

Baseline Study of the Armenian Wine Sector



Prepared for German Agency for International Cooperation



implemented by
giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

December 2014

Contents

| | |
|--|----|
| 1. Executive Summary | 3 |
| 2. Study Methodology | 5 |
| 3. Sector Background | 6 |
| 3.1. Trade dynamics | 8 |
| 3.1.1. Trade geography..... | 9 |
| 3.2. Statistical and Macroeconomic Indicators..... | 11 |
| 4. Study Results | 12 |
| 4.1. Winemaking companies survey: situational assessment..... | 12 |
| 4.2. Management Systems and Skills Assessment Survey | 25 |
| 4.3. VET Graduates Survey | 27 |
| 5. Recommendations | 33 |
| 6. Appendices | 36 |
| Appendix 1. Winemaking companies that have participated in the baseline survey. | 36 |
| Appendix 2. Management Systems Assessment Questionnaire average ranking. | 37 |
| 7. References | 40 |

1. Executive Summary

Armenia has been well known for wine production for many centuries. In 2011 American archeologists discovered six thousand years old winery in the caves near the village Areni. During Soviet times, in 1980-s Armenia annually processed more than two hundred thousand tons of grapes. The industry was particularly specialized in wine, brandy and sparkling wine making. Nearly 25% of brandy produced in the Soviet Union was made in Armenia. Needless to say that most of it was consumed in Russia. In early 1990-s, after the collapse of the Soviet Union, the industry as a whole collapsed and production volumes declined sharply. Wine industry also shrunk dramatically.

During late 90-s and early 2000-s the sector started to grow slowly. However, the main driver of the sector was mainly brandy production. During recent years the volumes of wine production also started to recover. Exported wine and brandy are mainly supplied to the Russian market. Recognizing the importance of the sector for the country's economy, Government of Armenia incorporated improvement of winemaking industry within the Development Strategy for 2015-2025.

Earlier studies conducted revealed series of problems that exist in winemaking industry today:

- Technology and equipment in wineries need to be replaced.
- Production and quality control systems do not correspond to the international requirements.
- There is a lack of specialists for key winemaking positions, such as wine technologist or laboratory specialist.
- There is a need for short-term and long-term training, since most of professionals that graduate from wine-related departments in higher or vocational education institutions do not possess necessary skills and practical experiences to contribute to the production process.

Responding to the need for wine sector development in Armenia, the German Society for International Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit - GIZ) initiated this baseline study with the aim of exploring the current state of the wine sector, identifying macroeconomic, statistical and sector-based baseline indicators for development monitoring, highlighting the relationships and communication between industry, suppliers, and institutional partners or stakeholders. The baseline study is intended to deliver grounds for comparisons and judgment about the development results achieved by the intervention of this GIZ Private Sector Development program in South Caucasus program in case GIZ continues the support of the wine sector. This baseline study will provide insights to the wine sector with the help of quantitative and qualitative data, and will provide appropriate information for GIZ-PSD program in Armenia.

Within the scope of this study, desktop research was conducted to reveal sector statistics and current state of the industry. Also there were series of surveys conducted with wineries' managers and decision makers as well as with VET graduates from relevant winemaking specialties.

Baseline findings can be summarized as follows:

- Farm level: low input quality and lack of some grape varieties wineries would like to procure. On the other hand, the price for grapes is not very high and farmers may be paid even after 2

months from the procurement day.

- Wineries: need for financial means mainly to obtain new and more efficient equipment (for production or laboratory), need for key specialists to run the production, need for management systems upgrade: in particular it was revealed that many wine producing companies do not have marketing departments at all and some have never been involved in the market research. Some wineries reported that they have never implemented solid financial analysis and capital budgeting calculations. So there is a need to reconsider the role of marketing and financial departments, as well as to strengthen research division in the winemaking industry. Although most of companies organize visiting tours, but only a few had wine tasting rooms. This culture needs to be put into practice, since it will contribute to customer awareness about the wine varieties produced and will eventually boost wine sales through wine tours.
- Government level: need for improved taxation systems (e.g. discriminate between producers that use local input and imported ethyl spirit), apply different taxation scheme for small producers to support their entry into the market, simplify export procedures. It is very important to promote creation of famous wine regions that will be presented with small scale wine productions and small own wine taverns adjacent to households. In Armenia the majority of these enterprises/households that have their own vineyards are not able to produce and sell wine due to high tax rates and complicated procedures associated with sales.
- Educational system: there is very low compliance of academic curricula to the industry requirements – there is a need for improved curricula for wine making specialties and introduction of revised internship programs to enhance vocational education. Short-term practical training on specific topics and dual educational system (work and study simultaneously) are needed to provide specialists with hands-on knowledge in the field of specialization.

2. Study Methodology

For identifying actual performance in the context of baseline-study, ICARE is establishing a consistent database of the Armenian wine industry and its environment (i.e. former research point). It shows the main participants of the wine industry, as well as the impact on the participants of the wine industry and the participants beyond the wine industry and their correlation and interdependence.

Data Sources

There were two main data sources used for the study:

| Secondary Data Sources, including: | Primary Data Sources, including: |
|---|--|
| <ul style="list-style-type: none">- Reviewing previous research conducted on the wine making industry;- Reviewing and analyzing available statistical information from publically available sources (e.g. NSS, FAOSTAT databases);- Studying trade data and analyzing wine export and import trends;- Studying existing regulations and policy related to wine production. | <ul style="list-style-type: none">- Survey of winemaking companies: Situational Assessment- Survey of winemaking companies: Management Systems and Skills Assessment- Survey of VET graduates: Winemaking Specialties- Expert assessment of the legislative environment and the industry. |

Methodology:

To be able to identify and evaluate wine industry baseline indicators, there was a need to study current state of wine producing companies, the ease of operating in the market, relations across the value chain, further development expectations, as well as conduct Management Systems and Skills Assessment.

Three surveys were conducted in addition to the desk research. These instruments provide general information on production, discuss problems and obstacles the company might face, reveal management perception about all procedures throughout the value chain, as well as identify relevance of workforce qualification (issues of skills shortage, skills gap and underemployment), responsiveness of VET institutions to the requirements of enterprises and to the needs of the private sector.

During the study, all wineries operating in Armenia were visited and face-to-face interviews were conducted with the directors and/or wine technologists. As of October 2014, around 35 companies involved in wine production were identified in Armenia, but 5 of those were newly established and did not have any wine production yet¹. The ICARE research team contacted all those companies, but the

¹ www.minagro.am states that there are 50 grape processing companies operating in Armenia. There are a few companies that produce only wine, the rest produce wine, brandy, vodka and fruit wines.

number of responding companies was 27. The detailed list of companies participating in the survey is presented in Appendix 1.

The **first survey** conducted with wineries' management is intended to reveal general information about the wineries, show collaboration areas and methods between participants of the wine value chain, disclose the state of employee skills and qualifications, as well as discuss industry developments. Main parts of the survey are:

- General information about the company
- Cooperation with value chain participants
- Employees' skills assessment
- The state of the sector and further development expectations

Within the scope of the **second survey**, Management Systems and Skills Assessment was implemented. This survey is conducted with the company manager or operating director and provides information about management practices and efficiency assessment across five components necessary for business development: Production, Innovation and Technologies, Strategic Management, Marketing and Sales, and Finance. Through 5-point Likert scale, the relative importance of each characteristic as well as the ranking of each category was shown. The survey components were adapted using a model called Management Competency Value Chain² that reveals Management performance across seven areas of Management: Innovation Management, Strategic Management, Marketing Management, Financial Management, HR Management, Operations Management, and Management Information Systems.

During the **third survey**, VET graduates from wine-related specialties were reached and interviewed over the phone. The research team could access the relevance of graduates' job to their education, their salary levels, as well as get their perception about the education they got.

3. Sector Background

Grape wines were produced in Armenia for several Millenniums. The world's oldest winery was discovered on the territory of Armenia in 2011³. It dates back to 4000 B.C. and proves that the tradition of wine making in Armenia is nearly as old as the country itself. During the last century wine production volumes in Armenia have increased drastically. It needs to be mentioned that after 1985 when the peak of grape production in Armenia was observed, there was a noticeable decline of grape production volumes mainly due to aging vineyards.

The grape/fruit wine and brandy sector in Armenia is one of crucial segments for economic growth and employment. Consequently, the private sector development programs by the government and other stakeholders are paying special attention to the progress of the Armenian wine sector. A clear definition and statement towards sustainability and the awareness between the wine industry and its impact beyond the wine industry will be of further importance.

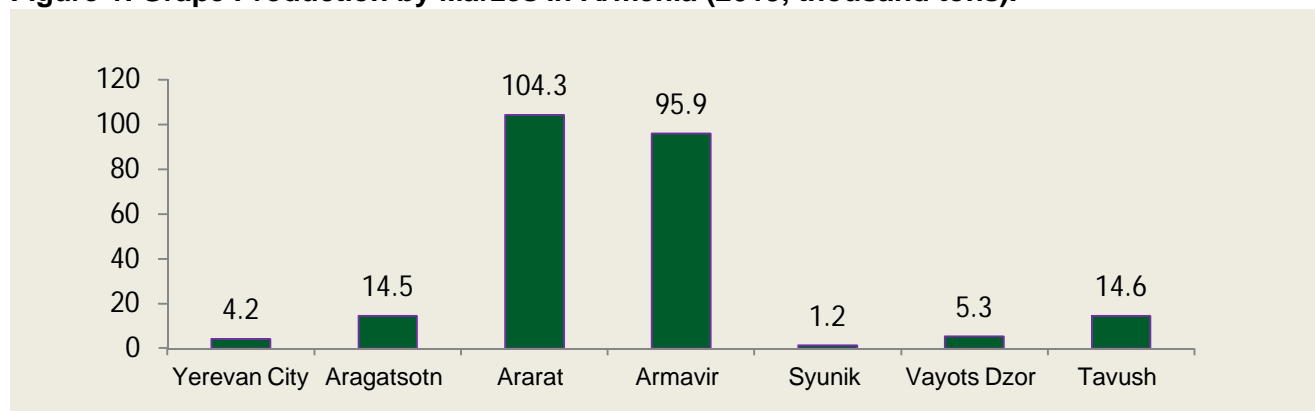
² *International Professional Managers Association* - <http://www.ipma.co.uk/management-competences.php>

³ *Discovery news, citing Journal of Archaeological Science*- <http://news.discovery.com/history/art-history/winery-oldest-armenia-110111.htm>

The 2014-2025 development policy⁴ set by the Government of Armenia seeks to develop several sectors that will contribute to economic growth and poverty reduction. Private sector development, business environment improvement and vocational education are within the main focus of the policy. In particular 2010-2020 Sustainable Agricultural and Rural Development Policy prioritizes high-value added processing industries, such as wine production⁵.

Armenia has climate and soil characteristics that suit grape production. Main grape producing regions are Ararat Valley, Ararat Valley foothills, North-East of Armenia, Vayots Dzor. Grape production distribution by producing regions (Marzes) of Armenia is presented in the Figure 1.

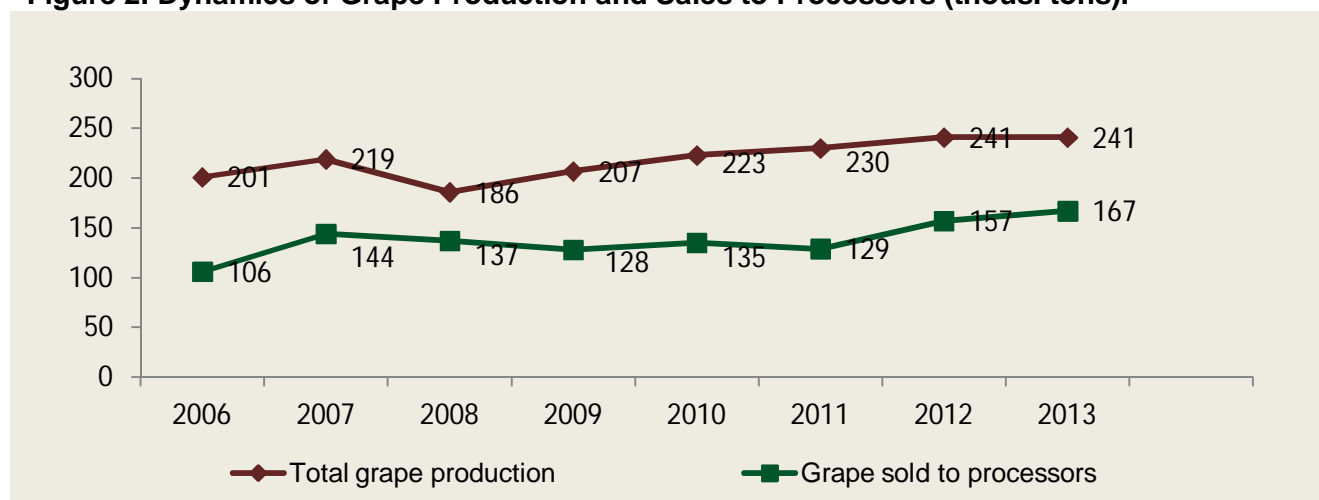
Figure 1. Grape Production by Marzes in Armenia (2013, thousand tons).



Source: NSS.

Over 83% of grape production in Armenia is in Ararat and Armavir Marzes. Not surprisingly many processing plants are located in these two marzes to minimize transportation expenses and avoid grape fermentation in the transportation process. Grape production in the country has an increasing trend. Figure 2 shows that grape production volumes have increased from 186 thous. tons in 2008 to 241 thous. tons in 2013.

Figure 2. Dynamics of Grape Production and Sales to Processors (thous. tons).



Source: NSS.

⁴ RA 2014-2025 Sustainable Development Strategic Program <http://www.gov.am/files/docs/1322.pdf>

⁵ RA Sustainable Agricultural and Rural Development Policy for 2010-2020. www.minagro.am

In 2007-2011, growth in the production volume was observed due to the increase in both local and foreign investments over the recent years. During the last few years, large investments were made in the winemaking sector, especially for purchasing progressive technologies and modernization of production processes. Areas under grape cultivation also increased during recent years. Some processors choose to have their own vineyards to be able to grow specific varieties of grape. This contributes to increased areas under grape cultivation.

