ALCP2 BEEKEEPING SECTOR IMPACT ASSESSMENT

May 2024

ALCP | Alliances Caucasus 2

REGIONAL MARKET ALLIANCES IN THE SOUTH CAUCASUS

Table of Contents

The Mercy Corps Georgia implemented ALCP2 programme, is a four year, 6 million CHF Green MSD programme ending in April 2026, funded by the Swiss Agency for Development and Cooperation (SDC) in cooperation with the Austrian Development Cooperation (ADC) and Sweden. For more please got to www.alcp.ge

INTRODUCTION

Beekeeping is an important component of Georgian rural livelihoods. Sustainably utilizing and simultaneously boosting the magnificent biodiversity and environmental resources of Georgia, it provides an important source of income and intersects synergistically with sustainable rural tourism development.

Building on its successful interventions begun in 2014[1], the ALCP2 since May 2022, has been further developing the honey market system in Georgia. Recognizing the importance of honey export from the beginning of honey sector interventions in 2014, over the past decade, the programme has addressed key market constraints within the sector, unlocking domestic and export markets.

The major constraint in the sector was a lack of belief in Georgian honey as a quality product, exacerbated by the use of antibiotics, a lack of testing services, a lack of producer and service provider knowledge of required production and export standards, not to mention producer capacity to provide standardized quality supply. The intervening years saw interventions tackling all these issues, working with government, sectoral associations and private companies. In addition, the programme facilitated the development of the image of Georgian honey, creating clearer definitions of mono floral and blossom honeys, creating go to national web portals, developing the flagship Jara wild honey product and promoting the Georgian honey image through different platforms including Georgian consulates, documentary films, social media, TV, festivals and well-known industry Expos.

Continuing this momentum, starting from May 2022, the ALCP2 has furthered its support for the beekeeping sector. It has included focus on developing the sustainability of the Georgian Beekeepers Union[2] through organizational strengthening and developing paid service provision and focusing on climate adaptation in terms of inputs and knowledge for beekeepers to address the effects of climate change on their production. In 2022 detailed focus groups[3] were conducted to find out how climate change affected the beekeeping sector in Georgia and based on the results, the ALCP2 designed interventions with a particular focus on climate change.

The ALCP2 is currently facilitating the following interventions to foster the growth and sustainability of the beekeeping sector:

- *The Georgian Beekeepers Union (GBU)*: The programme formed the GBU in 2019 to bring together disparate honey associations and create a unified sectoral advocate. Since 2022 the ALCP2 has been focused on strengthening the service provision and sustainability of the organization. The GBU provides essential extension to beekeepers including; information, consultancy and hive treatment services, training programmes related to bee disease management, adaptation to climate change and enhancing the productivity of beehives, and sectoral advocacy.
- *Jara Beekeepers Association (JBA)*: The ALCP2 remains dedicated to supporting Jara Bio honey production through the JBA which is a flagship intervention strategy within the honey sector to promote Georgian honey in the international market.
- *Honey Processing Factories:* The programme aims to enhance beekeepers' access to value-added, reliable, and regular honey markets by facilitating honey processing and exporter companies.[4]

[1] See ALCP End of Phase Impact Assessment 2017-2022

[2] Now numbering nearly 7,000 beekeepers, 30 private sector companies and ten associations. The programme formed the GBU in 2019 uniting existing beekeeping associations and private sector companies as well as building a national beekeeper database to create a unified sectoral voice for the development of the sector.

[3] The full Focus Group report is available on the ALCP.ge

[4] At the time of the impact assessment only one, Api-Geo is included in the impact assessment. In 2023 the ALCP2 also financed three additional honey companies, which were newly introduced interventions at the time of this impact assessment. Their impact will be measured from late 2024.

- *Climate smart beekeeping Inputs:* Beeswax and beehives input suppliers have been facilitated to roll out inputs to help beekeepers cope with climate change. However, these interventions are too new to capture tangible impact and are outside the scope of this impact assessment.

The objective of this Impact Assessment was to evaluate the impact of the programme's current facilitated interventions on beekeepers in Georgia. Specifically, it aimed to assess whether beekeepers have gained access to regular, stable, and improved honey sales, and how access to beekeeping extension has influenced their knowledge and practices, and ultimately their production.

