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AN ASSESSMENT OF THE COMPETITIVENESS OF THE DAIRY SUPPLY CHAIN IN NEW MEMBER STATES, CANDIDATE AND POTENTIAL CANDIDATE COUNTRIES

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FINAL DRAFT

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The project aims to establish a network of experts involved in agricultural policy analysis and rural development in the 12 New Member States, and in 8 Candidate and Potential Candidate Countries. More information on the project can be found at **www.agripolicy.net**.

CONTENT

1 Introduction

This report summarises the findings of the studies[1] on the competitiveness of the dairy supply chain in the 10 new members states (NMS) that joined the European Union (EU) in May 2004, in Bulgaria and Romania, which became MS in January 2007, and in 8 Candidate and Potential Candidate Countries (CC and PCC) all of which aspire to join the EU as and when their political and economic development meets the EU membership criteria.

As this report is a synthesis based on 20 country reports it is generally structured as a comparative analysis of the main features, main findings and conclusions of these studies. Yet, the dairy sector in the countries examined is diverse in its structural features and performance. Also the context in which the sector developments take place is different: economic development has been different among countries in the region as well as sector policies applied in the last 10 to 15 years. Where required this diversity is indicated in this report. Further details of specific country situations can be found in the background reports.

The common methodology established in the background dairy chain analyses is based upon internationally accepted definitions of competitiveness, which focus on the ability of individual industries to "profitably maintain or increase market share" in either domestic or international export markets. Structure, conduct, and performance concepts are combined with resource analyses in judging the competitiveness of the dairy supply chain, to identify key constraints to competitiveness and to develop policy interventions to improve competitiveness. Given the relatively limited data set (at farm but especially at processing level), the description and the combination of characteristics (structures, behavioural aspects, performance) of the sector and the market have been supplemented with expert interviews to enhance the basis for assessing the supply chain's strengths, weaknesses and opportunities.

The structure of this report is as follows. Section 2 provides an overview of the present situation and conditions in the primary (milk) production and (dairy) processing. Section 3 further elaborates on the issue of evaluating factors, which influences competitiveness and efficiency at farm and at processing industry level. Based on these analyses, main conclusions are drawn on the dairy supply chain's state of competiveness in section 4. The assessment is followed by a brief evaluation of prerequisites and directions for the sector's future development, including some key policy recommendations.

2 Overview of the sector

2.1 Sector definition: sector components and importance

2.1.1 Production and value added

The dairy sector plays an significant role in the economy of most NMS. Milk is one of the most important agricultural products and accounts for 15-20% of gross agricultural output in these countries (see table 1). Yet, there are important outliers: in Hungary and Malta, for

[1] See www.agripolicy.net for all 20 country reports that have been drafted in Work package 2 on Studies.

instance, the milk sector accounts for only 8% while in Estonia 30% of agricultural output is related to the milk sector. Based on the information available the milk sector seems of much less importance to agriculture in the Candidate and Potential Candidate Countries. In most countries the sector contributes 7-9% to total agricultural output although this share is over 20% in Montenegro.

With milk being an important agricultural sector in the NMS one may expect the dairy sector to contribute significantly to the food industry's value added. However, this is not the case for Bulgaria, Czech Republic, Estonia, Slovakia, Slovenia, Montenegro and Serbia where dairy has less than 10% of the food industry's value added. This indicates that the dairy industry in these countries can be characterised by rather low value added stemming from a relatively high share of low-processed products in total sales (e.g. drinking milk, cream, milk powder, whey powder, curd). As a consequence, the share of the dairy sector in the value added of the food industry remains rather limited, ranging from 5-7% in some countries to 10-14% in others. Again, there are exceptions like Lithuanian and FYROM, where dairy processing is a major contributor to the country's value added in the food industry (in the latter case however not because the dairy industry is producing largely highly processed products but because there is hardly any processing food industry alongside dairy in the country).

Table 1 Importance of milk production in the agricultural sector in NMS, CC and PCC (2007)

NMS	Share of milk production in GAO (%)	Share of GVA of dairy industry in Food industry (%)	Percentage milk production for processing (%)
Bulgaria	11.4 *	7.6 *	63 **
Cyprus	14.0	13.5 **	97.5
Czech Republic	20.2 **	6.9 **	97.5
Estonia	29.8 **	5.6 **	86 **
Hungary	7.6	10.8 *	74
Latvia	21.4	14.5 **	75
Lithuania	23	22 8	69 **
Malta	7.7	n.a.	97 **
Poland	18.6	10.3	79
Romania	n.a.	n.a.	22
Slovakia	17	6.3 **	99
Slovenia	15	7.4	80
(P)CC			
Albania	n.a.	n.a	23
Bosnia & Herzegovina	n.a.	n.a	23 *
Croatia	9 *	n.a.	78
FYROM	9 **	70 **	>50 **
Kosovo	n.a.	n.a.	14
Montenegro	22 **	8 (2003)	14
Serbia 1)	7.4 *	8.6 *	52
Turkey	9	15	50-60
EU-15 average	14.1	9	95

Note: * = 2005; ** = 2006; 1) % of Gross Domestic (material) Product, not of Gross Value Added.

2.1.2 Product flows within the sector

The dairy industry in the EU-15 is strongly vertically integrated: basically all milk produced by farmers is sold to processors. This characteristic is related to the continuous process of specialization, increasing scale of production and the subsequent professionalism that is required to be able to produce efficiently and according to the strict demands on hygiene and food safety as formulated in EU regulations. On-farm processing and/or direct selling to consumers is only a minor activity, considered a niche in the mainstream market for processed dairy products.

A similar situation of strong vertical ties can be found in the dairy supply chain in Czech Republic, Slovakia, Malta and Cyprus in which 97% or more of the total milk production is being delivered for processing (see table 1). On the other hand, although increasing over time, chain linkages are not that strong yet in at least half of the NMS: less than 80% of the milk produced is delivered for processing in Bulgaria, Hungary, Latvia, Lithuania, Poland and Romania. In all CC and PCC chain linkages are typically weak (except for Croatia). A major feature of the dairy sector in these countries is the low utilization of the milk produced by processing enterprises. A significant share of the milk produced continues to be consumed at the farm, either for own consumption or for animal feeding. Furthermore, milk is being sold directly by farmers to consumers on street markets. The high level of farm usage and direct selling is a consequence of several factors, which include the small-scale structure of production, a consequential lack of commercial orientation amongst many producers, an underdeveloped milk collection system, attractive street market prices compared to the price offered by processors offer, and the unreliability of milk payments made by some processors. A major challenge in the commercial development of the dairy sector in the countries mentioned is to increase the supplies of good quality raw milk to the processing sector in a cost-effective manner.

2.2 Structural features of the supply chain

2.2.1 Industry structure at primary level

The number of dairy farmers in the countries examined is high: approximately 4.8 million farms with dairy cows, of which 2.1 million in NMS and 2.7 million in (P)CC. Yet, these farms are highly concentrated in only a few countries in the region. Almost 85% of all dairy farmers in NMS can be found in Poland (53%) and Romania (31%). Turkey accounts for 2.1 million dairy farmers. Together with Albania and Serbia these three countries account for 94% of all farms with dairy cows in the 8 (P)CC.

