INTAS Project: Supporting the International Development of the CIS Agricultural Sector

A Review of Organisational Change in the Armenian Agricultural Sector

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1. INTRODUCTION

1.1 Natural Resource Base

Armenia is a landlocked and mountainous country covering an area of 29,800 km^2. It is located in the South Caucasus bordering Turkey, Georgia, Iran and Azerbaijan. The population of Armenia is 3.22 million (as of April 1, 2005), with another 5 million Diaspora (NSS, 2005).

The average elevation of the country is about 1,650 m. The climate is continental with hot summers and cold winters and annual rainfall varying between 300mm in the Ararat Valley to about 600mm in the rest of the country. The country is divided into 9 agricultural zones. About 40% of the total territory is not suitable for agriculture. The total area suitable for agriculture amounts to 1394.4 thousand hectares, including 494.3 thousand hectares of arable land (35.5%), perennial grass of 63.8 thousand hectares (6.4%) hay lands of 138.9 thousand hectares (10%), and 694 thousand hectares (49.9%) of pasture (See Table 1). Agriculture is very dependant on irrigation.

During the Soviet period Armenia was an industrialized country with a large rural population. Armenia was exporting its outputs chiefly to the other “brother” republics, and in turn relying on them for key inputs.

1.2 Armenia in Transition

The severe earthquake in 1988 that destroyed more than a third of the production capacity followed by the collapse of the Soviet Union left Armenia in deep political, economic and social crises and eventually, war. The inherited governmental and legal infrastructure was seriously flawed, plagued with overwhelming levels of bureaucracy, corruption and nepotism (Kyureghian & Zohrabyan, 2005).

The market-oriented reforms introduced in 1991-92 comprised the privatization of many productive resources and organizations. Armenia was one of the former soviet republics to privatise agriculture effectively and swiftly during 1991-92: after

independence followed the legislation necessary for the privatization of land, around 70% of arable land and agricultural output came into hands of individual peasant farms (Lerman & Mirzakhanian, 2001). Although by 1993 GDP declined to 47% of its 1990 level, and then gradually recovered to 68% in 2000, agricultural output did not show any significant declines during transition remaining stable during 1990-97 and increasing afterwards (Bezemer & Lerman, 2003). In recent years the share of agriculture in GDP comprised around 20-25 percent. During the last decade of the 20th century, Armenia thus transformed from an industrialized state to one that is to a significant degree agrarian (Lerman, 2003).

2. STRUCTURE

2.1 Egalitarian Land Reform

First in the early 1990s Armenia and Georgia, then Kyrgyzstan, and later on Moldova implemented redistributive land reforms (Spoor, 2004). The first outcome of this reform was the very small size of these family farms, which on average was not more than 1.4 hectares (of which only 1.1 ha arable). The small farm sizes are not conducive to the application and usage of new innovative technology which itself hinders the development of the sector. The second was that primarily arable land (with an addition most of the orchards and vineyards) was privatized, while an important part of the hay land and pasture was kept in “state reserve”. Third, landowners received on average three parcels of land, of which one is irrigated and two non-irrigated.

As of January 2005, there were 338,502 (See Table 1) peasant farms, which possessed around 468,600 hectares of agricultural land. It is estimated that 88% of the farms are smaller than 2 hectares and they use 77% of the total land area. Twelve percent of the farms are larger than two hectares and they use 23% of land (FAO, 2002). There is almost nothing changed until the first Land Balance was published in 1997 (See Table 1). So in most of the research studies this Land Balance Data is being used as a base line for comparisons and analysis. Updated Land Balance will be published in 2005.

Table 1: Number and Acreage of Peasant Farms (2000-2004)

	2000	2001	2002	2003	2004
Number of Peasant Farms, Units	332,608	334,759	334,688	337,906	338,502
Land Area of Peasant Farms (x 1000 Ha)	460.1	458.6	453.1	461.3	468.6
Average Size Peasant Farms (Ha)	1.38	1.37	1.35	1.37	1.38

	Agricultural Land	Arable Land	Perennial Grass	Fallow Land	Hay Land	Pasture
Land Balance (1997, x 1000 Ha)	1,391.40	494.3	63.8	0.4	138.9	694

Source: NSS 2005a; Statistical Yearbook of Armenia 2004.

Another outcome of the egalitarian reform was the emergence of regional differences. The average farm size varies by the regions. From Table 2 it's clear that average farm size in marzes Ararat (0.61 ha) and Armavir (0.92 ha) were much smaller than in for example the marzes of Shirak (2.36 ha) and Syunik (2.97 ha). However this comparison still misses important variables, namely the altitude, the water availability, the soil quality, etc (Spoor, 2004).

Spoor found that individual peasant farms were leasing small plots of land (on average 0.18 ha), when their owned land on average was 1.37 ha (See Table 3). It was noted that the original land reform has only touched upon a relatively small part of the total agricultural land area of Armenia. In the year 2000, 477,141 ha was private land, while 924,625 ha was still state owned (See Spoor, 2004: 10-11).

Table 2: Number and Acreage of Peasant Farms by Regions, as of January 1, 2005

Marz	Number of Peasant Farms (x 1000 Units)	Agricultural Land, (x 1000 Ha)	Average Farm Size	Of which (x 1000 Ha)			
				Arable Land	Perennial Grass	Hay Land	Pastures
Aragatsotn	37.2	57.8	1.55	47.3	4.9	2.4	3.1
Ararat	53.4	32.8	0.61	23.4	8.1	0.8	0.6
Armavir	50.3	46.4	0.92	33.6	12.3	0.4	-
Gegharkunik	51.3	76.3	1.49	59.6	0.04	16.7	-
Lori	32.5	63.7	1.96	41.2	1.0	21.5	-
Kotayk	37.6	41.0	1.09	29.7	3.9	5.7	1.7
Shirak	28.2	66.7	2.37	63.9	-	2.8	-
Syunik	13.2	39.2	2.97	34.2	1.0	4.0	-
Vayots Dzor	12.8	16.0	1.25	12.9	1.0	2.2	-
Tavush	21.9	28.6	1.31	21.2	3.5	3.9	-
Total	338.5	468.6	1.38	366.9	35.7	60.4	5.4

Source: NSS 2005a.

Table 3: Owned and Leased Land by Peasant Farms: by Regions (2003)

(Ha)	Agricultural Land in use	Of which is owned	Of which is rented
Aragatsotn	1.79	1.73	0.06
Ararat	0.57	0.51	0.06
Armavir	1.16	1.01	0.15
Gegharkunik	1.77	1.54	0.23
Lori	2.13	1.68	0.45
Kotayk	1.58	1.53	0.05
Shirak	2.83	2.79	0.04
Syunik	2.48	2.03	0.45
Vayots Dzor	1.34	1.21	0.13
Tavush	1.18	1.14	0.04
Total Average	1.53	1.37	0.16

Source: AST Nr. 6 (November, 2004) based on a survey, borrowed from Max Spoor.

2.2 Rural and Urban Poverty

The results of household surveys in the period of 1996-2003 indicate around 12-percentage point reduction in the poverty on the national level. In general, this reduction in poverty is related mainly to the improvement in urban areas, especially in Yerevan, however, poverty in rural areas has been stable during the recent years. The income gap between urban and rural areas is widening. Table shows that urban poverty went down from 58.3% in 1999 to 39.7% in 2003, while there was a 3.3 percentage points contributed by rural areas since 1999. However, the rural poverty increased in 2003 and for the first time became 1.2 times more than urban poverty. According to the NSS data approximately 50% of the rural population is poor (See Table 4).

Table 4: Rural and Urban Poverty Profile (1999-2003)

	1999	2001	2002	2003
Total Population	100.0	100.0	100.0	100.0
Armenia	55.1	50.9	49.7	42.9
Urban Poverty	58.3	51.9	52.6	39.7
Yerevan	56.6	46.7	43.8	29.6
Rural Poverty	50.8	48.7	45.3	47.5

Source: NSS (2004), "Social Snapshot and Poverty in Armenia".

Regional differences in poverty are apparent. Table 5 shows that there were improvements in Ararat, Tavush and Vayots Dzor, while in Aragatsotn, Armavir and Gegharkunik, where the majority of population is rural, the situation is deteriorated (Minasyan & Mkrtchyan, 2005). It's obvious that rural poverty in Armenia is relatively stagnant and the problem of regional disparities is merging, despite having continuous growth in agricultural sector.

Table 5: Poverty Profiles by Regions of Armenia (%)

	1999	2001	2002	2003
Aragatsotn	57	60.3	72.1	57
Ararat	49.4	44.7	45.4	42.8
Armavir	36.7	53.7	51.6	48.3
Gegharkunik	43.4	62.2	47.2	59.9
Lori	61.7	54.2	44.6	34
Kotayk	60.3	50.5	55.9	52.5
Shirak	77.3	57.8	73.6	72.2
Syunik	50	NA	32.7	34.6
Vayots Dzor	34.7	51.1	53.2	42.9
Tavush	27.6	59.7	48.2	30.7

Source: NSS (2004), "Social Snapshot and Poverty in Armenia".

2.3 Employment in Agriculture

During transition agriculture became of paramount importance in Armenia. The main reason was the collapse of other sectors in the early 90s, particularly industry. Agricultural employment increased from 389,000 workers in 1991 to a stable level of 565,000 during the late 1990s (NSS). Then it increased to 570,000 in 2001 and declined to 512,200 in 2004. This reduction is connected mainly to the decline in population of the country, and increasing number of migration workers. Around 42 percent of employed people in agriculture are female (See Table 6).

Table 6: Agricultural Employment in Armenia, 1000 persons (2000-2004)

	2000	2001	2002	2003	2004
Total Employment in the Economy	1,277.7	1,264.9	1,106.4	1,107.6	1,225.7
Agriculture and Forestry	566.7	570	500.8	509	512.2
Of which female	235.9	244.7	223.5	228	230
Agriculture and forestry in % of Total	44.4	45.1	45.3	46.0	41.8

Source: NSS, Food Security and Poverty in Armenia (2004 January-December)

2.4 SMEs in Agriculture

The role of small and medium enterprises (SME) in Armenia nowadays as the main supplier of workplaces could not be overstated. The SME sector accounts for about 39% of the GDP in 2004, more than half of the employment of Armenian labor force, boosting the creation of the middle class, providing competitive market structure and technology advancement (Kyureghyan & Zohrabyan, 2005). Considering the paramount importance of the SME sector in Armenia's economy, the Government has passed several laws and sub-legal acts ensuring the proper development of the sector. These laws first of all help to understand and distinguish the companies considered SMEs (Kyureghyan, 2005). Companies are classified as micro, small and medium based on the following distinction:

- Micro - Commercial organizations and individual entrepreneurs with average number of up to 5 employees.
- Small - Commercial organizations and individual entrepreneurs within industry (we focus on agriculture) with average number of up to 15 employees.
- Medium - Commercial organizations and individual entrepreneurs within industry and other productive spheres with average number of up to 30 employees.

The distinctions of the SME in the sector of industry are slightly different (Micro: 1-5 employees, Small: 6-50 employees and Medium: 51-100 employees).

Due to the government support the SME became a developing part of the economy. The share in GDP attributable to SME sector grew almost twice in 2004 compared to 2000 (Kyureghyan & Zohrabyan, 2005). Despite the development of the overall SME sector, the SMEs in agriculture did not share the expansion. Agricultural goods production and some forms of services are naturally more lucrative areas for SME initiation and development in terms of requiring less initial capital investment, shorter payback period and not sophisticated technologies (Kyureghyan & Zohrabyan, 2005). Table 7 shows the dynamics of the development of the SME sector in agriculture in 2003 and 2004.

Table 7: Commercial companies for agricultural goods production, 2003-2004.