Figure 3. Wine and brandy production in 2006-2013 (mln. liter).



Source: NSS

Volumes of wine and brandy produced in Armenia have been showing a steady growth. There was a slump in production in 2009, which was an echo to financial crisis consequences, but from the next year on the increasing trends continued. The Figure 3 shows the statistics on wine and brandy production from 2005 to 2013.

The figure shows that brandy production nearly doubled during last five years. Wine production experiences a slower growth and has increased from 4.4 to 6.4 mln. liters in the last 5 years. Taking into consideration favorable Government policies for wine production⁶, and the number of newly established wineries, it will be reasonable to assume that the volumes of wine production are expected to grow.

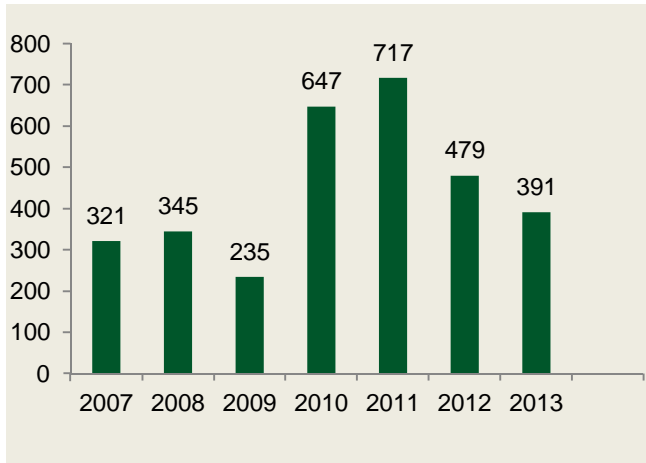
3.1. Trade dynamics

During recent years wine exports, as well as local wine sales have noticeably increased. Nevertheless per capita wine consumption is still very low. This fact is brought forward as one of the obstacles for wine industry development by EV Consulting in their study of the Armenian wine making sector⁷. Wine imports dynamics over the last years is presented in the Figure 4 below.

⁶ Food Processing Guide, 2014 Published by the Ministry of Economy and the Ministry of Agriculture of the RA with the support of USAID and EDMC, page 21.

⁷ "Armenian Winemaking Sector Assessment, Development Strategy and Action Plan" EV Consulting, 2012, page 6

Figure 4. Wine Imports in 2007-2013 (000 lit.)



Source: NSS

Figure 5. Wine Exports in 2007-2013 (000 lit.)



Source: NSS

Decline in import volumes from 2008 to 2009 can be attributed to post-crisis shocks that in countries like Armenia are experienced with a slight delay. After 2009 the imports have increased nearly 3 times and amounted to 717 thous. liters in 2011. It is interesting to note that during next two years imports of wine declined nearly two times. This can be explained by the increased consumption of local wine and by the fact that within last few years several Armenian producers introduced wine varieties that have gained international recognition in the very short period of time. Armenian exports of wine (both grape and fruit wine) have been steadily increasing during the recent years. The volumes of wine exports have nearly tripled from 2008 to 2013. The monetary value of the grape and fruit wine export in 2013 comprised about 8 mln. USD of which 4.3 mln. USD was grape wine. These numbers are still expected to grow, since number of new producers had obtained wine production license during the last year and some of those are pure export-oriented.

3.1.1. Trade geography

Export dynamics by countries show that within the last years Armenian wine market expanded to Belarus, Greece, Israel, Latvia, Kazakhstan and Italy. Larger exports volumes in new markets were observed in Kazakhstan and Israel where the obvious preference is given to the fruit wine (see export breakdown by countries in Table 1).

Lithuania, Poland and France represent promising markets where overall sales have a growing tendency; in fact fruit wine volumes exported to these countries have increased nearly 3 times over two years.

Russian market has been the biggest consumer of Armenian wine followed by the USA and Germany. Russia shows increasing export volumes every year, while the US and German markets are shrinking. During the last year there were no wine exports to Czech and Slovenian markets, so in some sense these markets were lost for the Armenian wine.

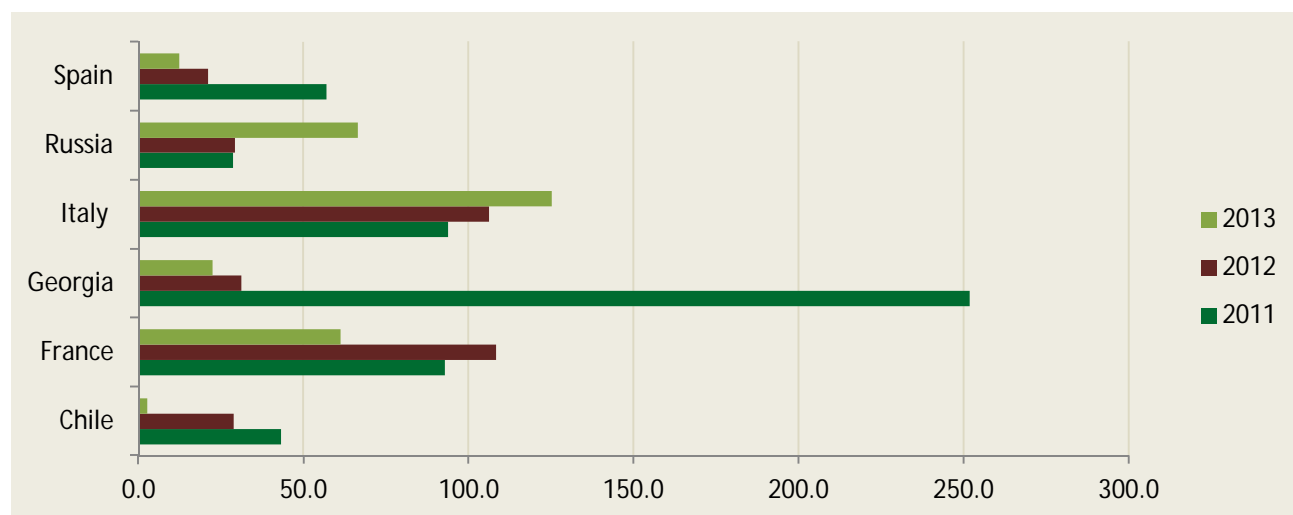
Table 1. Wine export, by countries

| | | | 2011 | 2012 | 2013 |
|-----------------------|------------|-------|-------|-------|--------|
| Belarus | | | | | |
| | Grape wine | th.l | | 11.7 | 18 |
| China | | | | | |
| | Grape wine | th. l | 0.3 | 3.8 | 0.1 |
| | Fruit wine | th. l | 12.9 | 1.1 | 19.8 |
| Czech Republic | | | | | |
| | Grape wine | th. l | 6.8 | 13.1 | |
| | Fruit wine | th. l | 3.0 | 7.2 | |
| France | | | | | |
| | Grape wine | th. l | 9.1 | 19.9 | 7.6 |
| | Fruit wine | th. l | 3.9 | 4.8 | 8.4 |
| Georgia | | | | | |
| | Grape wine | th. l | 11.6 | 20.8 | 27.8 |
| | Fruit wine | th. l | 1.1 | 0.7 | 1.2 |
| Germany | | | | | |
| | Grape wine | th. l | 1.4 | 6.2 | 1.8 |
| | Fruit wine | th. l | 80.2 | 71.8 | 47.6 |
| Greece | | | | | |
| | Fruit wine | th. l | | | 5.4 |
| Israel | | | | | |
| | Fruit wine | th. l | | | 26.9 |
| Italy | | | | | |
| | Grape wine | th. l | | 0.3 | 5.7 |
| Kazakhstan | | | | | |
| | Grape wine | th. l | | | 3.4 |
| | Fruit wine | th. l | | 10.7 | 26.0 |
| Latvia | | | | | |
| | Grape wine | th. l | | | 1.2 |
| | Fruit wine | th. l | | | 5.4 |
| Lithuania | | | | | |
| | Grape wine | th. l | 17.4 | 31.9 | 24.4 |
| | Fruit wine | th. l | 23.8 | 56.1 | 63.5 |
| Poland | | | | | |
| | Grape wine | th. l | 4.4 | 5.5 | 5.2 |
| | Fruit wine | th. l | 3.5 | 8.4 | 9.1 |
| Russia | | | | | |
| | Grape wine | th. l | 582.7 | 962.6 | 1228.6 |
| | Fruit wine | th. l | 494.9 | 655.7 | 828.2 |
| Slovenia | | | | | |
| | Grape wine | th. l | 0.9 | | |
| | Fruit wine | th. l | 10.4 | | |
| Ukraine | | | | | |
| | Grape wine | th. l | 4.5 | 7.9 | |
| | Fruit wine | th. l | 42.6 | 31.3 | 31.0 |
| USA | | | | | |
| | Grape wine | th. l | 55.6 | 46.8 | 21.6 |
| | Fruit wine | th. l | 187.1 | 135.5 | 136.8 |

Source: www.customs.am

Wine import dynamics by the country of origin is presented in the Figure 6 (the six countries presented in the figure are responsible for 82% of wine imports to Armenia). As it was mentioned above, the imports of wine have noticeably decreased. Imports from Georgia and Chile fell more than ten times in the last two years. As opposed to that, imports from Italy and Russia increased.

Figure 6. Wine imports by the country of origin (thous. liters).



Source: www.customs.am

3.2. Statistical and Macroeconomic Indicators

With the purpose of monitoring wine production development over time, a list of indicators that has to be studied and analyzed throughout several years was developed. The list of indicators is presented in the Table 2 below. It was agreed that both Macroeconomic indicators, such as gross production of grapes or wine export/import data, and specific winery data, such as price of one kg of grape procured will be reflected in the list. Some data was accessible through official statistics (ARMSTAT and RA Customs databases), some was obtained from the wineries' survey, and some was calculated by the research team.

Table 2 . Macroeconomic and Statistical indicators – baseline values.

| Indicator Name | Baseline Value, 2013 |
|--|----------------------|
| Production, procurement and processing | |
| Gross production of grapes, K tonnes | 240.8 |
| Procured grape by wineries, K tonnes | 167 |
| Grape and fruit wine production volume, M liters | 6.42 |
| Number of hectares under grape cultivation | 17,500 |
| Average grape yield per hectare, tones | 14.98 |
| Average price per kilo of procured grape (AMD) | 175 |
| Average price per kilo of procured Areni (AMD) | 210 |
| Production potential | |
| Number of wineries in operation | 35 |
| Total workforce involved in wineries | 1466 ⁸ |

⁸ Total number of employees in 27 wineries surveyed.

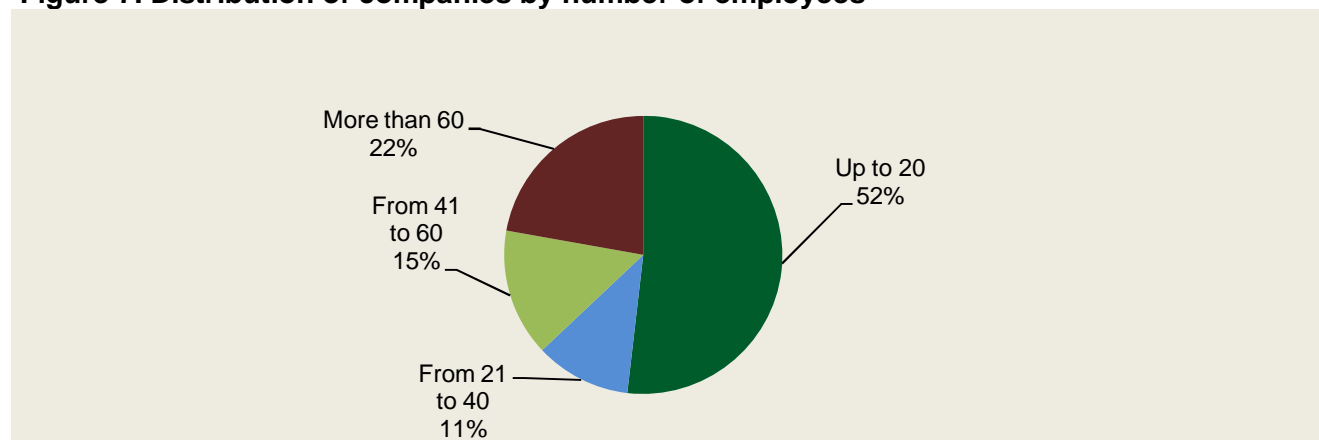
| | |
|---|-------------------|
| Average number of winemakers employed by each winery | 3 ⁹ |
| Import and export | |
| Grape wine export volume, M liters | 1.4 |
| Fruit wine export volume, M liters | 1.24 |
| Wine import volume, M liters | 0.39 |
| Grape wine export volume to CIS, M liters | 1.38 |
| of which Russia, M liters | 1.23 |
| Grape wine export to EU, M liters | 0.01 |
| Wine export value, mln. USD | 8.02 |
| Consumption | |
| Number of specialized wine stores/ tasting rooms in the country | 10 |
| Number of wine bars | 7 |
| Amount of per capita wine consumption (Liters) | 1.8 ¹⁰ |
| Number of locally produced wine varieties/labels | 220 |

4. Study Results

4.1. Winemaking companies survey: situational assessment

General description of winemaking companies: The Figure 7 below shows that there are very few big scale wine productions in Armenia. About 52% of companies surveyed had less than 20 people permanently employed in the winery and only 22% of those had more than 60 people permanently employed in the company. Wineries usually hire some seasonal help during grape procurement period. Number of seasonal employees can be twice as much as number of permanent employees in the company.

Figure 7. Distribution of companies by number of employees



Source: ICARE

⁹ The total number of winemakers in 27 wineries surveyed was 95, which brings average number of winemakers to 4 but since 20 specialists are employed in sparkling wine factory, that has only negligible volumes of wine production, the average number of wine-makers was reduced to 3.