Most countries show a strong dual dairy farm sector, with a large number of relatively small-scale producers and a small percentage of large producers which however handle a large share of the total dairy herd. The structure of the dairy farms is dominated by the category of holdings with 1-5 cows (see Table 2). This group includes farms with 1 or 2 cows producing exclusively for own consumption or limited direct sales. Quite different is however the sector structure in Cyprus, Czech Republic, Slovakia and Malta, where the average dairy farm is far above the average size of 30 cows in the EU-15. The number of dairy farms in these four countries mentioned is less than 4,000; a very small part of all dairy farmers in the NMS, CC and PCC together.

In all NMS the number of agricultural holdings with cows dropped significantly in the last decade. For instance the number of dairy farms in Poland dropped by 50% over the period 1996-2007. In Hungary only 20,000 dairy farmers were left in 2007 out of the 52,000 in 2000. In Lithuania and Slovenia the numbers dropped by 50% and 33% respectively over the period 2000 to 2007. Remarkably though is that the number of farms in Slovenia did not change since the country became a member of the EU, while since 2004 Slovakia and the Czech Republic face an annual decline in their number of farmers by 3.5%. The latter pace of structural change is similar to what happens in many west-European countries.

Table 2 Farm size structure – average number of dairy cows per farm and share of dairy cow farms per size classification (2007, if not stated otherwise)

NMS	Average heads/farm	% farms < 5 cows	% farms with 5-19 cows	% farms = 20 cows	Dairy herd (000 heads)	Farms with dairy cattle
Bulgaria	2.7	91.5	6.8	1.7	336	122,711
Cyprus 1)	228.2	5.3 (=10)	6.1 (11-50)	88.6 (>50)	56	245
Czech Republic	165	4.3 (=10)	13.7 (11-50)	82 (>50)	423	2,562
Estonia	14.5	65 (1-2)	25 (3-19)	10	104	7,174
Hungary 1)	19.8	56 (1-2)	33 (3-10)	11 (>10)	321	16,249
Latvia	4.6	84.4	11.7	3.9	179	38,825
Lithuania	3.3	90.5	8.3	1.2	396	120,982
Malta	50.6	5 (1-2)	29.5 (3-29)	65.5 (=30)	7.5	149
Poland	4.2	88.4 (<10)	10.2 (10-30)	1.4 (>30)	2,787	656,300
Romania	1.6	98.7	0.7 (5-10)	0.6 (>10)	1,700	1,100,000
Slovakia	183	23 (=10)	10 (11-50)	67 (>50)	181	992
Slovenia	6.5	60.3	33.2	6.5	124	19,200
(P)CC						
Albania	1.5	99	1 (>5)		396	270,930
Bosnia & Herz.	2.3	94	5.5 (5-10)	0.5 (>10)	58	25,057
Croatia 2)	3.1	85	13 (5-10)	2 (>10)	237	77,039
FYROM						
Kosovo	1.7	94	5 (5-10)	1 (>10)	140	83,289
Montenegro 3)	2.9	90	9.8	0.2	78	26,277
Serbia	2.7	90 (1-2)	9 (3-10)	1 (>10)	602	221,625
Turkey 4)	1.9	84.3 (<10)	11.4 (10-19)	4.3	4,229	2,100,000
EU-15 5)	37.3	25 (<10)	16 (10-19)	59	17,964	482,250

Note: 1) 2005 data; 2) 2003 data; 3) 2008 data; 4) 2001 data; 5 (Eurostat (FSS).

Considering the high percentage of subsistence farmers, it is very likely that the primary dairy sector in many NMS will face further radical structural changes. Very many of the small-scale producers are outside the milk quota allocation system.[2] This implies that only with relatively high investments related to expansion (in land, animals, quota, stables) and compliance with

[2] In Poland, milk quota has been allocated to only one third of farms with dairy cows. These percentages are around 50 in Slovenia, Lithuania, Latvia, and 25 in Estonia. In Bulgaria only 3% of dairy farmers have been assigned milk quota as these farms (are expected to) comply with EU hygiene and quality requirements. The number of farms with milk quota in Romania is unknown.

veterinary, sanitary and food safety regulations, that this category of farmers will be part of the commercially oriented dairy chain. These farmers however lack access to capital necessary for these investments and hence many of the small-scale producers will leave the sector in due time. The speed of this process depends largely on the general economic growth in the countries examined, which determines the level of social services (pensions, unemployment benefits, education, etc.) and the alternative employment opportunities.

Milk production in the Candidate and Potential Candidate Countries is even more characterised by a significant fragmentation of dairy farms than in the NMS. Over 80% (in some countries even over 90%) of all farms with cows are in the size category of farms with less than 5 animals (see Table 2). Only a small percentage of the farms in these countries are commercially oriented, selling milk to processors. This would be the category of farms that might be able to make necessary investments for business expansion and operational improvements in order to comply with increasing quality and food safety requirements as these economies develop and prepare for EU membership. Small-scale producers typically have problems in acquiring external finance for buying land and/or animals or making other investments. Support programs from the EU may be a source of finance for such investments but eligibility criteria may rule out the smallest farmers as their prospects to build economically viable farms are generally considered to be low. The strong fragmentation of the sector in these countries indicates that an immense structural change has to take place in order to meet EU membership criteria of a viable economic sector that is able to compete on the internal market.

2.2.2 Industry structure at processing level

In most countries significant structural changes have occurred in the dairy industry: the number of milk processors in 2007 is much less than it was ten years ago as many small companies have left the sector or have been taken over by others. Together with automation and the introduction of new technologies the number of employees in the industry has declined significantly. The trend is that the largest companies have increased their share in the total milk production that is being processed.

With the increasing plant size of operation and the increasing concentration, trends in the dairy industry in the region counters the developments that took place in the 1990s. The dairy processing industry has been generally very concentrated in the communist period. The privatisation process in the 1990s and the establishment of new plants led to a substantial increase of the number of dairies in most countries. However, many have disappeared again in the build-up to EU membership. The remaining companies have been forced to undertake ample innovation and improvements by incorporating hygiene and quality (HACCP and ISO) systems. EU SAPARD funds helped to finance the introduction of these systems, as well as foreign investment in the NMS dairy industry. Finance is however still a major problem for many dairies to invest in quality improving technology.

Especially in Romania and Bulgaria there are still numerous small-scale processing units with too outdated and unsuitable technology to comply with the presently required hygienic and quality standards. In Bulgaria, for instance, only 27 companies (out of 233) met requirements of 853/2004/EU on health and hygiene, and are permitted to dispatch dairy and cheese products to the EU (see table 3). The majority of the dairies are simply too small to attract the necessary capital for expansion and updating their equipment to comply with quality and food

safety standards. By 2010 all dairies that want to stay in business have to comply with the EU rules. A further shake-out of the Bulgarian dairy industry in due time seems therefore very plausible. After Romania's EU integration many milk processing units and dairy companies have ceased to exist due to the strict regulations regarding production standards, food safety and quality. In 2007 there were still over 800 small-scale dairies registered of which a large proportion may not be able to operate according to EU standards in due time. Therefore the structure of the Romanian dairy industry is expected to change rapidly over the coming years.

