5. Polish Agriculture, Rural Areas and Food Processing Sector before Accession

(*This is an abstract of the draft Sectoral Operational Programme for agriculture and rural areas, prepared by MARD)*

5.1 Agriculture and rural areas

The agricultural sector has greater social and economic importance for the Polish economy than in many other countries. There are still regions where agriculture is a major influence in the economy and as such has a crucial impact on the development of these regions and the standard of living for its inhabitants.

In 2001 agriculture accounted for 2.9% of the Gross National Product. This had deceased from 12.9% in 1989, 9.3% in 1990 and 6% in 1995.In 2001, there were 1,885,800 farms above 1 ha in Poland, out of which 1,884,200 farms were privately owned and 1600 were state farms.

In 2001 the average farm size was 9.5 ha of which 8.3 ha was farmland. In 1996 there were 2 million farms (over 1 ha) of which 48% produce for sale, while the remaining group produced mainly to meet their own needs.

5.1.1 Land structure

Within the group of holdings involved in marketable production, 73% of farm owners generate income exclusively or mainly from agricultural production, whereas in the case of **all** individual farms only 45% obtain their income from agricultural activities. Over 90% of agricultural holdings involved in marketable production have an arable area of 15 ha or more.

As many as 75% of farms between 1 and 5 ha in size produced mainly for their own needs, occasionally selling any surpluses. Furthermore, almost 4% of farms are not engaged in agricultural production at all (on a permanent or temporary basis). These figures show that small farms participate in marketable production to a negligible extent.

Poland has extensive land resources but the farmland structure of holdings is varied. In the year 2000, farms between 5 and 10ha accounted for over half of the total number of agricultural holdings (56%) and farmed 24% of the agricultural land. Over recent years both the number of farms and the agricultural land has declined only slightly. Agricultural holdings with an area over 30 ha account for only 2% of farms, but they utilised about 19% of the total arable land. Since 1996 the highest increases in area were noted in the holdings with an area between 30 and 50 ha (by 39%). At the same time there are over 3,000 large holdings with an area over 100 ha.

Table 1. Number of individual holdings and the use of land broken down into farm surface groups in 1996 and 2000

Agricultural land groups (HA)	Total number of holdings (thousands)		Agricultural land surface (thousand of ha)		Changes in agricultural land surface over 2000/1996(%) 1996 = 100
	1996	**2000**	**1996**	**2000**	
Total	**2041**	**1880**	**14259**	**13510**	**94,7**
1-2	462	448	651	645	99,0
2-3	282	270	690	651	94,3
3-5	386	345	1509	1336	88,6
5-10	521	448	3713	3183	85,7
10-15	217	185	2631	2246	85,4
15-20	89	83	1530	1442	94,2
20-30	56	62	1323	1478	111,7
30-50	19	27	719	997	138,7
50 and more	9	12	1493	1532	102,6

Source: Agricultural Census report 1996, Central Statistical Office, Warsaw, 1997;Characteristics of agricultural holdings in 2000, Main Statistical Office, Warsaw 2001.

The land plots of the majority of individual farms have a very fragmented, "chessboard" structure, which is illustrated by the fact that 20% of them have 6 or more dispersed plots of land. In some cases the distance between the plots exceeds 10 km.

Table 2 Fragmentation of Polish farms in 1996.

No. of plots making a farm	Percentage	
	of farms	of farmland
1	16,5	8,8
2-3	40,6	28,2
4-5	22,3	21,9
6-9	14,3	18,7
10 and more	6,3	22,4

Source: 1996 Agricultural census report, Central Statistical Office, Warsaw 1997.

The highest fragmentation level is observed in individual farms in the southern Voivodships where the average size of farm is about 4.0 ha. The farms of the largest average size are found in the northern Voivodships where an individual farm covers more than 12,0 ha.

Generally, Polish agriculture has preserved its traditional character. The majority of farms have a mixed production pattern and apply extensive methods of cultivation. In 1998 the productivity in the agricultural sector was as low as 25% of the average productivity in

the national economy. The use of mineral fertilisers in 2000 amounted to 90.8 kg of NPK/ha. The use of pesticides is several times lower than the EU average – i.e. 0.62 kg/ha of farmland.