	Number of companies		Average number of employees		Volume of output (million AMDs)		Share	
	2003	2004	2003	2004	2003	2004	2003	2004
Micro	54	37	163	115	540.2	135.3	3.5	1.0
Small	35	42	585	751	1723.4	1827.9	11.1	13.5
Medium	8	2	547	149	4844.1	400.2	31.2	3.0
Total SME	97	81	1295	1015	7107.7	2363.4	45.8	17.5
Large	3	5	588	853	8408	11148.3	54.2	82.5
Total	100	86	1883	1868	15515.7	13511.7	100	100

Source: Statistical Data of the SME sphere in Armenia, 2003-2004.

Ministry of Trade and Economic Development

Table 7 indicates that not only the number of SME's declined in 2004, but also the share in the volume of the output has declined from 45.8% in 2003 to 17.5% in 2004. The factors affecting to this decline are the limited export opportunities on the top of the other problems plaguing the SME sector (Kyureghyan & Zohrabyan, 2005).

There is some statistical evidence that commercialization of agriculture has been increasing in the recent years. This was true until the year of 2004. Since 1997 the ratio of the share of commercial organizations in the total agricultural output was increasing reaching to 3.8% in 2003. However it declined back to 2.7% (appr. the level of 2000) in 2004.

Commercialization is increasing the inequality of farm income distribution as households engaged in farming can be put out of business by commercial firms. However, many authors argue that the commercialization is not a major factor behind declining farm incomes of rural households (looking at statistics) and the losses for rural households from the commercialization can be estimated at 3-4% (Minasyan & Mkrtchyan, 2005).

2.5 Vertical Coordination in the Agricultural Sector of Armenia

Like in many transitional countries of Europe and Central Asia (ECA) a major problem in Armenia during the transition period was the breakdown of the relationships of farms with input suppliers and output markets. The result is that many farms and rural households face serious limitations in accessing essential inputs (feed, fertilizer, seeds, etc.) and selling their output (Swinnen, 2005). Widespread forms of contracting problems like long payment delays or non-payments for delivered products (Swinnen, 2005) were apparent in Armenia during the transition. In general, the model of agricultural transition in Armenia is similar to that of other transition countries in the region (Cocks, 2004).

After the collapse of the former state and collective farms, established food processors in Armenia and in other former soviet republics, have lost guaranteed, state directed, supplies and demand. They have had to establish their own relationships to effectively acquire agricultural raw materials. Restructuring and privatization has led to the separation of many previously horizontally and vertically integrated enterprises together with the emergence of new type of businesses (White and Gorton, 2004). This itself led to a situation of widespread financial distress, high discount rates, and a lack of contractual enforcement (Cocks, 2004) and hold up problems (Gow & Swinnen, 2001).

Recently many studies have been conducted to discuss the issues of the vertical coordination in transition countries (Swinnen, Gow, Cocks, White, Gorton, etc.). Vertical coordination in terms of its type and extent, differ by commodity, as the commodity and process characteristics affect transaction costs in the exchange (Swinnen, 2005). In many studies and reports variations of the basic model of VC have been mentioned.

To large extent, the private solutions that successfully overcame the transition problems in ECA have not occurred in Armenia (Cocks, 2004). Without these private solutions that contribute to the creation of enforcement mechanisms and encourage investment, the Armenian agriculture remains in a sub optimal equilibrium characterized by a deep financial distress and a general lack of investment (Cocks, 2004).

In their study entitled “Vertical Coordination in Transition Countries”, White and Gorton (2004) tried to analyze the impact of contracting and vertical integration of the FSU agro-food sector. A survey of agro-food processors in five CIS countries (Armenia, Georgia, Moldova, Ukraine and Russia) found that food companies, which used

contracts with suppliers grew from slightly more than one-third in 1997 to almost three-quarters by 2003. There was a strong growth in company ownership of farms (Swinnen, 2005).

White and Gorton (2004) show that significant reforms are occurring in farmer – processor relationships: contracting is becoming more prevalent, especially with larger farmers. In their study they found that the majority of processors in the sample used contract support measures or innovations to be able to overcome hold-up and contracting problems. Most popular measures applied were prompt payments, transportation and monetary credits. White and Gorton also showed (2004) that the number of support measures offered was significantly higher in Armenia, Georgia and Moldova, than Russia and Ukraine, connected to the higher FDI in the mentioned samples.

2.6 Vertical Integration in the Armenian Dairy Industry

Prior to transition, the milk processing industry had an annual capacity of 320,000 tonnes of dairy production, about 27,000 tonnes of cheese and 13,000 tonnes of ice cream (MoA, 2002). All former 42 state-owned dairies (milk and cheese) have been privatized. Most of these factories work at a low level of their capacity, and many of them do not operate at all. Production focuses on cheese products, pasteurized milk and other dairy products. Many small plants exist (about 500) which produce mainly salted cheese under inadequate hygiene conditions. Several recently created dairies, of small size, process their own milk as raw milk. Foreign direct investments and joint ventures in the dairy sector do not exist.

Since independence, most of these farms have been dismantled and currently the bulk of dairy production originates from small private farms with 1-2 milking cows. The most important areas for milk production are located in the North-Eastern part of the country. In particular the Tashir area is renowned for the quality of cheese produced there and it still accounts for around 8 percent of all milk produced in the country (MoA, 2002).

The collapse of the planned economy resulted in a break up of all vertically and horizontally related marketing arrangements in the sector. The distribution channels are underdeveloped, and are primarily integrated with the processors, which increase the transaction costs and decreases efficiency (Hakobyan, 2004).

As we mentioned earlier, the major problem that small private farms face is the milk marketing. This presents the biggest problem due to three important characteristics that set it apart from other farm products. First, milk is more perishable than other farm products (unlike most agricultural products, in its fluid form it can be stored only a few days). The second differentiating property is the flow nature of milk. While most agricultural products are being harvested once a year and may be stored for later sales, milk is normally harvested twice a day. Finally, supply and demand of milk is counter-cyclical over the year. These facts put an Armenian individual farmer acting on his own at competitive disadvantage when dealing with only a few relatively large processors (Hovhannisyan et al., 2004).

However the processors have many problems as well. They face the situation where they have to collect the milk directly from small household farms. This results in unstable quality and quantity of milk purchased. Small farms can't meet the necessary sanitary and hygiene conditions for milk production and are not able to introduce new technologies and methods of selection. The problem of storage facilities is important as well.

The role of USDA Marketing Assistance Project as a third – party facilitator in the development of the dairy marketing channels in Armenia has been and remains significant. Through a package of marketing, technical and financial assistance USDA MAP aimed at increasing rural incomes, creating jobs and raiding the standard of living of rural communities. In particular USDA MAP contributed to the development of the dairy marketing channels in Armenia by establishing dairy marketing cooperatives and milk collection centers in many villages across the country. The cooperatives closely work with USDA MAP clients – processors by supplying improved quality milk and are able to work with other processors as well.

Generally processors are small-scale plants. However, there are several large dairy operations that produce a wide range of dairy products: sour cream, yogurts, milk, ice-cream and cheeses. According to the State Commission for the Protection of Economic Competition of Armenia, no single dairy processing company dominates the market for major dairy products, because of wide range of products and large number of processors in the market (SCPEC 2005).

Vertical integration in the sector occurs either through full ownership or through formal or informal contracts. In Armenia farmers or cooperatives do not own a processing company, and usually their relation is based on informal contracts. Gow and Swinnen many times discussed the importance of self-enforcing - by designing contracts such

that private losses from contract breach outweigh potential benefits, (Gow & Swinnen, 2001) in developing and transition economies. Self-enforcing relationships in the Armenian dairy sector Hakobyan (2004) documents as follows: farmer – processors, farmer – cooperative, and cooperative – processors relationships. The most common is the farmer – processor relationship. Hakobyan (2004) alludes to the uniqueness of this type of integration that processors have milk collection and cooling capacities and are able to pay fast cash to farmers. Very often processors offer some contract support measures to farmers, in order to guarantee the stable milk supply and higher quality of milk. The contract innovation measures (Gow & Swinnen, 2001) frequently take the form of prompt payments, covering the transportation costs, and veterinary services. According to White and Gorton (2004) contracting is relatively developed in the Armenian dairy sector. They conclude that in Armenia the relatively high level of contracting cannot be linked directly to FDI as all of the dairies in the country are owned by domestic investors but it can be linked to the growing export volumes of dairy products (White & Gorton, 2004).

Several processors are integrated with farmers through Credit Clubs. The initiator of the Credits Club program in Armenia was the USDA MAP. The credit club idea is based on a group loan with no interest and collateral. This type of integration looks like the model of “Triangular Structures” of the Vertical Coordination.

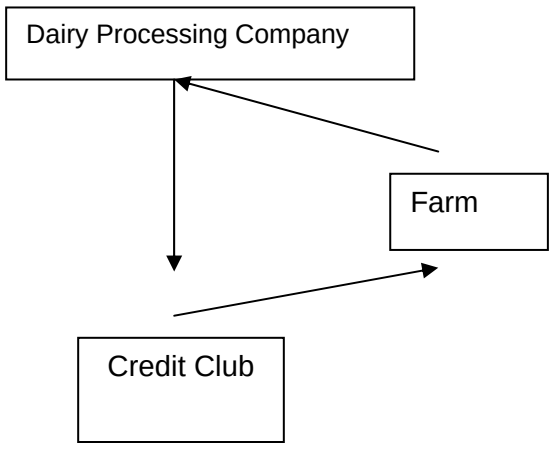

Diagram 1: Triangular Structure

Normally the credit club is organized together with the processor who also receives

financial assistance from the USDA MAP. The repayment of the loan then is administered together by the club members and processor. The processor provides loan guarantees for loans to farmer-suppliers. The loan is aimed at purchasing feed, cows, and making other milk production investments. In some cases the processor makes the loan payments on behalf of farmers.

Farmer- farmer-coop relationships are practically new for Armenia. Likewise the processors, co-operatives also possess cooling tanks and storage facilities, which enables them to continuously procure milk from farmers. The reason for self-enforcement in this case is that if one farmer supplies low quality milk, the entire cooperative will suffer – as the milk will not be accepted by the processor, or the cooperative might receive a penalty for low quality (Hakobyan, 2004). Therefore coop members constantly improve the quality of milk, and meet the requirements set by the processors.

There is evidence that in the cooperative-processor form of the relationship a mutual trust is apparent between chairman of the cooperative and the manager/owner of the processing company. Trust is referred as one of the common contract or relationship enforcement mechanisms by many authors (Gulati, 1995, Dyer & Singh, 1998). Hakobyan (2004) reports that many problems between cooperatives and processors related to the minimum quality requirements, prompt payments, etc. are being solved due to the increase in trust between the processor and cooperatives' chairmen. Although very rare, formal agreements also exist in the aforementioned relationship. Usually the manager and chairman sign a statement or contract stating the minimum quality requirements of milk, payments timeline and pricing structure.

2.7 Political and legal Environment

Farmers argue that political and legal environment is not conducive to the development of agricultural sector in general. Current political environment allows for corruption and resource allocation (e.g. land sale, lease). This is a glaring barrier for the sector's performance. The regulating role of the government is negligible. Although the fundamental laws related to agriculture are in place, many sub legal acts either outdated or do not exist. Many amendments in the existing laws are needed. In particular amendments in "Land Code" are necessary to define privileges on land leasing and privatization of the previously non-used land to the farmers and

agricultural enterprises, as well as to define the maximum size of the land plots allowable to lease and privatize (MoA, 2004). Till now the “Law on Co-operatives” doesn’t exist. It’s important to have defined status and criteria for farms, cooperatives, unions, as well as other types of organizations, and elaboration of the relevant taxation mechanisms for application of VAT to fulfill the requirements of the WTO.