There has already been a comprehensive reconstruction in the dairy industry in the other NMS, yet this process will continue. In Poland for instance the number of companies went down from 400 in 1993 to 230 in 2007 (see table 3). Still, the industry is fragmented, with relatively small plants compared to EU-15 standards. Finance for restructuring the industry has largely come from the domestic private sector: farmers' cooperatives are the owners of the two largest dairy companies. Foreign investment in Poland's dairy industry entered the country already in the early 1990s, yet its scale is modest. In Romania, on the other hand, foreign investors and multinational dairy companies have been important for the sector's development. Entering mainly in 1998-2000, they invested in and took over several Romanian ex-state dairy companies which by now are transformed into competitive companies and are among the larger dairy processors in Romania: three of the companies in the Top 5 processors are foreign owned (Danone, Friesland and Hochland).

Compared to other countries in the region, foreign investment (from Germany, France, Italy and Austria) entered the Slovakian dairy industry relatively late; on a substantial scale only since 2000. The industry's main problem today is its low capacity utilization. With 45 companies in operation in a relative small market – while farmers selling raw milk cross border to foreign companies for higher than domestic prices – the average size of most dairy companies is rather small, limiting the companies' possibilities to benefit from increasing scale of production. The Czech Republic has 40 companies engaged in milk processing, of which 40% have foreign capital participation, especially from France- and Germany-based companies. By contrast, there is no foreign investment in the Slovenian dairy industry. In Slovenia agricultural cooperatives hold important positions in all large dairy companies. The industry is highly concentrated in Slovenia: the largest three companies process about 90% of the raw milk intake. One dairy company has an intake of 51% of all milk delivered for processing.

In the Baltic countries a few companies dominate the domestic markets. In Estonia the 5 biggest (out of 29) companies account for 68% of total intake. Four companies operate with foreign shareholders. In Lithuania the milk processing industry is one of the most concentrated and modern sectors in the national food industry. The four largest companies process over 90% of all milk purchased in the country and are the major exporters of dairy products. Latvia's milk processing industry has a similar dual structure as in the other two Baltic countries: out of the 52 companies, five are comparatively large dairy companies which have an estimated uptake of 70% of all milk processed. 34 milk producers' cooperatives are collecting milk and selling it to domestic and foreign (Lithuanian) processors. These cooperatives collect about ¼ of all milk deliveries, with the 2 largest cooperatives accounting for almost half of milk collected. Some cooperatives in Latvia are determined to purchase or establish a common milk processing company.

In Malta the current dairy industry consists of one major company, Malta Dairy Products (MDP). The company is 70% owned by a farmers' co-operative and 30% state owned. Cyprus

counts over 80 dairies, most of them are very small. Recently two larger companies merged (with Greece investments) and dominate the country's fresh milk market.

Table 3 Concentration of milk processing

NMS	Intake by Top 5 as % of milk production processed (estimations)	Total number of dairies in operation	Dairies with less than 50 employees
Bulgaria	20%	229	184
Cyprus	Top 6: 76%	82	77
Czech Republic	Top 3: 35%	40	??
Estonia	68%	29	??
Hungary	Top 10: 81%	50	41
Latvia	Top 4: 61%	52	31
Lithuania	Top 4: 90%	32	18
Malta	1: 100%	1	0
Poland	Top5: 26	232	76
Romania	n.a.	876	818
Slovakia	n.a.	45	23
Slovenia	Top 3: 90%	22	17
(P)CC			
Albania	n.a	416; 25 fully equipped	5 dairies >20
Bosnia & Herzegovina	42%	53	42
Croatia	81% (Top2:67%)	37	27 (=20)
FYROM	Top 4: 90%??	85	81??
Kosovo	Top 7:23%	19	
Montenegro	63%	19	16
Serbia	67%	250 (192 registered)	230
Turkey	50%	2299	2235

Statistics on the dairy industry in Candidate and Potential Candidate countries are generally poor. A general feature of the industry is its small scale and seasonal operation (except for Serbia and Croatia). Technology applied in the majority of the dairy plants is rather primitive while the mechanisation grade is low. Many of the small processing establishments are not complying with modern food safety standards. These plants are producing cheese, butter, curd and yoghurt for the local markets. Typically the industry in Albania, Kosovo, FYROM and Montenegro is very small-scale, fragmented and technically underdeveloped. The great majority of the industry in Turkey has similar features, yet especially in the western part of the country about 10 to 20 modern equipped companies are operating on most respectable standards. Except for Turkey no foreign companies have shown interest to invest in the PCC mentioned in this paragraph.

On the other hand, the inflow of foreign capital in the dairy industry in Bosnia and Herzegovina has contributed to its post-war reconstruction. At present, six of the larger dairies in the country are foreign owned (in majority). This may provide positive effects on product assortment and improving quality levels as these companies bring in their marketing and

management expertise. The sector shows many efforts to upgrade quality management by recent investments in quality assurance systems (HACCP, ISO, export licensing) but at the same time it is clear that this process is only in its initial stage. Also in Serbia and Croatia, foreign investment plays an important role in the country's dairy sector primarily by introducing technical improvements, and the application of quality standards. In Serbia the foreign investment fund Danube Food Group owns most of the larger dairies. Milk processing in Croatia is dominated by two companies – one foreign owned. These dairy companies have modern production technology and comply with EU quality and hygiene standards. Other dairies in both Serbia and Croatia are relatively small, most of them can be categorised as handicraft dairies producing dairy products for the local market. Many of these dairy plants operate at very small scale and would have great difficulties to comply with today's international quality and hygiene requirements.

2.3 Production, consumption and trade developments

Table 4 shows an overview of developments in production and trade in all 20 countries over the last decade. It is generally known that milk production declined sharply in the 10 East-European NMS in the 1990s due to structural changes in the economies and in the sector. Since the second half of the 1990s milk production has increased in these countries but previous levels have not been met. Production levels do not show much dynamics over the last five to ten years, also because production in the 10 NMS is subject to the EU quota system since 2004. The exception to this rule seems to be Hungary, where production went down by 10% between 2001 and 2006. However, it should be noted that while over time production levels may have been rather constant, the production volume of processed dairy products have increased significantly. This is due to the increasing proportion of the milk produced that has been delivered to the industry for processing.

Indeed, the increase of production of cheese, milk-based beverages, yoghurts and ice cream is notable in all countries. By contrast, production levels of liquid (fresh consumption) milk have gone down, as well as of butter in most countries. These tendencies are the result of the response to changing consumer preferences linked to increasing income levels. Growing purchasing power leads consumers to demand for more product variety, for products of higher quality and convenience foods. This however does not imply that consumption levels have gone up significantly. For instance, dairy consumption in Poland has declined from 330 kg/capita in 1990 to 254 kg/capita in 2007. An important reason for the decline is that dairy products became much more expensive, first before EU integration due to difficult economic situation compromising household incomes, and second since EU integration resulted in a significant rise in retail prices which was the result of the inclusion of the dairy sector in the EU system of market regulations. Domestic prices also went up because of exports to the EU. The impact of EU accession on dairy consumption seems however limited in the other NMS: except for Slovakia, consumption (in kg) per capita shows at least constant if not a steady increasing trend in the NMS. Consumption levels, though, diverge a lot among the countries, ranging from 425 kg per capita in Estonia to 140 kg in Bulgaria. Next to income levels, the consumption of dairy products depends also on cultural habits. Obviously these habits differ significantly.