Extensive systems of animal production are used, based mainly on the farm's own supply of feedstuffs. Due to low productivity the impact of agriculture on the environment and landscape has been limited. The natural qualities of rural areas and abundant labour resources will provide opportunities for the development of labour consuming farm production, particularly in sustainable agriculture.

Farm fragmentation constitutes a major weakness of Polish agriculture. It has many social and economic effects such as low incomes for farmers and their families, and limits investment capital for efficiency improvements. It is also difficult to maintain product quality and efficiency (especially in milk production) on farms that produce only small quantities of different products.

The development of organic agriculture in Poland is less advanced than in Western Europe with only about 1700 farms which have been granted sustainable agriculture conformity certificates. However, many of the conditions in which Polish agriculture operates are conducive to sustainable farming.

5.1.2 Professional activity of the rural population in Poland

38,3% of the total population of 38,6 million, in the year 2001, lived in rural areas (14,8 million people). Traditionally, the structure of a rural family consists of several generations. Households with families of 5 or more people constitute 30% of all rural farmsteads whilst in towns the figure is only 12.%. Families in rural areas are characterised by having more offspring than families in urban areas. It should also be emphasised that over 40% of the rural population is over 40 years of age with limited mobility and therefore unlikely to leave the rural area.

A considerable improvement in the level of education has been observed over the last ten years, however, both the general and vocational education levels of people working in the agriculture sector is still very low (see Table 3). In 1988 as much as 60% of people involved in farming had only primary education; in 1995 this percentage fell to 55%. Only 1.8% of the population has a university education (in urban areas it is 9.4%).

The population employed in the agricultural sector is much higher than that of EU Member States. This is partly due to the differences in the methodology of counting the number of people working on farms. In Poland farms of 0.1ha-1.0ha, who produce food for their own needs are included in the figures.

According to the economic activity survey of the population undertaken in 2001, there are 2.67 million people employed in the agriculture, which corresponds to 19% of the total number employed.

Employment in agriculture is decreasing very slowly due mainly to the lack of new jobs in non-agricultural sectors. Bearing in mind that there are generally high levels of employment in agriculture, it should be noted that in some regions (mainly in Eastern Poland) there is a problem of a lack of successors on farms resulting in depopulation of rural areas.

Table 3 Educational structure of the population over 15 years old between 1988 and 1995

Education level	1988			1995		
	Total	towns	rural areas	Total	towns	rural areas
University	6,5	9,4	1,8	6,8	9,8	1,9
Post-secondary education	1,6	2,0	1,0	2,6	3,3	1,3
Secondary education	6,7	9,3	2,6	7,1	9,6	3,0
Vocational education	39,9	43,8	33,7	43,3	45,9	39,2
including basic vocational education	23,6	23,2	24,2	25,9	24,6	28,0
Primary	38,8	32,2	49,2	33,7	27,6	43,8
Incomplete primary or no education at all	6,1	2,9	11,2	6,3	3,6	10,8
Other	0,4	0,4	0,5	0,2	0,2	0,0

Source: 1988 general census, 1995 representative sample survey.

The transformation process in Poland has resulted in high unemployment in rural areas. In June 2002 there were 1,4 million registered unemployed in rural areas (43% of the total number of unemployed in Poland). This figure corresponds to the national unemployment rate of 17.4%. The owners of farms with over 2 ha of land are not registered as unemployed - according to the estimates about 1 million individual farmers cannot find a job and are referred to as 'the hidden unemployed', while 70% of people only have part-time employment. This and the fragmented farmland structure cause overpopulation in rural areas. There is observed regional variation of density of population which has historic reasons (state owned and co-operative farms wound up in the 90s were located in the northern and western territories of Poland, where lower population is noted).

Rural populations' incomes are far worse than that of other social groups. In 2000 the average monthly income per capita in a household was PLN 610[1]; however, in urban areas it was PLN 695 and in rural areas – PLN 483. A survey carried out in 2001 shows that the incomes of rural households and farmers decreased considerably compared to other groups.