In the strategy for sustainable agricultural development the Ministry of Agriculture has given a paramount importance to the improvement of the regulatory framework of seed breeding and seed quality control, adoption of the RA Law “On Seed Production”, strengthening the requirements of agrarian regulations through making relevant amendments in the RA Laws “On Agrarian Inspection”, “On Protection of Selection Achievements” and “On Plant Protection and Plant Quarantine”. Legal regulations and strengthening are needed for the selling of plant protection means (chemicals, etc.) and fertilizers, and inspection control of import (MoA, 2004).

The majority Armenian agribusinesses noted that it is very tedious and time consuming to visit each of the Government offices concerning to obtain the necessary signatures to export products. The level of bureaucracy and nepotism in government’s offices are still very high. One company noted that before they could export, some 4 different permits were required. One permit was from the Ministry of Agriculture and required 2 days (2 trips), to obtain, one from the Ministry of health (3 days, 2 trips), Chamber of Commerce (one day) and finally Customs. Since Customs is located 20 minutes from the airport, an additional inconvenience is met. Each of these permits required the provision of samples (Matevosyan, 2003).

3. CONDUCT

3.1 Interview Findings

To find out about the degree of vertical integration, the entry barriers, investments in agriculture and other related topics, we conducted 11 interviews. We employed the method of purposive sampling (Lincoln and Cuba, 1985), aiming at selecting people from whom the most could be learned. The criteria chosen to select the interviewees were:

a) Senior management people at the Ministry of Agriculture.
b) Senior executives of agro-food industry enterprises (White & Gorton, 2004)
c) Enterprises had made recent capital investments in the sector.

The questionnaire was comprised of only open ended questions, which aimed at revealing the current degree of vertical integration in the agro-food sector, any major barriers to entry, the political and legal environment's impact on the performance of the sector, the main operational difficulties faced by farmers, the relationships of processors and farmers, etc. To preserve the anonymity of responses, the names of interviewees have been excluded from this report.

Interviews were conducted with 8 producers representing dairy, fruit and vegetable processing sectors. Based on the interview findings the following observations were concluded

a) Degree of Vertical Integration. Most of the processors, particularly dairy processors rely on other farms for the purchase of raw material. Processing companies intend to increase the level of full ownership integration. E.g. wineries and brandy companies are buying vineyards to secure the quality and quantity of particular sort of grape (e.g. Areni). Contracting is becoming a common tool in the relationship between grape producer and processor. Contract support measures are also developed in this sector. Wineries and brandy companies are supporting farmers giving them cash advances for farm inputs, extension services, prompt payments, etc. Vertical integration is very popular in milk processing sector. Although the processors do not possess dairy farms (there is no full ownership integration) but contracting is very common in the sector. These processors also provide many support measures like veterinary services, prompt payments, etc. Vertical integration is emerging in fruit and vegetable sector. The processors intend to have their own orchards as well, and recently large investments have been noticed in land purchase and formation of new orchards (Case of the Armenian – Argentinean joint venture with Max Fruit, investment in 6,000 hectares for establishing new orchards).

b) Legal environment. The results of the interview revealed discontent with the current tax policy, which is an impediment for the growth of agricultural production and export of the finished products. The processors think that the growth of the economy is largely tied to the agricultural and agribusiness expansion and export. And the government should provide subsidies to the sector and adopt a tax policy promoting export activities.

c) Constraints for development. Among the most significant obstacles were mentioned the expensive transportation, which is connected with the fact that Armenia is a landlocked country and the situation becomes even worse due to the

blockade by the neighboring countries. Most processors consider Armenia as a county with high potential in the agricultural niche markets with its high quality agricultural products and very often the unawareness about the country creates obstacles for company's products. Among the constraints was also mentioned the risk of raw material supply. This is to a large extent connected with the small sizes of the plots of land and livestock farms. And the chain takes to the lack of agricultural long term and low interest credits for the farmers provided by local banks, which in turn is connected with lack of agricultural insurance in the country. Most of the interviewees mentioned about the problems of the farmers directly impacting their operations. One of the obstacles mentioned is the inconsistent supply and high prices, as well as the high taxes on input supplies, like food ingredients, packaging materials, corks, capsules, bottles, jars, etc which are mentioned as indispensable for successful export and marketing.

d) Investments. Most of the processors mentioned that the biggest investments have occurred in viticulture, particularly brandy production (French Pernod Ricard bought the Yerevan Brandy Company) and fruit and vegetable processing. The investment in the dairy sector has been made mainly by local investors. This is explained by the fact that the export of dairy products is more difficult to organize compared to brandy and processed fruits. Also the requirements for diary products are stricter in western markets, the transportation more expensive (refrigerator containers, etc) and risks are higher due to the perishable nature of the dairy products. Investments have been also made in fish breading, in natural juices production, in wine making, dried fruit business, in green house and flower business, etc. Diaspora Armenians and local entrepreneurs are the major investors, except one case in brandy production. Recently large investments recorded in land purchase and land improvement.

e) Contracting. Most of the agribusinesses are striving to collaborate with the farmers on contractual basis. And the ones working through contracts seem to be more successful in terms of quality assurance and export opportunities. Based on the interviews some other interesting findings were made. The grape growers and dairy processors tend to use contracting more than the fruit processors. Even the successful and the biggest processors, with many export opportunities are not contracting the farmers most of the time. This could be illustrated by the case of Noyan Juice producer, which has the latest lines of Tetra Pack and has made tremendous investment in the business. They make all the arrangements for purchase verbally. The unpredictable weather conditions may leave the farmer with very little crop and they may shift to a buyer suggesting higher price. The fruit

and vegetable growers seem to be more vulnerable to weather conditions than for e.g. dairy and this sees to be underlying factor for not contracting the fruit processors. Usually the processors do not take any legal actions, they try to solve the issues on their own, try to negotiate for the next year and even in some cases help the farmers to overcome the financial crises they face due to the loss of crop. Again one more example to show that export is not the only decisive factor for contracting. Ashtarak Kat is one of the biggest dairy producers in the country. They mainly produce ice cream sours creams, different types of yogurts, milk, curds for local consumption and no export has occurred so far. But for quite a long time they have been working with farmers through contracts. This comes to prove that the contracting possibilities differ from sector to sector and has other factors than export. According to the majority of interviewees a lot should be done in order to improve the contractual mechanisms between farmers and processors. They should bear the responsibility and respect the contracts. In other words, contracts are not self-enforcing. Sometimes the contracts are remaining on the paper only. Contract innovation measures are necessary to shift the self-enforcing range of the contracts. Farmers' strategies in this case are the improvement of efficiency and the quality of output. Sometimes processors are engaged in conspiracy and implement a favorable pricing policy for themselves. Farmers have no choice and become dependant on the processor. In such cases farmers' associations are needed to protect farmers' rights and do necessary negotiations with the processor.

f) Operational difficulties. Farmers have myriad of operational difficulties. The problem of selling the agricultural production was frequently mentioned by the respondents. Another set of difficulties is related to the agricultural inputs and technology. Farm machinery is outdated and because of that farmers lose around 25-30% of their harvest, high quality inputs, seeds and fodder, fertilizers are missing. Farmers do not have adequate information, and rural infrastructure is in terrible situation (e.g. rural roads). Rural finance and access to credits are major barriers. Farmers do not have collateral to secure the loans, and banks require urban property as a collateral. Only ACBA Bank is giving agricultural credits, however the interest rates are high (starts from 16%). The interviewees mentioned that sometimes farmers get another loan or request money from their relatives to cover the interest and principal of the previous loan. The agribusinesses interviewed, mentioned the economic situation of the farmers as one of the main impediments for the growth of agribusinesses. Among the main problems and impediments were mentioned- lack of long- term, low interest loans, high taxes,

lack of transportation routes, lack and high prices of input supplies both for farmers and agribusinesses.

g) Successful vs. least successful farms. The farmers who keep up to date farming patterns, have the necessary knowledge, integrate both applied research and new technologies into farming are considered to be successful farmers. Unsuccessful farmers are just followers. They do farming without required agro-technical rules; their connection with agricultural research and education is very weak or missing.

h) Market segmentation. Based on the interview results the market is becoming more segmented. And this is connected with the registered economic growth in the country. Like Ashtarak Kat dairy producer is providing different types of dairy products with special emphasis on nutritional values, e.g. live yogurt for children, products with different fat content for consumers with different preferences. Noyan is aiming at producing products for different consumer groups (juices for health conscious consumer groups, special products for Diaspora markets, etc.).

i) Relationship with cooperatives. Based on the finding most of the producers are interested in working with farmers' associations and cooperatives. But there are not many of them. The existing associations are mainly formed around dairy farmers. And most of them have been formed by donor organizations.

3.2 Bottlenecks of the Agricultural Development

3.2.1 Irrigation

Irrigation is without any doubt the most important aspect of agricultural production in Armenia. However, as the data is rather weak around the precise state of deteriorating systems, it is also quite difficult to judge the current needs. Reliable data on what is the current state of irrigation system in Armenia is hard to get. In 1998 household survey Lerman and Mirzakhanyan (2001) found that only an estimated 18 percent of all agricultural land was irrigated. In total 44,2% of the households indicated that they did not utilize, partially or totally their owned and rented land. The most important reason was 'no irrigation or limited irrigation'. Another source reports that out of 274,000 hectares of irrigation land only 200-210 thousand are actually irrigated (MoA, 2004).

In spite of poor accurate data, it is clear that irrigation is a crucial issue in agricultural production, and substantial investments are needed, hand in hand with institutional changes regarding subsidies for, rights to and pricing of water.

The Armenian government has given substantial priority to the rehabilitation of irrigation systems of arable land, as is shown by its application to Millennium Challenge Program, financed by the USA government (for which Armenia was selected), that included substantial plans to invest in irrigation infrastructure ($115 million).

Many international organizations contributed to the rehabilitation of the irrigation systems of Armenia. In particular, the “Village Well” project was established by USDA Marketing Assistance Program, which aimed to rehabilitate deteriorated water wells and construct new wells for rural communities and farmers (Urutyan, 2004). The Village Well Project is funded by the European Command of the U.S. Dept. of Defense humanitarian assistance. USDA/MAP worked through Foundation of Applied Research and Agribusiness (FARA) to identify well sites and conduct competitive bidding for wells. It also contained well rehabilitation in some villages (Infanger, 2001). USDA MAP constructed and rehabilitated water wells in all marzes except Yerevan. The selection criterion was based on the water availability in the villages. Those villages were selected where there is no water or there is water scarcity. Three stages of the Village Well project are virtually complete with 75 new or rehabilitated wells. More than $1 million was spent on Village Wells’ project (Urutyan, 2004). More than 120 new sites have been selected for future water well and pipeline projects.

Since 1994 World Bank has implemented irrigation development projects in many regions of Armenia. Water well rehabilitation and construction as irrigation development projects were also given paramount importance. During 1995-1999 period 238 water wells were reconstructed and newly constructed by the World Bank Irrigation Development PIU (Project Implementation Unit). The actual expenditures for Water Well Project comprised around $4,252,000. The wells were designed for irrigation uses only. According to Mr. Tonoyan (WB Irrigation PIU) water wells made possible to irrigate more than 7,000 hectares of land.

Recently the World Bank allocated another $20 million for 4 years aiming at investing in the rural infrastructure including irrigation development (Interview at WB, 2005).

Another international organization involved in the irrigation development projects is IFAD (International Fund for Agricultural Development). Though a lot was done for rehabilitation and development of the irrigation system, multiple problems remain.

3.2.2 Rural Finance and Access to Credits

The changes of agriculture together with macroeconomic uncertainty have created difficulties in the normal process of financing agricultural activity. The problems in the credit market for agriculture stem from both demand and supply forces (Gow & Swinnen, 1997).