The results of dairy production and consumption trends are illustrated in the countries' trade patterns. Cyprus, Malta and Romania are net-importing countries while other NMS achieved an export surplus on the trade balance for dairy products. Looking at developments in trade it

is found that the Baltic countries and Poland (a traditional exporter of dairy products) have improved their net export position in recent years, while countries like Czech Republic, Hungary, Slovakia and Slovenia show a declining export surplus in dairy products. Trade relations with EU countries have intensified, both as export market and as origin for imports.

Table 4 Production and net trade position, 2006

NMS	Production (tonnes)	Trend in production over the last 10 years	Self-sufficiency rate (production/ consumption, %)	Trend in trade position (in terms of trade volumes)
Bulgaria	1,327,000	Slightly declining	106	Rather constant net export surplus
Cyprus	140-150,000	stable	??	Increasing imports, increasing net import deficit
Czech Republic	2,700,000	stable	117	Imports increased much more than export, net export position declines
Estonia	830,000	Slightly increasing	134	Increasingly positive net export position
Hungary	1,800,000	Slightly decreasing	101	Increasing imports
Latvia	841,000	Slightly fluctuating	130	Increasing net export surplus
Lithuania	1,900,000	Slightly increasing since 1999	168	Increasing net export surplus
Malta	38,000	Slightly decreased since 2003	78	Stable imports, negligible exports
Poland	12,000,000	constant	120	Increasing exports, stable imports
Romania	4,850,000	Increasing since 2000	92	Growing net-import position
Slovakia	1,100,000	constant	129	Increasing exports and imports, net export position reduces
Slovenia	642,000	Slightly fluctuating	120	Growing exports and imports, net export positions of most dairy products reduces, increasing raw milk exports
(P)CC				
Albania	1,100,000	Steadily increasing	n.a.	Rapidly increasing imports
Bosnia & Herzegovina	724,000	Gradually increasing	85	Declining yet still significant imports
Croatia	834,000	Steadily increasing	95	Import declines, exports go up
FYROM	235,000	Gradually increasing	98	considerable fluctuations in both imports and exports
Kosovo	240,000		74	Slightly increase of imports
Montenegro	189,000	Decreasing	80	Increasing imports
Serbia	1,550,000	Rather stable	103	Exports are increasing
Turkey	12,000,000	increasing	99	Exports and imports are low

A remarkable feature is the cross border trade of raw milk. Farmers from Slovakia sell milk to Austria and Hungary, while Latvian farmers transport milk to Lithuania for processing. Czech farmers supply German processors since the Czech Republic entered the EU. In 2007 the volume of exported raw milk reached 17% of all Czech milk production. Hungary is reporting 15% of the milk produced in the country is being sold to the neighbouring countries Rumania and Slovenia, and to Italy. Slovenian farmers on their turn sold 9% of the domestic milk production abroad (mainly to Italy) in 2005, but this rapidly increased to 30% in 2008. Major triggers of this trade are milk price differentials and the relative proximity of the processors.

Dairy markets in CC and PCC show a deficit. Serbia is the only net-exporting country of this group and figures indicate that Serbia's exports are increasing, especially since Montenegro became an export market in 2006. Other major export markets are Macedonia and Bosnia & Herzegovina. In both latter countries milk production has increased in recent years but as consumption also grows imports tend to go up. Production increases in Croatia have been more than enough to cover consumption growth which has caused a decline of the net-import position (in volume terms) of this country. Dairy consumption growth in Albania, Kosovo and Montenegro is largely based on increasing imports mainly from neighbouring countries Serbia, Croatia, Slovenia and Greece. Turkey is more or less self-sufficient in dairy products and not very integrated in international trade flows.

2.4 Government policy

2.4.1 Sector related policy measures in the NMS

In all 12 New Member States EU measures in the common market organisation for milk and dairy products are in force under Council Regulation (EC) No 1255/1999 (On Common Organisation of the Market in Milk and Milk Products). The system of market regulation includes measures to stabilise the internal market (production quota, intervention buying, intervention prices, private storage aid), to stimulate internal demand (processing subsidies for food and feed purposes, school milk) and regulate international trade (export refunds, import tariffs and quotas, trade licenses). Furthermore, farmers receive direct payment for produced quota milk, which is part of the single farm payment and decoupled from production since 2007. Payment levels are gradually increasing (phasing-in) to reach EU-15 levels in 2013 (in 2008 the direct payments accounted for 45% of the EU15 countries).[3] Due to high international prices the European Commission brought back export refunds to zero in summer 2007, yet introduced them again by the end of January 2009 due to declining international prices.

The EU's milk production level is limited by the milk quota system in order to balance supply of and demand for dairy products. Milk quota levels of the NMS have been the outcome of the accession negotiation process with the EU Commission. Poland especially was disappointed that the country was granted only 65% of the quota it had been asking for in the accession negotiations. Due to the level of allocated quota the Polish dairy sector claims to be unable to benefit from economies of scale. Dairy farmers in Poland exceeded the milk quota in the first marketing year (2004/2005) and had to pay penalty charges. Since then milk

[3] National governments have the option to top-up these payments by complementing these payments from the national budgets to the total value of 75% (100% in Slovenia) of the EU15 level. Next to that dairy farmers may also benefit from top-ups of cattle and/or arable crop payments.

production in Poland has stayed within the limits set by the quota. Next to Poland milk supply in the Czech Republic also moves around the upper level of the national quantity for deliveries. For both countries figures seem to confirm that the EU quota system has been an effective barrier to production expansion for most of the milk producers. The milk production quota was not exceeded in the other NMS countries in recent years.

The agricultural policy for the sector also covers support for the restructuring process with funds from the national and EU budgets. Agricultural structural policy measures, which were in the pre-accession period financial supported and implemented under the SAPARD (Special Accession Programme for Agriculture and Rural Development) programme have largely continued in the NMS under the national Rural Development Programmes. Under these programmes countries may apply a wide menu of measures focused on enhancing competitiveness of the agricultural sector, improving the environment and increasing the economic diversification of rural areas. Financial and technical assistance aimed at improving agricultural development are largely focused on the processing and marketing of agricultural products, investments in restructuring and modernisation of agricultural holdings and diversification of agricultural activities (e.g. tourism). Furthermore, the Rural Development Programmes cover support measures related to Less Favoured Areas (LFAs), agricultural environmental measures, early retirement and aid for compliance with the EU standards with respect to hygiene, food safety and quality.

Support through the rural development programmes in the pre-accession period and its continuation after 2004 has resulted in most NMS in important improvements in compliance with EU quality standards. Milk processors have implemented health and quality management systems, and farmers have been investing in these issues at the farm level too, which has resulted in increased vertical linkages within the dairy supply chain between processors and farmers (more milk produced is being offered for processing) and improved the competitiveness of the chain. Yet, it remains clear that an important part of the small scale dairy farms has still not integrated in this professional market chain at all.