Table 4 Population of individual farms. Breakdown by sources of income

The only or main source of income	Total (thousands)	%
Total population	8 196,8	100,0
Work on own farm	1 909,0	23,3
Work outside own farm – wage-work in agriculture	41,0	0,5
Work outside own farm – wage-work outside agriculture	1 245,9	15,2
Work outside own farm – self-employment	123,0	1,5
Retirement pension	1 114,8	13,6
Disability pension	663,9	8,1
Family pension	114,7	1,4
Unemployment benefit	205,0	2,5
Other social benefits	82,0	1,0

[1] 1 EURO=4, 14 PLN

Dependants,	2 696,7	32,9
including: children 0-14 years old.	1 950,8	23,8

Source: Agricultural census report1996, Main Statistical Office, Warsaw 1997.

5.1.3 Rural and agricultural infrastructure

An insufficient level of technical infrastructure in rural areas is one of Poland's main barriers to rural development. A poorly developed infrastructure brings down the standard of living and also discourages investment. Problems with access to the technical infrastructure affect farms because of dispersed housing, the high cost of connecting houses to services and the lack of funds for co-financing construction work.

Table 5 Sanitary equipment of households (% of the total number of households as at the end of 2000)

Elements of infrastructure	Rural areas	Urban areas
	%	
Water supply systems	83,1	97,6
WC	63,8	90,3
Gas supply network	15,9	76,7
Central heating	54,4	80,8

Source: 2000 Statistical Yearbook, Central Statistical Office, and Warsaw 2001.

The technical production infrastructure utilised in Polish agriculture is growing systematically. By the end of 2000 individual farms were already equipped with 1,3 million tractors, 111,000 combine-harvesters 86,000 potato harvesters, 33,000 sugar beet harvesters and 130,000 forage harvesters.

However, if calculated in terms of equipment units per unit farmland area, the figures differ considerably from those in the EU Member States. The number of tractors per 100 farms in Germany, France or Great Britain exceeds 2 or even 3 times that in Poland. Poland has significantly fewer combine-harvesters per 100 ha of crops than the majority of EU Member States. Other comparisons of farm equipment, per 100ha of crops, are significantly lower in Poland compared with EU Member States.

In absolute numbers, Polish farmers are sufficiently equipped with tractors and basic machines to ensure mechanisation of basic farm work. However, this equipment and these machines urgently require modernisation or replacement. These machines depreciated in about 70% of cases. Due to the financial problems faced by the majority of farms, the operation period of the equipment is extended beyond reasonable limits and replacement with more advanced machines is difficult. The average lifetime of a tractor in 2000 was 20 years and its power was 31 kW. By contrast the average tractor power in France exceeds 40 kW, in Italy - 41 kW, in the Netherlands - 42 kW, and in Denmark - 45 kW. About 50% of holdings (mainly small farms) are not equipped with a tractor, and the collective use of farm machinery is not popular.

In conclusion, Polish farms are not sufficiently equipped with farm machinery. In order to ensure the competitiveness of Polish agriculture at the moment of accession it is necessary to increase the number and range of new machines used by farmers and to develop mechanisation services for farm work.

The statistical survey results produced every year by the MSO in respect of building structures indicate the number of buildings put to use, but do not take into account the state of the structures. Therefore, the state of farm structures may be identified on the basis of the returns from the agricultural census which is carried out every few years.

5.2 Agri - Food Industry

The food industry is one of the most important sectors of the Polish economy in terms of the volume of production sold (over 20% of the total sales value of Polish industry), the number of industrial establishments (about 30,000) and employment (411,000 people, i.e. 8.4% of the total national employment, and about 16% of the total employment in industry). Its share in the total industrial production is almost 24% and exceeds that of the EU food industry, which it accounts for on average about 15%, by about 9 percentage points. Outside Poland the share of the food industry is higher only in Denmark (28%) and in Greece (27%). The gross value added generated by the Polish food industry (including the soft drink and tobacco industries) amounts to about 6 billion USD, i.e. over 4% of gross value added generated by the whole national economy, and about 6% of GDP.

The Polish food market still has large growth potential. Growth in the Polish food processing sector, through improved technology and production quality, is hampered by serious problems including:

- shortage of domestic capital;
- an unstable raw material base in the case of many industrial establishments (loss of contract links with raw material suppliers);
- lack of strong processors' groups.