¹⁰ Per capita consumption of wine was calculated based on volumes of wine consumed in the country (wine production added wine imports subtracted wine exports) and number of population over 15 years old.

About 35% of all wineries surveyed claimed that they have less than 20% female employees. Another 35% of employers reported the share of female employees is between 40% and 60% of the total number employed. As opposed to that, 8% of wineries mentioned that more than 80% of their staffs are female.

31% of companies claimed that from 61% to 80% of total number of employees are people under 35 years old. It is worth to mention that 3 wineries claimed that more than 81% of their staff is under 35 years old.

It is a common practice that wineries may produce alcoholic beverages other than wine as well. Companies surveyed were producing four main groups of beverages:

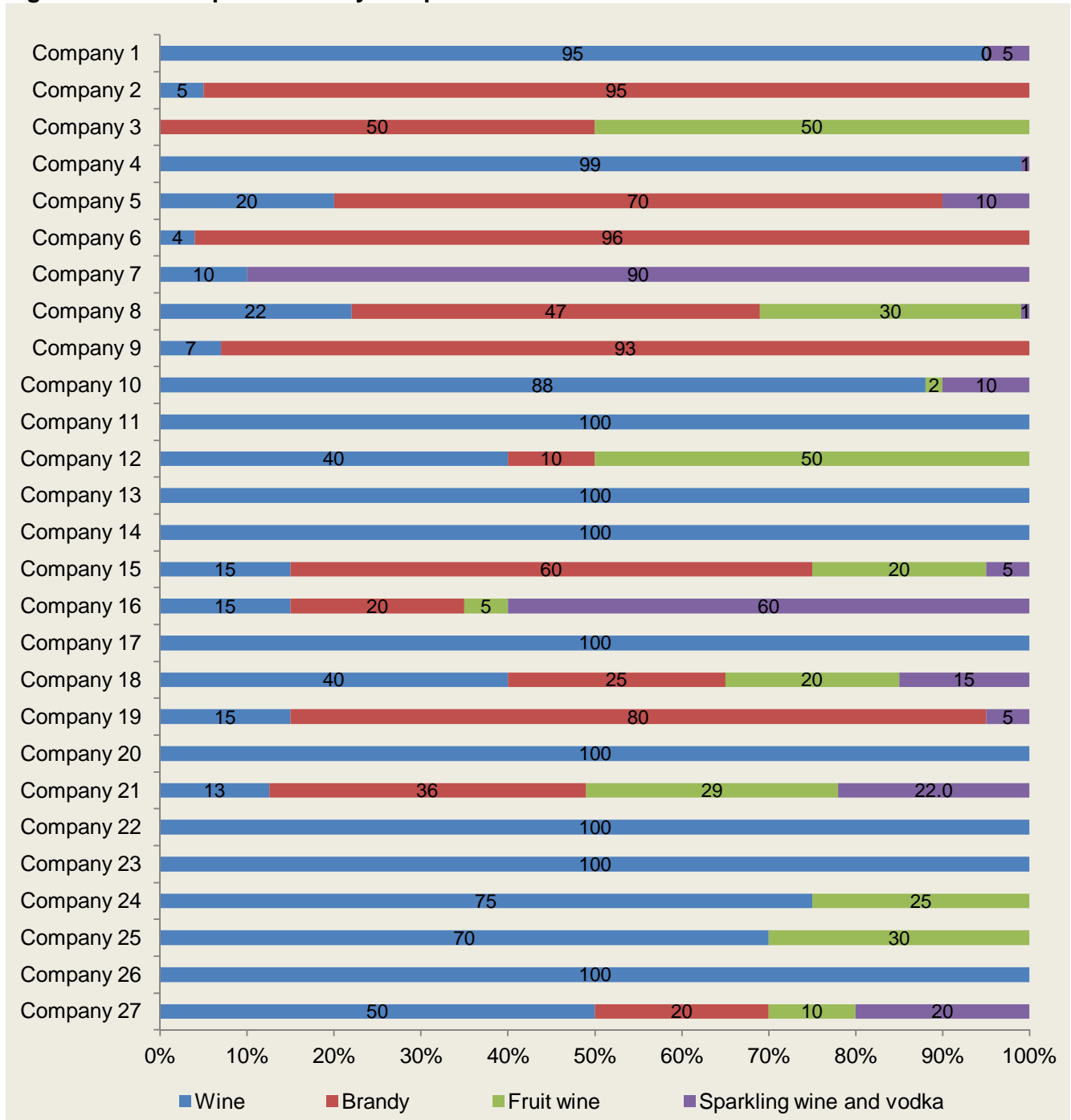
- Wine,
- Fruit wine
- Brandy
- Sparkling wine and vodka

The distribution of production by these four groups by companies is presented in the Figure 8 below.

Apparently beverages produced by most of companies are wine and brandy. Ten out of 27 companies surveyed produce only wine (grape wine or fruit wine). This number is two times bigger than that reported to ICARE research team in 2013.

Total amount of grape processed by 23 of surveyed companies was 82 thous. tons. About 2% of wine was wasted by all companies during the production process.

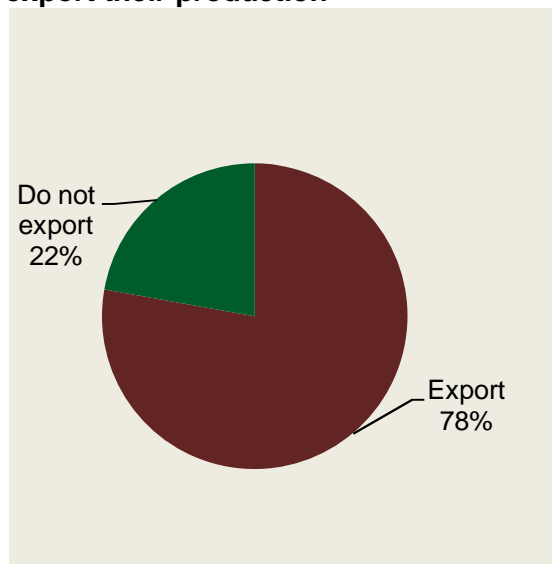
Figure 8. Share of production by companies



Source: ICARE

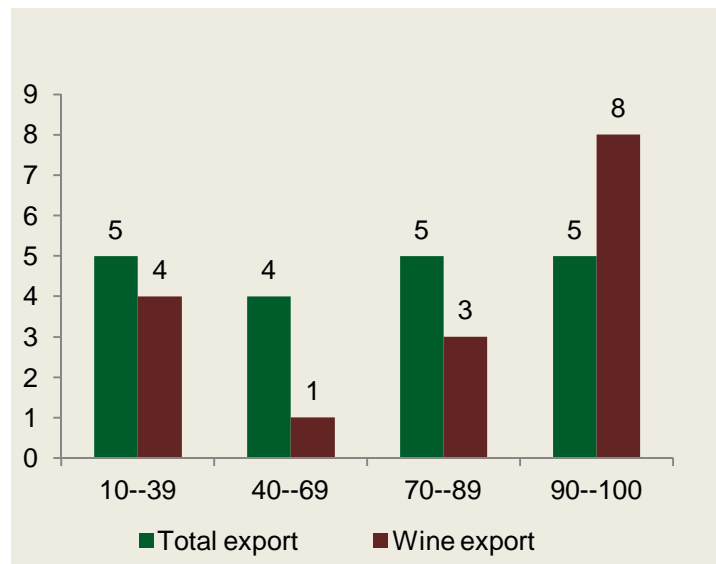
The average winery capacity was about 7-8 times more than the actual production volumes. Almost 80% of companies surveyed export their production, be that a wine, brandy or vodka (See Figure 9).

Figure 9. Share of companies that export their production



Source: ICARE

Figure 10. Exports as a share of total production



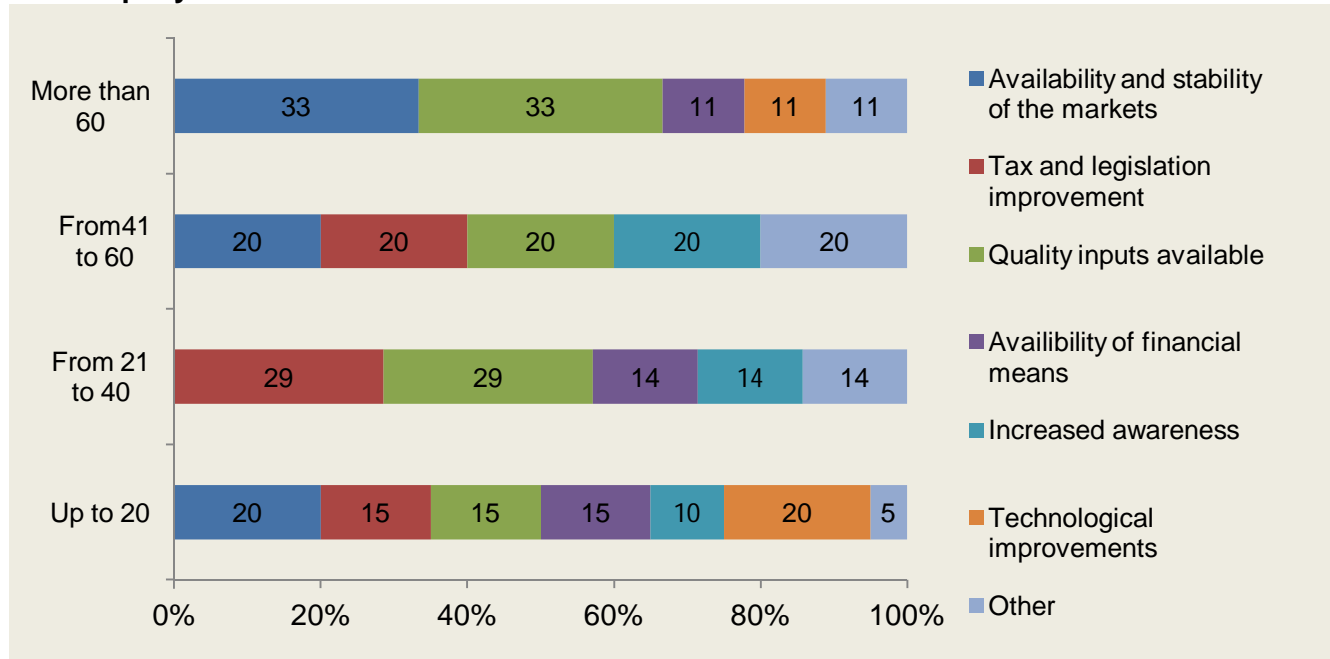
Source: ICARE

For those who exported, the average share of exports was about 60% of company total production. 8 companies, i.e. roughly half of those who export wine, reported that they export more than 90% of the wine produced.

However nearly all producers agreed about existence of certain pre-conditions that need to be present for increased volumes of exports. Availability and stability of foreign market, as well as availability of high quality inputs were mentioned by over 30% of respondents answering this question. To see whether there are preconditions that were important for smaller or bigger companies, we can take a look at the cross-chart of conditions that will promote exports by the number of company employees (or by size of the company) on Figure 11. It is clear that availability of quality inputs (grapes) is the main concern – no matter the size of the company. Most of bigger companies are also concerned about availability and stability of foreign markets.

Companies with less than 60 employees mentioned that they would need to increase awareness on their product in the foreign market. Need for tax policy and legislation improvements were also mentioned only by companies that have less than 60 employees. Only very small and very big companies mentioned technological improvements as a precondition for exports.

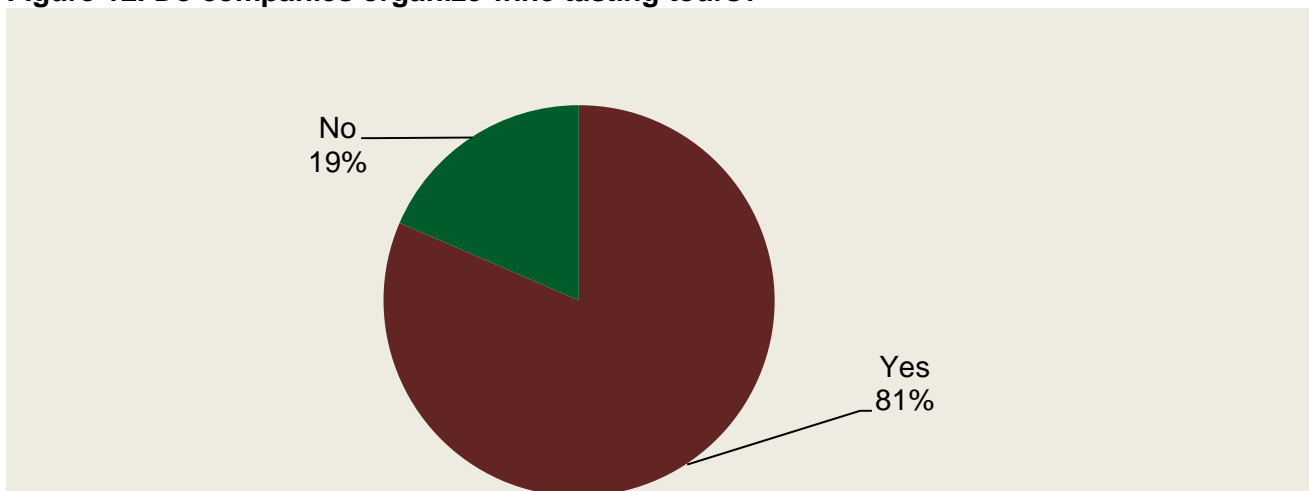
Figure 11. The main conditions that will promote increased exports of production by size of the company.



Source: ICARE

Out of 27 surveyed companies only 18 mentioned that they were hosting visitors in the production. They had 12,203 visitors during 2013, which makes average number of visitors per factory about 677. The average share of wine sold during tasting tours was 5%. The share of wine sold during production visits is usually very low, with an exception of four factories. One of those reported that share of wine sold during tasting tours was about 40% of total sales, and another three said it was 10-15%. These practices can be studied and replicated for other wine producers. It is also worth mentioning that these four factories are responsible for 80% of all visits to wineries (9,650 visits).