Agri-environmental measures have been an important part of the CAP since the 1990s – direct payments are subject to 'cross compliance'. Dairy farming in the NMS has to comply with the management code of good agricultural practice, which among others also covers the requirements set in the Nitrate Directive (protection of waters against pollution from agricultural sources). The latter may imply important limitations towards intensive livestock in areas vulnerable to nitrate leaching to ground waters – as is the case in some EU-15 countries, which restricts the possibilities for farming. Farmers in the NMS will be increasingly faced with the obligation to invest in manure management systems in order to reduce the pressure on the environment. In their Rural Development Programme many countries have included support to farmers to bring manure storage facilities into accordance with water protection requirements.

Yet, the Nitrate Directive may have serious consequences for dairy farming perspectives in some countries. In Malta, for instance, the stocking density of animals at farms are generally so high that compliance with the nitrate directive may result into a serious decline of the dairy herd and subsequently a reduction in the cow milk production at the island. Major parts of Hungary are classified as nitrate sensitive areas. The limitations of the use of nitrogen to the ceiling of 170kg N/ha implies a reduction of fertilizer use in at least several regions which will affect grass production and roughage supply to the dairy herd negatively. This may reduce milk production, but the consequences very much depend on farm management and

fodder practices. In Bulgaria, where many small-scale farmers have no milk quota because they are not meeting EU quality and hygiene standards, the compliance with the requirements of the Nitrate Directive is a necessary condition for the farms to be entitled to market their produced milk and to receive milk quotas. This requirement, however, makes it even more difficult for them to engage in the market system. In most other countries, however, the expected impact of complying with the Nitrate Directive will be limited or minor as fertilizer usage has been relatively low in the last 15-20 years and the current average livestock density in dairy farms is (far) below the critical threshold of 1.7 LU/ha. Some countries already took initiative in this area before accession to the Union. In Slovenia, for example, the first limitations regarding the annual amount of organic nitrogen used on agricultural holdings have been set already in 1997 (to 210 kg/ha) and than further reduced to 170 kg/ha in 2001. Since the stocking density at farms in Slovenia is generally relatively low the compliance with this restriction has not imposed serious reduction to the number of animals. However, it could be considered a factor limiting further consolidation of the sector, as the latter would imply a substantial increase in the livestock density of dairy farms.

2.4.2 Dairy and related policies in CC and PCC

CC and PCC have their own national policies providing support to their dairy sector. In addition to that these countries benefit from EU's financial instrument to fund assistance to countries on their way to membership, the Instrument for Pre-accession Assistance (IPA). Rural Development is one component of IPA, yet only available in CC. Furthermore, activities under this program are largely in their initial stage only. The main features of these countries' policies with regard to the milk and dairy sector are briefly summarised below.

Albania

In 2008 the Albanian government approved a subsidy program which comprises some direct support measures (premium per cow) for dairy/livestock farming and subsidized interest rates of loans for agri-food processing companies. The new Law on Food which came into force in 2008 determines "the conditions for production, processing, conservation, distribution, control and marketing of food products used for consumers". However, the regulations on milk production and processing need further specification. The new Food Authority is going to be established in 2009 under the new Law on Food. Furthermore, steps to enhance the control of animal health and raw milk production are being taken by, for example, implementing the measures of ear targets for cattle in a program partly with support of EU CARDS. There are several measures from the government and donors' side to offer financial support for the implementation of food safety standards as GMP, HACCP or ISO. So far, however, only a small number of dairies has implemented such systems.

Bosnia & Herzegovina

There is no common agricultural policy on the state level. Farmers are supported through premiums per litre, subsidies on breeding animals, fuel, semen and credits, yet the level differ between the entities of the Federation. A number of laws to encourage farmers and dairies to enhance the quality of milk and bring it up to EU standards throughout the supply chain have been drafted but not yet implemented. The low quality of the milk is a major problem in the country. Some dairies are supporting good hygienic practices in the milk production by means of bonus price for high quality milk.

Croatia

The government has set a target price for milk and farmers are being paid according to quality (% fat, % protein, maximum level of microorganisms and somatic cells). The state provides financial incentives by offering premiums for milk produced and delivered to dairies for processing. Incentives such as financial support to cow breeding and favourable credit conditions for investments in animals, barns, etc. are important items in Croatia's agricultural budget.

FYROM

Macedonia signed a number of free trade agreements with neighbouring countries in order to open up markets for its domestic producers and at the same time attract foreign investments. Among the FTA's established is the one with the EU as part of the Stabilisation and Association Agreement (SAA). Furthermore the country became a full member of the WTO in 2003. An overview of the agricultural support programme indicates that all budget support went down to zero in 2006. At present, there are no specific government measures targeted to support the milk and dairy sector development.

Kosovo

The Kosovo Development Strategy Plan aims among others to improved competitiveness and efficiency of primary agricultural production and enhanced rural employment opportunities. The government studies measures to encourage the dairy sector to modernise and commercialise, however not manny planned government policies had been (fully) implemented in the dairy sector in Autumn 2008.

Montenegro

There is no state controlled or determined milk price level in Montenegro. Dairies are however obliged to pay farmers according to a quality related payment system. The state encourages milk production through the implementation of a premium system (per litre delivered for processing). Dairies are compensated for collection costs and supported to implement hygienic standards by covering a substantial part (up to 50%) of the investment costs from the state budget.

Serbia

Farmers delivering milk to registered plants receive premiums for milk produced. Payment levels depend on production conditions (lowland and mountainous areas). Import protection levels are high, while export subsidies are possible too. Breeding stock premiums are offered to increase milk production and support to farmers for purchasing milking machines and cooling tanks to improve the milk quality are in place.

Turkey

Relatively high import tariffs (45-150%) maintain high price levels for dairy products in Turkey. Milk producing farmers selling their milk to processors are eligible for income support. Next to that, the Turkish government support the livestock sector with subsidies for breeding, artificial insemination, purchasing feed crops and disease fighting and prevention.

3 Performance of the supply chain

3.1 Performance at farm level

3.1.1 Yields

Table 5 provides an overview of the yields per cow in all NMS, CC and PCC. The figures presented are national average yields. With a few exceptions these are generally fairly low compared to what can be found for the EU-25 average. However, in most countries the national average is affected by the large number of holdings with 1 or 2 cows. Larger farms generally achieve higher production per cow, which is the result of a farm's structural features combined with the farmer's management practices. Information on the variety of yield performance is not extensively available, yet the situation is improving. The larger, more professional farmers have shown increasing interest in controlling the milk performance of their cows. In many NMS milk control has become an integrated part of the milk collection system. Farmers delivering their milk to processors are frequently visited by quality control inspectors, which also register yield data. Yet, only a part of the dairy cow herd is controlled in this way. For instance, in Poland only 19% of the dairy herd was under control. The average milk yield on these generally much larger than average farms was 6,700 kg, roughly the same as in the EU-15.

