulp power plants facilities (sugar beet pulp is the main by-product).

5.1. Sugar plant revenue increase potential, diversifying into biogas/bioethanol/electricity production/pellets and fertilizers. Potential of biogas/electricity production made of sugar pulp and residues remains partly untapped in Ukraine due to high investment cost and lack of investment, while EU targets to increase biogas consumption up to 35 billion m³ by 2030. There are about 10 operational projects in Ukraine already where biogas is produced from sugar beet pulp⁸⁶, so biogas is further used to generate electricity (supplied to the national grid with state established feed-in tariff). Biogas can be further processed and purified, so obtained bioethanol can be pumped and transported in the developed natural gas pipeline system in Ukraine or sold for export, however, sugar beet pulp is considered to be by-product (not waste), according to the EU RED 2 Directive, EU RED 3 Directive and their Annexes⁸⁷.

5.1.1. In general, the payback period of biogas projects can range up to about 10 years (so, the internal rate of return (IRR) can be about 10%). The project cost to produce thermal energy (steam) and electricity from sugar beet pulp with output of 6MW per hour costs ≈ EUR 23 million, according

85 If the EU market is limited by quotas, there are opportunities to find other markets – MENA region, Central Asia, Azerbaijan, etc, where Ukraine has already supplied its sugar to.

86 Source: “Bioenergy Association of Ukraine” (UABio). <https://uabio.org/en/about/>

87 Sugar beet pulp, corn silage are not in the list of materials. This means if biomethane is produced from sugar beet pulp, corn silage a good price cannot be received (equivalent of the natural gas price can be received, may be with a small premium, which is not enough for the biomethane feasibility).

to I&U Group. The lowest project cost estimated by one of the market players was EUR 3-4 million for biogas facility, and EUR 1.5 million for thermal power station, while MW capacity and payback period remain unidentified.

5.1.2. Residues from production can be further processed into granulated pellets or fertilizers, which is another opportunity.

6. **Water Conservation.** Modernization of the sugar beet washing process to increase sugar content output can also reduce water consumption by 60-70% (the estimated cost is ≈ EUR 5-6 million⁸⁸).
7. Due to lack of advanced/quality sugar production technologies and available relatively old equipment, there is an **opportunity for technology, R&D, technical/managerial skills development, equipment and knowledge upgrade and diversification.**

TABLE 12 - GREEN RECOVERY INVESTMENT NEEDS AND POTENTIAL FOR **SUGAR** INDUSTRY, IN USD MILLION.

Source: UNIDO estimations based on the interviews with some sugar makers and sugar association, and assuming 10 sugar plants (out of 30 total) will be able to implement these investment projects.

CO ₂ FOOTPRINT REDUCTION	WASTE REDUCTION, RECYCLING	RENEWABLE ENERGY	ENERGY EFFICIENCY	WATER CONSERVATION	PACKAGING UPGRADE	TOTAL
Yes	Yes	60	Yes	50	Yes (switching to paper bags)	110

YES means investment need was identified during discussions with stakeholders, but not yet quantified.

88 Source: Ukrainian Sugar Association.

SECTOR SWOT ANALYSIS

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Available large sugar beet production area (250 000 ha), which allows for high sugar production volumes and economies of scale (even though the area under sugar beet is declining). • Sugar beet production sector has adopted advanced technology and modern farming practices to improve yields and quality. • There are about 10 operational projects already in Ukraine where biogas is produced from sugar beet pulp. Biogas is further used to generate electricity (usually supplied to the national grid with state established feed-in tariff). 	<ul style="list-style-type: none"> • Competition from other sugar-producing countries such as Brazil, India, and China, where cane sugar is cheaper to produce. • Ukrainian sugar industry has generally low modernization and energy efficiency level (30-40% of sugar plants still use coal and oil fuel⁸⁹). Higher natural gas, coal and oil fuel prices result in a less competitive sugar. • The industry is somewhat constrained by the EU quotas (and import duties if quotas are exceeded), necessitating export diversification. • Due to the war, Black Sea transportation difficulties, logistics and logistics costs became bottlenecks for smooth exports. • Dairy/cattle market structure with dominance of households does not allow for full utilization of sugar pulp which cannot be sold to households due to absence of big volume sugar pulp market. So, sugar pulp, as a by-product, may be burned in a thermal plant to produce electricity to be sold under “green” tariff to the grid, which a few sugar makers do, while others lack expertise, green solutions, and investment to further use sugar pulp efficiently.