Because of the approaching accession of Poland it is necessary to modernise the agri-food processing industry in respect of veterinary, hygiene and environmental protection standards. This is particularly true in the case of the milk, meat and waste utilisation sectors, and, to some extent, in the case of the poultry sector. As far as the required standards are concerned, they are met only by 38 dairies, 60 meat processing plants, and 29 poultry processing plants. A further 2,186 plants are likely to comply with the EU requirements by January 1, 2004, and another 466 plants may adjust themselves to these requirements during transition period.

Those plants which have been recognised by the EU as exporters represent a small percentage of the total number of industrial establishments (particularly of meat processing plants and dairies), though they have an important share of the total production potential in the respective sectors. As for the meat processing industry, their share amounts to about 30% of slaughters and 25% of processed food articles, in the dairy sector to about 40% and in the poultry sector to over 70%.

Due to the shortages of investment capital in the food processing sector the measures required to comply with the EU standards must be supported with public funds. It should be recognised that a number of plants will not complete their investments by the accession date and will be forced to operate only on the local market being, therefore, less competitive or to close down completely. Adjustment of the animal product processing plants to EU standards may change the structure of this sector of the food processing industry, as it must result in a concentration of production, particularly in respect of slaughterhouses.

To improve the competitiveness of the Polish food processing industry the continuation of the modernisation process is a basic requirement; particularly as only a few food processing establishments have modern equipment for all stages of production.

Investment must be associated with the modernisation of the technical infrastructure of food processing plants. This could include:

- improved management of water supply, waste water and power consumption;
- improvements in processing sugar, potatoes, fruit, cereals, vegetables, dairy products, poultry and in the milling and distillery sectors;
- improved refrigeration for the animal product processing sector.

Milk Production and Processing

In 2001 milk production in Poland amounted to 11.6 billion litres of which 8.4 billion litres was intended for marketable production (of which the Extra class amounted to 58%). Some 1.3 million farmers keep dairy cows. Milk processing and collection is dominated by dairy co-operatives, the market share of which is estimated at more than 80% and market sales at 70%. In 2001 there were about 330 dairy co-operatives in Poland and 280 of them employed more than 50 employees. This number includes about 130 private companies with or without foreign capital involved. In 2002 only 38 of the 400 existing dairy plants were allowed to export to the EU. However their share in the market amounts to 40%. According to the Veterinary Inspectorate estimates the next group of 171 dairies will comply with EU standards before accession. The priorities for modernisation in the sector include improvement of milk quality, organisation of milk collection and adjustment of the plant to the required sanitary standards. The next priority is the modernisation of production lines.

Meat Production and Processing

In 2001 pig and cattle production amounted to, 2,415,000 tons and 562,000 tons respectively. In Poland almost 1.4 million farmers keep bovine animals and 1.2 million keep pigs. However only 56% of farmers deal with marketable production. In the case of pigs over 63% of farmers deal with commercial production (out of which 37% have at least 10 pigs).

At the present time, the meat sector is very varied and unevenly dispersed due to private investments and the privatisation of State plants. There are 290 red meat processing plants which employ over 50 people each, around 270 plants employing 6 to 50 people, and about 4,500 small slaughterhouses and local processing plants which are not considered as industrial undertakings.

Currently there are about 2,800 cattle slaughterhouses, almost 400 poultry slaughterhouses and about 100 poultry processing plants. EU export authorisation has been given to 19 cattle slaughterhouses (as compared to the 2,800 existing plants), 23 processing plants (as compared to 2,650 existing plants), 6 beef meat refrigerating plants, 17 beef meat cut-

ting plants, 20 poultry slaughterhouses, 8 poultry meat processing plants, 4 poultry refrigerating plants, and 22 poultry cutting plants. A further 1,892 plants will have complied with the EU requirements by January 1, 2004.

The elimination of over capacity is an important factor in the modernisation of the meat processing sector. Particularly in the animal slaughter sector where a strong concentration is needed to allow the remaining plants to comply with EU sanitary and veterinary standards. The meat processing plants also face the problem of liquid waste management. These plants must be equipped with environmental protection facilities and should improve their water and power consumption efficiency.

