



ALCP | Alliances
Caucasus 2
REGIONAL MARKET ALLIANCES IN THE SOUTH CAUCASUS

ALLIANCES CAUCASUS 2
INPUTS MARKET RESEARCH,
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Outcome 1 details supporting functions to the core market system of rural producers and MSME's in the dairy, honey, bacon, wild botanicals and silk value chains. Under Outcome 1 the priority will be helping target groups adapt to the challenges and impacts of climate change on their production and businesses.

Climate change has become the most significant driver of our time. The *ALCP2 Livestock and Honey Producers Focus Group Survey 2022* focussed on identifying livestock producer and beekeeper perceptions of climate change and the impacts they have experienced on their production. It revealed a significant change in weather patterns over the last ten years. Climate change patterns related to increased temperature, heat, and drought were most frequently mentioned. These changes have created new challenges for female and male dairy farmers and beekeepers. One of the main negative effects of climate change is unpredictability and the frequency or duration of negative events, the majority of farmers are unable to plan and cannot rely on their usual production practices and routines making production increasingly insecure. They stated that it is a newly appeared issue and do not know what to do, or how to behave as they are presently at the stage of accepting this as a new reality and accept that now it is time to change their practices.

Figure 1 details the supporting functions as areas of intervention based on the programme's market understanding. Summary market analyses detailing intervention potential, relevance to the target group, key constraints, pro poor opportunities and drivers can be found for each section pertaining to a key supporting function: Information, skills/vocational educational training, climate smart inputs and financing.

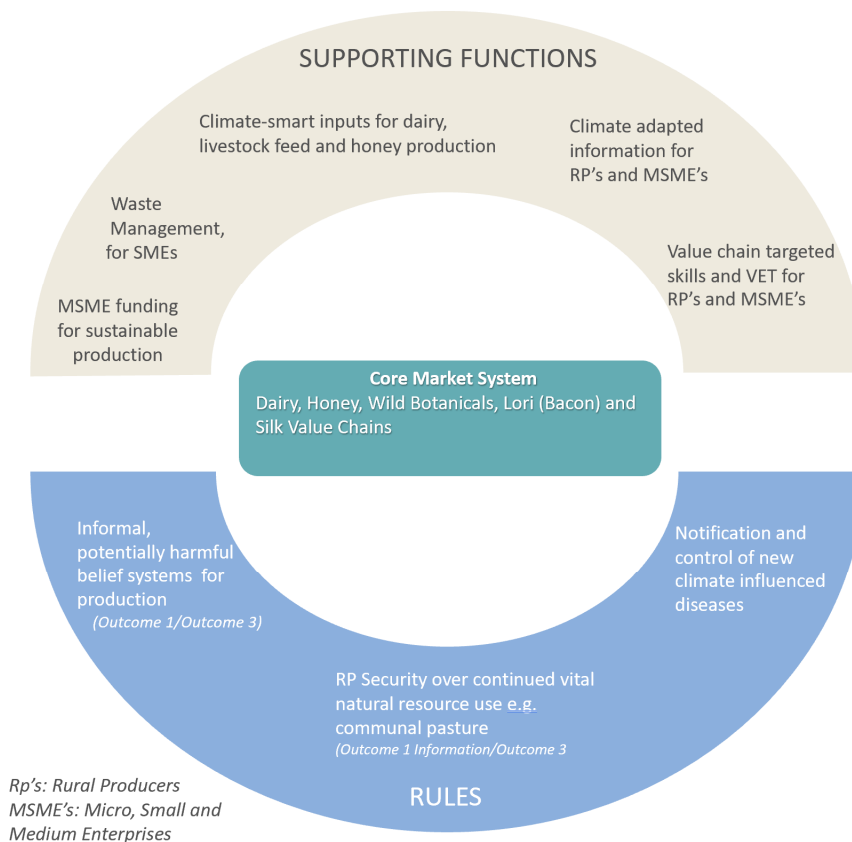


Figure 1 Inputs Intervention Entry Points, Market System Diagram

METHODOLOGY

This market research is based on a desk review of statistics, strategy documents, laws, VET programmes and sources related to climate change, agriculture and the environment. Funds available for rural producers and MSMEs were also reviewed. Additionally, key informant interviews were conducted with eighty-three market actors in livestock and beekeeping sectors, including plant protection and soil management, greenhouses, hail nets, irrigation and solar power, representing private and public sectors players in all three parts of the market system both nationally and in the target regions. Forty-seven gender-disaggregated dairy farmers and beekeepers' focus groups were conducted in the target regions. See Table 1 below.

Table 1 Regions, Number of Dairy Farmers Focus Groups

Regions	Dairy Farmers FGs	Beekeepers FGs	Female	Male
Samegrelo	7	4	17	25
Kvemo Kartli	6		9	10
Imereti	5	4	15	22
Samtskhe-Javakheti	4	3	13	28
Kakheti	3	3	8	16
Adjara	2	2	8	9
Racha	2	2	6	10
Total	29	18	76	120

CROSS CUTTING THEMES

There are three priority cross cutting themes under Outcome 1. Climate change adaptation will be considered in all interventions. Gender equality, diversity and social inclusion will also be of a vital importance and National Laws related to government climate change priorities, to see that all strategies and action plans of the government are in line with the goals the programme wants to achieve under Outcome 1. Information which is an all-encompassing component of Outcome 1 interventions is discussed in a separate section.

CLIMATE CHANGE

Climate Change is the defining issue of our time, and its impacts are alarming in scale. The *ALCP2 Livestock and Honey Producers Focus Group Survey 2022* revealed that the majority of the interviewed female and male farmers are worrying about changes in weather patterns and the negative impacts that they occasion. Increased temperature, drought, dried-out grass, crops, hay and alfalfa, leading to a lack of livestock feed were mentioned by dairy farmers as the most pressing climate change related trends. Around a third of female and male livestock farmers have applied new technologies to deal with climate change. 34% of the FGS participants have used organic or bio-fertilizers, and 31% have bought climate-adapted seeds. One of the main negative effects of climate change on farming is unpredictability and the frequency of negative events which has meant that the majority of female and male farmers are unable to plan to counteract it.

Increased temperature, heat in summer, drought, and frequent rains are among the key concerns of female and male beekeepers affecting their beekeeping practices and honey production. Lack of information, knowledge and finances as constraints for establishing new beekeeping practices were named by both groups of dairy farmers and beekeepers, and new challenges created by climate changes were similarly perceived by female and male participants for dairy farmers and beekeepers.