⁸⁹ Source: Ukrainian Sugar Association.

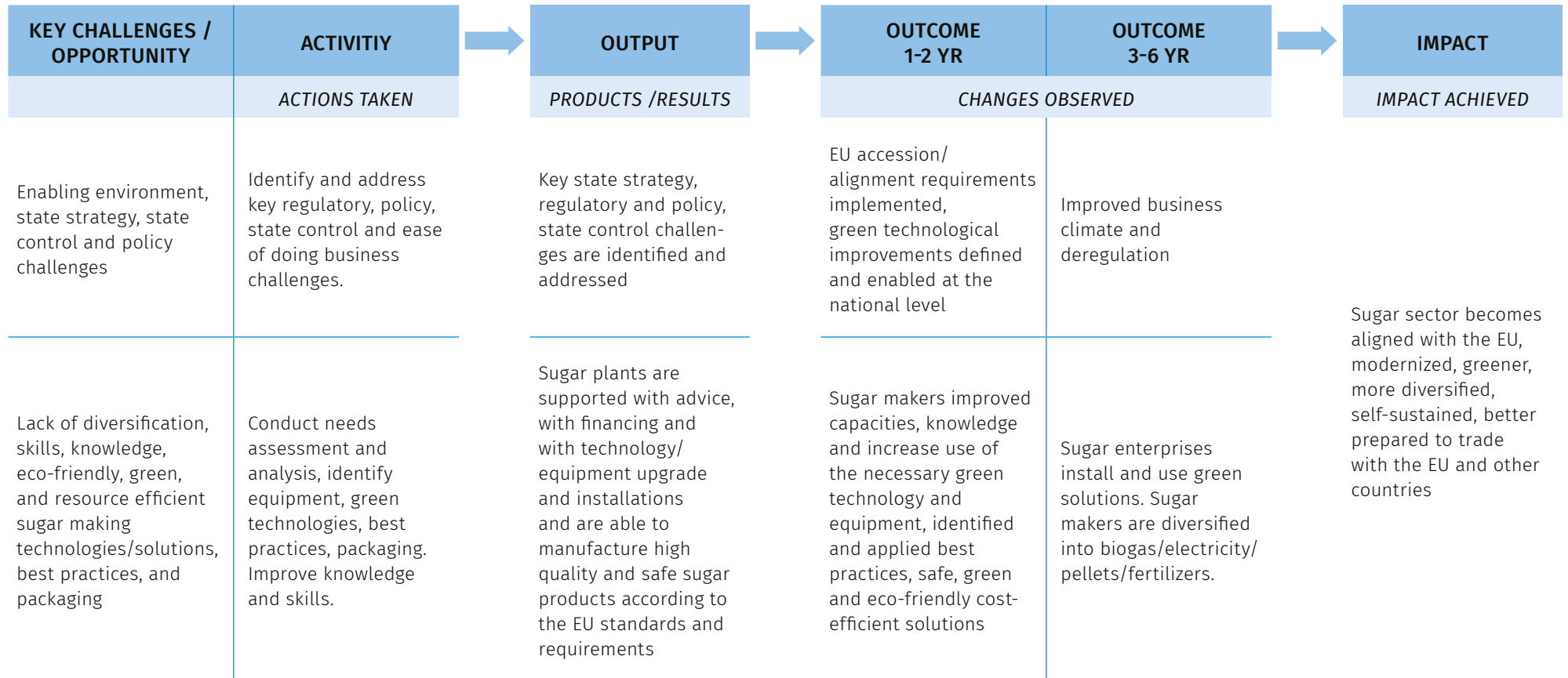
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • The EU is the second-largest sugar market in the world. If the EU market is limited by quotas, there are opportunities to find other markets – MENA region, Central Asia, Azerbaijan, Israel, Armenia, etc, where Ukraine has already supplied its sugar to. • 25 kg, 50 kg, big bags are typical packaging of Ukrainian sugar in the EU, mainly for confectionery industry, jam production industry, bakery, etc. So, the opportunity is to package Ukrainian sugar as per the EU requirements (paper bags), improving food safety and food quality standards. • Sugar plant revenue increase potential, diversifying into biogas/electricity/pellets/fertilizers production, reducing energy cost. • Sugar plant modernization into circular production, increasing sugar content output and water conservation at the same time. • Granulated pellets/fertilizer production as further utilization of sugar production residues. • If all diversification opportunities are materialized in biogas, electricity, pellets, fertilizer, Ukrainian sugar industry can be more competitive, reducing energy cost, more technological, value adding and resilient, more diversified, less dependent on quotas and on sugar prices. 	<ul style="list-style-type: none"> • Decreasing EU quotas for Ukrainian sugar is a threat, necessitating Ukrainian exports diversification. • Blockade of the western border of Ukraine disrupts Ukrainian exports, increases logistics costs, decreases reliability of transit and exports to the EU. • Consumption of sugar in the EU is estimated to drop to around 15.9 million tons in the long term by 2031 (source: statista), necessitating Ukrainian exports diversification. • Downward trend: Many countries aiming to reduce sugar intake per capita. • Unpredictable weather conditions: Weather conditions can significantly impact sugar beet production. Irrigation systems can help improve sugar beet yields and keep yields sustainable, but it may increase the production price as compared to countries which do not need irrigation. • Price Volatility: Sugar prices are subject to fluctuations; however, with good weather conditions sugar yields are increasing, leading to oversupply, decreasing sugar prices and affecting profitability of sugar producers, necessitating near perfect operational efficiency to be profitable, which underlines the importance to reduce energy cost component (40-45% of the sugar production cost). • Natural gas, coal, oil fuel price volatility: with cheaper gas, coal, oil fuel prices sugar plants' cost of production is lower, and sugar is more competitive. Higher energy resources prices result in a less competitive white sugar, necessitating energy resource efficiency, more efficient use of sugar pulp. • Unpredictability/instability of "green tariff" under which the producer is guaranteed to buy green energy from renewable sources to supply it to the electricity grid. If the government reduces green tariff (which happened) it may increase payback time after investment into green technologies have been made. • Price for biomethane and cost of production. If cost of biomethane in Ukraine is about EUR 800-900 per 1000 m³, while natural gas price is about EUR 350 per 1000 m³ it is unfeasible to produce biomethane unless Ukrainian biomethane is exported to the EU at EUR 900-1200 per 1000 m³. Export of biomethane is currently not possible due to unsettled issue of biomethane customs clearance to transport it abroad.⁹⁰