However, 2023 posed significant challenges for the honey sector in Georgia. Unprecedented weather conditions mostly involving unseasonal rains, affecting blossoming times, severely impacted honey harvests, making 2023 the most challenging for honey production in the last two decades. According to ALCP2 data, there was a staggering 40% decrease in overall harvest.

While these difficult circumstances have made it challenging to observe the tangible positive impacts of the ALCP2's interventions in 2023, the impact assessment has confirmed the programme's assumption about contributing to beneficiary beekeepers' increased resilience during adverse climate conditions. The data provided strong evidence that the ALCP2 interventions have indeed played a crucial role in fostering the resilience and growth of beneficiary beekeepers when compared to the non-beneficiary group.

The exact methodology and key findings of the study will be discussed in the following sections.

METHODOLOGY

The programme used the DCED approved Comparison Groups (CG) attribution strategy in the beneficiary and non-beneficiary groups to capture attributable impact and wider benefits through better access to the honey market, information, training, and consultation services. The ALCP2 conducted a survey involving 115 beekeepers, consisting of 80 beneficiaries who had utilized at least one of the programme-facilitated services and 35 non-beneficiaries.

13% of the respondents in the study were women, close to the figure of 10% for women beekeepers in GBU data. This is a significant rise in the number of women identifying as beekeepers, it was 8% in a 2019 gendered honey survey[5]. While beekeeping is traditionally perceived as a male-dominated sector, it is essential to recognize that women also play significant roles in beekeeping at the household level, particularly in processing and sales. Furthermore, the sample exhibited diversity, with 4% representing Georgian Azerbaijanis, 4% representing Georgian Armenians, and 5% being young beekeepers. This diversity ensures a range of perspectives. However, due to the limited numbers within these subgroups, disaggregating the data per subgroup was not feasible.

To ensure sufficient samples from both beneficiary and non-beneficiary groups, the programme employed purposeful sampling techniques. Beneficiaries were reached through online interviews on the GBU-owned Facebook page, *Georgian Bee*, utilizing the KoboToolbox online questionnaire.

Identifying non-beneficiary beekeepers posed more of a challenge as only two respondents had not used any of the ALCP2 facilitated services, out of the 82 online responses. Therefore, in order to reach the non-beneficiary group, a door-to-door sampling strategy was implemented in honey-producing villages, and interviews were conducted with beekeepers who had not used ALCP2-facilitated services.

These sampling methods were chosen to gather comprehensive insights from both beneficiary and non-beneficiary beekeepers, allowing for a thorough comparison of them. The results of beneficiary and non-beneficiary group were compared in the following key indicators:

[5] ALCP (2019) A Gendered National Honey Survey in Georgia

Table 1. Key Indicators for Beneficiary and Non-Beneficiary Groups

KEY INDICATORS	2022	2023
Treatment - Number of bee colonies (active beehives)	**A1**	**A2**
Control - Number of bee colonies (active beehives)	**B1**	**B2**
Treatment - Average total productivity of beekeepers (Kg)[6]	**C1**	**C2**
Control - Average total productivity of beekeepers (Kg)	**D1**	**D2**
Treatment – Price of honey sold (GEL)	**E1**	**D2**
Control - Price of honey sold (GEL)	**F1**	**F2**
Treatment- Mortality rate (%) in bee colonies	**G1**	**G2**
Control - Mortality rate (%) in bee colonies	**H1**	**H2**
Treatment - Ave. disease rate (%) in bee colonies	**I1**	**H2**
Control - Ave. disease rate (%) in bee colonies	**J1**	**J2**
Treatment - Key Behavioral Changes (e.g. Avoiding Using antibiotics; controlling microclimates in beehives)	**K1**	**K2**
Control - Key Behavioral Changes (e.g. Avoiding Using antibiotics; controlling microclimates in beehives)	**L1**	**L2**

Net additional income was calculated based on the increase in total honey production, while the rest of the indicators were used as proxy indicators for triangulations and substantiations. In addition to these direct indicators, the programme also assessed behavioral and qualitative changes among beekeepers to further validate the results – these included questions about good beekeeping practices and future plans. The quantitative data was analyzed in SPSS and the qualitative - in Excel.