Production and processing of fruit and vegetables

In 2000 about 3.4 million tonnes of fruit and 5.2 million tonnes of vegetables were harvested. This year fruit production was carried out on 800,000 farms and vegetables were grown on about 1.6 million farms. However, only between 15 and 20% of farmers (between 350,000 and 400,000) went in for commercial production. The remaining farmers grew fruit and vegetables for their own consumption. Fruit and vegetable processing is extremely dispersed. This sector currently includes between 1400 and 1500 processing plants. About 90% of the processing plants are small and employ between 1 and 50 people. The proportion of large processing companies is about 5% of the total number of processing plants. The share of newly established small companies is estimated between 80 and 90%. In 2000 about 60% (2 million tonnes) of fruit and about 11% (830 000 tonnes) of total vegetable production was processed. The majority of processing plants face problems with the lack of a stable raw material base, crop dispersion and the lack of a homogenous quality of raw materials.

Currently very few producers are registered in this sector who could comply with the producer organisation requirements of the EU regulation. Recently, supply has exceeded demand on the domestic market for processed fruit (mainly juice and traditional processed products) and is still growing. Competition among the producers leads to concentration of the sector.

Cereal Processing

There is a reduction in the rate of decline in the consumption of processed cereal products. Over the period 2001/2002 consumption amounted to 21.8% of domestic cereal utilisation and 3.7% of cereals were used by industry. For some years industrial processing has been rising.

The industrialisation process of cereal milling is slowly developing. A relatively high level of investment in the cereal processing sector is maintained - mainly in the milling and bakery sectors - and less intensive in secondary cereal processing (such as pasta production). Restructuring of the businesses leads towards an increase in labour productivity, which in early 2001 exceeded that of the previous year by at least 5 to 10%. Investment in the milling industry is rising, and, simultaneously, there is a drop in the investment rate in the secondary cereal processing sector, which has already modernised its production potential.

Sugar Industry
During the last 10 years production of white sugar has amounted on average to 1,8 million tonnes. Since 1994/95 the production of sugar in Poland is limited by means of a quota system. There is as many as 74 sugar plants operational. The majority operate still within State Treasury companies.

The sugar industry will need investment in respect of environmental protection and sugar distribution channels. The investment should be particularly targeted towards environmental protection and the utilisation of by-products and industrial wastes.

Potato (Starch) Industry
Poland is a major European and world producer of potatoes. The potato is grown on about 1.3 million ha. Poor soils and the abundance of labour, associated with fragmented farmland, means that potato production in Poland is much more significant than in neighbouring countries. For many small farms with poor soils and ample labour resources there is no alternative.

5.3 Problems related to the development of agriculture

Labour force
The surplus of labour committed to farm production is a major barrier to the development of the Polish agricultural sector. This phenomenon is regionally differentiated with a high regional intensity in the southern and south-eastern regions of Poland. Excessive employment slows down the rate of improvement of the agrarian structure, farming efficiency, technological progress, and this in turn leads to low income in the agricultural sector and incomplete use of the competitive potential. The gradually worsening price relations make the situation more serious.

Though the limitation of employment in agriculture is one of the basic challenges to be confronted in the immediate future, the opportunities for labour to leave agriculture are and may remain few due to the general unemployment level and low mobility of farmers and the rural population on the labour market[1]. It is obvious that the social function of the absorption of domestic labour by the agricultural sector (at the expense of economic effectiveness of the sector) should be limited in the interest of competitiveness.

Migration of the population from agriculture is considerably hampered by a worse access to education and thereby a worse level of education of farmers and the rural population. Hence, there is difficulty in competing with the urban population for attractive jobs. The growing costs of secondary and university education also play an important role (costs of commuting, board and accommodation) for the relatively impoverished rural population.

A low level of human resources (rather low education level) may be a barrier to the structural transformation process, technological progress and for the opportunities arising from participation in the EU Single Market. The search for off-farm jobs which require ap-

[1] Unemployment in Poland has exceeded the level of 3.2 million persons, i.e. about 18% of economically active population and is 2.5 times higher than in the OECD States.

propriate qualifications is hindered not only by a low level of general education but also by poor agricultural education (a too slowly changing curriculum).