Gender equality, diversity and social inclusion (GEDSI) is another cross-cutting theme of vital importance in ALCP2. Alliances has worked in the most ethnically diverse areas of Georgia since its establishment, effectively incorporating ethnicity and gender equality within the programming. Additionally, ALCP2 will be in line with Mercy Corps' Gender Equality, Diversity and Social Inclusion (GEDSI) Strategy which is a long-term vision of advancing gender equality, diversity and social inclusion.

The market analysis revealed vulnerable groups living in the regions. They are Azeri/Armenian ethnic and linguistic minorities, the majority of them do not know the Georgian language, rural women and girls with a lack of social-economic activities and unemployed youth who lack access to education, work and entrepreneurship, approx. 47,000 people. In interventions, GEDSI will be mainstreamed to ensure vulnerable groups access to inputs, skills and information and the benefits they incur.

ALCP2 FG surveys revealed that there are no discernible differences in perceptions of men and women concerning changes in weather patterns and their impacts. They also expressed similar attitudes toward coping mechanisms. However, women's and men's needs differ. For example, part of the interviewed women in all regions would like to have milking machines but lack the finances to purchase them. Buying milking machines is not mentioned as a priority issue by the interviewed men. Also, there is a significant difference in how women and men get agri information, women are far more interested in livestock and climate change-related information than men. Women reported that they want to learn more, and they are actively looking for agri information. Amongst beekeepers, both groups talked about the need for hive modification, while women highlighted the need for hives designed with a lighter weight to be easier to lift. Also, women are more likely to use probiotics for bee immunity. Women in Kakheti said that they know some places near their villages where the local government, beekeepers' cooperatives, or associations should start planting trees and plants for bees. While the interviewed men said that there are lots of unused valleys and local government should help them with building road infrastructure to get there.

Knowing the Georgian language is one of the biggest constraints for women and men in Azerbaijani and Armenian communities. Both groups emphasized that they have language barriers to accessing information from Georgian channels. They watch YouTube or Facebook in Armenian, Azerbaijani or Russian languages. Trainings which are mainly in Georgian are not tailored to Armenian and Azerbaijani farmers. While social media is a key information platform for other beekeepers, it is not popular among Armenian and Azerbaijani beekeepers. These farmers can't participate in state programmes to get grants due to not knowing Georgian. Migration was mentioned more by Armenian and Azeri communities rather than Georgian communities. The migration limits Azeri and Armenian communities from increasing the number of cows.

GOVERNANCE

The role of the government in providing policy guidance and regulatory function is crucial. The action plans and strategies of the government related to climate change influence the operating environment in which rural producers and MSMEs reside. The 2021-2023 Action Plan¹ of Georgia's Climate Change Strategy summarized in Table 2 below shows that the goals are in line with the impact the programme wants to achieve.

¹ *The 2021-2023 Action Plan of Georgia's 2030 Climate Strategy*

Table 2 2021-2023 Action Plan of Georgia's 2030 Climate Strategy Goals linked to Outcome 1

Activities	Description
Activity 3.2.4.	Implementation of information campaigns for solar water heater systems in buildings.
Activity 5.1.1.	In order to reduce the emissions generated by enteric fermentation of the cattle, develop a methodology for changing the feed for the cattle and run a recommendation campaign.
Activity 5.1.2.	Develop legislation and prepare a project proposal with the aim of increasing the quality of livestock nutrition and conservation of pasture biodiversity.
Activity 5.1.3.	Rehabilitation and transformation of windbreaks to minimize climate-related land degradation.
Activity 5.2.2.	Develop a cost-benefit analysis and feasibility study to identify the best options in which manure management systems can be implemented.
Activity 5.2.4.	Research and consultation processes to define economic and socially feasible Climate Smart Agriculture (CSA) actions in the context of Georgia.
Activity 5.2.5	Promoting the introduction of climate-friendly agricultural practices through extension and awareness-raising campaigns.
Activity 6.2.3.	Education and awareness raising on waste management.

SUPPORTING FUNCTIONS UNDER OUTCOME 1 OF THE ALCP2

The following sections describe the four supporting functions for rural producers and MSME's in the core markets of the ALCP2 all of which have an emphasis on improved sustainable production and helping adapt to the challenges thrown up by climate change. These are; information, skills and VET, climate smart inputs and financing.

Information will be disseminated about sustainable practices, products and technology in relevant value chains with an emphasis on climate-smart and sustainable environmental topics and sustainable management of public natural resources including waste management for rural MSMEs. Skills will be about updating existing skills courses or establishing new courses in relevant value chains. Inputs will facilitate climate-smart inputs and services for dairy farmers and beekeepers to access, including veterinary and nutritional inputs, bio wax and beehives. As crops play an important role in producing animal feed, access to better resilient seeds and inputs for the improvement of soil health will also be in a package, including biofertilizers and no-till technology as well machinery for more efficient production such as milking machines. Financing means linking MSMEs and rural producers to entities and networks offering resources and financing for sustainable production and business development.

INFORMATION

Information is of vital importance in the ALCP2. Alliances has a proven track record in reaching the majority of smallholder farmers throughout Georgia, and a considerable number in Armenia through the medium of sustainable information channels including popular TV programmes, regional television networks and online content including tailored technical videos.

This market analysis revealed the enthusiasm and need for more information on innovative, environmentally sustainable farming techniques and ways of understanding how to deal with changing climate and changing markets. Networks already created will be utilized to disseminate more and better information, reaching farmers in all value chains with an emphasis on good husbandry practices for sustainable and efficient production, innovation, climate-smart production systems, and entrepreneurialism, suitable for the changing times. Information delivery will be pivotal in delivering knowledge and creating better outreach and uptake for climate smart related inputs and husbandry practices that allow for coping and adaptation. (see Inputs section) These information

systems will also be utilized to ensure that farmers receive more information on their rights regarding natural resources and the landscapes in which they reside, supporting Outcome 3.