KEY FINDINGS

The key findings of the impact assessment revealed significant resilience among beneficiary beekeepers supported by ALCP2 interventions, despite unprecedented challenges in Georgia's honey sector in 2023.

Resilience is evidenced by beneficiary beekeepers' ability to endure and adapt amidst mostly climate related challenges, highlighted by their success in effectively managing bee diseases whilst avoiding antibiotic use, reducing mortality rates, controlling the microclimate within beehives, and diversifying production to establish multiple income streams, all contributing to the maintenance or enhancement of their livelihoods despite the adverse conditions in Georgia's honey sector in 2023.

[6] We refrained from calculating productivity per beehive because new beehives typically have lower productivity compared to older ones. If the beneficiary group increased their number of beehives (adding new ones) while non-beneficiaries maintained their existing ones, it could automatically result in higher productivity per beehive among non-beneficiaries compared to beneficiaries. Therefore, calculating productivity per beehive could be misleading in this context.

Access to Services

The ALCP2 programme has made significant strides in enhancing access to services for beekeepers in Georgia, reaching 6,816 beekeepers, including **13% women** and **3% ethnic minority** representatives. This represents around half of Georgia's approximately 14,000 beekeepers emphasizing the programme's wide-reaching impact in the honey sector. Better inclusivity however needs to be a continuing theme going forward, with targeted efforts to ensure that more Georgian Armenian and Georgian Azerbaijani community members access GBU services. The beneficiary group can be disaggregated according to benefits received: 5,003 beekeepers attended the GBU beekeeping training on good practices to combat climate change effects, while 2,939 beekeepers experienced tangible positive income changes due to ALCP2-facilitated services.

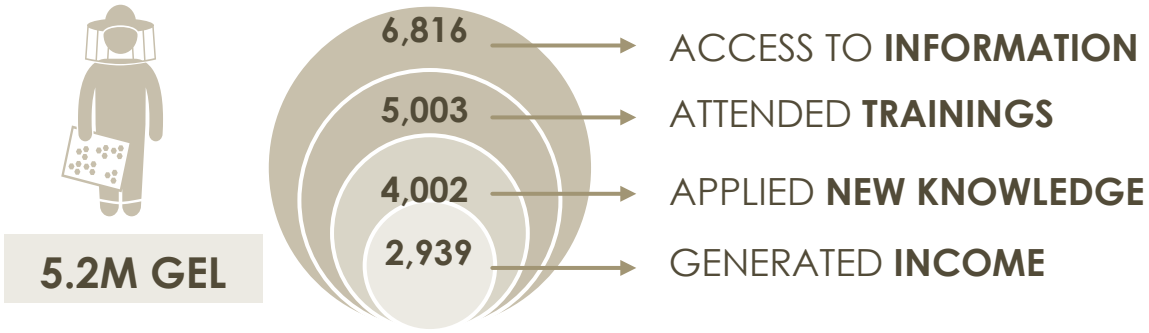

Figure 1: Access to Services Amongst Benificiary Group

Among the 14,000 beekeepers in Georgia, the majority are small-scale beekeepers, with only 32% owning more than 50 beehives. Figure 2 illustrates that ALCP2 interventions are currently reaching over 90% of large-scale beekeepers, who possess the highest commercial potential.