Therefore, we should be prepared for the fact that a large proportion of the population employed in the agricultural sector will remain on farms until retirement age even at the expense of a lower income. Opportunities for a quick and substantial reduction of the employment level in the agricultural sector are mainly associated with the possibilities for general economic development.

Farm Structure

Small farms prevail in the agrarian structure of the sector. The land resources of the majority of farms are too small to ensure sufficient income. A small scale of production also obstructs the achievement of technological progress both for financial and technical reasons.

Another serious structural problem lies in the low level of farm specialisation which undermines farming efficiency, technological progress and the competitiveness of farmers on the market. However, we can assume, that the stabilisation of markets under the CAP on the one hand, and the access to investment support programmes on the other, are very likely to be conducive to the establishment of specialised farms.

The number of commodity (production) farms, i.e. producing for the market, is limited by the poor agrarian structure and low level of specialisation. Thus, there is a large number of subsistence holdings. This situation is neither propitious for the improvement of the conditions of production (technical and quality standards) nor for the improvement of farming efficiency.

However, it should be noted that the transformation process in agriculture is very slow. Despite a slow reduction in the number of agricultural holdings and a statistical increase in the average farm area, a growing number of very small and very large farms has been observed over the period of the few last years – evidence of the tendency of the large and more effective farms to take over land on the one hand, and of an increasing number of subsistence holdings on the other. As the agrarian transformation process occurs in two parallel planes, agricultural policy should take into account both the development of modern capital and science-intensive areas and the support of labour-consuming tasks which may be implemented even on small farms. Support to a differentiated production structure in small agricultural holdings and the creation of jobs in rural areas will contribute to an increase in their profitability. This process is contingent on the simultaneous development of market institutions, marketing and rural infrastructure.

Vertical and Horizontal Integration of the Agri-Food Sector

The dispersed structure of agricultural production justifies and implies a necessity for the development of all forms of cooperation among producers both in the form of horizontal integration (producers' groups, machinery partnerships etc.) and vertical integration (links between producers and recipients, agricultural product processing plants). The need for horizontal and vertical integration will increase sharply in view of the approaching accession to the EU Single Market and the necessity for reducing transaction costs. As Polish agriculture is facing the problem of the lack of such relations, the risks and costs of operations are increased at each level of the food production chain. Moreover, the international

competitiveness of individual agricultural holdings and companies (both in the processing and trade sectors) and of the whole sector is reduced. Despite their unquestionable advantages, the integration processes develop very slowly both due to errors and encumbrances inherited from the past and to the currently reduced financial and organizational support.

Shortage of Capital

One of the major barriers impeding the development of Polish agriculture is the shortage of capital resulting from declining trends in agriculture (declining price relations) and the high costs of credit facilities (high real interest rates). Between 1996 and 2000 only 4% of farmers invested in cow-sheds and pigsties, whereas 6% of farmers intend to invest in these production sectors by 2004[1]. The agricultural machines owned by farmers are obsolete and depreciated. The main reason for the technical stagnation of agricultural holdings is the lack of own capital and external resources.

In past years only 9 - 10% of farms demonstrated a capacity for accumulation. This is due to price relations disadvantageous to farmers (squeezing price scissors) and low levels of agricultural support[2] (measured on a PSE basis). The appreciation of the Polish currency expressed in real values has intensified the difficulties in agriculture, particularly for exports, though it helped to reduce inflation. These macroeconomic conditions have led to the reduction of farmers' income for several years past. Between 1995 and 2000 the reduction in available gross income in real terms amounted to as much as 50%[3]. In 2000 the real available gross income on individual agricultural holdings fell by 12.6% as compared with the previous year (1999).

Lack of capital accumulation has deprived many agricultural holdings of the possibility of development. Investment needs funds and farmers who have no capital of their own (low incomes) cannot apply for credit facilities as banks require collateral and guarantees which hardly can be provided by the farmers.

The reduction of nominal and real interest rates resulting from further macroeconomic stabilisation and the accession of Polish agriculture to the CAP will certainly enable the approximation of the economic conditions in which the Polish agricultural sector is operating to those of EU-15 and will reverse the unfavourable trends in the reconstruction of fixed assets.