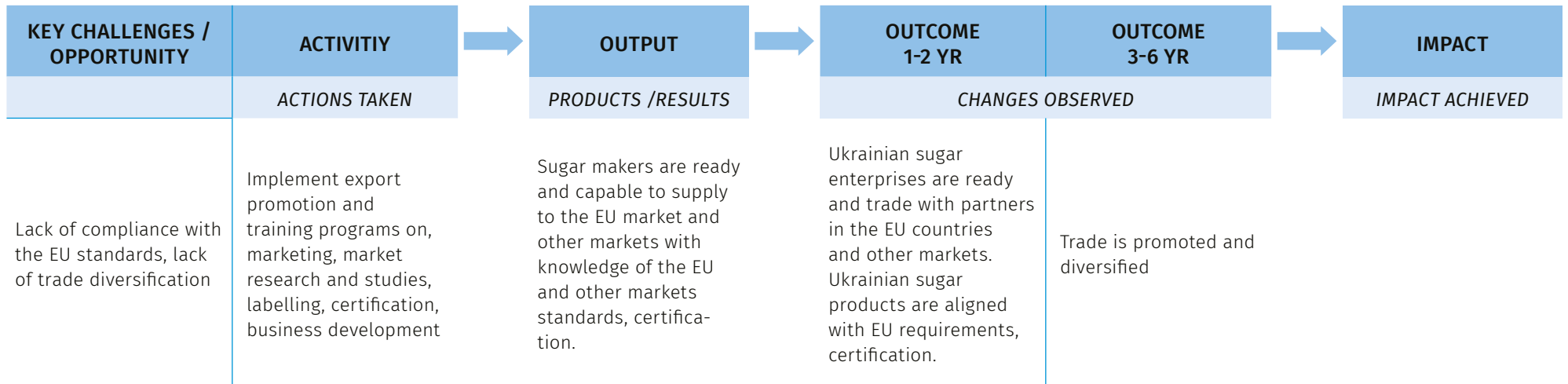
90 <https://agroportal.ua/news/novosti-kompanii/biometanovi-zavodi-v-ukrajini-zupinilis-virobnictvo-nevigidne>