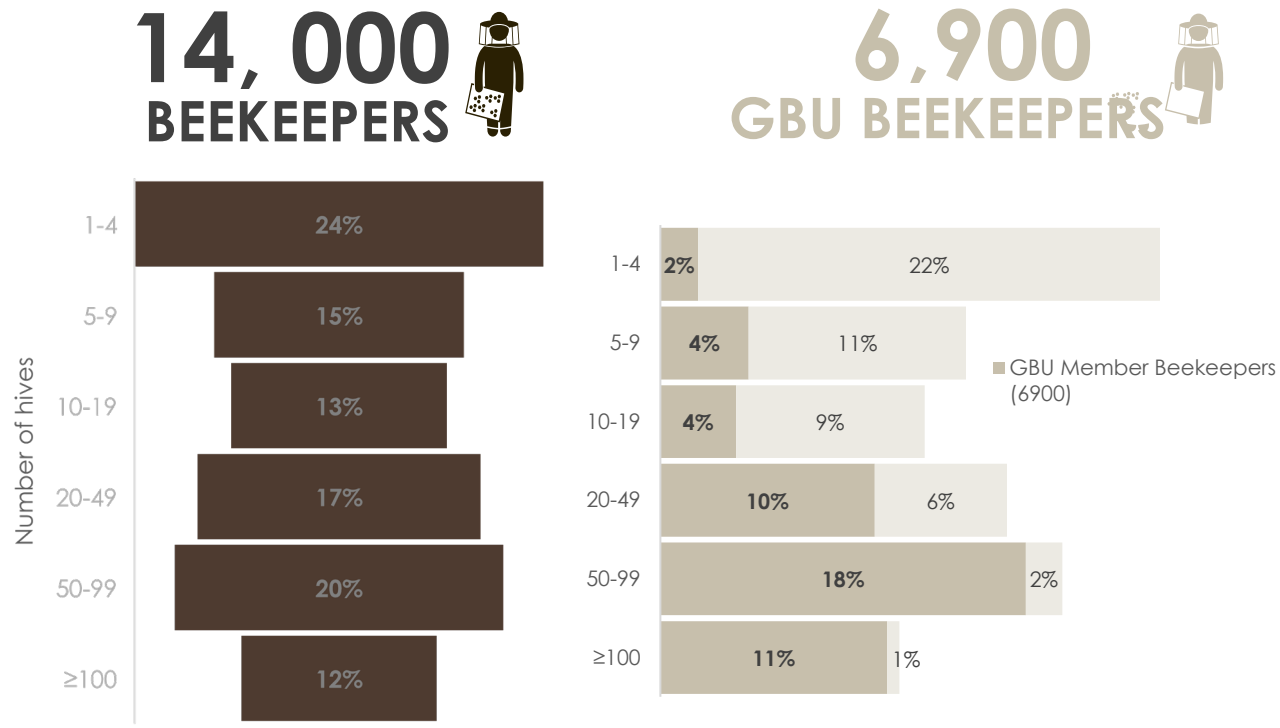

Figure 2: ALCP2 beneficiaries and other beekeepers by number of beehives: Triangulation of Geostat and ALCP2 figures.

NAIC and Productivity

The net attributable income change (NAIC) for the 2,939 income beneficiaries surpassed 5 million Gel, underscoring the significant economic impact of ALCP2 interventions. Despite facing a challenging year, beneficiary beekeepers exhibited a more resilient response, experiencing a 10% smaller decrease in overall honey production compared to the non-beneficiary group. This notable difference can be attributed to the synergistic effects of the ALCP2 programme interventions. By providing beekeepers with training in climate related practices, knowledge, services, and access to value-added markets, the programme has enabled them to adapt more effectively to adverse conditions, mitigate losses, and sustain their livelihoods.

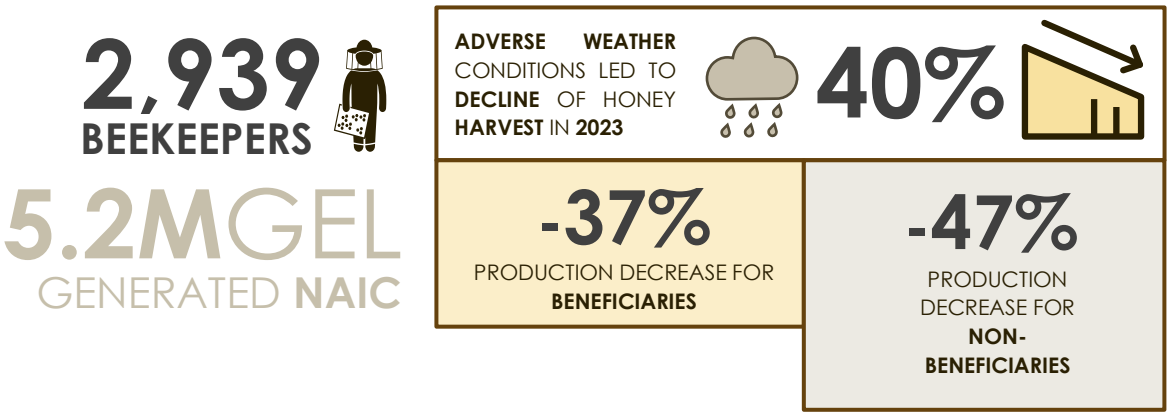

Figure 3: Net Additional Income Change (NAIC) for ALCP2 beneficiaries.