Adjustment of Farms to EU Requirements

Agricultural production must comply with quality requirements taking into account consumer safety and the impact on the natural environment. In many aspects such requirements are now much more stringent in the EU than in Poland. In order to adjust Polish farming to these higher requirements it is necessary to modernise the production base of agricultural holdings, to provide agricultural holdings with new equipment and to ensure higher expenditure aimed at obtaining proper sanitary conditions in agricultural produc-

[1] In the group of 20 - 50 ha farms only 8% of farmers invested between 1996 and 2000, whereas in the group of 50 ha and larger farms 12.5% of farmers invested..

[2] The PSE is considerably lower in Poland than in the EU and in recent years has had downward tendency. Between 1999 and 2000 in the EU this index amounted to 39%, 34%,35%. Over the same period of time PSE in Poland was 19%, 7%, 10%, respectively

[3] During the same period of time the household income in the whole sector amounted to 21%.

tion. The majority of these investment requirements refer to animal production (compliance with sanitary requirements in milk production and the conditions in which animals are kept). Given the difficult financial situation on agricultural holdings, these measures are expensive. The needs in this respect may be illustrated by the situation on dairy farms. Currently (mid-2002) there are only approximately 12750 farms (3,19% of about 400,000 farms) delivering milk to the dairies, that comply with EU production conditions and milk quality standards (i.e. have obtained a Veterinary Inspection certificate).

Opportunities for the Development of Agriculture: production resources and condition of the natural environment

Poland has comparative advantages over the EU market in these sectors and in types of production which require relatively high expenditure of labour and land and which are difficult to mechanise. Agriculture as a whole, and several types of production in particular, meet this criterion. In some cases, such as horticulture, the abundant production resources are accompanied by a long tradition and existing infrastructure. High marginal cost effectiveness of invested resources[1] and improving access to the newest technology may appear as another important potential basis of competitiveness in the Single Market.

Because of traditional production methods and the low use of chemicals, Poland may successfully produce "high quality food" the demand for which will grow both between EU and Polish consumers. Poland provides conditions for organic farming, i.e. using methods which are environment-friendly and satisfy consumers' needs. Taking advantage of this "old-fashioned" character of Polish farming for the development of the competitiveness of Polish agricultural holdings which use organic farming methods requires, however, the improvement of farmers' knowledge and the implementation of appropriate investment and marketing activities.

Age structure

The relatively advantageous age structure of the farming population represents a chance for Polish agriculture. In Poland, about 17% of managers of agricultural holdings are under 34, whereas in the EU the figure is only 8%. Rejuvenation of the farming population is largely due to a sharp reduction in migration, limited possibilities of finding work and a faster replacement of generations encouraged by the possibility of obtaining a retirement pension in agricultural sector. In the period of adaptation to new conditions of operation following accession, young farmers are more inclined to take risks and to cope with the challenges imposed by the new circumstances.

Non-productive functions of agriculture

The social debate carried out in Poland on the development strategy for this sector points to the necessity for changing methods and priorities aimed at increasing the significance of the non-production functions of agriculture. This evolution follows the changes in the social perception of the sector, new challenges pertaining to the protection of the natural environment and the decline of local traditions. There is growing social awareness that the future development of agricultural production must be carried out in a sustainable fashion

[1] Consequence of low saturation of the sector with capital.

and, if possible, in a way ensuring the provision of additional public goods. A relatively low intensity of farming, well preserved traditional production methods and the diversity of agricultural and rural microstructures present an opportunity to develop Polish agriculture in harmony with the European model for the development of this sector identified within the framework of Agenda 2000.

Problems of rural development: rural employment

Rural unemployment and limited opportunities for finding a job in rural areas seem the most important and the most difficult problems to be overcome. Counteracting unemployment in rural areas, e.g. facilitating access to the labour market or the generation of non-agricultural jobs in rural areas, is, therefore, one of the most important challenges.

At present, the labour market does not allow one to quickly move surplus rural labour outside rural areas. This is because the unemployed rural population fails in competition with the urban unemployed in local labour markets which are concentrated in towns. Moreover, investors tend to generate new jobs in towns rather than in rural areas. Low mobility of the rural population on the Polish labour market is another problem aggravated by the lack of appropriate housing infrastructure - thus, unemployment persists not only in rural areas but also in many regions in Poland.