Summary Market Analysis

Relevance	Pro Poor Potential	Intervention Potential
Information		
<p>High: In Georgia, Armenia and Azerbaijan farmers lack information on how they can cope with the impacts on their production systems by climate change. Farmers and rural business need more information on ways to harness new methods of sustainable production and business ideas tapping into trends such as rural tourism. However, there is potential for the networks already created to be used for increasing and improving the content for farmer producers.</p>	<p>High: In Georgia, 72% of rural inhabitants are designated as employed in agriculture, in the target regions these farmers have at least 3 milking cows and 0,25 ha of land mostly used for producing livestock feed and have variable access to common pasture. They are reliant primarily on grass-based dairy production, from pasture in summer and hay in winter, and crop husbandry of the main cash crop such as potatoes and maize with other crops and vegetables produced for livestock feed or home consumption. Honey is an important product for a significant proportion of rural households. Rural inhabitants in Racha also produce Lori. In some mountainous area in Ajara, Samtskhe-Javakheti, Mtskheta-Mtianeti, Guria, Imereti and Kakheti wild botanicals are collected for extra income which significantly impacts the household's financial security. Women tend to be central in the dairy, wild botanicals and bee products value chains. Decisions over HH income related to agriculture tend to be taken together.</p> <p>The target group has a high motivation to access climate-smart information, knowledge, inputs and techs.</p> <p>GEDSI: will be overt in information for rural producers.</p>	<p>High: Further development of regional and eastern partnership agri journalism initiatives including an emphasis on climate-smart and sustainable environmental topics.</p> <p>Facilitate the Georgian Beekeepers Union (GBU), the Georgian Milk Federation (GMF), the Jara Beekeepers Association (JBA) to enhance relevant information services to members.</p> <p>Facilitate the Rural Development Agency's (RDA) Information Consultation Centres' (ICC) to better inform livestock farmers, Lori producers and wild botanicals picker farmers about climate-smart knowledge, information and practices through SMS, hotlines and online platforms and trainings.</p>

Systemic Constraints Information	Pro Poor Opportunities and Drivers
<p>Lack of knowledge of better resilient climate practices and sustainable management of public natural resources. The networks already created (media, academia, industry associations, ICCs and online platforms for farmers) still have low capacity and experience to serve a rural audience regarding climate change, environmental inclusivity and the use of natural resources.</p>	<p>Enthusiasm of rural producers and MSME's, and their need for more information on innovative, environmentally sustainable farming techniques and ways of understanding how to deal with changing climate.</p> <p>High motivation of the networks already created to be deepened with more and better information, reaching farmers with an emphasis on innovation, and climate-smart production systems suitable for the changing times.</p> <p>Existing partners in Armenia and Azerbaijan emphasize the importance of deepening provision, and of including environmental sustainability and natural resource use to allow farmers to cope in changing times.</p>

The *ALCP2 Livestock and Honey Producers Focus Group Survey 2022* revealed that in Georgia, slowly but surely, social media is overtaking traditional media as the main means of accessing information. According to *GeoStat*, in 2022 82% of rural households have access to the internet either through computers or smartphones: the same figure in 2016 was 57%. On this note, it is understandable, that as the interviewed farmers stated they often watched agricultural TV programmes not on TV, but on Facebook and other social media platforms. Also, there is a significant difference in how women and men get agri information: the gender analysis shows that women are far more interested in livestock and climate change-related information than men. Women reported that they want to learn more, and they are actively looking for agri information, whether it would be TV programme or social media content. Remarkably, the focus group survey revealed that there is less than a 14% difference between knowing and applying new practices. It seems that if farmers have proper information and knowledge regarding coping mechanisms, there is a high probability that they will attempt to apply new practices. It underlines the importance of disseminating agri information related to climate change and coping practices – especially when 90% of the female and male farmers reported that they want to know more about climate change and related coping strategies. Information is also important to reduce the usage of harmful practices such as burning soil after harvesting, cutting down windbreak lines, or overusing pesticides. Figure 2 is a type of channel for information dissemination.

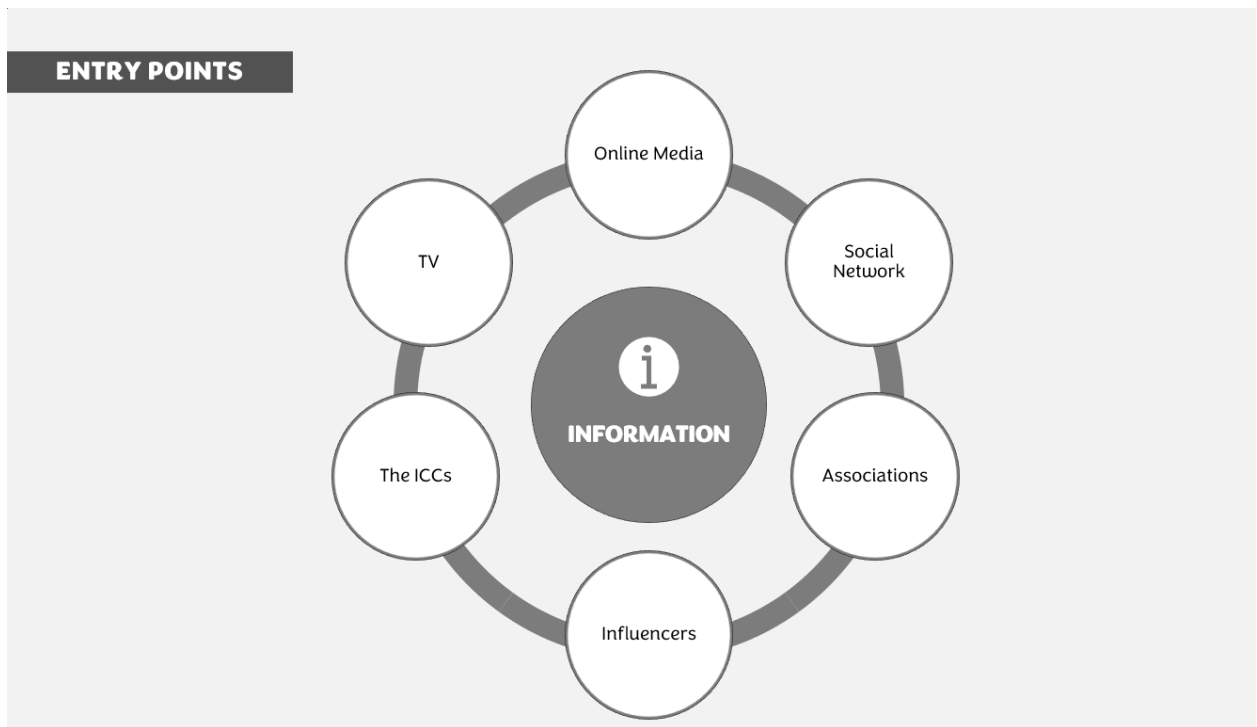


Figure 2 Potential Channels of Information for Farmers

Table 3 provides a description of potential clients (partners) in information and Annex1 the distribution of universities participating in teaching agri journalism who would be interested in participating in disseminating climate relevant information in Georgia, Armenia and Azerbaijan. Elkana, CENN and the *Environmental Information and Education Center (EIEC)* of the MEPA are promoting sustainable practices in agriculture and will participate in creating climate-targeted content on best practices for livestock and honey producers through information entry points.