Beekeeping Practices and Coping with the Adverse Effects of Climate Change

Beneficiary beekeepers demonstrated a higher implementation of more advantageous beekeeping practices which ultimately reduce mortality and production losses by helping increase resilience in the hive, helping cope with climate induced temperature fluctuations and humidity and diversifying income streams through product diversification. Practices included higher rates of avoiding antibiotics (71% compared to 49%), (which also includes beneficiaries use of safer and more sustainable alternative treatment methods advised by the GBU), control of the microclimate in beehives (64% compared to 54%), and diversifying production to include other products such as pollen, propolis, queen bees, or honey milk (35% compared to 11%).

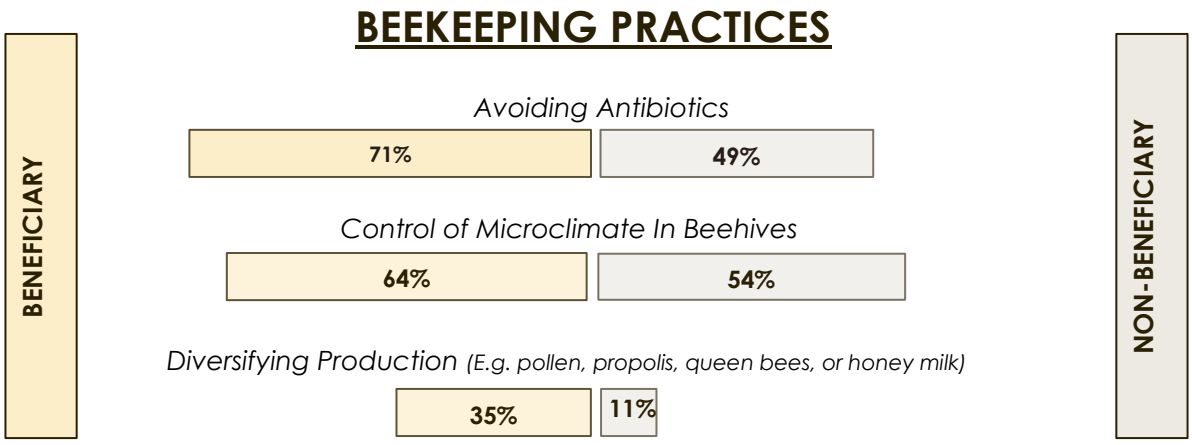

Figure 6: Good beekeeping practicies among ALCP2 beneficiaries and non-beneficiary groups.

Disease Management and Mortality

Beneficiary beekeepers demonstrated stronger disease management compared to non-beneficiaries, and the beneficiary bee populations seemed to have higher resistance to disease than non-beneficiaries, with **79% of beneficiary beekeepers experiencing disease incidence compared to 100% in non-beneficiaries**. Beneficiary beekeepers also treated and managed disease much more effectively than non-beneficiaries, with only a 9% mortality rate compared to 37% for the latter.

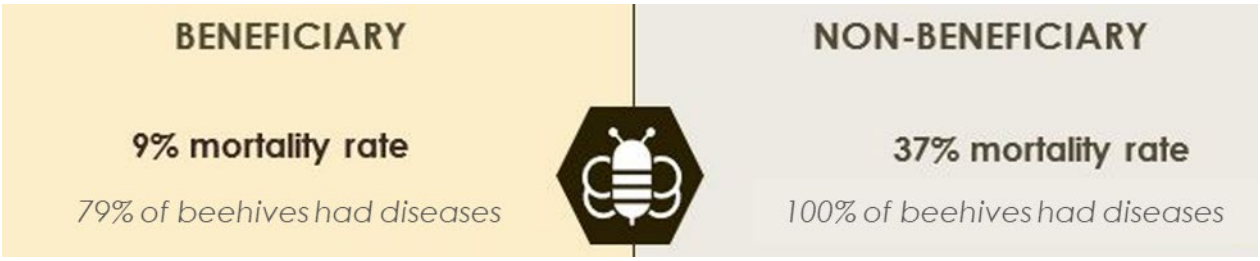

Figure 5: Disease incidence and mortality rate among benefiary and non-beneficiary beekeepers