Surveys in many transitional countries have shown that from the perspective of farm borrowers the primary issue in rural finance has been the level of interest rates on loans. Another survey in CEE countries reflects the general view that limited access is not the primary problem, rather interest rates are perceived to be simply too high (Pederson & Khitarishvili, 1997). It's important to understand the difference between farmers' perceptions of "limited access" and the problem of high interest rates. Pederson and Khitarishvili (1997) define "limited access" to credit as; a situation where a borrower is not able to get the requested amount of credit, regardless of the willingness to pay a higher interest rate to the lender. Limited access occurs when there is nonprice credit rationing, meaning that some individuals or groups cannot obtain loans at any interest rate (Gow & Swinnen, 1997). The perception of high interest rates means first of all the availability of credits at a price (Pederson & Khitarishvili, 1997).

Problems of imperfect (asymmetric) information, lack of collateral, and low profitability makes banks view the agricultural sector as a high risk consumer (Gow & Swinnen, 1997).

The aforementioned problems common in many transitional countries are still apparent in Armenia. The lack of credit inhibits the development of cash crops, which require higher input costs. Farmers are in a survival mentality (Matosyan, 2003). Lack of financial means is a major factor that prevents farm households to use all their agricultural land. According to recent UNDP household survey conducted in Armenia, in total 20,7 percent indicated that they had no financial means for cultivation and therefore left fallow part of their land or rented it out. The access of financial services for the majority of small farms in Armenia is quite problematic. A large number of state financial institutions have been dismantled and most commercial banks do not lend to agricultural sector, except to those farms that are sufficiently large and integrated into the value chain (Spoor, 2004).

Table 8 shows the credits of commercial banks operating in Armenia in agriculture and food industry for the period of 2002-2004. Although total credits in agriculture have increased by 11.7%, the percentage of agricultural credits in total was decreased by 1.4% in 2004. There is evidence that the portion of credits having a maturity of 1 year and more are increasing (See Table 24). Table also shows that credits in food industry have significantly increased reaching to a share of 39.4% in total industry credits. Agricultural loan portfolio comprised about 1.7% of GAO in 2004.

Table 8: The agricultural credits of the commercial banks operating in Armenia

(in million AMDs)

	2002		2003		2004	
	Total	Maturity of 1 year and more	Total	Maturity of 1 year and more	Total	Maturity of 1 year and more
Total Credits, Leasing and Factoring to Residents	83,827	36,179	101,820	44,783	139,784	68,831
Of which						
Industry Total	32,191	16,059	29,771	16,546	35,593	19,341
Food Industry	10,122	5,435	10,438	5,534	14,037	8,429
% in Industry Total	31.4%	33.8%	35.1%	33.4%	39.4%	43.6%
Agriculture Total	7,787	3,713	7,709	2,978	8,611	5,900
Percentage in Total Credits	9.3%	10.3%	7.6%	6.6%	6.2%	8.6%

Source: CBA, "The Credits of Commercial Banks", 2002-2004.

The only bank that is having a serious share in lending to the agricultural sector is the ACBA Bank (we expect that Bank 14 in Table 9 is ACBA), which in 2004 claimed to have more than 60 percent of the total commercial bank portfolio in agriculture. ACBA Bank provides loans for agriculture at 16-24 percent interest to members and non-members of the Agricultural Cooperative Village Association. Recently ACBA launched ACBA Leasing as a mid-term equipment lending-leasing credit organization, which is providing secured equipment leasing to agricultural enterprises and associations of producers at interest rate of 18-20% (MEDI Report, 2003).

Table 9: Distribution of Credit Investments by Commercial Banks operating in Armenia

	Distribution of credit investments by sectors					Distribution of the agricultural credits by banks		
	Industry		Agriculture			Agriculture		
As of Dec. 31, 2004	Total	of which food Industry	Total	Plant Growing	Animal Husbandry	Total	Plant Growing	Animal Husbandry
Bank 1	5.3%	0.4%	5.3%	2.2%	3.1%	2.0%	2.0%	1.9%
Bank 2	15.6%	6.9%	0.5%	0.3%	0.2%	0.5%	0.7%	0.3%
Bank 3	61.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bank 4	54.9%	19.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bank 5	12.2%	6.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bank 6	15.1%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bank 7	46.0%	0.0%	4.2%	0.0%	4.2%	0.1%	0.0%	0.2%
Bank 8	26.4%	2.2%	0.3%	0.1%	0.2%	0.2%	0.2%	0.2%
Bank 9	24.4%	11.1%	4.8%	4.6%	0.2%	5.9%	14.0%	0.4%
Bank 10	11.2%	4.6%	0.3%	0.3%	0.0%	0.3%	0.7%	0.0%
Bank 11	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bank 12	26.4%	25.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bank 13	28.2%	18.3%	0.1%	0.0%	0.1%	0.1%	0.0%	0.2%
Bank 14	10.4%	6.1%	35.0%	11.5%	23.5%	66.4%	53.7%	75.1%
Bank 15	22.4%	12.8%	19.2%	10.4%	8.8%	18.7%	25.1%	14.4%
Bank 16	8.5%	4.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bank 17	12.8%	0.0%	2.4%	2.4%	0.0%	0.8%	2.1%	0.0%
Bank 18	36.4%	18.2%	2.6%	0.0%	2.6%	1.6%	0.0%	2.8%
Bank 19	22.3%	7.7%	1.5%	0.3%	1.2%	3.3%	1.5%	4.5%
Bank 20	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total by Sectors	25.5%	10.0%	6.2%	2.5%	3.7%			
Total by Banks						100.0%	100.0%	100.0%

Source: CBA annual report, 2004 (in Armenian).

From the table it's quite obvious that only 2-3 banks are relatively active in agricultural lending. We can say that these banks divided the rural finance among themselves

although unequally. It's clear that more than 66% of the credits in agriculture belong to one bank; the bank in second place has 19% share of total agriculture lending.

As of December 31, 2004 seven banks operating in Armenia serviced the loan programs of the following international and local organization: German – Armenian Foundation, World Bank, EBRD, Eurasia Foundation, PIU Agricultural Services, National Center for SME Development, International Finance Corporation and International Migration Foundation. The main directions of the above mentioned credit programs were trade: 42% in total, agriculture: 21.1% in total, food industry: 8.3% in total and services: 8% in total (CBA, 2005).

There are many problems that inhibit the development of rural finance sector. The land reform is still incomplete. There is statistical evidence (based on the number of land alienation transactions) that land market emerged already, but still land is not used as a collateral. Banks require residential property in urban areas, because the market for real estate in rural areas is thin and they will not be able to sell the property when the borrower defaults (Gow & Swinnen, 1997). The problem of collateral as a barrier to credit remains significant in Armenian agricultural sector. Banks require up to 200% of collateral level. Even farmers willing to pay higher interest rates may not have enough assets to collateralize the amount of loan they need.

Despite the fact that agricultural credit volumes are gradually increasing (See Table 8), due to mainly micro-financing organizations and partially credit clubs (specialized credit institutions), however it satisfies only 8% of the credit demand (MoA, 2004)

Another problem inhibiting the development of rural finance is the unclear role of government. The Government should often intervene in agricultural credit markets, e.g. by providing guarantees to banks for loans, by setting up credit institutions special for agriculture and by subsiding credit to agricultural producers (Gow & Swinnen, 1997). In Armenia the role of government in contributing to the development of the agriculture credit markets is relatively low. The government should create an appropriate climate for the formation of the specialized agricultural credit institutions, which are widespread in Western European countries. Specialized credit institutions can be found in many different forms; credit co-operatives, state owned agricultural funds or development funds (Gow & Swinnen, 1997). The most important advantages from the creation of specialized agricultural credit institutions are lower transaction, monitoring and verification costs through greater specialist knowledge of relevant agricultural activities. The idea is that this specialist knowledge mitigates the asymmetric information problems, and with it, the adverse selection and moral hazard problems, hence reducing credit rationing and stipulating lending to agriculture (Gow

& Swinnen, 1997). The major disadvantage of these institutions are their higher portfolio risk due to their specialization, which puts them at great risk if there is down turn in the sector (Gow & Swinnen, 1997).

Rural and micro finance remains under the attention of the international organizations. Recently the International Fund for Agriculture Development (IFAD) allocated around $14 million for enterprise and community development and for rural finance area.

The USDA MAP launched a credit club program aimed at providing direct technical and financial assistance to the farmers. In the frame of the program farmers receive non-interest and collateral free loans. Farmers fill in business plans, which are reviewed and approved first by the group itself and then by USDA MAP. The club members make 15% membership payments to the Refundable Fund, which belongs to the club and is managed by club members. Club participates with its Refundable Fund amount in the loans together with USDA MAP and shares the risk. USDA MAP suggests 10-15 members in the first two years of operation then clubs can have 25% increase of the members. All members should know each other very well and should be able to work together on the trust and mutual guarantee basis. The clubs are established in all 10 regions of Armenia in the areas of USDA MAP interest and where USDA MAP has processing industry/business in place. The total number of Credit Clubs is 50, number of members – 900. Total loan amount - $ 1,500,000 out of which USDA MAP investment is about $ 1,000,000 and the Clubs investments comprise about $500,000.

3.2.3 Agricultural Inputs and Technology

With the collapse of the planned economic system, the re-distributive land reform, and the formation of a large number of small peasant farms, the declining purchasing power and the alignment of input and machinery prices, the use of latter reduced dramatically. Although there seems to be slight recovery of input use in the past few years, still the demand is very high for high quality mineral and organic fertilizers. According to FAO (FAOSTAT 2004), the volume of N- fertilizer consumed in Armenian Agriculture, went down from 25,000 tonnes in 1992 to even 5,000 in 2001. In the last decade the use of mineral fertilizers was reduced by 10 times, organic – by 18 times and plant protection means – by 10 times (MoA, 2004).

Most trade in inputs is being executed by private traders, sometimes operating as commissioners (distributors) of international companies in Armenia. Prices are relatively high and as credit is most often unavailable (even for working capital), the intensity of input use is low, with negative consequence for yield.

The agribusiness sector is almost totally dependent on high cost imported materials for inputs: cans, bottles, high quality dairy ingredients, must all be imported. The combination of high input costs for both fresh and processed products, along with high freight rates and limited market access, implies a dependence on the domestic markets for low value products and for export markets, a dependence on high value, high quality, differentiated products that can overcome the high input and freight cost disadvantage.

There are serious problems in farms machinery supply. The vast majority (93%) of the present farm machinery and equipment is worn out (See Table 10). This affects the efficiency of production, increases the exploitation expenses and service tariffs (MoA, 2004).

Table 10: The Availability of the Farm Machinery and its Working Order.

(1000 units)	2000	2001	2002	2003	W. Order
Tractors	13.1	14.2	14.5	14.2	76.4%
Trucks	12.7	13.3	13.4	14.1	73.0%
Tractor ploughs	3.6	3.7	3.5	3.7	87.0%
Sowing machines	1.6	1.6	1.7	1.8	87.4%
Cultivators	2	2	1.9	1.9	88.5%
Harvesters	1.7	1.8	1.8	1.7	73.2%
Tractor mowers	1.4	1.4	1.4	1.5	76.7%

Source: NSS, Statistical Yearbook of Armenia, 2004.

According to a WB survey (1999) very few farmers actually own farm machinery, 40-60% of farmers use various pieces of equipment owned by others. Rental markets for machinery and machine services apparently exist in rural Armenia, and this reduces the need for traditional ownership (World Bank, 2001). But this situation creates another problem. Being the only farm machinery owners in their village or even regions these people act as “monopolists” and set very high prices for their service leaving the farmers with no choice.

3.2.4 Markets for Agricultural Produce

The problem of selling of agricultural produce remains a difficult ballgame for small

peasant farms. This is conditioned on the one hand by the poor purchasing ability of the consumers at the internal market and on the another hand by the difficulties in exporting caused by the transportation blockade (MoA, 2004). The share of foodstuff in the commodity structure of the external trade comprised 11.6% for export and 20.6% for import (See Tables 21,22) in 2004. In addition, more than 75% of export in the group belongs to brandy, which means that there is an urgent need of export diversification (MoA, 2004).