C. INDICATIVE PROJECTS

INDICATIVE THEORY OF CHANGE

This will summarize how the project intends to solve key issues and opportunities from Section B and achieve its objectives.





INDICATIVE PROJECT OVERVIEW

PROJECT RATIONALE

Being an important industry for the country with about 30 sugar plants⁹¹, Ukraine recorded an overall sugar production of about 1.9 million tons in 2023/2024⁹². While about 0.9-1 million tonnes are used for internal relatively stable consumption, about 0.9 million of tones can be exported to bring in foreign currency and help sustain agribusiness value chains. Ukrainian Sugar Association and Ministry of Agriculture Policy signed a memorandum of understanding limiting sugar exports from Ukraine up to 650 000 tons in 2023/2024⁹³. However, the industry has different level of advancement, generally lacks green modernization and requires an upgrade, where modern equipment and technologies could be used a) to obtain higher sugar content, cleaner production and reduced water use, b) to produce renewable

energy (biogas, electricity) from sugar pulp, and to replace coal, oil fuel, natural gas and reduce carbon emissions, c) to further diversify into granular pellets, and fertilizers. The main benefits of the sugar industry green upgrade include improved enabling environment, improved product quality, packaging and competitiveness of sugar production, better resource efficiency and agricultural waste/by-product use, reduced carbon footprint with lower coal/oil fuel/natural gas use, modern renewable energy technology application, better alignment with the EU and green deal strategy.

The sugar industry development is constrained by the challenges mentioned above at enabling environment level and enterprise level.

PROJECT OBJECTIVE

The Project's overall objective is to **revitalize Ukrainian sugar industry** via

1. Improving institutional capacity; improving sustainable sugar diversification strategies into biogas, electricity, pellets, fertilizers; improving enabling environment (including ease of doing business), regulations in Ukraine aligned with the EU ones and EU Green deal strategy (including packaged sugar quality and food safety) (Outcome 1).
2. Improving access to technology/technology solutions: identifying green, eco-friendly and resource efficient sugar making technologies/solutions/upgrades/diversification models and packaging equipment and materials (paper bags) (Outcome 2).
3. Facilitating and supporting green recovery and modernization upgrade (including cleaner production, circularity, renewable energy options) to improve competitiveness, and resilience in a sustainable way with advisory and investment support of the private sector players (Outcome 3).
4. Aligning sugar industry with EU/other markets requirements; promoting and diversifying export trade of proper quality, packaged, labelled and certified sugar to EU and other markets, (Outcome 4).