Figure 12. Do companies organize wine tasting tours?



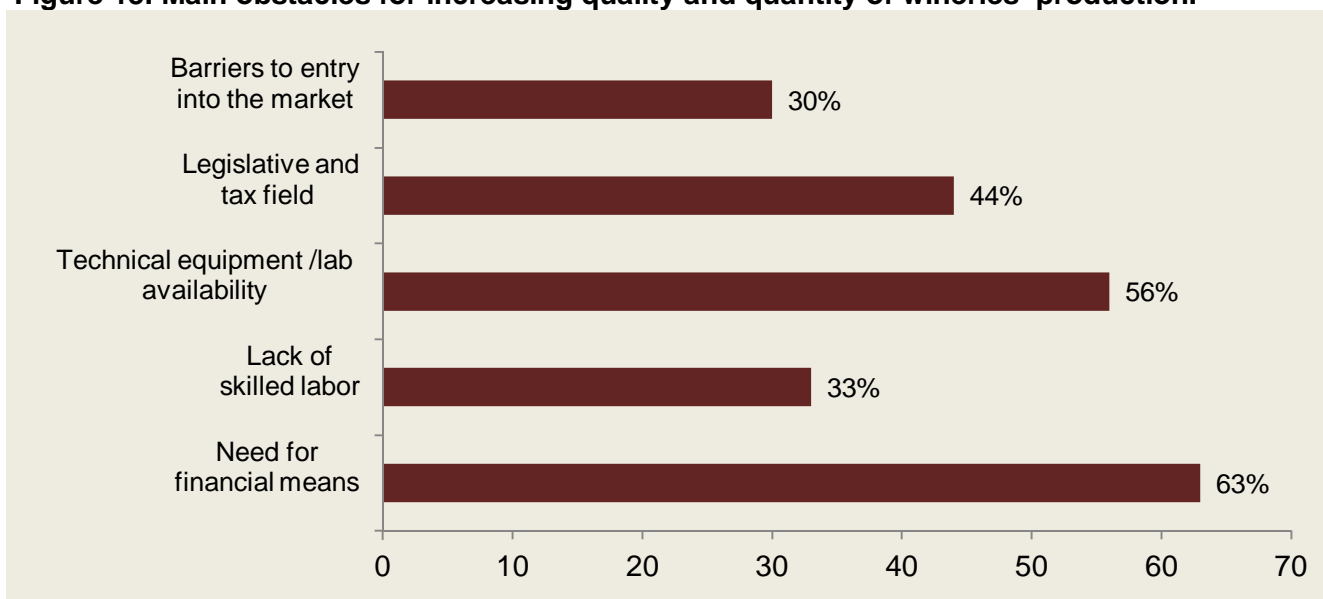
Source: ICARE

About 70% of surveyed companies have a wine tasting room. Some companies did not have a wine tasting room, because they did not see a need for one.

About half of companies participated in local or international expos. In average each company participated in one local and one international expo, except for one company that reported participation in 10 local and 12 international expos.

Increasing quantity and quality of wineries' production is the focal point of all companies and one of the priorities of the Government of Armenia in the strategic plan for the next decade. There are several obstacles companies face for achieving higher sales volumes and quality excellence (as mentioned by responding companies in Figure 13). About 63% of companies mentioned that they need more financial means, and over 55% mentioned the need for better technologies and/or need for own laboratory. 44% of companies believe that higher volumes and better quality will be achieved if there are improvements on the legislative and tax fields, and about one third of companies need skilled labor.

Figure 13. Main obstacles for increasing quality and quantity of wineries' production.



Source: ICARE

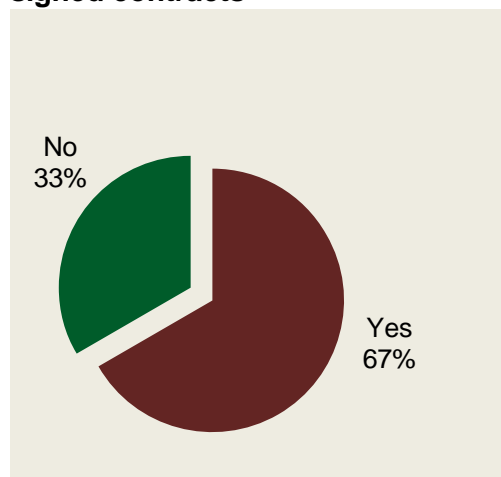
Collaboration with other participants of the supply chain

Within the second section of the questionnaire main collaboration with other participants of the value chain was analyzed, including farmers, other wineries, consulting companies, educational facilities, business community and unions as well as other state or private bodies.

Collaboration with farmers is of a great importance, since it ensures grape availability for a winery production. Nearly 67% of wineries mentioned that they collaborate with a certain group of farmers while securing the grape supply. Some wineries did not really have any previously signed contracts, but mentioned that have a group of farmers as their usual suppliers. These answers were also included in the Figure 14 as contractual agreements. Wineries obtain the grape both from small (up to

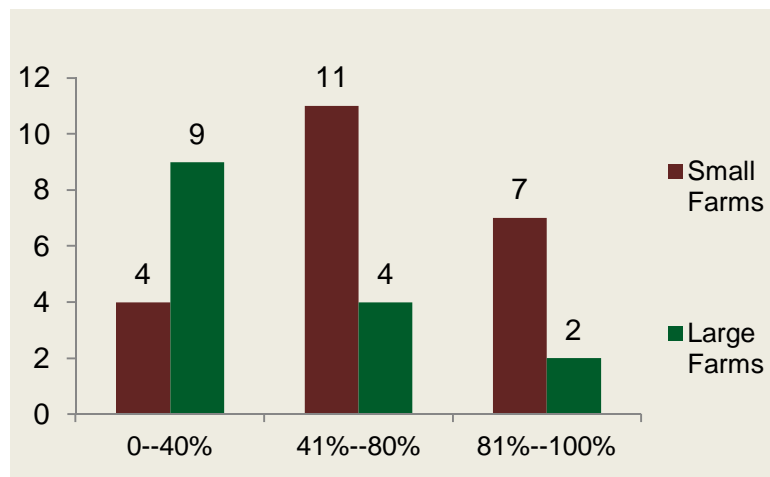
2 ha) and from large farms (over 2 ha), but since number of large farms is not very big, only up to 40% of grape is procured from those in most of the cases. In contrast, majority of wine producers purchase over 40% of the grape needed mainly from small farms. Few companies had their own vineyards, so these questions were not applicable for their case.

Figure 14. Share of wineries that procure grape based on previously signed contracts



Source: ICARE

Figure 15. Share of grape procured from small and large farms



In case of grape procurement, the average price paid for a kg of grape was about 175 AMD. The farmers were paid immediately in more than 40% of cases observed, whereas 9% of wineries reported processing the payment to farmers after more than 2 months period.

Almost one third of companies support their suppliers (farmers) through providing advice, transporting the grape, financing purchase of fertilizers or new grapevines, or providing advance payments. Cases of transportation support and advice provision have the highest share – 36% and 34%, correspondingly.

Nearly 75% of wineries mentioned that they collaborate with each other, mainly through experience sharing. There were also a few cases, when wineries shared some equipment (often used other processor’s laboratory); implemented joint production processes or cooperated during marketing and selling their production in Armenia or abroad.

When it comes to collaboration of wineries with education system, it seems that wineries do not see a lot of use from the VET and University instructors’ consultancy. Only one production plant hired a VET instructor as a professional advisor, and 5 wineries asked University instructors for a consultancy in 2013. As opposed to that, wine industry management believe they can be useful while developing curricula for wine production related specialties; 37% of managers are participating and 78% are willing to participate in the process of curricula development for Universities or VET-s.

Only 9 out of 27 wineries accepted VET interns, and 23 accepted interns from various Universities.

Skills and professional knowledge of employees

There were total of 95 winemakers employed within 27 wineries that participated in the survey. Compared with the ICARE study conducted last year, there was a noticeable increase in the number of winemakers (up from 79 winemakers). This implies that the average numbers of winemakers to 4, but since 20 specialists out of these 95 are employed in sparkling wine factory that has only negligible volumes of wine production, the average number of winemakers (involved in wine production) was reduced to 3. The number of winemakers by plants is presented in the Figure 16.

Figure 16. Distribution of winemakers by companies.

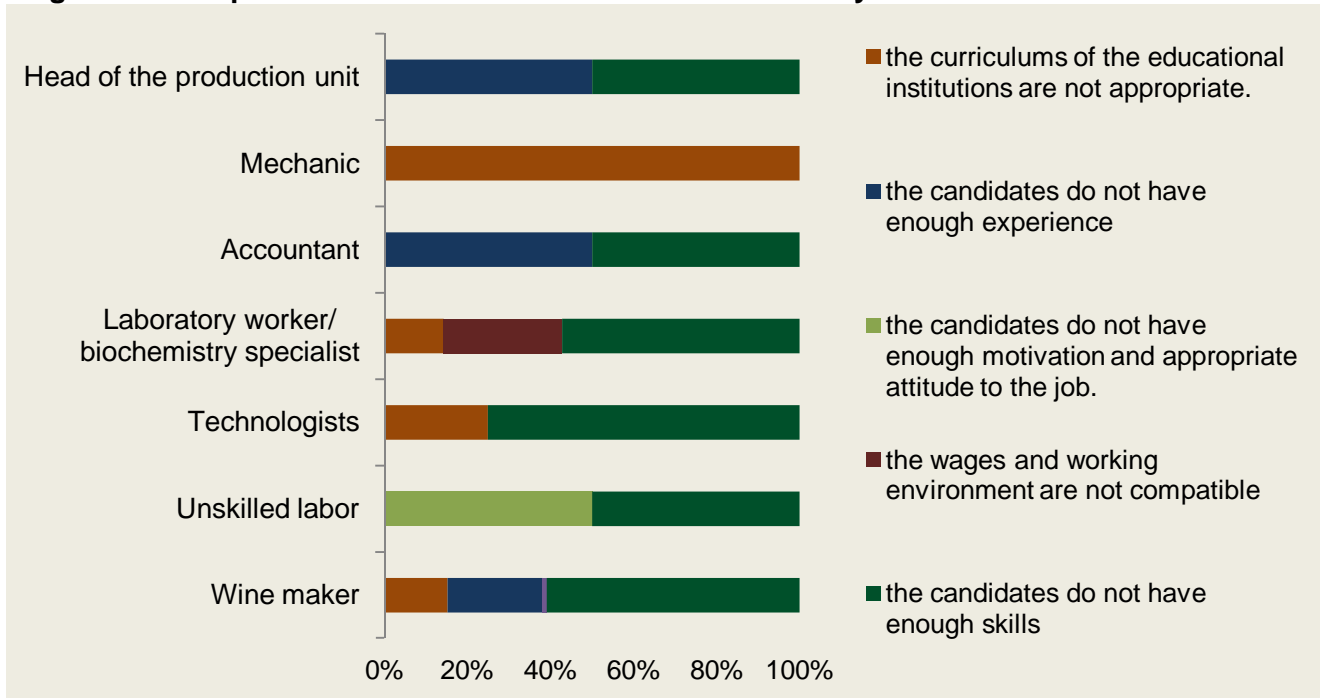


Source: ICARE

Wine production plants mainly hire people through announcements. This option was selected by 76% of respondents. 48% mentioned that they hire people through personal connections; about 32 % of surveyed Managers also mentioned that they hire people via company web-site and directly from Universities, and only 8% mentioned career centers.

Even though the companies figured out how to recruit employees, there are still some jobs that are hard to fill. Surveyed managers pointed out that there is lack of specialists with necessary skills nearly across all problematic positions. In addition to that, they mainly mentioned that candidates do not have enough skills and experience, whereas for technical specialties such as mechanics specialty, the curriculums of educational institutions were not found appropriate. The discrepancy between educational curricula and skills needed in the production was mentioned for lab worker/biochemistry specialist, technologist and wine making specialties as well (see Figure 17).

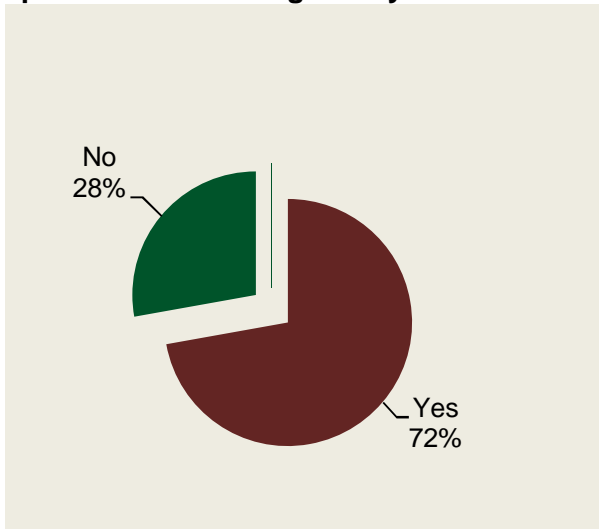
Figure 17. The positions that are hard to fill and reasons why.



Source: ICARE

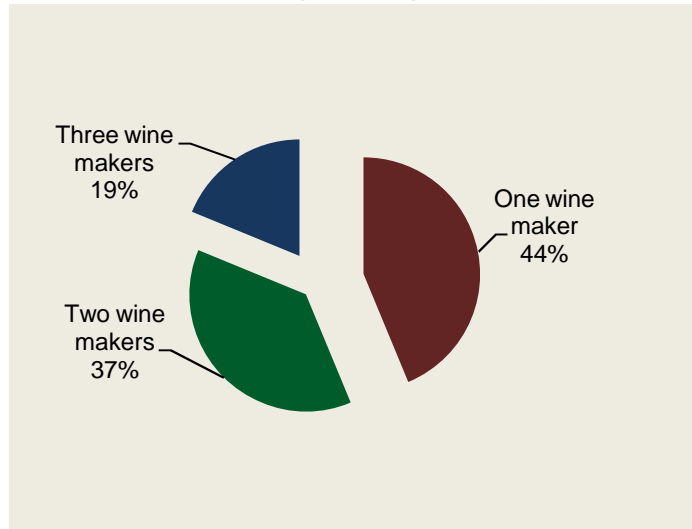
Many production managers were supporting an idea of promoting development of professional skills and capabilities of their employees. Only 3 out of the sample considered that there is no need for that. But when asked about trainings or seminars conducted during the last year for wine making specialists, 9 companies did not respond at all. The distribution of answers of the remaining companies is presented in the Figure 18 and Figure 19.