Farmers mainly produce directly for the spot market, generally not using any form of supply contracts with agro-processing companies (except for some canning and wineries). Farmers bring their produce to market as soon they harvest and many with them do the same depressing local market and farm gate prices. Secondly there are a few marketing cooperatives that improve bargaining power of the peasant farmers. Thirdly, in Armenia, the main market is the capital, Yerevan, in the absence of sufficiently important wholesale markets. Distances are substantial, especially if one takes into account the dreadful state of roads in many of more remote areas of the country. Intermediaries are often behaving in non-competitive ways, operating with high marketing margins.

There are multiple marketing constraints. Armenia as a landlocked country has very few transportation options. Basically there are two major routes that connect Armenia to the external world: through Georgia and through Iran. Although these are the only routes for container transportations of Armenian products, they are not very reliable, due to the additional difficulties created on the roads of Georgia and Iran. Shipping times vary from 15 to 35 days. This is a financial burden to agribusiness producer, who must then generally wait an additional 45-60 days for payment from the buyer (Matosyan, 2003).

The lack of cold storage facilities at the airport is an impediment to the development of successful fresh fruit and vegetable or perishables export operation. Similarly, the lack of cold storage and hydro cooling facilities at the farm/production level inhibits the range of crops that can be successfully exported.

The entire “cold chain” is an issue which needs to be addressed, since without a cold chain to control and optimize temperature and humidity from time of harvest to time of consumption, premium quality fresh products can not be produced and exported, and the Armenian agribusiness community is relegated to the position of selling lesser quality mass market at market prices which are not likely to be able to absorb the costs of airfreight (Matosyan, 2003).

Armenian Agribusiness has a neutral image in most export markets. The image is caused by the absence of Armenian products on the shelves of supermarkets, the lack of information and knowledge about the country. There appears to be little marketing analyses or development of understanding of what the market wants. Instead, the prevailing attitude seems to be one of the “this is what we produce, Buy it” (Often with sole justification if it is Armenian). While such nationalistic pride is admirable, the western market seems to think otherwise. The Agribusiness community needs to develop awareness that there is no shortage of agricultural products in the world. Given the geographic and production constraints facing the Armenian producer, every effort must be made to produce a premium quality and consistent product and then in addition to “tell the Armenian story” for the differentiation purpose.

Farmers and agribusinesses in general are unfamiliar with the quality requirements of export markets, and with packaging and labeling restrictions and quality. Further they are generally unaware of the premiums that can be generated for high quality, highly differentiated products that are aggressively marketed, as opposed to being offered for sale.

4. PERFORMANCE

4.1 Gross Agricultural Output

Since 2000, gross agricultural output (GAO) showed a stable growth. In 2004 GAO reached to 504.1 billion AMD, which is 14.5% more than that of in 2003 (See Table 11). The growth is mainly connected to the increased production of both in plant growing and animal husbandry sectors. Table 11 once more indicates the strategic importance of the agriculture for the economy of Armenia. During the last 5 years GAO was between 25-30% of total GDP of the country. Around 26.6% of total GDP was contributed by the agriculture, which accounted for 963.1 million USD in 2004 (See Table 11).

Table 11: Economic Indicators (2000-2004)

	2000	2001	2002	2003	2004
Gross Domestic Product (Billion AMD)	1031.3	1175.9	1362.5	1623.3	1893.4
GDP Million $	1911.5	2118.4	2376.3	2804.8	3617.3
Of which					
Agriculture (Billion AMD)	281.2	351	377.6	410.1	504.1
GAO Million $	521.2	632.3	658.6	708.6	963.1
Percent in Total GDP	27.3	29.8	27.7	25.3	26.6
Average exchange rate for 1USD	539.53	555.07	573.35	578.77	523.42

Source: NSS, Socio-Economic Situation of Armenia in January-December 2004.

The growth in crop production was 20.1% compared to the level of the year 2003 (See Table 12). In general, the agricultural sector has performed relatively well during the last 5 years.

Table 12: Gross Agricultural Output, in billion AMD (2000-2004)

	2000	2001	2002	2003	2004
Total Gross Agricultural Output	281.2	351	377.6	410.1	504.1
Plant Growing GAO	136.2	208	226.6	228.7	274.4
Animal Husbandry GAO	145	143	151	181.4	229.7

Source: NSS, Socio-Economic Situation of Armenia in January-December 2004.

Note: The NSS makes differentiation between to sectors, namely "Household plots" and "Commercial organizations". The latter represents a negligible share of production.

Since 2000 GAO per marz has also improved and there is an increasing trend (See Table 13). However, agriculture in Armenia shows specific regional differences.

Table 13: Gross Agricultural Output Per Marz, in billion AMD (2000-2004).

	2000	2001	2002	2003	2004
Yerevan	3.4	3.8	4.9	5.7	6.5
Aragatsotn	17.9	24.6	26.2	30.3	36.3
Ararat	43.1	45.0	48.6	52.2	66.1
Armavir	50.4	57.5	60.4	60.5	74.6
Gegharkunik	39.2	49.5	53.6	59.1	71.6
Lori	28.7	36.1	39.6	43.9	55.4
Kotayk	23.1	30.6	33.7	36.9	44.4
Shirak	27.2	34.0	37.8	40.2	48.4
Syunik	26.1	32.9	34.3	39.4	49.4
Vayots Dzor	9.0	14.4	16.6	18.4	23.7
Tavush	13.1	22.4	21.9	23.5	27.7
Total	281.2	351.0	377.6	410.1	504.1

Source: NSS, Regions of Armenia in Figures, 2004

Socio-Economic Situation of Armenia in Jan-Dec, 2004.

Table 14 details the performance of agriculture by regions. Table 14 clearly shows a much higher GAO/Ha for Ararat and Armavir, followed by Vayots Dzor, Syunik and Kotayk. This can be explained by the fact that the first two marzes mentioned produce mainly vegetables, fruits and grapes, while other regions produce more grain, potatoes or are specialized in livestock production (Spoor 2004).

Table 14: Gross Agricultural Output Per Marz, (2000-2004) 1000 AMD/Hectare.

	2000	2001	2002	2003	2004
Aragatsotn	310.8	422.7	503.1	582.6	628.0
Ararat	1251.0	1289.0	1445.7	1553.6	2015.2
Armavir	1117.5	1262.6	1208.1	1314.5	1607.8
Gegharkunik	445.8	563.1	630.6	696.1	938.4
Lori	630.9	786.5	857.1	950.2	869.7
Kotayk	538.2	678.5	761.1	834.8	1082.9
Shirak	343.2	428.8	472.5	502.5	725.6
Syunik	540.9	677.0	640.8	851.0	1260.2
Vayots Dzor	417.8	669.8	745.5	828.8	1481.3
Tavush	424.9	724.9	689.5	738.9	968.5

Source: NSS, Regions of Armenia in Figures, 2004

Socio-Economic Situation of Armenia in Jan-Dec, 2004.

There was also a problematic tendency in the most important (in terms of GAO) agricultural marzes to reduce the area of vineyards, and to increase the grain area. This was chiefly for food security reasons. This was apparent in many marzes, even in Ararat and Armavir.

Table 15: Acreage of the Main Agricultural Crops (x 1000 Ha).

	1990	2000	2001	2002	2003	2004
Total sown area	436.6	303.2	317.1	305.6	314.6	322.8
Of which						
Grain	138.2	181.1	203.4	191.9	200.8	206.4
Potatoes	22.4	34.2	31.8	30.5	32.3	35.7
Vegetables	18.0	20.0	19.8	20.2	23.1	22.3
Water Melons	4.8	3.4	3.3	3.8	4.1	4.0
Fruit and Berries	50.2	22.8	22.7	22.8	25.7	34.7
Grapes	29.2	15.0	14.8	13.0	13.0	14.9

Source: NSS, "Food Security and Poverty in Armenia" (2004). Statistical yearbooks.

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Table 15 indicates that the acreage of grapes has tended to increase in recent years but still remains below the level for the year l990. The same is true for fruits and berries. However, the acreage of grain (mainly wheat) and potatoes are above the level in 1990 (See Table 15). The total sown area is increasing and was 323,000 hectares in 2004, but is still below at the planted level in 1990.

Table 16 shows the main agricultural indicators for the period of 2000-2004. It is apparent that “low value, high volume” crop output such as wheat and potatoes have increased. As Spoor (2004) argues, this shows the food self-sufficiency strategies of many small peasant farms. It’s also connected to a larger planted area.

Table 16: Main Agricultural Indicators (2000-2004)

Production	1990	2000	2001	2002	2003	2004
Grain (x 1000 t)	271	224.8	367.3	415.5	310	456.2
Yield (t/ha)	-	1.4	1.9	2.2	1.6	2.2
Potatoes (x 1000 t)	212.5	290.3	363.8	374.3	507.5	576.4
Yield (t/ha)	-	8.7	11.5	12.3	15.7	16.2
Vegetables (x 1000 t)	389.7	375.7	456	466	569.4	600.7
Yield (t/ha)	-	18.9	22.4	23.2	24.6	26.9
Water Melons (x 1000 t)	31.4	52.8	54.8	89.7	115.4	113.1
Fruit and Berries (x 1000 t)	155.5	128.5	102.4	82.6	103.1	113.6
Grapes (x 1000 t)	143.6	115.8	116.5	104	81.6	148.9
Yield (t/ha)		7.8	8.1	8.3	7.1	10
Meat, Slaughter weight (x 1000 t)	84.7	49.3	48.3	50.2	52.6	-
Milk (x 1000 t)	441.9	452.1	465.3	489.5	513.7	555.2
Eggs (million pieces)	517.9	385.4	448.3	477.7	502.2	563
Wool (tonnes)	2,831	1,310	1,081	1,120	1,180	-

Source: NSS, "Food Security and Poverty in Armenia" (2004). Statistical yearbooks.

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As mentioned above, the agricultural sector has performed well in recent years. Except for watermelons all plant growing fields reported growth in production. Grain output increased by 146,200 tonnes (47.2%), potatoes by 68,900 tonnes or 13.6%, vegetables by 31,300 tonnes, fruits by 10,500 tonnes and grapes by 67,300 tonnes or increased by 82.5% (See Table 16).

Compared to 2003 milk production increased by 41,500 tonnes (8.1%). Since 2000, milk production increased by around 103,000 tonnes or by 23% (See Table 16). This fact is connected to the development of dairy processing sector and increased competition. Egg production increased by 60.8 million units (12.1%).

Table 16 also shows that wool production decreased to 1,180 tonnes (almost half size of production compared to 1990). However, the sector showed some improvement in 2003 as Diaspora Armenians made large investments in carpet production. Data for 2004 is not available yet, but it's expected to have a much larger number for wool production.

Table 17 shows the main livestock indicators during 2000-2004. The number of cows has gradually increased. The number of sheep and goats increased as well.

Table 17: Main Livestock Indicators (2000-2004)

	1991	2000	2001	2002	2003	2004
Cattle (x 1000 heads)	640.1	478.7	497.3	514.2	535.8	565.8
Including Cows (x 1000)	250.9	262.1	264.9	270.1	280.8	291
Pigs (x 1000)	310.9	70.6	68.9	97.9	111.0	85.4
Sheep and Goats (x 1000)	1186.3	548.6	540	592.1	602.6	628.5
Horses (x 1000 heads)	6.5	11.5	11.4	12.1	12.1	12.5
Poultry (x 1000)	9352.3	4255.1	3975.2	3130.3	3604.6	3830.0

Source: NSS, Statistical Yearbook of Armenia 2004.

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4.2 Agricultural Land Market

Egalitarian land reform resulted in a large number of small peasant farms that privately own most of the arable land, orchards, vineyards and some hay land. Pastureland still remained as state-owned. Land market and land lease market emerged in Armenia only by the late 1990s, until that time land was managed under informal or customary arrangements.