91 Source: <https://www.ukrinform.ua/rubric-economy/3754559-v-ukraini-startuvav-novij-sezon-cukrovarinna.html>

92 Source: <https://interfax.com.ua/news/economic/965557.html>

93 Source: <https://kurkul.com/news/34563-pogodjeno-granichniy-obsyag-eksportu-tsukru-u-2023-2024-mr>

Project Outcomes - Components	Project Outputs	Project Activities
<p>1. Improved institutional capacity and sugar industry enabling environment/ regulation; improved ease of doing business and deregulation.</p>	<ol style="list-style-type: none"> 1. Improved state control; Ukrainian certification of sugar products is made according to the EU standards and requirements; 2. Approved evidence-based state economic program to support the development and competitiveness of sugar industry up to 2030. 3. Approved national operating work plan for the green recovery, diversification and improved competitiveness of the sugar industry for the 4-year period (2024 –2028). 	<ol style="list-style-type: none"> 1.1. Research, analyse Ukrainian and EU standards and requirements (incl. Council Directive 2001/111/ EC of 20 December 2001 relating to certain sugars intended for human consumption; Renewable Energy Directives (REDs)), prepare gap analysis and recommendations, develop an actionable strategy and a road map for harmonization of the Ukrainian regulations with the EU one. 1.2. Evaluate and develop capacity of the government institutions (Ministry and state authorities, laboratories) on designing and implementing sugar industry and packaging harmonizing regulations. 1.3. Contribute to the design and approval of the evidence-based state economic program to support the development, competitiveness and diversification (biogas, electricity, pellets, fertilizers) of sugar industry up to 2030. 1.4. Contribute to the design and approval of the national operating work plan for the sugar industry for the 4-year period (2024 –2028), which includes, inter alia, ease of doing business measures and deregulation, sustainable diversification measures (biogas, electricity, pellets, fertilizers), economic and financial stimuli for green modernization (incl., for example, inter alia, ESG performance-based loans). 1.5. Plan and launch stakeholder dialogue and awareness raising campaign on all of the above. 1.6. Build capacity and support Ukrainian Sugar Association, Packers’ Club on knowledge and expertise improvements, regulatory and advocacy efforts. Contribute to and support collaboration between Ukrainian associations and The European Sugar Association (ESA). Packaging and Food safety related challenges are addressed in more detail in the sector wide Food quality and control Action Plan and Packaging Action Plan. 1.7. Design and implement training programs on the above-mentioned topics. 1.8. Design and implement monitoring and evaluation of project activities.