Access to Market

At the beginning of the ALCP's involvement in the honey sector in 2014, the primary constraint voiced by beekeepers was limited access to markets and difficulty selling their honey. The landscape has since transformed significantly[7], with access to formalized value-added export markets and an enhanced domestic market based on supermarkets now stocking domestic branded honey, in addition to semi formal and informal domestic markets. Access to market has improved as growing export markets and diversified domestic sales channels have led to sales of stockpiles of unsold honey whilst demand has continued to grow.

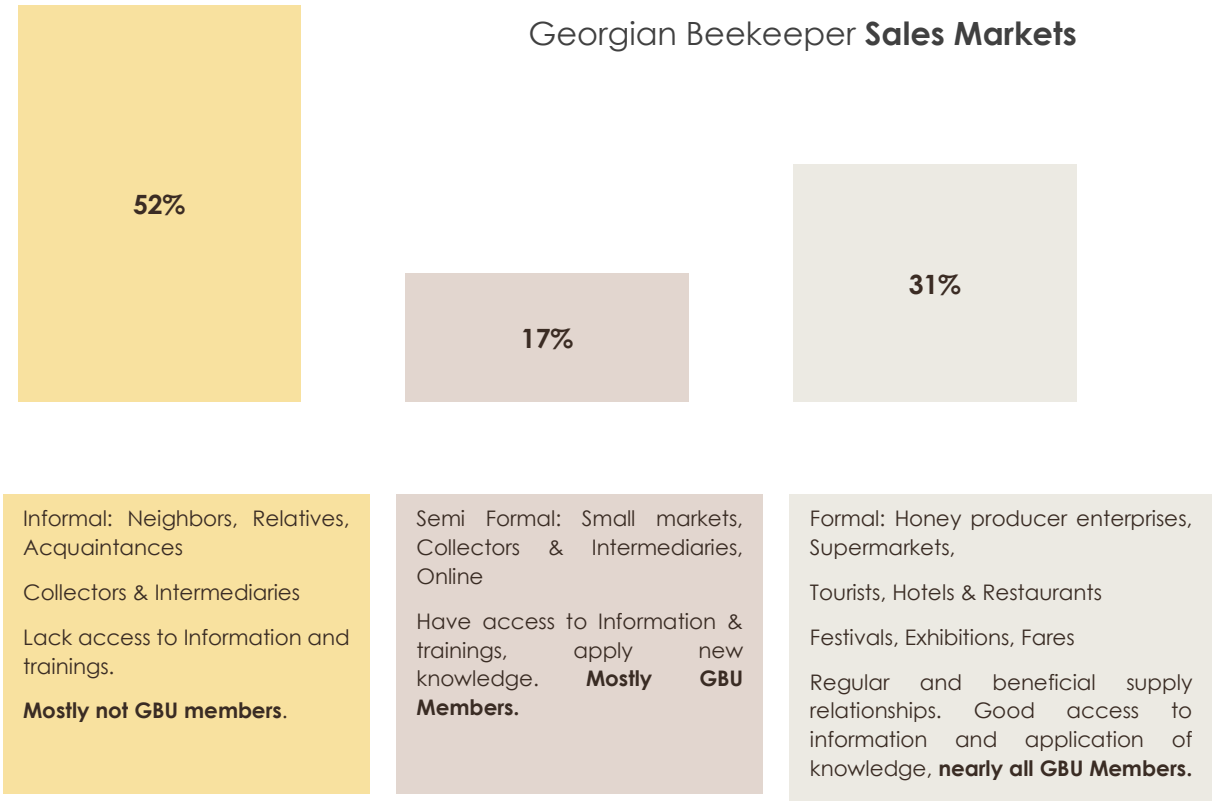

Figure 7: Sales Channel Characteristics for Georgian Beekeepers

[7] ALCP (2020) Georgian Honey Sector Development

By January 2024, beneficiary beekeepers had sold 86% of their honey, while non-beneficiaries had sold 78%. Both groups are benefiting from improved access to markets and are not encountering issues related to unsold honey. However, ongoing programme data and qualitative information indicate that the beneficiary group has access to selling honey to value-added export and HoReCa markets, while non-beneficiaries are dependent on friends/neighbors, agri-markets, and unformalized markets.