Spoor (2004) has discussed “push” and “pull” factors affecting the transactions in the agricultural land markets. The “push” factor refers principally to migration, which for Armenians means cutting important roots. Spoor mentions that in the case of emerging agricultural land lease market in Moldova, the “push” factor might be the fact of “no means or capacity to cultivate the land” (Spoor, 2004).

The “pull” factor for selling the land firstly comes from neighbouring farms that do well and want to expand. Second, the emerging agro-industry (wine/brandy production, or fruit and vegetable canning/processing) seeks vertical integration in order to be able to secure sufficient quality and quantity of supplied raw materials and hence invests in land. Finally land purchase has some speculative reasons: rich individuals or capital groups wish to speculate with agricultural land having the expectations that agricultural land will increase in value in the future. The aforementioned “pull” and “push” factors seem to be valid for newly emerging land sales and lease markets in Armenia.

Data provided by the State Cadastre Committee show that the land sale and lease markets are developing in Armenia. Table 18 indicates that land market developed quickly reaching a total of 5,984 land sale transactions in 2004. According to the SCC the land sale transactions numbered only 268 in 1998.

Table 18: The Agricultural Land Market in Armenia (2000-2004)

Agric. Land Alienation (nr)	2000	2001	2002	2003	2004
Aragatsotn	80	78	250	379	521
Ararat	364	618	675	950	1619
Armavir	318	270	341	588	1553
Gegharkunik	8	17	63	216	87
Lori	23	45	73	181	182
Kotayk	118	131	327	559	1477
Shirak	47	69	171	282	231
Syunik	2	14	15	66	161
Vayots Dzor	48	16	12	64	77
Tavush	15	29	6	27	76
Total Number	1023	1287	1933	3312	5984
Total Nr. Of Land Lease Transactions	103	4355	3915	2110	-

Source: SCC, Real Property Market in 1998-2003, and

Socio-Economic Situation of Armenia in Jan-Dec, 2004.

Note: Alienation means sales, donation and inheritance.

Since 2000 land lease transactions (officially registered) showed substantial growth. In 2001 and 2002 transaction numbers grew to respectively 4,355 and 3,915. In 2003 there was a decline in land lease transactions without reason. However, it's estimated that many lease operations are being done based on customary arrangements or without formal registration thus avoiding significant transaction costs.

Table 18 shows a fairly large regional differences. The marzes of Ararat, Armavir and Kotayk represent around 78% of all sales of agricultural land in 2004.

The agricultural land market is expected to grow quickly, because the government is pushing forward the land title registration. At this moment around 84% out of the 929 communities completed the property title registration. The overall process will be completed by the end of 2005.

Completing the current process of land title registration will increase the land sales/purchases and will entail gradual concentration of land in the hands of more dynamic farms (Spoor 2004).

Finally on this topic it should be noted that there is a new institutional transformation in terms of land ownership, involving a large-scale transfer of state-owned land to the jurisdiction of the communities. This means that these communities will have the right to dispose of or use the land as they please. A total of 599,757 hectares of state-owned agricultural land, of which 127,000 hectares of arable land, the rest pastures, will be transferred by the end of 2005 to the communities. The land transfer program, which can be considered as the second wave of the original land reform, can have an important impact on the Armenian agrarian structure in the near future (Spoor, 2004).

4.3 Food Export and Import

According to the custom's declarations and trade data in 2004, 20.6% out of total import was foodstuff (in 2003: 17.5%). In export structure foodstuff numbered only 11.6% (in 2003: 11.8%). The following tables show export and import by commodity groups.

Table 19: Export Volumes by Commodity Groups (2000-2004) ('000 USD)

	Export				
	2000	2001	2002	2003	2004
TOTAL	300,487.4	342,816.6	505,159.7	685,599.2	715,033.1
Of which					
Live animals and products of animal origin	689.4	1,597.7	2,678.4	5,698.9	6,177.4
Products of vegetable origin	1,705.7	1,260.5	1,753.9	3,116.0	7,504.2
Animal and vegetable oils and fats	0.3	60.4	0.7	176.6	91.4
Finished foodstuff	27,337.3	47,984.5	54,779.2	72,195.7	69,443.3
Total foodstuff exported	29,732.7	50,903.1	59,212.2	81,187.2	83,216.3

Source: NSS, "The Socio-Economic Situation of the Republic of Armenia in 2000-2004".

External Sector, Export and Import of Goods, Commodity Structure of Foreign Trade.

Interestingly, in 2004 the foodstuff volume in foreign trade turnover of Armenia (in current prices) increased by 9.2% compared to 2003 and reached to 361.4 million USD, of which food import and export numbered 278.2 million USD and 83.2 million USD respectively (NSS, 2003-2004).

Table 20: Import Volumes by Commodity Groups (2000-2004) ('000 USD)

	Import				
	2000	2001	2002	2003	2004
TOTAL	884,733.3	874,326.3	987,155.5	1,279,485.7	1,350,976.9
Of which					
Live animals and products of animal origin	33,874.8	30,798.6	27,677.9	32,821.8	39,676.7
Products of vegetable origin	99,317.2	84,969.8	74,393.5	75,001.8	106,893.8
Animal and vegetable oils and fats	17,382.8	19,477.2	18,395.5	22,673.3	19,280.1
Finished foodstuff	69,535.6	76,867.3	79,328.4	93,306.0	112,322.9
Total foodstuff exported	220,110.4	212,112.9	199,795.3	223,802.9	278,173.5

Source: NSS, "The Socio-Economic Situation of the Republic of Armenia in 2000-2004".

External Sector, Export and Import of Goods, Commodity Structure of Foreign Trade.

Table 20 shows that in total food import in the year of 2004 around 40% was finished food (in 2003: 42%). Finished foodstuff imports increased by 20.4% and vegetable imports increased by 42%.

Export of food is also growing. Since 2000 it has increased by 1.8 times. In the structure of dollar value food export almost 83% is finished (prepared) foodstuff. However, in 2004 that category showed a negligible decline compared to the level of the year 2003. The export of the products of vegetable origin increased by 1.4 times (See Table 19). In the structure of the "Finished Foodstuff" commodity group export, more than 81% belongs to alcoholic and non-alcoholic beverages (in 2003 the dollar value of the mentioned products' export numbered around 60 million USD.) The second and third places shared (in dollar value) processed fruits and vegetables and cigarettes respectively.

Table 21: Food Import (2000-2004)

Tonnes

	2000	2001	2002	2003	2004
Wheat	375,220.8	295,877.6	326,784.8	303,946.8	384,607.9
Flour	36,156.8	24,663.6	14,180.9	6,096.7	14,413.9
Rice	11,843.3	11,078.0	14,310.6	15,685.7	13,456.6
Macaroni	7,789.3	1,494.8	1,255.3	2,021.6	2,702.5
Sugar	69,422.6	73,485.8	68,400.2	86,963.1	74,874.0
Vegetable oil	11,648.5	13,050.2	12,152.8	18,309.3	12,398.8
Eggs	1,899.2	529.0	88.8	8.6	44.6
Poultry meat	13,893.5	13,043.4	11,897.8	12,377.9	10,797.0
Beef	6,560.3	7,319.4	7,789.5	9,658.4	10,863.2
Pork	844.3	596.8	705.4	964.5	2,134.9
Milk (all types)	1,886.1	1,467.3	2,077.9	3,575.9	3,711.9
Butter	3,778.5	3,829.8	3,303.4	3,644.6	5,109.4
Cheese	190.6	158.6	180.2	253.5	492.7
Vegetables	3,976.2	7,511.4	7,121.1	8,669.1	6,019.0
Of which: Potato	390.0	2,289.6	1,927.0	2,858.7	1,553.3
Fruits (including nuts)	7,520.0	8,436.6	9,193.7	12,584.5	13,928.2
Of which grapes	851.1	1,023.9	930.0	1,256.2	767.6

Source: NSS, "Food Security and Poverty in Armenia", 2004.

Except rice, sugar, vegetable, vegetable oil and poultry meat other food products showed an increase in import volume for the year of 2004. Compared to 2003, the import of rice reduced by 14.2%, sugar by 14%, poultry meat by 13%, vegetable oil by 32.3% and vegetables by 45.7% numbering around 6,000 tonnes. The volume of imported wheat increased by 26.5% and comprised 384.6 thousand tonnes. The imported flour, pork, beef and butter volumes increased by 2.3 times, 2.2 times, 12.5% and 40.2% respectively. The cheese import increased by 94.2% and fruits by 11% reaching to the level of 14,000 tonnes (See Table 21).

Table 22: Food Export (2000-2004)

Tonnes

	2000	2001	2002	2003	2004
Brandy	4,072.5	7,367.2	10,024.0	12,118.0	10,825.6
Wine	487.0	1,581.4	605.6	362.3	372.5
Natural and Mineral Water	917.3	2,124.3	2,339.5	3,816.1	4,258.2
Fruits (including nuts)	5,005.3	981.9	3,307.9	3,978.0	2,299.0
Of which grapes	1,288.0	873.8	560.9	1,003.7	254.8
Cheese	0.1	41.1	96.2	1,002.6	1,005.7
Eggs	155.1	711.6	781.4	1,196.9	2,703.2

Source: NSS, "Food Security and Poverty in Armenia", 2004.

During recent years the most important export product of Armenia has been brandy. However in 2004 the brandy export volume reduced by 11% and comprised 10.9 thousand tonnes. In 2002 and 2003 the wine export declined significantly however it showed 2.8% increase in 2004 compared to the export levels in 2003. Compared to 2003 export data, natural and mineral water export increased by 11.6% and the export of eggs increased by 1.3 times. Since 2001 the cheese export showed a significant growth, in 2004 it numbered around 1,000 tonnes (See Table 22) whereas in 2001, almost no export occurred.

The following section presents the export performance of the main food commodity subgroups. The criteria chosen for the selection of subgroups is mainly the stability of the export growth during the recent years (See Table 23).

Table 23: Food Products with Best Export Performance.

Code	Subgroup name	2003	
		Weight in Tonnes	ths USD
306	Crustaceans	760.7	3,079.6
406	Cheese and Curd	1,002.6	1,118.6
407	Eggs in shell	1,196.9	531.0
901	Coffee	1,830.8	1,786.9
2002	Tomatoes prepared, preserved, not in vinegar	6,779.7	4,049.6
2005	Canned Vegetables, not frozen	280.2	512.3
2007	Jams, fruit jellies, marmalades, fruit or nut purees and pastes	2,071.8	2,360.9
2201	Natural and unsweetened beverage waters	3,799.9	975.8
2202	Mineral water and beverages	1,017.3	594.9
2203	Beer made from malt	2,010.9	681.6
2208	Liqueur, spirits and undenatured ethyl alcohol of an alcoholic strength by volume of less than 80% vol. And other spirituous beverages	13,225.7	57,402.0

Source: Customs data as presented by NSS.

In a study conducted by AEPLAC the Armenian fruit and vegetables-processing sector was evaluated. One of the main findings was that this sector has good potential for export development and strengthening its presence in foreign markets. Experts concluded that the quality improvement, producing with internationally accepted quality assurance system, undertaking consistent and systematic export marketing and improvement of cost control management would immediately make some of Armenian producers competitive in the global market (Tereschatova, 2002).

Fresh fruits and vegetables represent an opportunity for Armenian agribusinesses only where they have outstanding reputation for flavor (apricots, wild berries) or where specialized and differentiated fruit and vegetables required by the market. There is a wide range of final products produced in Armenia from fruits and vegetables. These include tomato paste and sauces, fruit juice and jams, dried fruits and preserves. A substantial part of the mentioned production is being exported to the ethnic markets of Russia, USA and France.

Armenian beer recently started to penetrate new markets, chiefly Russian markets in the beginning. In the local market it has almost substituted the imported production. This mostly refers to the French-Armenian Joint Venture, Kotayk Brewery, which also exports its production to the USA, Russia, France and Germany.