Table 3 Potential Clients in Information

Name	Description
The Journalism Resource Centre (JRC) unites 17 regional TVs, Agrogaremo TV and Tok TV	With the best linkages with the academies, regional TVs and the Eastern Partnership countries, including Armenia, Azerbaijan, Moldova and Ukraine. Further address the quality of the journalism pertaining to the environment. Informed and inspired journalists with knowledge of better resilient climate practices and sustainable management of public natural resources, will report on it and in turn improve the livelihood of smallholder farmers. The programme will further develop its work in the training of agri journalists already established and add environmental topics. Modules for universities will be updated. Potential to expand to the universities in the Eastern Partnership. These information systems will also be utilized to ensure that farmers receive more information on their rights regarding natural resources and the landscapes in which they reside, the work that will be carried out under Outcome 3.
Rural Development Agency and Local NGO Momavlis Fermeri	Potential to facilitate RDA and Momavlis Fermeri to reach livestock farmers through ICC's. Improved information content and delivery through ICCs about climate-smart inputs and knowing how to use them. Momavlis Fermeri on its own has good linkages with other networks working for dairy farmers, including VET colleges, Roki and Georgian Farmers Association.
The Georgian Beekeepers Union (GBU), the Jara Beekeepers Association (JBA) and the Georgian Milk Federation (GMF)	The GBU with more than 5,500 member beekeepers, the JBA with up to 100 member Jara beekeepers and the GMF with up to 30 member GMM dairy enterprises which have linkages with more than 23,000 dairy farmers. These industry associations' information services will target their members through SMS's, hotline and online platforms/online videos. Further linkages with the Information Consultation Centres (ICCs) which have high motivation to work for livestock and honey producers.

SKILLS/VET

VET colleges are in places in almost all rural programme areas, including mountainous regions but not always offering the relevant courses or reaching the right people. The programme has already worked successfully in VET in beekeeping to integrate Jara materials into twelve beekeeping programmes. The ALCP2 will utilize the VET college network to reach people who will be able to access the skills on offer through the colleges and courses. This covers updating existing courses or establishing new courses in relevant value chains, including Lori production, silk and wild botanicals with an emphasis on climate-smart and sustainable environmental topics and sustainable management of public natural resources which links to the ALCP2 Outcome 3 governance interventions.

Summary Market Analysis

Relevance	Pro Poor Potential	Intervention Potential
Skills		
<p>High: The VET sector is of the state's priorities. The VET colleges are in places in almost all rural programme areas, including mountainous regions. The VET network aims to serve rural producers and inhabitants who are dependent on livestock, honey and other produce derived from natural resources as main incomes. There is an opportunity to build on the experience and networks Alliances has developed in Jara production.</p>	<p>High: Highly relevant to the target group. High potential for HHs, especially youth to get courses they need for producing rural products. Knowledge about value chains in wild botanicals, silk and bee products appears to be declining, though in more geographically isolated rural areas this knowledge is still preserved. The VET college and media network are required for maintaining knowledge about rurally produced products. As for Lori, skills related to food safety and hygiene were revealed as vital.</p> <p>Improved skills will allow for increased production and sales.</p> <p>GEDSI: will be overt in skills for rural producers.</p>	<p>High: Update existing courses or establish new courses relevant to the target groups. Further cooperation with relevant stakeholders such as the Skills Agency to improve existing course content or create new courses and facilitate other colleges to integrate them.</p> <p>Linkages with the VET college network for honey and bee products, dairy, Lori production, silk, and wild botanicals, including an emphasis on climate-smart and sustainable environmental topics and sustainable management of public natural resources.</p> <p>Further linkages and potential matching between the VET college network, industry associations and Women's Rooms.</p>

Systemic Constraints Inputs	Pro Poor Opportunities and Drivers
<ul style="list-style-type: none"> - Lack of vocational education courses related to sustainable agricultural practices, bioproduction, Lori production and wild botanicals. - Lack of agriculture-related vocational programmes in Racha and Guria. - Seven VET colleges are teaching a veterinary vocational education programme. Content outdated. - Low interest of young people in agriculture-related vocational programmes. - Most colleges are teaching forestry; the usage of forest products is not in the course. 	<ul style="list-style-type: none"> - The Skills Agency is interested in working with the BIG, the GBU and the GMF all directly linked to rural producers and beekeepers to create new courses and help them to get accreditation and get state funds to ensure teaching. - High motivation of the Skills Agency and VET colleges to provide courses in Lori production in Racha-based VET college. - High motivation of VET colleges to improve knowledge of local inhabitants concerning the development and use of local natural resources through VET colleges (Outcome 3) - A few colleges are teaching rural craft making, silk production is a part of rural crafts making, high motivation to update the course. - High motivation of Marneuli VET College Modusi to establish a course in Borchali Carpet weaving - Leading veterinary inputs supplier with national outreach to small scale livestock producers in inputs and embedded information interested in sustainable methods of animal husbandry

There are 85 VET colleges throughout Georgia, among them twenty-eight are public and fully funded by the government. Other VET colleges are private but have some government-funded programmes. The Skills Agency was established in January 2022 after the separation of the VET department from the Ministry of Education and Science of Georgia. The founders are the Ministry of Education and Science of Georgia and the Georgian Chamber of Commerce and Industry. It is a non-commercial legal entity and represents a private-public partnership responsible for shaping and implementing the national skills policy.

The key player in the sector the Skills Agency has a high motivation in improving existing modules in the sectors relevant to programme value chains and is ready to work with the relevant associations or private sectors for establishing new ones, the VET colleges themselves also have a high motivation to work with ALCP2 to improve their programmes where relevant. See Annex2 for the distribution of VET colleges and Annex3 for the programmes ALCP2 sees as the potential for interventions. The market analysis showed that there is low interest from youth in agriculture-related vocational programmes. ALCP2 will utilize the VET college network and the *Environmental Information and Education Center EIEC* of the MEPA to reach youth people in relevant value chains and target regions.