Figure 18. Participation of wine making specialists in trainings last year



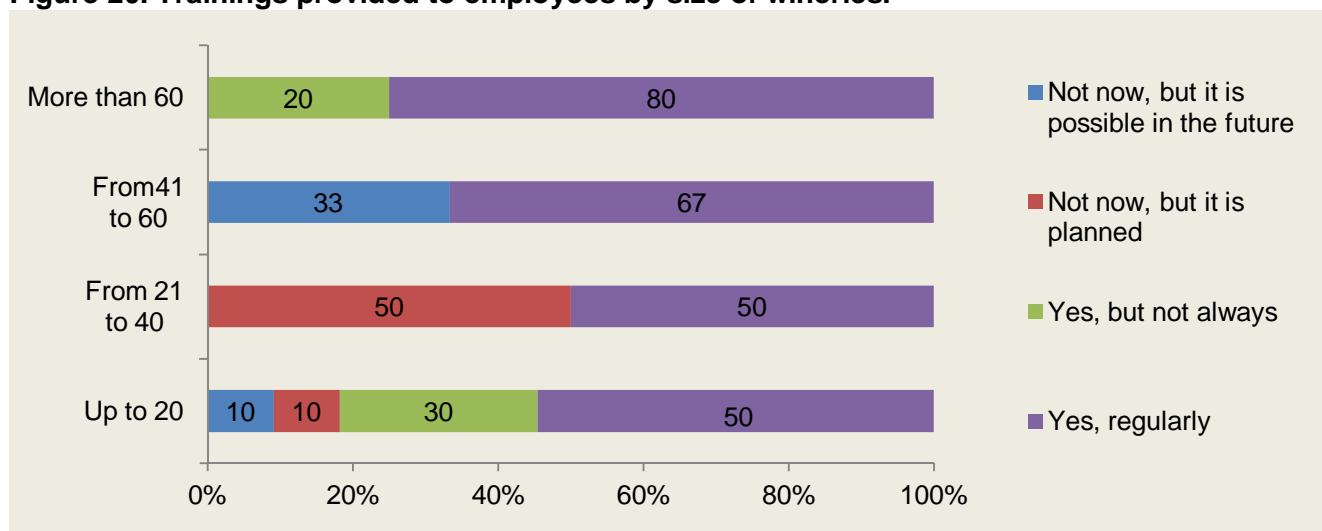
Source: ICARE

Figure 19. Number of wine making specialist who participated in trainings during the last year



If we look at the culture of conducting trainings by the size of the company, we can state that larger companies are more likely to conduct trainings for their employees. All companies in the sample with 60 or more employees are conducting trainings (either regularly or not always).

Figure 20. Trainings provided to employees by size of wineries.



Source: ICARE

Secondary data analysis and desktop research revealed that in the wine sector there is a need for skilled labor, while the educational system in Armenia does not provide the necessary skills and knowledge to graduates¹¹.

In the light of this statement, wineries' management was asked to name possible ways to improve professional capacities of employees (several answers were allowed). More than 50% of managers mentioned that practical training in education curriculum needs to be strengthened. 37% of company officials mentioned also that there is a need in Armenia to organize educational programs in cooperation with international organizations. This will bring in the expertise and know-how from leading universities and will promote application of the best experience across the world. Same share (37%) belongs to the statement that educational programs need to be revised and adjusted based on market requirements. 26% of surveyed managers mentioned that relations need to be established between Armenian and International educational institutions and that the knowledge of academic staff preparing employees for wine industry needs to be upgraded.

Detailed answer distribution is presented in the Figure 21.

¹¹Assessment of Training Needs and Skill Development of the Armenian Winemakers - ICARE, in collaboration with GIZ, 2013

Figure 21. Possible ways to improve professional capacities of employees

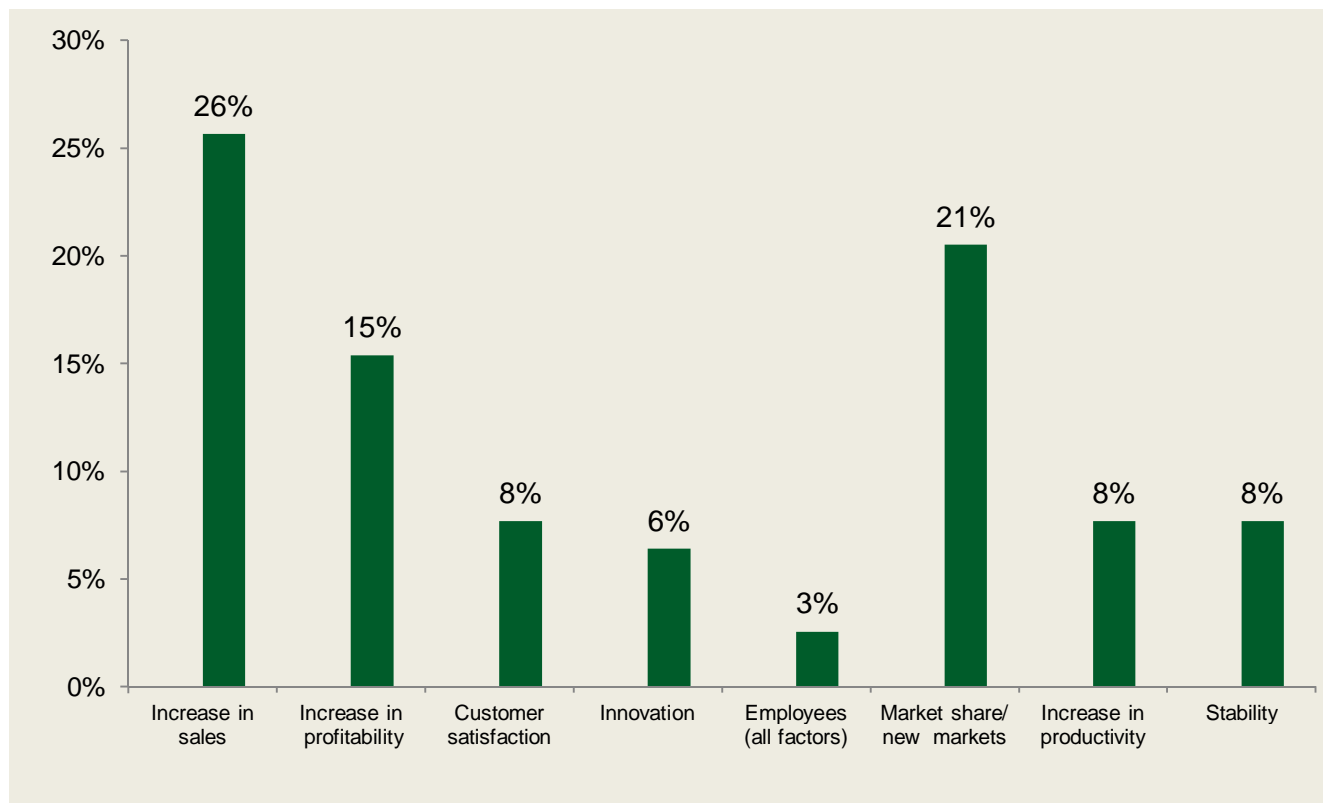


Source: ICARE

The state of the industry and future expectations

The last, but not least section in the wineries assessment questionnaire was targeting to reveal the state of industry from the wineries prospective and discover their future development expectations. First question was about the main priorities for the companies during next three years. Multiple answers were allowed, and the answers were listed by importance. Increase in sales was mentioned as the main priority by 13 companies, in general 20 companies checked this position within their priorities (See Figure 22).

Figure 22. Main priorities of the companies for the next three years



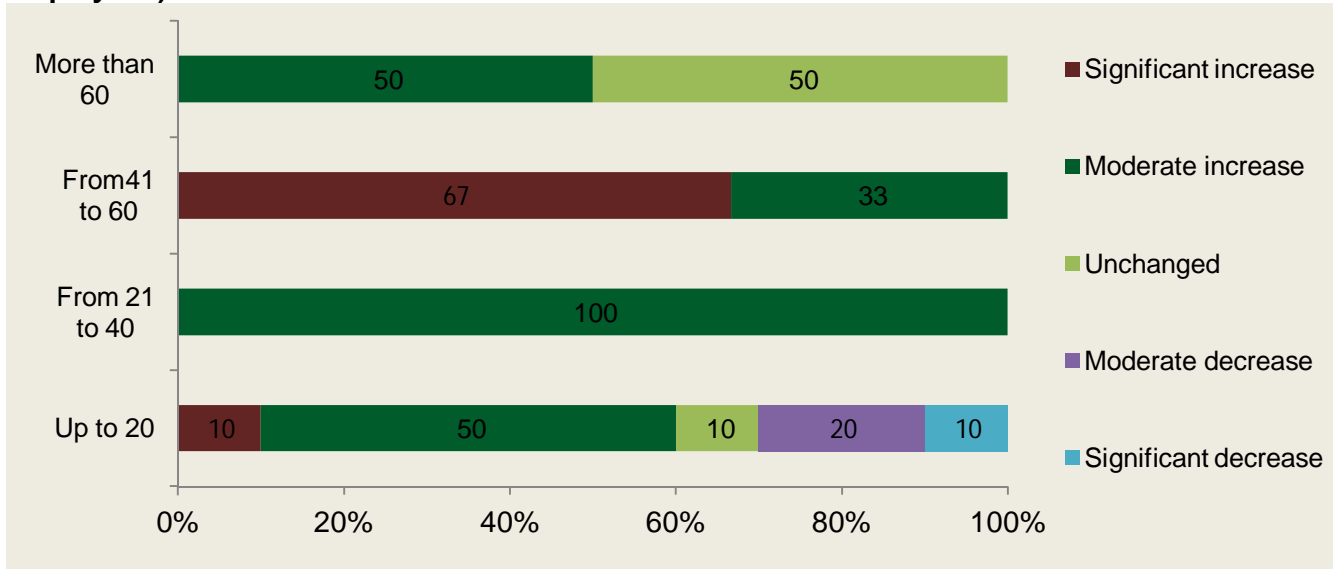
Source: ICARE

21% of surveyed companies mentioned that obtaining new markets or increasing their existing market share is one of the main priorities for them. The two biggest categories mentioned are somewhat interrelated; half of the companies that mentioned an increase in sales as a priority, also pointed out the importance of increased market share. 15% of respondents talked about importance of increase in profitability and cost reduction.

When asked about necessary support to implement the mentioned priorities, most of the companies highlighted a need for financial means, and new equipment. Employee quality and government support (including export promotion) were also pointed out by several respondents.

In general management evaluated economic activities of wineries during the last year quite satisfactory. Almost 70% of respondents stated that their company had significant or moderate increase, 17% did not notice any change and only 13 % had moderate or significant decrease.

Figure 23. Change of economic conditions in companies from 2012 to 2013 (by number of employees)

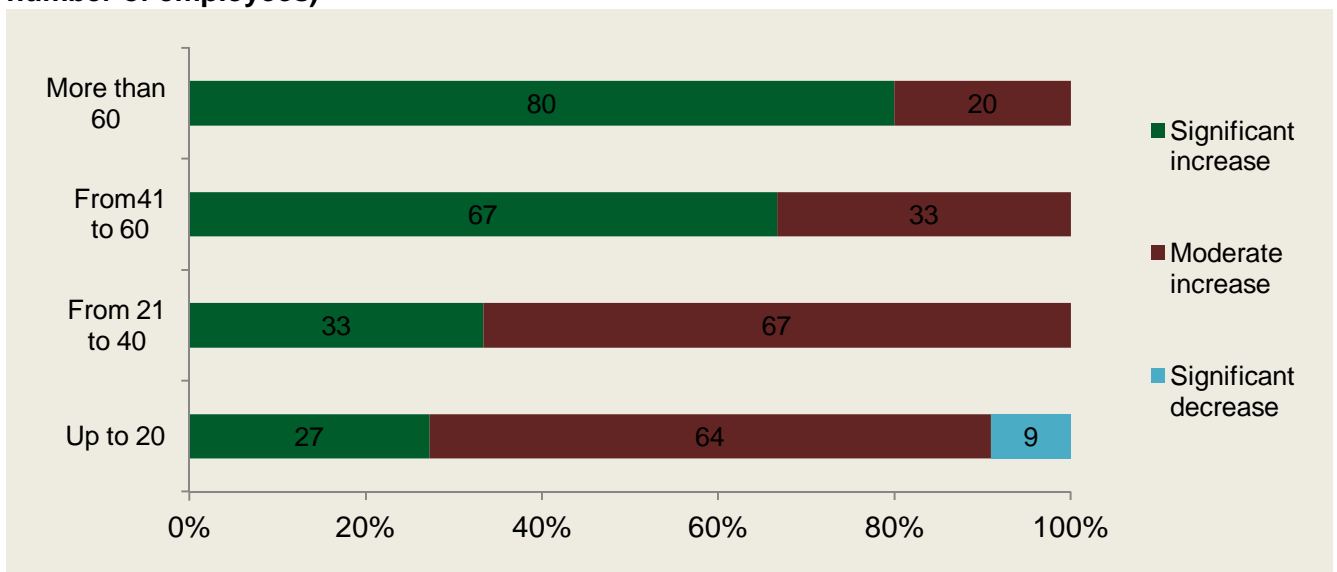


Source: ICARE

In the Figure 23 above it can be seen that the companies reporting decrease in economic activities from 2012 to 2013 were all companies that have up to 20 employees. This means that economic situation in the country was not very favorable for small producers.