The commodity group numbered 2208 (See Table 23) comprises mainly Armenian brandy. In June 1998 the French Pernod Ricard Company acquired the Yerevan Brandy Company. Due to investments brandy production has risen from a low of 1.7 million liters in 1998 to 4 million liters last year. The Russian market, which accounts for about 85% of exports, has revived. Investments in YBC are made at different levels: $3.4 million worth grape was purchased in 2003. The total volume of investments in YBC throughout the entire time period of activities in Armenia numbered around $40 million. The production of YBC is exported to 25 countries, and the volume of export amounted to 91% of total volume of the production realized by the company in 2003. Russia still remains the market number one: around 3 million liters of brandy was sold in Russia in 2003. Ukraine became the second getting ahead of Armenia as far as export volume is concerned (over 400 thousand liters). Armenia is the third in sales (over 359 thousand liters of brandy). Compared with the year 2002, the realization of the production increased in Armenia by nearly 53%. According to Mr. Larretche, the previous director of the company, there is one limiting factor – insufficient grape necessary for making young grape spirit. There are two reasons: frost and great demand for grape, not only from us but also other local companies.

The export growth and developments can be linked with a stronger inflow of FDI. Food processing sector have profited a lot from FDI flow during the last 3 years (See Table 24).

Table 24: Foreign Investments in Real Sector by types of activity and by country (2002-2004)

(1000 USD)

Type of Activity	Country	2002		2003		2004	
		Total Investments	Of which Direct	Total Investments	Of which Direct	Total Investments	Of which Direct
Total Investments		217474.7	140984.0	229644.2	153497.9	305550.8	226723.4
Of which							
Agriculture and Services in Agriculture	Total	3657.0	3657.0	0.0	0.0	0.0	0.0
	France	2980.0	2980.0	0.0	0.0	0.0	0.0
	Iran	677.0	677.0	0.0	0.0	0.0	0.0
Production of foodstuff including beverages	Total	13597.8	13597.8	12929.2	12929.2	38728.5	34728.4
	Belgium	0.0	0.0	0.0	0.0	1293.1	1293.1
	Canada	950.0	950.0	0.0	0.0	0.0	0.0
	France	8334.8	8334.8	9300.9	9300.9	31988.1	27988.0
	Ireland	966.6	966.6	263.9	263.9	0.0	0.0
	Lebanon	2728.3	2728.3	1635.4	1635.4	2915.7	2915.7
	Luxembourg	525.0	525.0	1336.2	1336.2	2106.0	2106.0
	USA	0.0	0.0	0.0	0.0	70.2	70.2
	Russia	93.1	93.1	389.8	389.8	355.4	355.4
Tobacco Production	Canada	5936.0	5936.0	946.0	946.0	0.0	0.0

Source: NSS, The Socio-Economic Situation of Armenia in Jan-Feb, 2005.

Foreign investments in real sector made up 305.5 million USD in 2004. This is 33.1% more than that of in 2003. Direct investments have increased by 47.7% (See Table 24). Investments in foodstuff production comprised around 39 million USD (13% in total investments) of which 35 million was direct. Agriculture didn't receive any foreign investments, although significant local investments were noticed in agriculture in terms of land purchase and land improvements. According to the table, the lion's share of the FI in the foodstuff production activity belongs to France (82%), which was assumingly made in brandy and confectionary production.

The link between FDI and export growth indicates that there are significant prospects for the development of export-oriented enterprises, as these enterprises have strategic partners and access to new foreign markets (Tereschatova, 2002).

4.4 The Dynamics of Agricultural Prices

Price statistics show that the gap between farm-gate prices and retail market prices of some food products have been increasing during the recent years (Mkrtchyan & Minasyan, 2005). In their study A. Mkrtchyan and G. Minasyan derived the aggregate impact of the farm-gate price versus retail price developments. They show that gap was widening in the period of 1999-2003 with a peak in 2002 at 3.2% of total agricultural production. In 2003, the gap narrowed a bit to 2.8% mainly due to the prices of fruits, grapes and meat. In general, the prices contributing to the increase of the gap are those of potatoes, vegetables and milk, while prices of fruits and meat are contributing to the gap narrowing. Mkrtchyan and Minasyan (2005) bring several explanations regarding the widening gap between gate-price and retail market price. The important ones they mention are the following: increasing role of trade intermediation, less labour on the sales of products by farmers themselves and losses in the bargaining power of farmers, increasing indirect taxation in retail market, which puts a pressure on farm gate prices.

Many authors (Spoor, Mkrtchyan, Minasyan, Hovhannisyan) have stated that rural farm income has not increased and even significantly has decreased. One common factor observed was the negative development of the domestic (agriculture vs. industry) terms of trade. Since 1997, the overall trend for the domestic terms of trade was negative. Spoor indicates that according to the statistical data, the PPI for agricultural production declined between 1997 and 1999 by 19.5%, followed by fluctuations and increasing trend until 2003. However, the PPI for industrial production rose to 132.8 (compared to 1997), meaning deterioration of domestic terms of trade by 27.2% (See Spoor, 2004: p-16, 17). Spoor also mentions some other important factors that negatively affect the domestic terms of trade: particularly insufficient bargaining power, large number of unorganized and individually operating peasant farms, insufficient access to finance and poor infrastructure.

Despite the fact that agriculture showed a relatively good performance during the recent years, with the above-mentioned negative price development (depressing farm-

gate prices) the impact on agricultural incomes was negative (Spoor, 2002: p-17). The following table shows the CPI and price indices by sectors during 2000-2004.

Table 25: CPI and Sectoral Price Indices

Previous year=100	2000	2001	2002	2003	2004
Consumer Price Index	99.2	103.1	101.1	104.7	107.0
Including					
PPI for Food Products (including beverages and tobacco)	97.8	104.2	101.2	106.1	109.9
PPI for Industrial Products	100.8	99.6	102.5	108.9	121.7

Source: NSS, "Socio-Economic Situation of the Republic of Armenia in 2004".

Prices and Tariffs

Overall, price inflation has been rather low. For January-December 2004 the average monthly increase in consumer prices was 0.2%, which is 0.5% less than relative indicator for the same period of the previous year.

Table 26: The Changes of Prices by Separate Food Commodity Groups

(%)

Previous year=100	2000	2001	2002	2003	2004
PPI for Food Products (including beverages and tobacco)	97.8	104.2	101.2	106.1	109.9
Food Products	94.1	104.7	102.2	106.9	110.9
Bakery products	96.7	97.6	97.9	108.6	120.0
Meat Products	95.0	107.2	101.3	105.5	113.3
Fish Products	93.7	115.0	140.0	109.2	121.5
Dairy Products	94.3	105.0	100.3	97.4	106.4
Egg	91.5	102.3	108.2	103.0	115.4
Animal and Vegetable Oil	90.4	98.3	101.5	104.0	106.0
Fruit	83.4	126.2	120.7	121.4	114.1
Vegetable and Potato	90.9	127.0	104.3	111.0	94.4
Sugar	96.6	112.7	99.4	101.9	96.8
Coffee, Tea, Cacao	92.0	96.5	98.4	100.3	101.2
Confectionary	96.6	98.3	101.3	101.6	102.8
Other products	97.3	97.2	99.9	99.2	101.3
Non-alcoholic beverages	98.1	97.7	100.8	102.5	105.0
Alcoholic Beverages and Tobacco	128.0	101.5	93.9	100.0	101.2

Source: NSS, "Socio-Economic Situation of the Republic of Armenia in 2004".

Prices and Tariffs

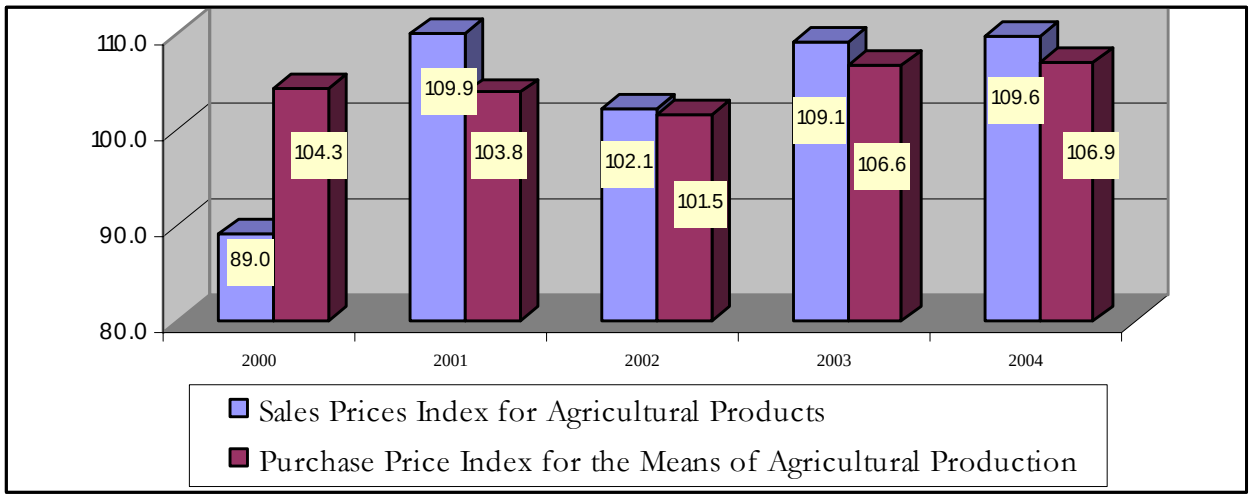
Different price changes registered in the food product market for January-September 2004 were followed by 5.4% overall price increase in October-December, with highest increase registered in December (3.8%). This change was related to the price increase of fish, egg, vegetables and fruits. The price increase in 2004 compared to 2003 was mainly due to the increase in prices of meat products (11.6%), fish products (95.3%), dairy products (8.7%), fruits (16.3%) and alcoholic beverages (4%) (CBA Annual report, 2004).

In particular the price increase of meat products was mainly related to the increase in prices of beef (14.2%), pork (32%) and lamb (19.1%). Surprisingly the prices of fish

products increased by 102.4%, the reason was the reduction of “sig” (fish) supply connected to the forbidding of fishing.

The seventeen percent increase in cheese prices, connected to the increase of cheese export volumes, was conducive to significant increase in prices of dairy products. The increase in fruit prices has supply based reasons. The volumes of some fruit production (apricot, peach) decreased in 2004. In vegetable and potato commodity group around 9.8% price reduction was registered in 2004, compared to the levels of 2003. This was connected to the increase of production volumes (CBA Annual Report, 2004, NSS 2004).

Diagram 2: Sales PI for Agricultural Products and Purchase PI for the means of Agricultural Production



Source: NSS, 2004

The increase in agricultural products sales prices comprised 9.6% in 2004 (See Diagram 2). Meanwhile, 12.5% increase in prices was registered in animal husbandry, connected to the significant increase in wholesale meat prices (17.7%) and around 8.5% increase in cheese prices. For the plant growing sector almost 26% reduction in potato prices was registered connected to the increased production volumes. Price increases were noticed among all types of fruit, connected to the increasing demand and decreasing supply of fruits (CBA Annual Report, 2004).

Table 27: The Purchase Price Indices for the Means of Agricultural Production

(%)

Previous year=100	2000	2001	2002	2003	2004
RA Total	104.3	103.8	101.5	106.6	106.9
Including					
Seeds and seedlings	86.3	107.3	105.6	114.5	98.4
Livestock	89.3	120.1	108.9	104.5	109.7
Energy and lubricating oil	111.6	98.7	101.1	106.0	107.8
Fertilizers	77.4	165.3	82.4	119.2	104.6
Protection means for plants	107.5	100.3	102.1	112.8	101.4
Fodder	89.3	120.7	106.5	104.1	108.3
Small agricultural implements	91.1	98.4	107.7	92.7	107.0
Building materials	92.5	105.8	103.1	100.6	97.6
Agricultural paid services	109.9	108.1	101.4	104.7	104.2
Of which: irrigation fee	131.0	107.7	98.6	100.8	158.4
Livestock vaccination	71.7	126.8	123.7	95.5	85.8
Tree spraying	93.9	121.6	80.5	99.0	95.5
Machinery, equipment and spares	97.9	75.6	108.3	108.7	122.6

Source: NSS, "Socio-Economic Situation of the Republic of Armenia in 2004".