CLIMATE SMART INPUTS

Rural producers will be further supported by improved access to climate-smart information and inputs. Improved and more efficient production will include better husbandry inputs and practices as well as climate smart inputs. Good husbandry practices will be around soil health, climate-adapted seeds, and livestock and bee husbandry. For example, in dairy: the promotion of probiotics as alternatives to antibiotics for improved immunity to cope with infections, micronutrients to maintain metabolism and increase digestibility, inputs and practices to consider during heat stress and improved udder health control as udder infections contribute to a large part of antibiotic usage. Other related areas as determined as priority areas from the FG Survey include water-saving practices, milking machines, no-till technology, and energy solutions for hot water production rural dairy MSME's. Climate-targeted inputs will include veterinary and nutritional inputs, vitamins, feed additives, bio wax and beehives, seeds, biofertilizers and other inputs to help farmers and beekeepers to adapt the impacts of climate change. An established network of veterinary, machinery and feed input suppliers will be utilized for further outreach of climate-targeted sales primarily in Georgia and with potential outreach to Armenia, and Azerbaijan.

Summary Market Analysis

Relevance	Pro Poor Potential	Intervention Potential
Inputs		
<p>High: The established target group in dairy and honey remains highly relevant and of paramount importance as the largest proportion of rural producers. The dairy and honey sectors cut across all regions, Lori in Racha and wild botanicals in the mountainous zones in Ajara, Samtskhe-Javakheti, Mtskheta-Mtianeti, Guria, Imereti and Kakheti.</p> <p>Changes in weather patterns and extreme weather events have resulted in reduced productivity in livestock and honey and affect all other value changes dependant on natural resources. Heat has increased internal and external parasites and the usage of antibiotics, the loss of soil fertility through soil erosion and soil compaction, reducing the quality and quantity of feed (maize, hay, alfalfa), reduced nutritious content and reduced storage stability.</p>	<p>High: Highly relevant to the target group, to women and to Azeri and Armenian communities. Women are central in the dairy, wild botanicals and bee product value chains.</p> <p>Small scale rural producers and suppliers are at the greatest risk from the negative impacts of climate change. Support to environmentally sustainable production, climate-targeted sales, and advice around best practices to cope with climate change will be of high relevance to those with the least resources to cope.</p>	<p>High: There are numerous livestock and honey sector-related inputs suppliers with promising products but limited outreach and markets.</p> <p>Potential to improve climate-targeted sales among dairy farmers in soil management and better resilient seeds (maize, barley) for livestock feed, milking machines, vitamins, pelleted feed and feed additives, and water pumps. Potential to improve climate-targeted sales in honey flowers, beehives, feed additives, bio drugs and bio wax.</p> <p>Potential for embedding general good husbandry practices in soil health, no-till technology, climate-adapted seeds, the usage of probiotics as alternatives to antibiotics (livestock and bees), immune strengthening to cope with infections, micronutrients to maintain metabolism, to increase digestibility, practices and inputs to consider during heat stress through nutrition or feed additives (livestock and bee). Udder health control to prevent the usage of antibiotics, selling milking machines.</p> <p>Strengthening the marketing and outreach of the kinds of sustainable products and tech, including marketing, and establishing linkages (Roki and Mar-mot) to a broad market of rural producers</p> <p>Further outreach of sustainable husbandry practices and climate-targeted sales to Armenia and Azerbaijan.</p>

Systemic Constraints Inputs	Pro Poor Opportunities and Drivers
<ul style="list-style-type: none"> - Rural producers' low awareness of sustainable production practices. Either a high level of confusion about how to deal with climate change, and following unhelpful practices in coping with climate change, or limited finances to follow sustainable practices. - Input suppliers in plant protection and soil management are mostly focused on vegetable, trees and grapes grower farmers, missing the potential to reach a higher proportion of dairy farmers who own land for producing livestock feed. - Input suppliers who have already established linkages with rural producers such as the veterinary inputs supplier Roki Ltd, combined feed producer Agro Trading and machinery inputs supplier Mar-mot lack to strengthen their claims of the kinds of sustainable products, and improve climate-targeted sales and marketing. 	<ul style="list-style-type: none"> - Farmers' willingness to cope with climate changes and readiness to follow best practices. - High interest of input suppliers in helping livestock and honey to cope with climate changes with sustainable practices. - Potential to expand throughout Georgia, add more products and cover small and medium inputs shops. - Potential to establish linkages with VET colleges.

ALCP2 surveyed twenty input supplier companies. The market research did not reveal the potential of intervening in greenhouses, hail nets, irrigation and solar power as dairy and honey producer farmers do not see these inputs as vital for improving their husbandry practices. Input suppliers were enthusiastic about reaching new markets for embedded advice and inputs to livestock producers and beekeepers. The programme also found out that solar power is well used by MSMEs for hot water. Out of eighteen programme-facilitated dairy enterprises, five have solar power for hot water. It should be highlighted that all the interviewed dairies are satisfied. The utilities are working well in all seasons. The dairies are saving 233 Gel/month in winter and 325 Gel/month in summer. The cost of the utilities was covered after 20 months. See detailed results in Annex4 Cost Benefit Analysis of Dairies for Using Solar Power. The programme sees the potential for facilitation linkages between Produce in Georgia and MSMEs for getting co-financing the solar power utilities.

See Table 4 list of climate-targeted sales and services and Table 5 for potential clients in inputs.

Table 4 Lists of Climate-Targeted Sales and Services

	MSME's targeted	Pro-Poor Targeted	Who does	Who pays
Waste Management	✓		Enterprise Georgia/RDA	Enterprise Georgia/RDA
Health and Safety	✓		Enterprise Georgia	Enterprise Georgia /RDA
Solar power for hot water	✓		GMF	Enterprise Georgia/RDA
Veterinary inputs		✓	Roki	Rural producers
Nutritional inputs, palleted feed and feed additives		✓	Roki and Agro Trading	Rural producers
Feed chopper		✓	Roki, Mar-mot	Rural producers
Milking machine		✓	Roki, Mar-mot	Rural producers
Climate adapted beehive		✓	Beehive producers	Rural producers
Bio wax		✓	Bio wax producers	Rural producers
Better resilient climate seeds		✓	Kartlis	Rural producers
Biofertilizers		✓	B-complex, Bio Agro, Makro Prime	Rural producers
Sheep wool pellets fertilizers (potential)		✓	Shepherds Association of Georgia	Rural producers
No-till technologies		✓	Mar-mot	Rural producers
Honey Plants		✓	Bio-Technology company	Government (Outcome 3)