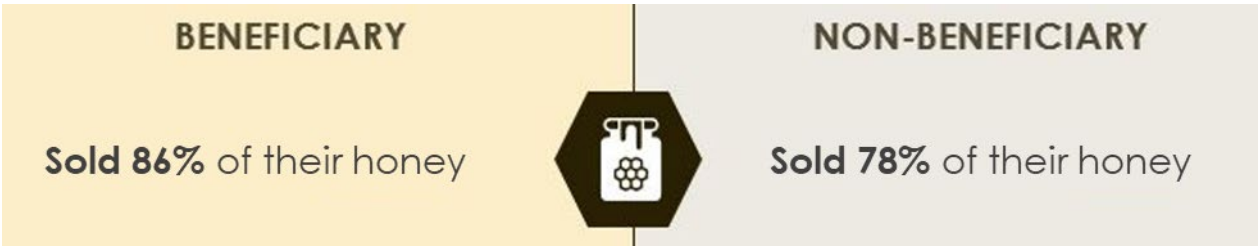

Figure 8: Improved market access for beekeepers in Georgia.

Continuing Investment in Production

Amidst the challenges faced in 2023, beneficiary beekeepers demonstrated resilience and long-term planning by continuing to invest in and expand their beekeeping businesses, while non-beneficiaries experienced a contraction. This strategic investment signals a commitment to future growth and sustainability within the sector. While the impact of these investments may not be immediately apparent (as new beehive takes time to reach full productivity), they hold promise for increased productivity in the coming years as the newly established beehives mature and reach their full potential. This proactive approach highlights a belief in the potential of the beekeeping sector amongst the ALCP2 beneficiaries.

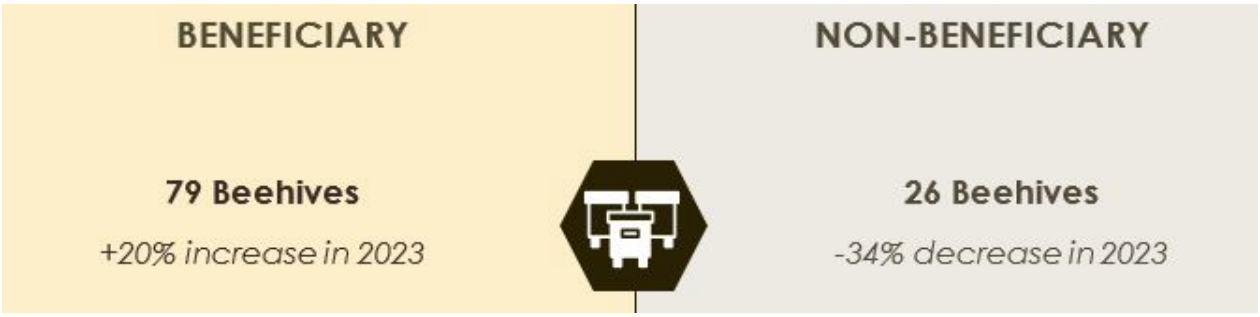

Figure 4: Beekeepers and non-beneficiries investment in new beehives.

Intent and Outlook

Finally, the data showed that respondents had high hopes regarding the future of beekeeping. Their optimistic outlook on the honey sector underscores the positive transformations observed in the sector. The sectoral changes are evidently recognized by beekeepers themselves, reflecting a growing acknowledgment of the sector's potential for growth and development despite (mostly) climate related adversities. As depicted in Figure 7, the vast majority of them reported their intention to invest in beekeeping in the upcoming years. These numbers are notably high, especially considering the adverse conditions experienced in 2023.