Prices and Tariffs

In 2004 around 6.9% increase in purchase price index for the means of agriculture production was registered in Armenia compared to 2003. In particular, prices of fertilizers, fodder, small agricultural equipment, machinery and spares increased by 4.6%, 8.3%, 7% and 22.6% respectively. The prices of agricultural paid services increased by 4.2%, however irrigation fee increased by 58.4%. In the same period a reduction in prices was registered in the field of livestock vaccination and tree spraying (See Table 27).

4.5 State and Donor Programs and Activities in the Agricultural Sector

The policy being implemented in the agri-food sectors by the Ministry of Agriculture for the period 2004-2006 is focused on improving the efficiency of agriculture and the

related fields. According to the police necessary conditions should be created for the further agricultural development, for the improvement of rural income levels, for appropriate levels of food security and safety, as well as for the mitigation of rural poverty. The policy will be addressed to the implementation of the rural infrastructure development programs, introduction of the new and innovative technologies, and to the development of the agricultural education, extension and research services.

The priorities for the sector's development are the following:

a) Development of the agricultural markets and protection of the domestic producers' rights.

b) Promote the food processors; help them in selling their production, by stipulating the export.

c) Implement land improvement activities.

d) Implementation of the introduction of the agricultural insurance system and

e) Development of the agricultural education, extension, research and information sectors.

The priorities and strategic goals of the agrarian policy are consonant with the "Poverty Reduction Strategic Program" which is addressed to the rural poverty reduction and the sustainable agricultural development.

Taking into consideration the policy objectives, development goals and risks, in the state agricultural mid-term expenditure program for 2004-2006, the following continuous activities will receive the priority status: land improvement activities (962 million AMD allocated for 2005), preparation of the complex land cadastre for irrigated and not irrigated land plots, plant protection programs and activities (253.7 million AMD annually), veterinary and other related programs (1.2 billion AMD annually). These programs and activities have been started since 2001.

Another set of programs and activities will be started in the beginning of 2005, like: the implementation of wide area artificial insemination program (41.5 million AMD annually), contribution to the agricultural data collection (30 million AMD annually) aiming at data collection from different agri-food sectors, its input, processing, analyzing and using the findings for policy issues and program.

Continue the implementation of the Agricultural Reforms Support Program financed by the World Bank (751 million AMD was allocated in 2004). The main objectives of the program in this stage will be the 1) contribution to the improvement and development of the resource potential of farms, cooperatives and processing companies, 2) increase the opportunities for processing companies and farms in getting agricultural credits.

Continue the IFAD's Agricultural Services Program (3.5 billion AMD was allocated in 2004), which aimed at supporting the federations of water user associations, contributing to the job creation in the extremely poor rural areas, implementing micro financing and improving the rural infrastructure.

There are several new programs that should be implemented according to the state mid-term expenditures for period 2004-2006 in the field of agriculture. The one worth mentioning is "The insurance risk assessment in the agriculture" (40 million AMD). The total agricultural area of the country is considered to be a risky zone. Every year natural calamities destroy around 25% of the agricultural production. With this respect an important issue is the functioning of the agricultural insurance system, which does not exist in Armenia currently. Before introducing the insurance mechanisms, a risk assessment should be done in the agriculture of Armenia, including the preparation of the methodology for each region; data collection, analysis and setting the insurance premiums based on different regions and climate zones.

Another new program (192 million AMD) will be the numbering and registering the agricultural animals (livestock, etc.). This project aims at improving the sorts and increasing the efficiency of veterinary services. This will also contribute to the creation of the preliminary conditions for using the livestock as collateral when getting agricultural credits.

5. CONCLUSIONS

1. During the transition, agriculture was of paramount importance in Armenia. An estimated one-third of the population lives in rural areas, for whom agriculture is the main source of livelihood. With very few off-farm employment opportunities, rural inhabitants depend heavily on their small farms for survival. Agricultural employment

in Armenia increased to 570,000 in 2001 and declined to 512,200 in 2004. This reduction is connected mainly to the decline in population of the country, and the increasing level of migration. National Statistics indicate that roughly 50% of the rural population in Armenia is poor. Rural poverty is relatively stagnant despite growth in the agricultural sector.

2. After the collapse of the Soviet Union, reforms were introduced in 1991-92, focusing on the privatization of many productive resources and organizations. Land privatization resulted in a large number of small peasant farms (on average having 1.4 ha of land) that privately own most of the arable land, orchards, vineyards and some meadows. The small farm size is not conducive to the application and use of new innovative technology which hinders the development of the sector.

3. To a large extent, private solutions that successfully overcame transition problems in ECA have not occurred in Armenia. Without these private solutions that contribute to the creation of enforcement mechanisms and encourage investment, Armenian agriculture remains in a sub optimal equilibrium characterized by a deep financial distress and a general lack of investment (Cocks, 2004).

4. A significant amount of development projects like land consolidation, cooperative development, contractual farming and cooperation, capacity building, training to farmers, etc., are being implemented by international and national organizations to take Armenian farmers out of this situation. Recent statistics show that over the last five years, the agricultural sector played a strong role in Armenia's economy and has moved away from purely subsistence orientation to some extent. In 2004 Gross Agricultural Output reached to 504.1 billion AMD ($961 bln.), which is 14.5% more than that of 2003. Growth has been witnessed in both the crop and livestock sectors. Land sale and lease markets are developing in Armenia. However, many lease and sale operations are done based on customary arrangements or without formal registration thus avoiding significant transaction costs.

5. Exports of foodstuff are growing. Fresh fruits and vegetables represent an opportunity for Armenian agribusinesses only where they have outstanding reputation for flavor (apricots, wild berries) or where specialized and differentiated fruit and vegetables are required by the market. There is a wide range of final products produced in Armenia from fruits and vegetables. Foreign investment totaled 305.5 million USD in 2004. Although this is 33.1% more than that witnessed in 2003 agriculture didn't receive any foreign investments. However, significant local

investments were noticed in agriculture in terms of land purchase and land improvements. The lion's share of FDI in the food industry has come from France (82%), principally in brandy and confectionary production.

6. Despite the fact that agriculture has performed relatively well during the recent years, many challenges remain. There are several factors that hamper the development of the sector. These factors can be summarized as follows: 1. lack of production knowledge; 2. lack of access to high quality inputs; 3. Lack of rural finance and access to credits; 4. marketing problems; 5. limited production outlets; and 6. lack of professional supply chain actors.

7. Farmers face multiple operational difficulties. Farm machinery is outdated and because of that farmers lose around 25-30% of their harvest. Likewise, high quality inputs, seeds and fodder, and fertilizers are missing. Farmers do not have adequate information, and rural infrastructure is in terrible situation. Rural finance and access to credits are major barriers. Farmers do not have collateral to secure the loans. Banks require up to 200% of the amount of a loan in collateral, in effect requiring loans to be securitized against residential property in urban areas. Even farmers willing to pay higher interest rates may not have enough assets to collateralize the amount of loan they need. The interest rates are very high (e.g. ACBA Bank's annual rates are from 16 to 24%). Farmers sometimes obtain other loans or request money from their relatives to cover the interest and principal of the previous loan. The agribusinesses interviewed, mentioned the economic environment as one of the main impediments for the growth of agribusinesses. Among the main problems and impediments were mentioned- lack of long- term, low interest loans, high taxes, lack of transportation routes, lack and high prices of input supplies both for farmers and agribusinesses.

8. Farmers argue that the political and legal environment not conducive to the development of the agricultural sector in general. The current political environment allows for corruption and politicized resource allocation (e.g. land sale, lease). This is a glaring barrier for the sector's performance. The regulating role of the government is negligible. Although the fundamental laws related to agriculture are in place, many legal acts are either outdated or do not exist. Many amendments in the existing laws are needed. Up and till now a "Law on Co-operatives" does not exist. This is despite the fact that it is important to have a defined status and criteria for farms, cooperatives, unions, as well as other types of organizations, and elaboration of the relevant taxation mechanisms for application of VAT to fulfill the requirements of the WTO.

9. The problem of selling of agricultural produce remains problematic for small peasant farms. Armenia is a landlocked country and has very few transportation options. Basically there are two major routes that connect Armenia to the external world: through Georgia and through Iran. Although these are the only routes for container transportations of Armenian products, they are not very reliable, due to the additional difficulties created on the roads of Georgia and Iran.

10. The lack of cold storage facilities at the airport is an impediment to the development of successful fresh fruit and vegetable or perishables exports. Similarly, the lack of cold storage and hydro cooling facilities at the farm/production level inhibits the range of crops that can be successfully exported. Farmers and agribusinesses in general are unfamiliar with the quality requirements of export markets, and with packaging and labeling restrictions and quality. Further they are generally unaware of the premiums that can be generated for high quality, highly differentiated products that are aggressively marketed, as opposed to being offered for sale. The majority of Armenian agribusinesses noted that it is very tedious and time consuming to visit each of the Government offices required to obtain the necessary signatures to export products. The level of bureaucracy and nepotism in government's offices is still very high.

5.1 Conclusions about Dairy Industry

1. Prior to transition, the dairy industry in Armenia was very strong and had an annual capacity of 320,000 tonnes of dairy production. All former 42 state-owned dairies (milk and cheese) have been privatized. Most of these factories work at a low level of their capacity, and many of them do not operate at all. Several recently created dairies, of small size, process their own milk as raw milk. Foreign direct investments and joint ventures in the dairy sector do not exist. No single dairy processing company dominates the market for major dairy products, because of wide range of products and large number of processors in the market.

2. Both dairy processors and milk producing farmers have many problems. Processors face the situation where they have to collect the milk directly from small household farms. This results in unstable quality and quantity. These small farms cannot meet the necessary sanitary and hygiene conditions for milk production and are not able to introduce new technologies and methods of selection. On the other hand small dairy farms face problems marketing their milk.

3. Vertical integration in the sector occurs either through full ownership or through formal or informal contracts. In Armenia farmers or cooperatives do not own a processing company, and usually their relation is based on informal contracts. Self-enforcing relationships in the Armenian dairy sector documented by Hakobyan (2004) are as follows: farmer – processors, farmer – cooperative, and cooperative – processors relationships. The most common is the farmer – processor relationship.

4. There are certain inefficiencies in the Armenian dairy sector. First, a lack of working capital and collateral negatively affects the ability of both dairy processors and milk producer-farmers to raise finances. A very few milk producers are able to fund the acquisition or feeding of larger dairy herds. Small processors also lack sufficient collateral to be able to raise short-term finance, as their processing equipment is rather basic and relatively low value. Another problem is the insufficient amount of milk cooling facilities or cold storage collection points which compounds the problem that it is very difficult for both processors and producers to get their milk to the dairy plants. Cheese grades and standards are missing or lack harmonization. Grades and standards can consist of quality requirements, specifications, terms, definitions, certifications, classifications, and labeling and can be either performance or process characteristics (Cocks et al. 2003). Technical standards and certifications in Armenia are at a very low level. Especially at the retail level, many cheeses and other dairy products are being sold without the correct quality certificates. This not only poses a threat to consumer health and safety, but it also acts as a block to further trade. This lack of uniform quality, combined with the fractured nature of the production base, makes it very difficult for distributors to collect cheese into commercial quantities for domestic or export sales (World Bank, 2005).

5. Another important aspect is the lack of specialist knowledge for smaller processors and producers. Business training and consulting services need to be established on a regular basis. The smaller processors need to improve their marketing, financial, management and other business skills to be able to compete in the market and expand their activities and market share.

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