Presenting national averages also hides significant differences that occur between breeds. Yields of multipurpose cows (meat and milk) are substantially lower than yields of for instance the Frisian Holstein, a typical milk cow. With increasing specialisation towards dairy production, local multipurpose breeds are increasingly substituted for higher milk yielding cows by the purchase of breeding heifers or cows, or through genetic improvements of the existing herd. Moreover, increased professionalism of farmers (through training and extension) contributes to improved farm management including nutrient management of the animals.

While the information is not available for all years for all countries, the data indicate that the pace of yield increase has been different in the region. Where the average yield for EU-25 shows an annual increase of 2.5-3%, the yields have grown significantly stronger in Estonia, Lithuania, Slovenia, B&H and Croatia. The group of countries in which milk yields stay behind the EU-25 average consists of Bulgaria, Cyprus, Romania and Serbia. Yields in Bulgaria and Romania are no more than 54% of the average yield in EU-25. On the other end of the spectrum yields in Czech Republic, Hungary and Estonia are similar to or dose at the average EU-25 level.

Yields in the CC and PCC are typically at a much lower level: around one-third to half of the EU-25 level (see table 5). But also in these countries, there are major differences between these national average and yields achieved at farms that are participating in the regular milk recording control. The example of Montenegro shows that, while the country's average yield is registered 2450 kg/cow/lactation, those cows included in regular milk recording scheme (around 3% of the herd) achieved on average 5114 kg, with big variation among breeds and regions. Such examples show what can be achieved in these countries by farmers who have an entrepreneurial and commercially oriented attitude, and with a farm structure that fits to efficient production.

Table 5 Cow yields (national average level 2007 in kg per cow; growth percentage over the period indicated)

NMS	Level 2007	National yield level compared to EU average (index, EU-25= 100)	Yield Growth (%, period)
Bulgaria	3600 **)	54	+2% (02-06)
Cyprus	5500	82	+17 (96-07)
Czech Republic	6725	101	+25% (00-07)
Estonia	6368	96	+62 (96-07)
Hungary	6448 *)	97	+18% (99-05)
Latvia	4636	69	+24% (98-07)
Lithuania	4708	71	+46% (99-07)
Malta	5638 **)	85	+13% (03-06)
Poland	4400	65	+35 (95-07)
Romania	3600 **)	54	+20% (96-06)
Slovakia	5688	85	+70% (97-07)
Slovenia	5924	89	+56% (97-07)
(P)CC			
Albania	2192	33	n.a.
Bosnia & Herzegovina	2360	35	+50% (96-07)
Croatia	3555	53	+56% (98-07)
FYROM	2497 **)	37	+16% (02-06)
Kosovo	1500-2000	22-30	n.a.
Montenegro	2450	37	n.a.
Serbia	2663	40	+38% (97-07)
Turkey	2600	39	n.a.
EU-25	6661 **)		+10% (03-06)

Notes: *) 2005 data; **) 2006 data.

3.1.2 Gross margins

Comparing data indicating a sector's economic performance among countries is difficult as accounting definitions, calculation methods and sample selection may differ. The NMS, however, are all part of the Farm Accountancy Data Network (FADN), the EU wide farm bookkeeping system, accessible through Eurostat. In order to provide the necessary data the NMS governments or national research institutes conduct surveys on production costs and profitability on all relevant agricultural products. Therefore, FADN is a EU's major common source of information on the economic performance in the agricultural sector. Most NMS background reports rely on FADN data when evaluating gross margins of dairy farming in these countries.

However, the evaluation of gross margins in most Candidate and Potential Candidate Countries suffers seriously from the defect of little official statistical data. To calculate gross margins (revenues minus the costs of variable inputs) of milk production one needs on-farm milk prices (paid by the processor), quantities offered to processors as well as data (quantities and prices) of inputs used. In all countries examined the majority of farmers do not do any bookkeeping, with the result that the public institutions responsible for statistics do not have a

basis to provide the necessary data that would help to calculate performance ratios of the milk production in these countries. From time to time ad hoc research is being done on costs and revenues. Yet, these studies are based on primary surveys in which most often only a small sample of farms are taken into account. All too often the studies conducted focus on the large(r) farmers, which depicts a situation not representative at all for the sector. Other studies are mainly based on assumptions with respect to inputs for a 'typical' milk producer which might not take into account the wide diversity of farm features in the country.[4]

Table 6 Performance indicators – gross margins at farm level (Average dairy farm, values in Euro per 100 kg milk unless indicated otherwise)

NMS	Total revenues (from milk, calves and beef from dairy cows)	Variable costs	Gross margin	GM rate of return on total revenues
Bulgaria	29.4	18.1	11.3	38%
Cyprus 1)	265	114	151	57%
Czech Republic 2)	453	209	243	54%
Estonia	?	?	?	?
Hungary	35.5	18.3	17.2	48%
Latvia	38.2	18.8	19.4	51%
Lithuania	25.2	11.1	14.1	56%
Malta	46.2	34.7	11.5	25%
Poland	29.5	11	18.5	63%
Romania	n.a.	n.a.	n.a.	
Slovakia 3)	651	271	380	58%
Slovenia	39.4	12.9	26.5	67%
(P)CC				
Albania 4)	54	5	49	90%
B&H	32.9	11.0	21.9	67%
Croatia 5)	2775	1700	1075	39
FYROM 6)	106,563	48,500	58,063	54%
Kosovo 7)	24, or 40-50	27	-3 or 13-23	40%
Montenegro	38.5	6.5	32.0	83%
Serbia 8)	2830	1412	1418	50%
Turkey	n.a.	n.a.	n.a	
EU-15				62

Notes: n.a. = not available; 1) value on a typical farm level; 2) per 100 days; 3) per 100 days; 4) estimations, based on a 2003 survey; 5) per (Holstein-Frisian) cow; 6) in national currency, per head; 7) 24 Euro cents per litre as farm gate price or 40-50 ct/litre at the Green Market; 8) value in national currency

Despite all the data limitations in the NMS, CC and PCC, the endeavours to trace relevant data provide us with some indications of the dairy farming's profitability in these countries. The average dairy farm in the EU[5] achieves a gross margin rate of 62% (gross margin divided by the total revenues at the dairy farm). This 62% of revenues is available for covering fixed

[4] Country reports for Kosovo, Serbia, Croatia, Bosnia & Herzegovina provided insights into the situation for different size categories of farmers, based largely on assumptions rather than observations.

[5] The 2006 average of 20 countries (EU-25 except Cyprus, Germany, Greece, Slovenia and Spain), which were available in the FADN database.

costs of land, (hired) labour and capital, and for a farmer's profit (livelihood). Considering this EU-average as the norm, the available data show that within the group of NMS this level is only reached in Slovenia and Poland (see table 6). Data also indicate that the gross margin rate of return is particularly low (< 50%) in Bulgaria, Hungary and Malta – the latter despite the relatively high milk price, as high feed costs result in low margins. Within the group of CC and PCC, dairy farmers in Albania and Montenegro produce with very little inputs and hence have very low variable costs. This leads to relatively high gross margins per 100 kg of milk also because milk prices are relatively high in these two countries. In contrast, Croatia, Kosovo, FYROM and Serbia show relatively low gross margins. All these countries report high costs for animal feed. Farmers have to improve feed efficiency in order to increase their gross margin rate of return. Yet, improving feed efficiency may imply investments in genetic improvements of the herd or improving feed management. Both would acquire investments and training and hence would mean a medium to long-term endeavour.