The statement above is also supported by expectations of the companies about their economic activities for the next three years presented in the Figure 24.

Figure 24. Expectations about winery economic activities for the coming three years (by number of employees)



Source: ICARE

In general all companies are foreseeing economic growth in the wine industry. Bigger companies are more optimistic about the sector and the company future and are mainly expecting significant increase in operations. Companies that have up to 40 employees are mainly expecting moderate increase, and only within small companies (up to 20 employees) there are expectations of economic downturn.

In conclusion, the winery managers were asked to list main obstacles for development of the winemaking industry in Armenia. The main points mentioned were:

- Low quality of grape (or the lack of varieties that are needed for certain types of wine)
- Legal issues and tax burden
- Lack of winemaking specialists
- Obsolete and not very efficient equipment
- Not sufficient Government support
- Low awareness about the company production in local and foreign markets.

4.2. Management Systems and Skills Assessment Survey

The Management Systems and Skills Assessment survey consists of 5 pillars. The managers were asked to listen through the statement about the company operations and rate the statement according to the scale from 1 to 5 (where 1 means “completely disagree” and 5 means “completely agree”). Any ranking below 3 will indicate the existence of skills gap or inefficient use of a system. Each pillar is represented by separate sub-sections. Each green line represents average ranking of the sub-section, and the maroon line shows the pillar average rank (see Figure 25).

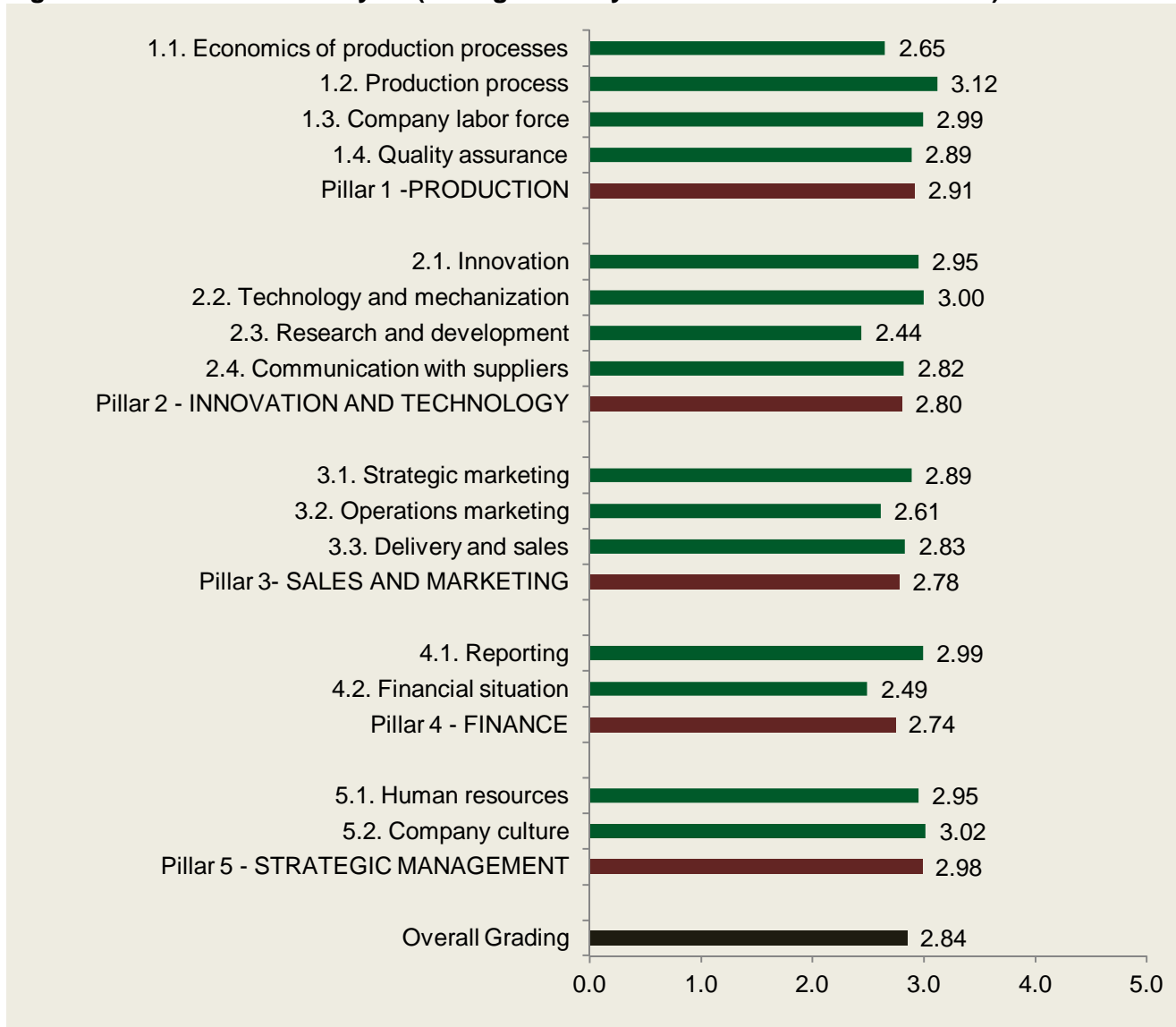
The overall grading of the wine sector is 2.84. There is a need for improvement across all pillars.

Production pillar: Although it was mentioned that production capacities are not utilized effectively, winery managers have indicated that in general companies need more investments in the production process. Shortage of financial means leads to very low computerization while controlling movement of raw materials along the production, and while communicating with suppliers and buyers. Limited ability to conduct laboratory tests is also attributed to low investments in the up-to-date equipment. It was also mentioned that it is hard to outsource the necessary lab equipment or laboratory services, and leasing is not put into practice.

In general, most of the respondents agreed that production workers, such as engineers and laboratory personnel, need to have sufficient skills. They also indicated that production unit may not be well aware of market developments and demand, which implies that the production process is somewhat isolated.

The analysis of production pillar indicates that there is a need for technological improvement and equipment modernization in the wine industry. New labs need to be established and personnel have to be trained to be able to use the equipment.

Figure 25. Wine sector Analysis (Management Systems and Skills Assessment)



Source: ICARE

Innovation and Technology pillar: It was mentioned that today market and business environment do not encourage for learning and innovation, therefore many companies do not see the need for conducting employee training and establishing information channels to learn more about innovations in the related industries. An alternative way of bringing in information and expertise could be collaboration with Universities with regard to research and development, but this partnership is not very valued by wineries either. In general, collaboration across the supply chain shows very weak performance: wineries do not consider technical assistance and advice to suppliers a necessary part of the mutually beneficial relationship.

It would be advised to improve communication with farmers and collaborate with research institutions and Universities for better understanding of market needs and demand.

Sales and Marketing pillar: The managers strongly support the opinion that market expansion is of great importance for the company, but on the other hand they also state that the company does not keenly practice mass marketing, does not implement periodical market analysis, and does not have well elaborated branding. So far this strategy is adopted by most of the companies in the wine-making industry, but the increased competition and higher production volumes are expected to draw more attention towards implementation of effective marketing activities. Within the problems associated with delivery and sales it was clearly mentioned that distributors are underpaid and have no incentive to promote the product.

It is strongly advised that companies in wine industry have separate marketing departments and actively practice the promotion of their product both locally and abroad. Further development of sales channels will provide a platform for wider distribution of the company product, and increased salaries of distributors will reduce employee turnover and decrease the costs of staff training.

Finance pillar: Another observation is that financial planning is underutilized in the winemaking industry. Many companies reported that they may not implement breakeven analysis and do not prioritize the importance of production cost reduction measures. On the other hand the management indicated that companies do not possess sufficient working capital and face constant difficulties for obtaining business loans.

The cost reduction mechanisms have to be enforced in all aspects of wine production. This would appeal to possible funders, and the chances of obtaining additional resources will increase.

Strategic Management pillar: The frequency of training conducted by wineries for their employees was rated below average. It was also noticed that companies are not heavily involved in providing additional educational programs for their employees.

Clearly there is a gap in knowledge and skills, and the need for additional training is identified within wine producing companies.

4.3. VET Graduates Survey

Currently, 83 Middle VET and Preliminary VET educational institutions (colleges) are operating in Armenia, of which only four, the Yerevan State Armenian – Greek College of Tourism, Armavir Regional State College, Vayots Dzor Regional State College and A. Kochinyan College of the Armenian National Agrarian University are offering a state diploma of qualified technician in the fields of “Fermentation Technologies and Winemaking” and “Winemaking and Juice Production”.

The Yerevan State Armenian – Greek College of Tourism was established in 1943. Starting from 2006, it holds the current title. In the period of 2010-2014, the 59 students graduated from the college, including 4 females, with the specialty of “Fermentation and Wine Technology”.

Armavir Regional State College's history begins in 1952 as the Hoktemberyan Agricultural State College; in 2010 it was renamed to State Regional College. The college provides vocational education in 9 specialties, including “Fermentation and Wine Technology”. In 2012, 2013, and 2014, the college had 37 graduates of “Fermentation and Wine Technology” specialty. In 2014, 21 percent (17 people)

of all college graduates (80 people) graduated with the Fermentation and Wine technician qualification.

Vayots Dzor Regional State College was established in 1971 as the Yeghegnadzor branch of Yerevan Electro-Technical School. Since 2011, the school was operating as a regional college and offering middle and pre-vocational courses, including “Wine and juice production” specialty. In 2010, 2013, and 2014, 266 students graduated from Vayots Dzor Regional State College, including 27 (10 percent) with “Wine and Juice production” specialty.

The study targeted the 2010-2014 graduates of the 3 of the abovementioned VET institutions, excluding A. Kochinyan College of the Armenian National Agrarian University Agricultural College, because the “Fermentation and Wine Technology” specialty has been just established in this college, and no graduates have been released yet.

The College graduates’ list for sampling, including names, current contact information, telephone numbers or addresses, were provided by the colleges and contained 123 people, out of whom 16 were women. It was decided not to do a sampling but involve all college graduates from the list as respondents. Within the scope of this survey, a total of 65 graduates of VET-s were reached and interviewed, which is the 53 percent of the entire list of graduates from 2010 to 2014. It appeared impossible to interview the remaining 47 percent of graduates mainly due to the following reasons:

1. The information provided by the colleges was flawed and incomplete: the lists provided by the Vayots Dzor Regional State College and Yerevan State Armenian – Greek College of Tourism contained some inaccurate and outdated contact information of graduates, while in the list provided by the Armavir Regional State College there were only names and addresses; the telephone numbers and other contact information were missing. Thus, it was impossible to contact almost every 2nd respondent.
2. Mobility and migration rate of respondents: 10% of respondents migrated abroad or changed the residence address.
3. Five percent of 2013 and 2014 male graduates are serving in the RA National Army.

The phase of correction of respondents’ contact information was the most time consuming part of the work done, because we were trying to accomplish the task as accurate as possible. Due to the problem with graduates’ availability, we acquired the contact information by place of residence with the help of local authorities. This was followed by the telephone survey implemented by the ICARE research team. The average duration of an interview was about 20 minutes. No one of reached respondents refused to answer the questionnaire. So the Access Rate was 62 % (calculated after excluding "mobility within the country (army)", "mobility and migration outside the country", i.e. $AR=65/(65+40) \times 100\%$, where $40=58-12-6$). The Response Rate was 100% (calculated after excluding "mobility within the country (army)", "mobility and migration outside the country", "incomplete contact details", i.e. $RR=65/65 \times 100\%$, because $58-12-6-40=0$).

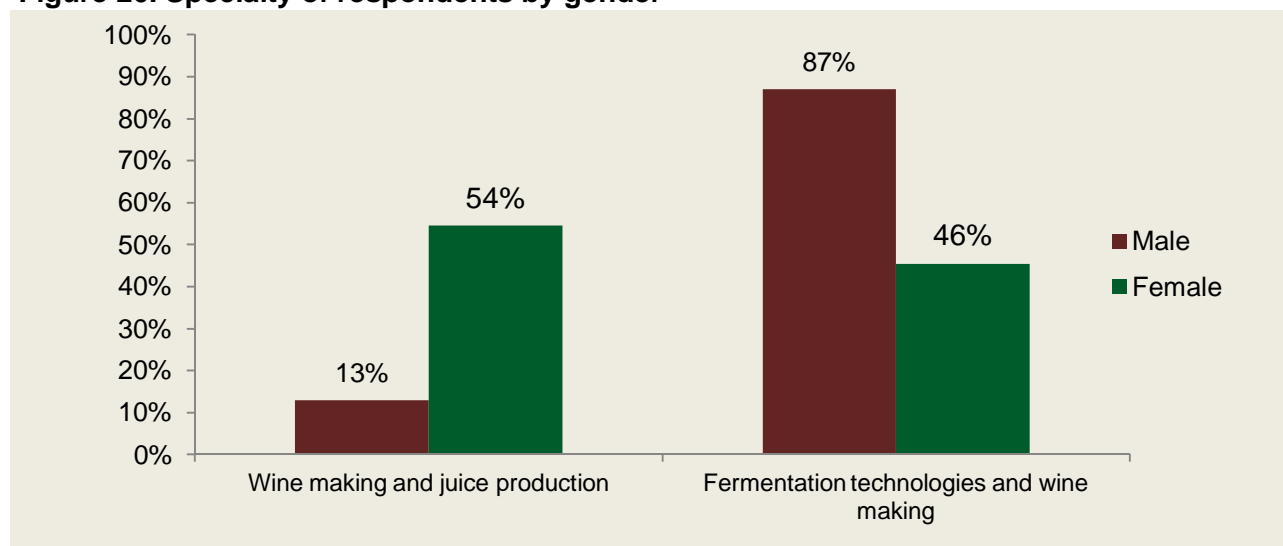
Table 3. Composition of sampling.

| | Armavir Reg. State College | Vayots Dzor Reg. State College | Yerevan State Arm. – Greek College of Tourism |
|---------------------------------|-----------------------------------|---------------------------------------|--|
| Number of graduates in the list | 37 | 27 | 59 |
| Interviewed | 14 | 13 | 38 |
| Not interviewed | 23 | 14 | 21 |
| Including: | | | |
| Migration outside the country | 6 | 3 | 3 |
| Serving in the Army | 2 | 3 | 1 |
| Rejected to be interviewed | 0 | 0 | 0 |
| Incomplete contact data | 15 | 8 | 17 |

The study targeted the 2010-2014 graduates of the 3 of the abovementioned VET institutions, excluding A. Kochinyan College of the Armenian National Agrarian University College, because the “Fermentation and Wine Technology” specialty has been just established in this college, and no graduates have been released yet.