<p>2. Improved knowledge of best practices, safe and eco-friendly cost-efficient solutions, sugar making technologies and packaging; Improved access to technology/ technology solutions.</p>	<ol style="list-style-type: none"> 1. Several best practices/ options and technology solutions identified, publicized and shared for sugar makers. 2. Ukrainian sugar makers supported with advice on cost-efficient, resource efficient practices and technology options/ solutions. 	<ol style="list-style-type: none"> 1.1. Conduct needs assessment and analysis: Research/explore, collect, analyse/evaluate, compare and identify some best cost-efficient, resource efficient sugar making and packaging practices and green/eco-friendly technology options/solutions/modernizations (equipment, technology, EU Directive compliant) for sustainable and safe sugar making and packaging in collaboration with and with engagement of Ukrainian and other specialized equipment producers, Ukrainian Sugar Association, Packers' Club, Public Union "Bioenergy Association of Ukraine", advisors, engineers and technologists, sugar makers. 1.2. Research and prepare assessment of sugar industry green and renewable energy needs (biogas, electricity), additional product potential (pellets, fertilizers), cost benefit analysis, gap analysis and recommendations for the industry, identify best cost efficient, resource efficient, EU compliant technologies. 1.3. Plan and launch stakeholder dialogue and awareness raising campaign on all of the above. 1.4. Design and implement training programs for different audiences on the above topics.
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<p>3. Ukrainian enterprises improved capacities, knowledge and increase use of identified and applied best practices, safe and eco-friendly cost-efficient, resource efficient solutions (incl. renewable energy), sugar making technologies/ upgrades and packaging. Ukrainian enterprises installed renewable energy solutions and reduce energy consumption by __/ year.</p>	<ol style="list-style-type: none"> 1. Ukrainian sugar plants supported with advice, with financing and with technology/equipment upgrade and installations are able to manufacture high quality and safe sugar products according to the EU standards and requirements (including packaging, labelling, traceability, renewable energy installations, etc.). 2. Ukrainian sugar plants supported with advice, with technology upgrade and renewable energy solutions are able to reduce energy consumption (coal, oil fuel, natural gas), strengthen energy security. 3. Ukrainian sugar plants are able to compete in international markets with products complied with food safety, food quality standards. 	<ol style="list-style-type: none"> 3.1. Design and implement a competitive selection program of sugar plants (incl. capacity assessment of individual enterprises) to transition to green and resource efficient sugar making modernization and packaging with a support from donors/UNIDO. 3.2. Support the design, analysis and capacity identification of several renewable energy solutions (biogas, electricity), several pellets, fertilizer production solutions (to fully utilize sugar beet pulp) for sugar enterprises in cooperation with market players, associations, consulting engineers. 3.3. Design and implement co-financing program development for manufacturing & packaging equipment, and renewable energy solutions for sugar plants (eligibility and selection criteria, investments supported, grant ceilings and co-financing requirements, implementation modalities, financing structure, identification and selection of co-financing partners, economic and financial stimuli for green modernization, etc). 3.4. Design and implement technical trainings on business planning, investment needs assessment, technologies and their costs and benefits, upgrade requirements and innovations. Conduct investment needs assessment and cost benefit analysis for selected enterprises. 3.5. Search for and identify procuring partners, initiate and implement procurement – equipment and packaging equipment/packaging materials suppliers, technologists, engineers in collaboration with sugar makers, with Packagers Club, Sugar Association in order to implement some best green, cost-efficient, resource efficient practices and technology options/solutions (eco-friendly equipment, technology) identified in phase 2 above. 3.6. Procure and install equipment as per conducted procurement and as per designed co-financing program mentioned above. 3.7. Plan and launch stakeholder dialogue, PR and awareness raising campaign on all of the above.
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<p>4. Ukrainian sugar enterprises are ready and trade with partners in the EU countries and other markets. Ukrainian sugar products are aligned with EU requirements, certification.</p>	<ol style="list-style-type: none"> 1. Ukrainian enterprises are ready and capable to supply to the EU and other markets with knowledge of the standards, certification. 2. Planned fairs and exhibitions have been conducted with participation of Ukrainian players, new contracts with partners concluded. 3. Ukrainian enterprises are aware of the Green Deal, and aware of technologies, necessary processes as part of the EU accession. 	<p>4.1. Design and implement training programs for Ukrainian enterprises on export promotion, marketing, market research and studies, labelling, certification, business development, logistics, business planning, investment needs assessment and cost benefit analysis, energy audit, green technologies and modernization need assessment, EU Green Deal, etc. in collaboration with Ukrainian sugar plants, Sugar Association and Packagers' Club.</p> <p>4.2. Design and implement training programs for Ukrainian enterprises on international standards Organic certification, FDA, IFS Food, FSSC 22000, and Halal, Kosher.</p> <p>4.3. Design, plan and implement export trade promotion programs and campaigns of Ukrainian sugar, in collaboration with Ukrainian market players, Sugar Association, Packagers' Club, The European Sugar Association (ESA).</p> <p>4.4. Design and implement networking programmes to support collective efficiency of sugar plants/ exporters and help linking them to sugar buyers in foreign markets.</p> <p>4.5. Plan and launch awareness raising campaign for market players on some topics mentioned above in collaboration with Sugar Association and Packagers' Club.</p>
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Indicative budget for the advisory activities and trainings (without investments into equipment, project management and travel costs):

ACTIVITIES	USD
Activities under Output 1	1 081 000
Activities under Output 2	456 500
Activities under Output 3	756 500
Activities under Output 4	339 500
TOTAL	2 633 500



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