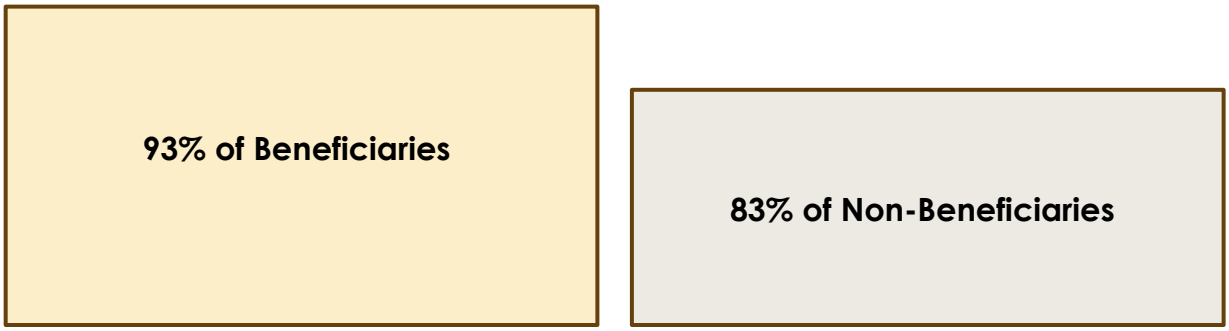

Figure 9: Percentage of beekeepers who reported that they are going to invest in beekeeping in the following years.

CONCLUSION

Based on the above, the prognosis for the next impact assessment is good, particularly if the harvest is less affected by the climate in the year of the assessment. Impact, from more factories sourcing from smaller suppliers, the roll out of climate smart inputs and more targeted and inclusive climate-based extension should also be reflected in the next assessment.

ANNEX 1: HONEY IMPACT ASSESSMENT QUESTIONNAIRE

1. **How many bee colonies (active beehives) did you have at the beginning of 2022 and now?**

	AT THE BEGINNING OF 2022	NOW
Bee hives (active)		

2. **Productivity of beehives: what was the average harvest of honey per beehive?**

	AVERAGE IN 2022	AVERAGE IN 2023
Bee hives (active)		

3. **What volume of honey did you harvest, sell and what were the selling prices (GEL) in 2022 & 2023?**

	2022			2023		
Honey type	**Harvested kg**	**Sold**	**Price /Kg**	**Harvested kg**	**Sold**	**Price /Kg**
Akacia						
Chestnut						
Linden						
Mixed, flowers						
Other						

4. **4.1. Out of the total number of beehives you had, how many bee colonies died (mortality rate) in 2022 and 2023?**
   4.2. How many beehives had the following diseases in 2022 and 2023?

DISEASES:	2022	2023
4.1. Mortality rate		
4.2. Diseases		
Varroa		
Nosema		
American Foulbrood		
Other		

5. **What practices/behaviors are you applying in your beekeeping activities? [more than one response is adapted]**

	ACTIVITIES	YES – 1 NO - 0
1	Regular monitoring of Bee colonies including testing, counting	
2	Controlling and maintaining a steady amount of food in the hives	

3	Controlling microclimate in beehives: ventilation, humidity	
4	Avoiding using antibiotics in bee treatment	
5	Better identify diseases in bees (Varroa, Nosema, American Foulbrood)	
6	Knowing how to act after identifying diseases	
7	Keeping honey in adequate environment such as cool place, not using aluminum containers, etc.	
8	Consider the physical environment when arranging bee colonies such as planting applicable plants, availability of the water (river), wind levels, in the surrounding areas etc.	
9	Produce different bee products (pollen, propolis, queen bee, honey milk, etc.) other than honey	

6. Which of the following statements best describes the current state of your beekeeping business?

1. I am going to expand/ invest more in beekeeping.
2. I am going to maintain my business without big changes planned.
3. I am going to decrease investment in beekeeping.
4. I am going to stop the beekeeping business.

7. BEN: Speaking about the last two years have you done any of the following activities:

ACTIVITIES	YES
Attended beekeepers training organized by Georgian Beekeepers Union/ RDA?	1
Received beekeepers' SMS from GBU	1
Received consultation (F2F, Telephone/from GBU from GBU (Aleko Papava)	1
Attended/ watched online meetings at Georgian Bee FB pages?	1
Received beehives sublimation, smoking equipment	1
Supplied honey to API GEO (Gia Ioseliani)	1
I have Jara Beehives	1

8. Participant information

AGE	
Gender	
Ethnicity	
Village, Municipality, Region	