Total number of graduates during these years in wine-related specializations was 123, and the number of surveyed graduates was 65, where 87% were male and 13% were female. Gender distribution across the two specialties is presented in the Figure 26.

Figure 26. Specialty of respondents by gender



Source: ICARE

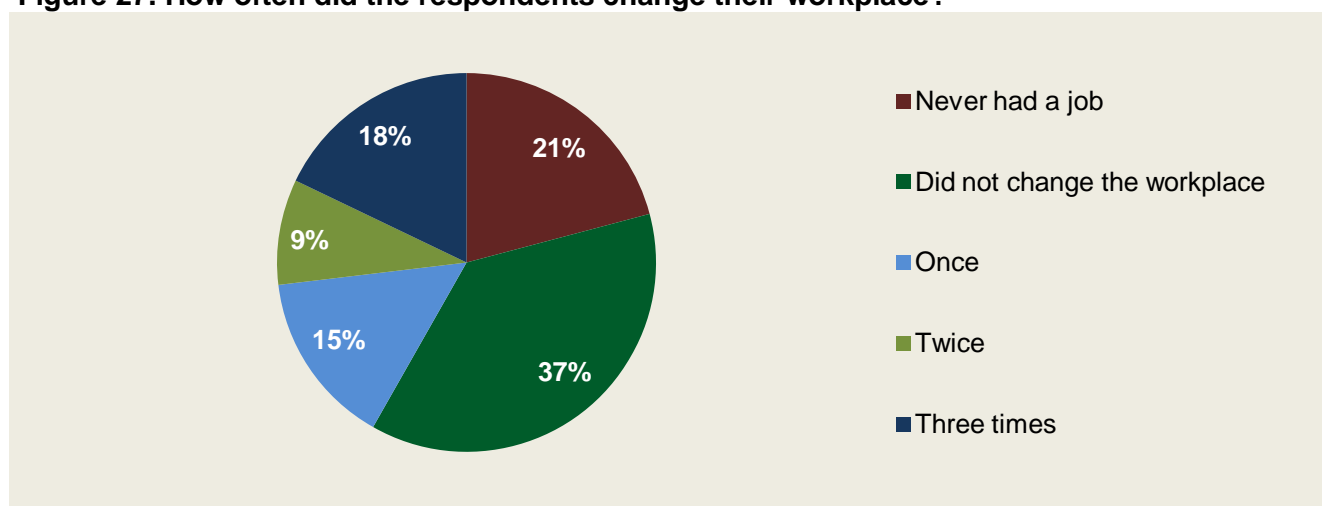
The results show that 87% of surveyed male respondents have graduated from “Fermentation Technologies and Winemaking”, and only 13% from “Winemaking and Juice Production”. It is worth to mention that within total graduates of 123, there were only 16 females. Total number of female surveyed was 11, which shows that 69% of all female graduates were reached and surveyed. As opposed to that, only 50% of male graduates were reached; some were abroad, and some were serving in the military.

Next question asked to VET graduates who hold Wine related specialties was their perception about the education they received. Most of the respondents (over 80%) rated the professional knowledge of their instructors as good or excellent, over 70% of respondents were happy with the methods and quality of teaching and with the state of laboratories in the college, and about 63% were satisfied with the effectiveness of the internship.

The survey shows that 32% of students got employed while being a student, and 44% were offered a job within 6 months after graduation. Unfortunately quite often those were not permanent jobs and many graduates kept switching employers (if given the chance to do so). Figure 27 below shows the statistics on changing workplaces.

21% of all surveyed graduates have never been employed (half of those students are those who graduated in 2014 and may still get their chance to find a job). 37% so far did not change the employer, whereas 18% of surveyed graduates have changed their workplace three times and more.

Figure 27. How often did the respondents change their workplace?

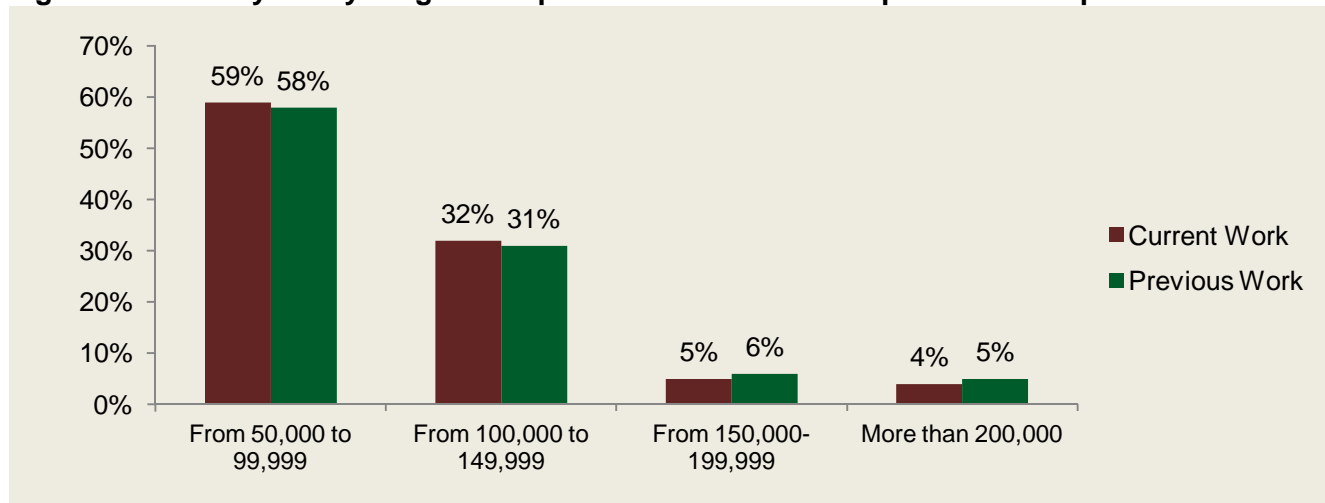


Source: ICARE

There was no clear correlation between salary size and switching workplaces. For those who reported having several jobs, average salary range was the same. Only 6% of respondents reported salary increase while moving from one employer to another. As opposed to this, 3% of surveyed graduates had salary reduction after changing the workplace. The average salaries of VET graduates are presented in the Figure 28.

Majority of employed VET graduates (almost 60%) from the two wine business related specialties were getting a salary just above the minimum salary required by the law. The next large group (over 30%) of employed respondents was being paid within the range from 100,000 to 149,999 AMD, and only about 10% were getting more than 150,000 AMD. If we look at statistics to find out how these higher paid respondents found their jobs, we will see that over 70% of higher paid graduates used their personal connections to find this employment.

Figure 28. Monthly salary range of respondents in current and previous workplace



Source: ICARE

Previous research¹² on vocational studies proves very low correlation between the specialization received and the employment field. In our case also this finding was confirmed. Out of 65 graduates surveyed only 5 were employed in the field close to the specialization they received; two of those worked for Yerevan Beer Factory, one - for Proshyan Brandy Factory, one – for Ejmiatsin Wine Factory, and one for Vedi Alco. Unfortunately, after taking closer look at the positions where these five graduates were employed, it was clear that only two of those hold positions that are somewhat related to the specialty received, specifically, they worked as brewers in the Yerevan Beer Factory. The other 3 surveyed graduates who worked for different beverage factories were either security personnel or warehouse workers. This narrows down the share of VET graduates who work in the field of specialization to 3%.

In general 56% of surveyed VET graduates claimed that they were able to get jobs because of personal connections, 38% claim that they applied directly to the company or responded to the job announcement and the remaining 6% were offered a job after a successful internship experience.

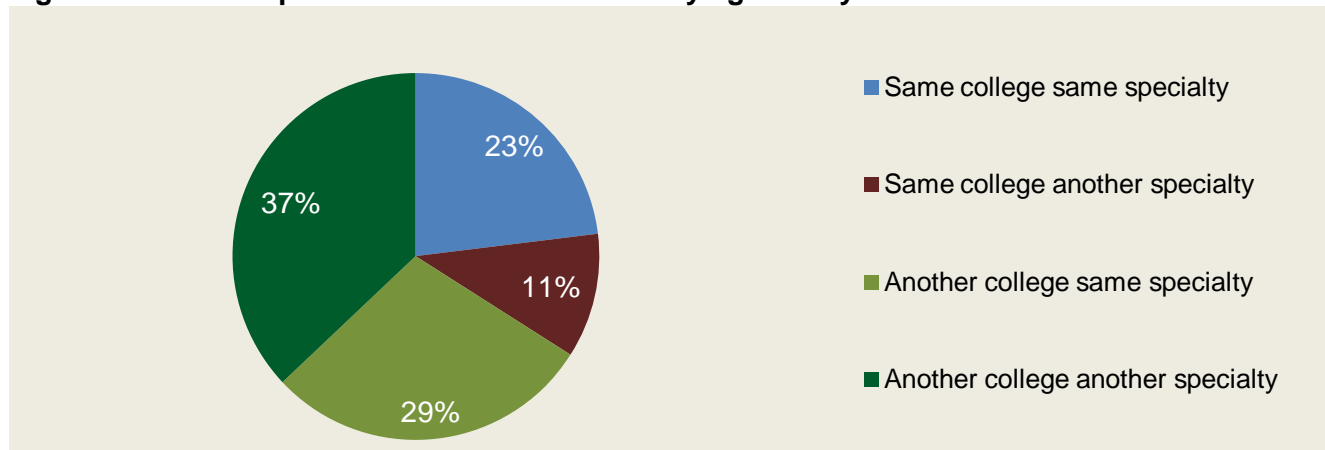
Nevertheless, 27% of surveyed graduates stated that getting a diploma or specialization is important for getting a job. The share of those who consider the diploma or specialization not important at all was 57%.

When being asked whether they will choose the same specialty or would like to study in the same institution, 23% of respondents affirmed that they would select same college and the same specialty, whereas 37% said that they would select another college and another specialty. Although employment statistics are not very promising, more than 50% of respondents are ready to study the same specialty (whether within the same college or in another one). This implies that at least half of them are optimistic about the future of winemaking.

If we look at the assessment of facilities in the educational institutions and quality of education, we can see that graduates rated the knowledge of instructors the best, with more than half of them rating excellent.

¹² Tracer study of recent graduates from vocational education institutions in Kotayk and Ararat Marzes of Armenia conducted by CRRC-Armenia in 2012. http://www.crrc.ge/uploads/files/research_projects/Tracer_Study_REPORT_eng.pdf

Figure 29. If the respondents had chance to study again they would choose



Source: ICARE

The lowest ranking was assigned to effectiveness of the internship (11% said the internship performance was bad and 26% rated it average). The quality of teaching and the laboratory existence were rated by majority of respondents as good and excellent. Unfortunately these categories were ranked unrealistically high. The reason for that could be the fact that during the survey the graduates were notified that ICARE researchers obtained their phone numbers from the VET administration, so possibly they identified our surveyors as being affiliated with their VET and did not want to offend the college personnel.

There were also some general observations conducted about the wine business related vocational education in Armenia.

1. A VET or college graduate in Armenia receives qualifications of either a winemaker or a technician. The curricula for these specialties are different, but, according to education standards requirements set by the Ministry of Education, graduates of both specialties are supposed to perform the same duties during the production process.
2. Vayots Dzor Regional State College prepares specialists in “Wine Making and juice Production”, but the “Juice Production”, that has to be the core module for that specialty is replaced by “Sparkling Wine Production” module.
3. Yerevan State Armenian – Greek College of Tourism provides the vocational education on “Fermentation Technologies and Wine Making”, but until 2012 the curricula was developed for Fermentation Technologies only (beer production), and only after 2012 it was adjusted for winemaking.
4. VET graduates who receive a specialty of a technician or a winemaker need to be able to implement grape procurement, work with various winemaking equipment, understand storage procedures and be able to bottle. This implies that a specialist must be able to implement during the production process all the knowledge received in the college. Unfortunately none of the institutions mentioned above had laboratory conditions for applying the knowledge. This gap is partially filled by internship programs that last hardly 3-4 weeks and are only held two times during the course of study.
5. 72 academic hours are assigned to the subject such as “Grape procurement and processing” that is meaningless to implement in the classroom, but that can successfully be carried out in the production through some assignments and actual demonstration.

5. Recommendations

The study revealed that the winemaking industry in Armenia has taken an expansion path and is expected to develop more within the nearest years. Volumes of wine exports and production are going up and the number of wineries is increasing.

The Government simplified the winery registration and licensing procedures, but nevertheless there is still a high tax burden for wine producers. This really constrains the small producers' operations, and those who do not diversify their operations through expanding into brandy production. The taxation schemes can be diversified depending on source of input; if producers who use local inputs for their production get additional tax relief, there will be increased demand for grapes, which in turn will promote local agricultural production and will increase bargaining power of farmers who sometimes do not get paid for procured grapes for a couple of months.

Wine and brandy production is the main agricultural produce exported from Armenia and it has high growth potential. Therefore, in the framework of European Integration State Policy and implementation of Eurasian Union accession process, it is necessary to adjust the wine industry legislation of the Republic of Armenia to internationally accepted requirements. Internationalization of winemaking sector is an important prerequisite for the regulation of the sector and compliance with quality control systems. In Armenia, the wine production industry is regulated by the law provisions of new 606/2009 regulation of the RA on alcoholic beverages made from grape.