3.2 Performance at industry level

3.2.1 Introduction

The background reports learn that official data on the dairy processing industry are scarce, in particular in the CC and PCC. The relatively small data set reported for the processing part of the dairy chain prevents an accurate evaluation of the performance of the dairy industry in the countries at hand. This section therefore summarises briefly the situation in the dairy industry in each country using reported performance indicators which in combination provide some insight into the competitiveness of the processing dairy industry.

3.2.2 Performance of the dairy industry in NMS

The Polish dairy industry shows many signs of positive developments towards increasing international competitiveness. While the present number of dairies and the milk processed is much less compared to early 1990s, the industry's total sales have doubled between 2000 and 2007. Employment in the industry declined substantially due to the restructuring process, which together with modernization and investments has improved the technical as well as the economical labour productivity much. Yet, these indicators remain low compared to for instance the German dairy industry. A positive sign of enhanced competitiveness is also the increasing share of high value added products (cheese, milk-based beverages and ice cream) in the product assortment. This reflects the sector's ability to respond to the increasing demand for these products at the domestic market. While facing competition with the rest of the EU due to open borders now, the Polish dairy market is still mainly supplied by domestic producers and imports account only for a very limited share of national consumption.

Hungary's dairy industry consists of about 10 relatively large companies, with foreign investment involved. Yet, the processors have still a strong regional profile, procuring milk from a geographical area nearby the processing plant. Some of the companies report high labour productivity levels but the lack of financial performance indicators prevents a further detailed evaluation of the industry's strengths. Though, the industry faces some unfavourable trends which indicate the industry's vulnerability to foreign competition. There is an increasing flow of raw milk to neighbouring countries for processing, while the total milk production in Hungary also shows a decreasing trend. This of course affects the industry capacity utilisation rate negatively. Further, increasing imports of dairy products in Hungary

account for an increasing share of domestic consumption which implies that the domestic dairy industry is losing market share to foreign competitors.

The industry's sales and value added in the Czech Republic slightly increased over the last 6 to 7 years. However, the industry faces rapid import penetration of cheese, butter and some other dairy products. Despite the fact that consumption per capita is increasing imports cover an increasing share of sales of dairy products in the Czech Republic. At the same time, however, the Czech dairy industry appears to be able to expand its exports although at a slow pace.

Several performance indicators point towards the Slovakian dairy industry's weak competitive position. The industry's turnover, value added and labour productivity all have increased, but the industry generated a serious loss each year since 2002 up to 2006. It has to be seen whether the positive results (a small profit) in 2007 will continue to improve the dairies' financial position which is most certainly necessary to invest in product development and marketing.

The Lithuanian industry's sales doubled and exports tripled between 2000 and 2007, increasing the share of exports in sales up to 40-65%. A rapid process of concentration (50% less dairies since 2000) and modernization (supported by SAPARD and EU structural funds) took place. Value added per employee doubled in 2003-2006, which is more than in other sectors of the Lithuanian food industry. A very small part of domestic consumption is imported. In the retail shops Lithuanian dairy products are well represented and known as high quality products.

Though the Latvian dairy industry has shown improved performance (increasing sales, exports, value added, labour productivity and product differentiation), productivity is relatively low compared to what is achieved in many EU-15 countries. This is explained by small-scale production and a critically low production capacity utilization of about 40%. Production costs are relatively high due to high costs of energy, while the high number of small-scale farmers supplying their milk cause high milk collection, quality control and overall management costs. Up to now the industry has been profitable but studies reveal that the industry needs to increase value added and improve labour efficiency in order to prevent losing competition with foreign suppliers.

Milk produced in Estonia is increasingly processed into cheese and fresh dairy products with higher value added than liquid consumption milk. The industry achieved success in increasing export sales and labour productivity growth. Profits per employee in the dairy industry showed to be significantly higher than in other sectors of the food industry.

Only a few dairy companies dominate the Slovenian dairy industry, yet they are small compared to foreign competitors. The industry's total sales slightly declined over the last 4 years, whereas productivity increased as employment reduced, yet the labour productivity is still low from an EU perspective. The added value and profitability rates achieved in most recent years are lower than in pre-accession time, indicating that the dairy industry has lost much of its strong position it had before in the Slovenian food industry. In addition to that, data on imports and consumption of the main dairy products also indicate that the Slovenian dairies are losing market share on domestic markets to foreign competitors.

The dairy sector (which is only one processor!) in Malta produces a mix of products which is heavily oriented towards the commodity sector and particularly liquid milk. Products are featured by relatively low levels of branding and product innovation, resulting into the industry's relatively low added value. Maltese customers are in general quite loyal to the local products and this places the dairy company at an advantage, especially for products where the price difference between local and foreign brands is high. The small industry cannot compete on costs and has limited possibilities to invest in product innovation and marketing and is therefore less equipped to face international competition.

The dairy sector in Cyprus has grown since EU accession with increased sales and value added (total and per employee). This success mainly relates to the increase of the production and exports of halloumi cheese (from a mixture of sheep, goat and cow milk). The industry is in a process to increase product differentiation in order to face increased foreign competition. Even though imported cheese gained a significant market share in recent years, local brands are able to compete due to brand loyalty and good quality.

Although (the larger) milk processors in Bulgaria showed increased turnover and value added over time, the industry's financial data indicate rather disappointing results as costs increased more quickly than revenues. On the other hand labour productivity has increased substantially in recent years while the industry maintains its position at the domestic market. The latter is related to the production of a number of specific local products preferred by domestic consumers. Further, the dairy industry has been able to increase export volumes. However, the most concerning issue is the particularly low number of dairies (27 or only around 10% of all dairies in operation) that comply with EU rules on hygiene food safety and quality. Considering the structure (small-scale), the huge financial challenge to make necessary investment, the lack of own financial means, difficulties in access to credit and the obligation to adopt EU rules by 2010 at the latest, it is very likely that the majority of the dairies in Bulgaria will not survive and has to close in due time.

The Romanian milk processing sector is very fragmented with over 800 dairies of operating largely at very small scale. It however appears that the larger dairy processors have raised their labour productivity and broadly maintained their performance levels in recent years. The influence of foreign investment and competition has provided some stimulus for product development and the raising of milk quality, yet at national level the latter is still very low and far from EU standards. Generally, much effort is required to raise the sector's quality standards and performance levels.

3.2.3 Performance of the dairy industry in CC and PCC

Data on industry performance do not exist in Albania. A survey of two of the largest companies in the country shows improved financial results between 2003 and 2007. Yet, the (positive) returns on sales might be too low to cover costs for technology updates and other capital investments; hence, the longer term prospects of these two major companies are uncertain. This is even more the case for the great majority of the Albanian dairy industry, knowing that 75% of the processing units do not comply with universally used food safety standards.

Official data of the dairy industry in Bosnia & Herzegovina are scarce too, but available information on sales and exports of dairy products point at increasing revenues in the sector in

recent years. The industry's average capacity utilisation is however particularly low, which affects the dairies' profitability negatively. The dairies' product assortment is mainly concentrated on fluid milk (UHT) and some other fresh products with generally little value added. Foreign companies dominate domestic sales of cheese and butter, indicating that the BH dairies face strong regional and international competition.