Table 5 Potential Clients in Inputs

Name	Description
Plant protection and soil management	
Cartlis an agricultural inputs supplier in plant protection and soil management	With eight offices in regions with 110 employees and a database of 20,000 farmers. Regular training, consultation and information dissemination among farmers for free, including video lessons through YouTube. Potential to improve climate-targeted sales among dairy farmers in soil management and better resilient climate seeds (maize, barley) and embedded in good husbandry practices in soil health, climate-adapted seeds. The company is a partner of CENN.
B-complex Marneuli Organic Waste Processing and Compost making Enterprise	With 20 employees. 40 tonnes of compost/year produced from 400 tonnes of waste, sold in the Gorgia and Domino supermarket chains, the price is 0,40 Gel/litre. The company and its products are certified by the MEPA. Potential to expand production, including liquid products, start recycling plastic and paper garbage, expand throughout Georgia and cover small inputs shops. Potential to improve climate-targeted sales among dairy farmers in soil management.
Bio Agro - produces bio-liquid 'Organika' and dry fertilizers.	Organika is a bio innovation, in 2011 it was awarded a quality mark and a Gold Crown of International Quality. Organica is exported to Azerbaijan. The company cooperates with Kachreti VET college. It is planning to increase the volume of production, diversify bioproducts, increase sales in export, improve and update the company's website and make short videos related to sustainable production. Potential to improve climate-targeted sales among dairy farmers in soil management. Further outreach of climate-targeted sales to Azerbaijan.
Makro Prime LTD – produces organic fertilizer bio-humus from worms.	With 4 employees. Sales through Carrefour, Domino, and Gorgia. The demand is high; however, the company lacks the capacity to invest more. The owner patented his breed of worm at Intellectual Property Agency as a Georgian New Worm. Potential to improve climate-targeted sales among dairy farmers in soil management. The company is a partner of Elkana.
Shepherds Association of Georgia – sheep wool pellets	With 50 members. Potential to start producing sheep wool pellets which are water holding soil conditioners, which slow release nutrients into the soil for 6 to 10 months after activation in the soil and reduce watering requirements.
Livestock and beekeeping	
Roki Ltd – Veterinary Inputs and Services Supplier	With 120 employees, producer/distributor/importer/exporter of veterinary medicines and inputs, linkages with up to 400 vet pharmacies and farmer service centers, additionally their social agri web portal Agroface launched in 2018 with 5,000 subscriptions and 71,000 viewers reached annually. They have sustainable inputs and services to help livestock in terms of balancing animal feed with all relevant nutrients, protein, energy sources, vitamins and minerals. Also produces feed additives for improving livestock digestion and naturally based parasite control or natural products. They have a wide range of equipment for livestock care, milking machines, irrigation, biomedicines, hay/grass choppers, battery for cowsheds against the smell, etc. It exports to Azerbaijan, Armenia, and Turkmenistan. Potential to improve climate-targeted sales in milking machines, vitamins and feed additives, and water pumps and embedded good husbandry advice. This includes probiotics as alternatives to antibiotics (Rumifos), immune strengthening to cope with infections, including improved udder health control to prevent the usage of antibiotics. Further outreach of climate-targeted sales to Armenia and Azerbaijan.
Bio-Technology company in Kareli, Shida Kartli	With 4 employees, imports beekeeping bio-vet drugs from Russia and sells them through his vet pharmacy Bio Farmer in Tbilisi. The company owns a greenhouse of honey plants in Kareli, is a GBU member and wants to work with them for the distribution of honey plant seedlings throughout Georgia. In Kareli, Shida Kartli it produces seedlings of various honey plants, such as Euodia, Lavander, lime and Georgiana. Seedlings are frost-resistant and adapted to the climate and environment. Up to 20,000 customers for bio vet drugs which include beekeepers and other bio-producer farmers, and up to 300 wholesale stores. The greenhouse has up to 500 beekeeper customers. Each of them buys on average up to 10 seedlings per season. Potential to improve climate-targeted sales in honey flowers and hives.
Mar-Mot Ltd- Machinery inputs supplier	All kinds of machinery equipment for haymaking, ploughing, or producing hay, alfalfa, cereals, or maize. Exports to Armenia and Azerbaijan. The company is planning to import and sell equipment with no-till technology and expand the sales of milking machines throughout Georgia. Potential to improve climate-targeted sales in milking machines and no-till technology. Further outreach of climate-targeted sales to Georgia, Armenia and Azerbaijan.
Agro Trading – Combined Feed producer	A wide range of combined feed, distribution throughout Georgia. Potential to improve climate-targeted sales of pelleted feed. Further outreach of climate-targeted sales to Georgia and Armenia.

FINANCING

The ALCP2 will work on linking the target group to financing and to improve embedding of environmental services focusing on waste management within agencies providing funding and support to businesses. Funds are in place for almost all rural programme areas, including mountainous regions but information dissemination is not always done properly to reach the right people. Financing under Outcome 1 will increase efficiency within in the system, maximize efficacy and leverage funds that already exist for the target groups. Linking with funds for business ideas were successfully worked in the WRs from 2017 to 2020. The rooms became one of the main sources of information and support for rural women and men looking for funds and applying to governmental or donor-funded grants programmes. The total amount of grants received through the Women’s Rooms was 2.2m Gel.

Summary Market Analysis

Relevance	Pro Poor Potential	Intervention Potential
Financing		
<p>High: All rural producers mention financing as the key component in developing sustainable businesses. Significant ongoing funding has been put into the agricultural sector by the government in Georgia through numerous schemes offering small, medium and large grants or loans to farmers and MSME’s for business development.</p>	<p>High: Many of the ALCP2 target groups are need financing to establish new livestock and beekeeping practices. The programme revealed that the majority of farmers and MSMEs have not applied new practices and the main obstacles are related to finance and perceived costs, together with the lack of information related to existing funds. For example, part of the interviewed women in all regions would like to have milking machines but lack the finances to purchase them. Also, the majority of farmers and MSMEs are aware of the benefits of solar panels, but many of them do not have the utilities due to a lack of finance. They perceive solar panels as luxurious and unaffordable inputs.</p> <p>In Armenian and Azerbaijani communities’ farmers do not know Georgian and these farmers cannot apply for state grants due to the language barrier. The language barrier is more severe in rural villages as the farmers have to go to towns to find somebody to help them in writing in Georgian or collecting necessary documents.</p> <p>GEDSI: will be overt in financing for women, youth and Azerbaijani and Armenian communities</p>	<p>High: ALCP2 will facilitate the linking of MSMEs and rural producers to entities and networks offering resources and financing for sustainable production and business development. The working model will be set up between the Rural Development Agency (RDA), Enterprise Georgia, rural members associations and WRs to link farmers and MSMEs with the funds already available.</p> <p>The potential for facilitation linkages between Produce in Georgia and MSMEs for getting co-financing the solar power utilities.</p> <p>Another part of the financing will include delivering a package of environmental consultancy services/TOT to Enterprise Georgia and RDA’s staff to deliver the knowledge to MSMEs.</p> <p>Inputs and embedded advice will also provide supporting functions to Outcome 2.</p> <p>Information will be available in Azerbaijani and Armenian languages</p>