Government of Armenia understands the importance of this sector and has already started adopting policies for promoting increased production of alcoholic beverages. For example, obtaining the license for production of liqueurs, wines from grape, apple or other fruits or berries, distilled alcoholic beverages made from fruits and berries, and beer is issued within 16 hours of receipt of all required documentation. It is worth mentioning that the state tax for obtaining license for production of wine from grapes, apples or other fruits and berries costs AMD 25,000 per year, as opposed to licenses for stronger beverages (brandy, vodka), that costs AMD 16,000,000 per year¹³.

Nevertheless, some improvements in the legislation regulating the industry are still needed. Internationalization of Armenian Wine Industry will promote membership to international specialized bodies as well. For that purpose, interviews were conducted with field specialists about the RA law on alcoholic beverages from grape. In spite of different opinions, the approaches were converging for some provisions, such as implementation of quality classification standards that are understandable and acceptable by export markets.

It is also needed to define appropriate climate specifications in viticulture areas; it is possible to distinguish several viticulture micro districts, that is, viticulture micro-district boundaries can be confirmed by the Government of the Republic of Armenia only after identifying climate specifications that might be possible based on the results of scientific studies.

Wine production is considered a product subject to excise tax, based on RA Excise Tax Act, according to which, the excise tax is calculated by the payer on the basis of established rates and sales turnover of goods. However, from the specialists' perspective, if excise tax base of locally

¹³ *Food Processing Guide, Armenia, 2014*, http://www.globalspc.am/download/Food_Processing_Guide_2014_web.pdf

produced alcoholic beverages from grape is determined solely by the value of excisable goods, excise tax rates for locally produced grape alcoholic beverages will have to be reduced, while simultaneously increasing excise tax rates for alcoholic beverages produced from ethyl alcohol. Adoption of these recommendations will reduce the prices of locally produced grape alcoholic beverages, which, in turn, will promote the growth of grape production volumes.

It is also very important to simplify the sales process of wine produced by SMEs in local market, which will contribute to the growth potential of small enterprises and households, as well as will promote the entrance of new producers of high quality wines out of local “raw materials”. Culture mentioned above is designed in developed European countries, where many famous wine regions are presented with small scale wine productions and small own wine taverns adjacent to households. In Armenia the majority of these enterprises/households that have their own vineyards are not able to produce and sell wine, due to high tax rates and complicated procedures associated with sales.

The process can be regulated by appropriate state bodies, industry organizations, associations with relatively simplified processes. In particular, it is possible to simplify the sales of so-called “home-made wines” by small households. It is necessary to take into account the fact that even at present conditions the aggregate volumes of grape harvesting of SMEs are exceeding the grape harvesting volumes of large enterprises that produce alcoholic beverages.

Although there is a noticeable increase of investment in the winemaking sector, many producers still lack financial means for improving the technological base and replacing equipment in the production. Some wineries inherited antiquated machinery and huge facilities from soviet times and will never achieve 100% utilization. In addition to that, the old technologies are adversely affecting the quality of wine. So there is an obvious need for refurbishment or complete replacement of the existing machinery. There is also a need to increase the number of laboratories (some processors cannot afford their own laboratory and have to cooperate with other wineries to share their lab equipment). The cost reduction mechanisms have to be enforced in all aspects of wine production. This would appeal to possible funders, and the chances of obtaining additional resources will increase.

One of the main concerns raised by wineries' management is the low quality of input used in the winemaking, which needs to be addressed through helping farmers cultivate grape varieties that are most needed for high quality wine production. In general, collaboration across the supply chain shows very weak performance: wineries do not consider technical assistance and advice to suppliers a necessary part of the mutually beneficial relationship.

Management practices in many wineries need revision and enhancement. Quite a few production plants do not implement any research and do not have a marketing department. Not surprisingly many managers mentioned that there is very low awareness about their production both in the local and on foreign markets. In addition to this, wineries place very low importance to the implementation of financial analysis, such as breakeven analysis and reduction of production costs.

Wine tasting rooms need to be set by a production facility. Although many managers do not see a need for these today, nevertheless in a country that expects to boost tourism, the wine tasting tours and availability of tasting area will certainly raise awareness of the wine varieties produced and will eventually contribute to increased sales.

There is a distinctly defined lack of key specialists, such as winemakers, technologists, lab specialists, and production managers. It was identified that university and VET graduates within these specialties do not possess necessary skills and practical experience to contribute to the production. This explains the very low salaries in the sector and the extremely small number of VET graduates who are employed within their field of specialization.

An educational curriculum both in universities and in VET institutions is not based on the market requirements and needs to be revised. It is strongly advised to provide more practical sessions with VET and university graduates. To make study programs more applied and useful a dual educational (work and study in parallel) system can be implemented, when most of the subjects are taught in the production.

Many wineries are supporting an idea of training their employees, so additional courses and training can be a good option for improving employee qualifications. These can also serve as an alternative to formal education until the curricula in universities and VET is adjusted.

It is suggested that there be direct involvement of university staff in winery activities, such as research and development. As a result of this collaboration, the wineries will receive knowledge of market developments, and the university consultants will be aware of the skill requirements of the wineries.

Appendix 2. Management Systems Assessment Questionnaire average ranking.

| | Ranking (1-5) |
|---|------------------|
| 1.1 Economics of production processes | |
| The production capacities are effectively utilized by the company. | 2.89 |
| The management of the company shares opinion that the larger the production scale is, the more efficient the operations are. | 1.44 |
| Breakeven analyses are implemented by the company. | 2.59 |
| Production planning is conducted at sufficient level. | 3.07 |
| The company conducts planning related to procurement of raw materials, equipment and supplies. | 3.15 |
| Measures to reduce production costs are of high priority in the company. | 2.41 |
| Increase in production volumes is of high priority in the company. | 3 |
| | |
| 1.2 Production process | |
| The company has sufficient warehouse space and facilities. | 2.93 |
| The movement of raw materials and ready products along the production process is controlled by a computerized system. | 2.63 |
| Cleanness and the interior of the production space are at sufficient levels. | 3.19 |
| Detailed control/analyses of purchased raw materials are implemented. | 3.44 |
| The company has a systemized approach to control health and job security situation. | 3.22 |
| The company is in continuous search for new technologies related to improvement of production processes, storage, and sales management. | 3.30 |
| | |
| 1.3 The company labor force | |
| Managers of the production process have a sufficient level of relevant skills. | 3.15 |
| Technologists of the production process have a sufficient level of relevant skills. | 3.22 |
| Engineers of the production process have a sufficient level of relevant skills. | 2.67 |
| The above mentioned specialists work collaboratively. | 3.19 |
| The production unit operates in collaboration with other divisions of the company. | 3.11 |
| The production unit is well aware about market demand. | 2.70 |
| Engagement of new enologists is of high importance for the production process of the company. | 2.89 |
| | |
| 1.4 Quality assurance | |
| The consumers' demand towards quality is well-considered. | 3.40 |
| The company has a quality control unit and the responsible personnel. | 3 |
| The company has a quality control system in place. | 2.81 |
| The company has specialists responsible for quality control (engineer, technologist, etc). | 3 |
| The company has a threshold for defective produce (units of production, percentage). | 2.56 |
| Increasing quality of wine is of high priority by the company. | 3.70 |
| The company has a limited ability to conduct microbiological tests. | 2.44 |
| The company has a limited ability to conduct chemical tests. | 2.22 |
| | |
| 2.1 Innovation | |
| The company introduced new products and used new technologies during the last 5 years. | 3.26 |
| The company has a defined procedure for developing new products. | 3.07 |
| The market and business environments continuously encourage for innovation. | 2.74 |
| The company periodically conducts employee trainings and learning to encourage innovation. | 2.74 |
| The company has established information channels to learn more about innovations in the related industry. | 2.93 |
| | |

| | |
|--|------|
| 2.2 Technology and mechanization | |
| The company highly values the importance of new technologies and uses new technologies in sales and production processes. | 3.11 |
| The company highly values the importance of new technologies and uses new technologies in accounting and financial analysis. | 3 |
| The company highly values the importance of new technologies and uses new technologies in business communication with suppliers and buyers. | 2.89 |
| | |
| 2.3 Research and development | |
| The company has staff responsible for research and development. | 1.85 |
| The research and development activities are on average or above-average levels compared to other companies in the industry. | 2.15 |
| The company closely collaborates with the universities in implementation of research and development activities. | 1.62 |
| The company has the necessary laboratory equipment and fully utilizes those. | 2.56 |
| If needed, the company can easily outsource the necessary laboratory equipment or laboratory services. | 2.67 |
| Market needs are well-considered over the course of implemented research and development activities. | 3.07 |
| International certification is of high priority for the company. | 3.19 |
| | |
| 2.5 Communication with suppliers | |
| The main suppliers of raw materials are well aware about the product quality and technical requirements. | 3.15 |
| For majority of the suppliers collaboration with the company is an important aspect for their income creation process. | 2.89 |
| The company provides additional knowledge and skills to its main suppliers. | 2.81 |
| The company provides technical assistance to its main suppliers. | 2.37 |
| The company continuously expands the contract relationship with its main suppliers. | 2.78 |
| The collaboration with main suppliers is mostly sufficient. | 2.93 |
| | |
| 3.1 Strategic marketing | |
| A well-organized marketing team is in place. | 2.56 |
| Periodical market analyses are conducted. | 2.96 |
| It is well-understood who are the main buyers of the products. | 3.37 |
| The company practices mass marketing. | 1.93 |
| The competitors are periodically assessed and analyzed. | 2.93 |
| A well-elaborated branding strategy is in place. | 2.74 |
| Market expansion is of great importance for the company. | 3.52 |
| | |
| 3.2 Operations marketing | |
| The company has sufficient printed promotion materials. | 2.26 |
| The company has a special budget line for advertizing at final sales points. | 2.11 |
| The e-mail and TV marketing are practiced. | 2.04 |
| The company tries to be presented in both local and international fares. | 2.81 |
| The company is well aware about potential of export markets, as well as product specification requirements, customs procedures, and packaging requirements in those markets. | 3.15 |
| E-marketing is practiced. | 2.41 |
| Consumers' opinion and preferences are considered in product packaging. | 2.81 |
| The product labeling is done appropriately (information included, production site, ingredients, company contacts, etc). | 3.48 |

| | |
|--|------|
| Communications and PR are implemented effectively. | 2.33 |
| 3.3 Delivery and sales | |
| The sales unit and its staffing are in place. | 2.67 |
| The distributors are paid according to their performance in sales. | 2.26 |
| Price policy is flexible, depending on a buyer and its location. | 2.67 |
| The sales channels are well-developed. | 2.44 |
| The factor of competition is considered for the decision-making related to sales. | 2.93 |
| The product/price mix is well-elaborated according to competitors' products and consumer preferences. | 3.07 |
| Expansion of export quantities is of high priority for the company. | 3.44 |
| 4.1 Reporting | |
| Planning and budgeting are in place (sales, expected revenue, etc). | 2.96 |
| Budgeting methods are in accordance to market needs and company needs. | 2.85 |
| The budget is well-analyzed, and necessary modifications in budget or planned activities may take place accordingly. | 3.19 |
| Inflation is a substantial factor for operations and budgeting of the company. | 3.07 |
| Currency exchange rates are substantial factors for company operations and budgeting. | 3.19 |
| Market for the products is very volatile which highly affects the operations and budgeting. | 2.63 |
| Electricity or/and natural gas prices highly affect the operations and budgeting. | 2.96 |
| Micro and macro factors in the economy highly affect operations and budgeting of the company. | 2.70 |
| 4.2 Financial situation | |
| The company possesses sufficient working capital (financial means). | 2.59 |
| Cash flow statement is prepared. | 2.78 |
| Engagement of additional funds is easy (e.g. business loans). | 2.37 |
| Engagement of additional funds is very costly. | 2.15 |
| The company is engaged in leasing contracts for equipment. | 1.89 |
| Cost reduction measures are a daily routine in the company. | 2.74 |
| 5.1 Human resources | |
| The HR department is well-staffed and is in place. | 2.96 |
| Hiring is transparent and only those are hired who qualify to the given job vacancy requirements. | 3.22 |
| The company has an environment where everyone has equal rights. | 3.22 |
| The company provides training and additional educational programs to its employees. | 2.67 |
| Both part-time and full-time work schedules are practiced. | 2.11 |
| The company can hire employees who make effective teams and who complement one another. | 3.11 |
| 5.2 Company culture and information about external environment | |
| The company utilizes a well-defined organizational structure: horizontal or vertical. | 2.67 |
| Team and group work are encouraged. | 3.26 |
| Well-elaborated communication means with company stakeholders are utilized. | 3.15 |
| Everyone in the company understands the responsibilities and the work to be done. | 3.15 |
| Each employee realizes the accountability to the supervisor for the work implemented. | 3.22 |
| The company is aware about business development projects implemented by international organizations in Armenia (the EU and U.S.-funded projects, etc). | 2.48 |
| The company is prepared for international competition. | 3.04 |

7. References

1. Armenian Winemaking Sector Assessment, Development Strategy and Action Plan, EV Consulting, 2012, page 6
2. Assessment of Training Needs and Skill Development of the Armenian Winemakers - ICARE, in collaboration with GIZ, 2013
3. Discovery news, citing Journal of Archaeological Science-
<http://news.discovery.com/history/art-history/winery-oldest-armenia-110111.htm>
4. Food Processing Guide, 2014 Published by the Ministry of Economy and the Ministry of Agriculture of the RA with the support of USAID and EDMC, page 21.
5. International Professional Managers Association - <http://www.ipma.co.uk/management-competences.php>
6. RA 2014-2025 Sustainable Development Strategic Program
<http://www.gov.am/files/docs/1322.pdf>
7. Tracer study of recent graduates from vocational education institutions in Kotayk and Ararat Marzes of Armenia conducted by CRRC-Armenia in 2012.
http://www.crrc.ge/uploads/files/research_projects/Tracer_Study_REPORT_eng.pdf
8. www.minagro.am
9. www.armstat.am