Also Croatia does not provide official financial data of the dairy industry on revenues, costs and profits. The two largest companies (accounting for two-third of the milk intake) in the country use modern technology, comply with EU quality and hygiene standards and have strong domestic market positions. This may indicate that these companies perform rather well.

Serbia's dairy industry shows a strong increase of sales in the domestic market since 2000. Large companies use modern technology, comply with quality and hygiene standards. The (little) available statistical data indicates that productivity in the dairy industry increased faster than productivity in other sectors of the food industry. In the retail shops the domestically produced dairy products prove to be competitive with foreign brands as quality is evaluated to be of similar level but Serbian products are cheaper than most imported dairy products.

A vast majority of small-scale dairies (Mandras) in Turkey are operating seasonally and informally. Therefore there is very little information about these processing units although it is estimated that the Mandras process almost 60% of all raw milk delivered for processing. The lack of good quality of milk hampers the development of the product mix of the industry: the majority of milk is processed into traditional and low added value products like drinking milk (UHT, ayran), white cheese and butter. A limited number of dairy companies operate according to western standards and produce a full range of dairy products. Unfortunately, no information to assess performance of this latter group of dairies is available.

The performance of the dairy industry in FYROM, Kosovo and Montenegro suffers from low quality of raw milk supplied, while the industry itself is technologically underdeveloped and operating at very small scale. In Kosovo no dairy company presently complies with EU health and hygiene standards. The Kosovo market is dominated by foreign supply, and also dairies in FYROM and Montenegro face fierce competition with foreign suppliers in their national markets. Companies in these three countries traditionally produce drinking milk, UHT-milk, different local cheeses, yoghurts and sour milk. The comparative advantage of the local industry (over foreign companies) is that their products meet the specific taste and consumption habits of the domestic consumers. Yet, these products do not have high profit rates. At the same time the local industry has major difficulty in competing with foreign companies especially in the more profitable value added dairy products. Dairies are generally much too small to invest in product development and to face international competition in product segments like milk-based beverages, ice cream and Gouda, Edammer and similar cheeses.

4 Concluding observations and some suggestions for policy recommendations

4.1 Concluding observations

The primary dairy sector is characterised by many subsistence and/or small-scale farmers in a number of NMS and in all CC and PCC. Many of these farmers will not improve on their subsistence stage in due time and will not be vertically integrated into the modern supply chain as their inclusion depends on their ability to comply with EU rules on food safety and health issues, which needs investment levels that go beyond the capacity of these small scale farms to generate the means by themselves or to borrow from banks. A further obstacle for small dairy farmers is that many of them have not been allocated production quota and are not part of the dairy market regulation system, which also implies that they are excluded from the related support measures. This then implies that a further restructuring of the primary sector is to be expected in the years to come.

Yet there is also a group of countries in which dairy farming differs significantly from the features mentioned above. Milk production in the Czech Republic, Slovakia, Cyprus and Malta is typically large scale, modern equipped, with relatively high yields per cow and (except for Malta) a more than reasonable gross margin rate of return on total revenues. Practically all milk produced is being processed by the industry which in the Czech and Slovakia Republic has however difficulties in competing with imports of high value dairy products.

The statistical base for thorough performance assessments of the dairy processing sector is too weak in many of the NMS. The country reports, however, provide some useful indications by looking at trends in productivity, value added, sales, product differentiation and market positions. Overall the results provide a mixed picture. Yet, positive results dominate mainly in the dairy industry in Poland, in the Baltic countries, Malta and Cyprus. On the other hand, similar as in the Czech and Slovak Republic, unfavourable trends of a domestic processing dairy industry (e.g. losing market shares) can be observed in Hungary and Slovenia, despite positive developments in performance indicators such as value added and labour productivity within the companies. Competitiveness of the dairy industry in Romania and Bulgaria typically suffers from the generally low quality of milk that is being supplied by the majority of farmers in the respective countries and the low number of dairies complies with EU food safety and quality standards. The industry in EU's most recent member states awaits a huge financial challenge to upgrade their facilities technically, to increase efficiency, improve their product portfolio in quality and variety and to enhance their marketing skills and results. EU supportive funds can be helpful but most investment should come from the private sector itself.

In all CC and PCC chain linkages are particularly weak: except for Croatia only a small fraction of the milk produced is being processed. Next to the highly fragmented small scale structure of the primary level, the lack of good quality of milk is a major bottleneck for enhanced competitiveness of the dairy supply chain in these countries. Assessments of the economic situation in the sector fall short of available statistical data, in particular for the

processing industry. Yet, it is clear that technology updates and skills improvements are necessary on all levels.

4.2 Policy recommendations

Based on the country analyses including a SWOT of the dairy sector, the respective country reports present a number of recommendations for government actions that would help to overcome the weakness of the sector identified, help to take advantage opportunities sketched and or to counter threats that can have a significant negative impact on the sector's performance.

Proposed policy actions in NMS countries show a clear emphasis on support to help the sector in its restructuring and modernisation process, both at primary and processing level. Government should provide the financial means either from national budget or from available EU funds in the framework of Rural Development Programmes to support farmers to increase the size of their farms and processing companies to invest in larger scale operations, as increased scale of production would help to improve efficiency by lowering the costs per unit product. Most concretely, this would mean funding of investments in stables and cows, in machinery, equipment and in buildings. The need to upgrade technology on the farm to increasing labour productivity (milking machine etc.), yield per cow (feed, genetics) and improve hygienic conditions to increase the quality of the milk is strongly emphasised in the Lithuania, Latvia, Poland, Romania and Bulgaria, all countries where small scale farming is dominating. The other NMS policy recommendations on investment support seem to be more aimed at effects other than increasing the scale of production, such as to improve environmental performances, animal welfare, increase innovation (product development) at the processing level. The improvement of human skills by providing training and offering extension services to farmers has been mentioned explicitly as an important element of government policies to enhance the sector's competitiveness in the reports on Cyprus, Czech Republic, Malta, Latvia, Slovenia, and Slovakia. Other policy suggestions mentioned in more than one report refer to government programmes to actively promote dairy consumption, to prevent animal diseases and to support small farms to establish producers group in order to develop bargaining power.

The CC and PCC are generally characterised by lower economic development and weak institutional capacity for proper market functioning. Strengthening the latter with support in research, extension, inspection, laboratory and market information services and (in general) improving state administration capacities are suggested as part of government policies to enhance agricultural market development in the countries. Important elements of supportive policy to the dairy sector would be higher payments to farmers to encourage the milk production and provide farmers with better income positions. Similar to the case of NMS, Rural Development programmes are suggested (to be further applied) to support restructuring and modernisation investments in the sector (aimed at improving yields, quality and increasing scale). In several countries it is still necessary that governments finalize the ownership process on agriculture land, which gives more guarantees to the farmers. Furthermore, a land policy aimed at land transfers that contribute to efficient farming by encouraging land consolidation would be very helpful in helping the dairy sector in enhancing its competitive position.