Systemic Constraints Financing	Pro Poor Opportunities and Drivers
<p>Farmers and MSMEs lack access to information about appropriate, affordable and available funds.</p> <p>Lack of linkages between farmers and MSMEs with entities who can support them in applying for funds</p> <p>Farmers and MSMEs lack the financial literacy to apply for grants.</p>	<p>High motivation of the RDA, Enterprise Georgia and GBU, GMF and JBA, and WRs to facilitate linkages to reach farmers and MSMEs.</p>

	High interest among farmers and MSMEs in getting funds for establishing new livestock and beekeeping practices.
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There are forty-two ongoing funds available in Georgia, government or donor-funded, five banks are also participating in some programmes. ALCP2 documented nineteen programmes related to agriculture and nine were revealed as beneficial to the target group. These are dairy modernization for dairy farmers, including purchasing milking machines and renovating cow sheds, bioproduction promotion, preferential agrocredits for primary agricultural production, the establishment or expansion of enterprises, support for beekeeping, BDS services, export promotion and training for the tourism sector. See Table 6 for all ALCP2 relevant funds available. All these programmes are documented on an online platform www.projects.org.ge, however, the information is available only in Georgian. ALCP2 will strengthen facilitation for Azeri and Armenian communities to access available funds. Also, ALCP2 will work on linking young people to financing.

Table 6 Examples of Funds Relevant to the ALCP2

Name	Description
Rural Development Agency	
State Programme of Dairy Modernization and Market Access (DiMMA)	Imereti, Samegrelo-Zemo Svaneti, Samtskhe-Javakheti, Racha-Lechkhumi and Kvemo Svaneti, Kakheti, Kvemo Kartli. A grant from 20,000 to 130, 000 Gel. Co-financing covers starting new activities, as well as the expansion/modernization / re-equipment of the existing one. The programme co-finances the primary production of milk, including cowsheds and milking machines, milk collection points, milk processing enterprises, primary production of animal feed, veterinary medicine, and artificial insemination. Cattle and cowsheds must be registered.
Bioproduction Promotion Programme	All regions. It is a grant. Covering the expenses for the certification of bioproduction and/or consulting services and/or laboratory analysis of honey and wax, purchase of organic fertilizers and/or bio vet drugs against pests and diseases and bio honeycomb. The amount of grant awarded per beneficiary will be up to 7,000 GEL.
Preferential Agrocredit Project	All regions. A loan amount is from 7,000 to 1,500,000 Gel for primary agricultural production to improve processing, storage and sale, including energy efficiency, through the partnership of Tera Bank, TBC Bank, Liberty Bank and Credo Bank.
Integrated Development Programme for the Pilot Regions	4 pilot regions: Imereti, Kakheti, Guria, Racha-Lechkhumi and Kvemo Svaneti. The loan amount issued by a commercial bank is from 300,000 to 1,000,000 Gel for agricultural businesses, the establishment of enterprises as well as the expansion and/or re-equipment of existing enterprises. The Agency fund amount shall be a maximum of 60% of the total cost of the submitted project.
State Programme Supporting Beekeeping Agricultural Cooperatives	All regions. It is a grant. 70% of the equipment provided by the programme, 30,000 Gel/beneficiary. Cooperatives with 50% of the women shareholders, people with disabilities, or IDPs will receive a co-financing of 80% of the equipment. The equipment includes wooden or/and foamed polystyrene, beehives, a honey extractor, a honey storage tank, a honeycomb slicing knife with an electric heater, a honeycomb slices tank, and electrode voltage converters that can be co-financed by the programme.
Enterprise Georgia	
Business Universal	All regions. The programme supports the diversification of domestic production, start-up, or expansion. Activities must be included in the list of priorities approved by the Government of Georgia. There are 304 activities including manufacturing, hotels industry/balneological resorts, tourism services, agrotourism and ecotourism industry. The Agency subsidizes the loan interest rate of 5%. The loan's amount is from 50,000 to 10,000,000 Gel.
Export Assistance Programme	All regions. The programme helps in product licensing/certification, branding, and stimulating international sales and provides technical assistance to exporting companies. An applicant must submit an application to the exporters' platform - tradewithgerogia.com .
Georgian National Tourism Administration	All regions. Free training of employees in the tourism sector for enhancing the knowledge and skills in hospitality/service, hotel sales and revenue management, strategic approaches, management skills, wine guide, adventure following skills, introduction and development of services for disabled persons, primary medical aid, eco-tourism product and offer, marketing and sales, management of international booking platforms.

The ALCP2 sees the potential for cooperation with Elkana - a biological farming association, CENN a regional development organization working to protect the environment through fostering sustainable development and green growth, and GIZ which is currently implementing Georgia’s forest sector reform (Outcome 3). See Table 7 for the list of other programmes relevant to value chains for further coordination under Outcome 1.

Elkana is collecting and studying endemic species including alfalfa, sainfoin, barley, oats, maize, sorghum and highlights that these species and varieties are environmentally adapted and stress resistant. In 2018, the ALCP successfully facilitated linkages between Elkana and the Jara Beekeepers Association for bio certification consultancy and creating Jara materials and now sees the potential for further cooperation in crop/land management for feed production and honey-related activities. In detail, their participation in creating climate-targeted content on best practices for livestock producers and beekeepers will be valuable. CENN shared its *Caucasus Environmental Knowledge Portal* the information related to rural development and climate-smart agriculture, social entrepreneurship for green growth, the Georgia climate action programme, climate change, and DRR were relevant to Outcome 1, and it will be taken into consideration when climate targeted content will be created and disseminated among dairy farmers and beekeepers.

ALCP2 will also continue facilitation of the UNDP-supported entity sectoral skills organization Agro Duo which already worked successfully with VET in Jara, to improve targeted skills for relevant value chains.

Table 7 List of other Relevant Programmes under Outcome 1

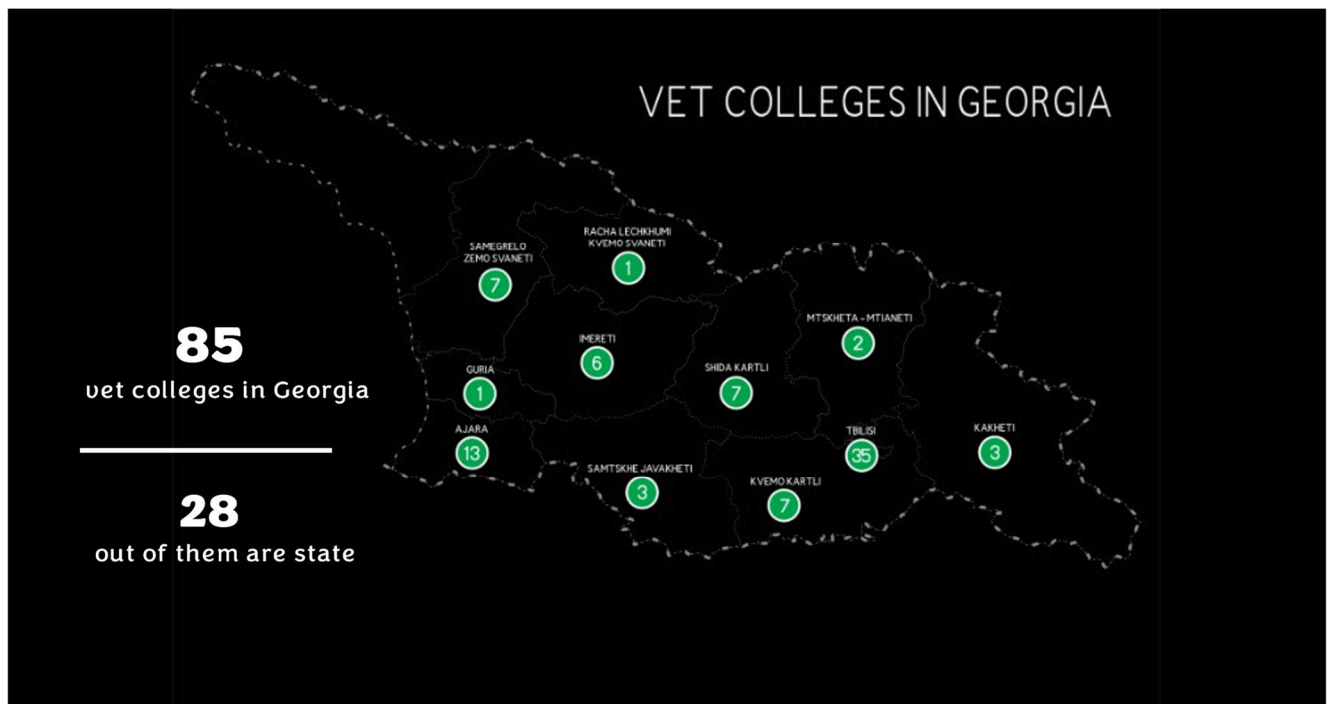
Key Implementers	Main findings from desk review and interviews	Key areas of activity relevant to value chains
Elkana	Elkana suggests climate-smart seeds and plants for livestock feeding. Elkana supports the usage of no-till technologies, climate-adapted hives and bio wax production. Elkana established the quality mark - Agroecological Mark in honey for beekeepers who follow the standards of bioproduction. Elkana also highlights the harmful practice of using manure as a fertilizer without drying and composting, ‘it is the source of seeds that grow weeds and includes many pathogeneses’ noted Elkana’s representative.	Elkana provides training, publications, and consultations to farmers and agribusinesses related to the conservation of agrobiodiversity, collecting and studying the endemic species of plants, crops and animals. They have several projects in organic agriculture development, popularization of agri biodiversity, and rural tourism development throughout Georgia.
CENN	CENN’s report <i>Intensification of Livestock Production</i> highlights that the presence of non-edible weeds in some summer and winter pastures. Pastures are often not provided with the necessary amount of water for cattle. And the mechanization level of livestock farms is quite low. Only 10% of the total number of dairy cattle are milked using milking machines and most of the cattle are not provided with proper nutrition and housing.	<p>The <i>Achieving Land Degradation Neutrality Targets of Georgia through Restoration and Sustainable Management of Degraded Pasturelands</i> project was initiated by the Ministry of Environmental Protection and Agriculture of Georgia and financed by the Global Environment Facility (GEF). The project is implemented by the Food and Agriculture Organization of the United Nations (FAO), an executive organization is the Regional Environmental Centre for the Caucasus (REC Caucasus), project partner is CENN.</p> <p>The National Climate Platform is a national group of stakeholders engaged in the field of climate change, including governmental agencies, international and civil society organizations, academia, representatives of the private sector, experts, as well as donor organizations active in the field of climate change. It has a regional representation of Regional Climate Action Groups (CAGs). The Ministry of Environmental Protection and Agriculture of Georgia is a coordinating body. Activities are supported by CENN.</p> <p>The <i>Climate-Resilient Agriculture – PRAISE MARNEULI</i> project, supported by HEKS-EPER.</p> <p>In the <i>Restoring Ecosystems to Reduce Drought Risk and Increase Resilience</i> project, CENN is the implementing partner of IUCN in Georgia. Funded by Austrian Development Agency.</p> <p>The <i>Promotional Campaign for Energy Efficiency and Renewable Energy Technology in Rural Areas</i> project funded by the EU.</p>

UNDP	The ALCP has been successfully facilitating linkages and cooperation between the UNDP-supported entity sectoral skills organization Agro Duo and GBU and the JBA formalized in the Memorandum of Understanding between the parties, as a result of which Jara beekeeping is being thought in eight VET colleges with four more starting in Spring, 2023.	Modernization of Vocational Education and Training (VET) system related to agriculture in Georgia (VET Phase 2).
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ANNEX1 DISTRIBUTION OF UNIVERSITIES IN GEORGIA, ARMENIA AND AZERBAIJAN



ANNEX2 DISTRIBUTION OF VET COLLEGES THROUGHOUT GEORGIA



ALCP 2 RELEVANT VOCATIONAL PROGRAMMES

From 85 vet colleges, up to 30 offer vocational programmes and training retraining courses related to agriculture and ALCP2. Out of them:



Forestry- taught in 17 vet colleges



Dairy production taught in 2



Farming - taught in 4 vet colleges



Beekeeping- taught in 11



Veterinary taught in 7 vet colleges



Rural crafts taught in 3



Rural tourism taught in 2

ANNEX 4 COST-BENEFIT ANALYSIS FOR USING SOLAR POWER

Benefits of solar panels for SMEs: average figures from five interviews	
How many years have you used solar panels	6
Solar panels are used for	Hot water
Liters of water per day	345
Maximum Temperature	55°
Price in Gel	6,000
Maintenance costs per year in Gel	25
Average monthly savings from utilities in Gel	294
Average monthly savings during winter in Gel	233
Average monthly savings during summer in Gel	325
Months necessary to cover all costs	20