Level of education among the rural population

The transition to a market economy initiated in Poland in 1989 deepened the educational disproportion between rural and urban areas, and between the agricultural sector and other sectors of the economy. Education for the rural population has become less accessible, particularly at university level.

Access to professional information in rural areas is also problematic. The information gap in rural areas is bridged to some extent by extension services, and to a lesser extent by the professional press. The use of Internet in rural areas is negligible. Computerisation of agricultural holdings barely crawls on all fours.

Opportunities for Rural Development: generation of a supplementary source of income on farms and off-farm jobs

About 38% of the Polish population live and work in rural areas and 45% of this number depend on farming. Farming activities do not need to be the only source of income in rural areas as there are many opportunities to develop other activities which may become an additional source of income.

The economic uplift of rural areas may only be ensured by small businesses in which private individuals can invest their capital. A growing number of inhabitants of rural areas have responded to the market economy by getting engaged in trades, services and crafts based on the use of the resources of their own farms. However, given the limited availability of funds, off-farm economic activities in rural areas are still poorly developed.

The diversification of farm activities into non-agricultural areas (such as farm tourism , trades and handicrafts) is an important way to develop the economic activity of a significant proportion of the rural population. In this manner a number of households may obtain a supplementary source of income in the future.

Sustainable development is the long-term objective for rural areas. It is understood as involving parallel activities along several lines: multifunctionality of agriculture and rural areas, the alleviation of unemployment, the improvement of standards of living of the rural population and the economic/social functions of rural areas.

The preservation of traditional forms of spatial development and environmental values
The varied landscape of rural areas, rich in trees, baulks and other semi-natural features with a diverse variety of plants and animals, epitomises the non-production values of rural areas and agriculture. The environmental awareness of the Polish public is growing and environmental protection needs are taken into account to a wider and wider extent. The cultural and natural diversity of Polish rural areas can be considered a special asset worth preserving and maintaining.

Development of Farm Tourism
Polish rural areas present favourable conditions for the development of rural tourism. This is particularly true in the case of industrially underdeveloped regions with low employment in the non-agricultural sector, and which possess attractive natural, landscape and cultural assets. The number of agricultural holdings that offer farm tourism oriented services is continually growing. However, farms with farm tourism constitute less than 1% of all agricultural holdings in Poland.

For the majority of agricultural holdings the development of farm tourism provides the local population with additional job opportunities, makes use of existing housing resources, offers the possibility of the direct sale of "wholesome food" produced on the farm, and, at the same time, enables cultural development and the improvement of the environmental infrastructure, the protection of historic monuments, the environment and natural/landscape features. Farm tourism is a source of considerable income in the regions which are capable of taking advantage of their attractive location.

Processing Sector Problems
The improvement of the competitiveness of the Polish agricultural sector must go hand in hand with that of the food processing sector, and, therefore, it is necessary to study and identify its basic problems and to carry out measures aimed at improving its condition.

Efficiency and Productivity
Agricultural and food processing plants in the main sectors achieve poor financial results. The low return of the Polish agricultural and food processing industry, as compared with the level in EU member states, results from, *inter alia*, low productivity per worker (EUR 105 000 in 2000). The turnover per company (EUR 12.9 million) is half that in the EU and the average production per capita in 2000 amounted to EUR 985, i.e. 65% of the national average in the EU member states.

The competitiveness of the Polish agri-food industry is also reduced due to excessively high production costs. The cost index for the whole food and beverage production sector in 2001 (the relation of the expenditure incurred in order to generate revenue from overall activities to the revenue from overall activities) amounted to 98.0%.

Technical Equipment

About 33,000, mainly small, private processing plants, were established within a few years of the start of the process of transformation. These mainly produce for the local market. This resulted in the dispersion of processing potential which is neither advantageous nor optimum from the economic point of view. Such small and medium size plants have had limited opportunities for investment and, therefore, problems with modernisation and the rationalisation of their production.

The pre-existing large State owned plants have been systematically privatised during the last ten years, mainly with the participation of foreign capital. This has permitted their accelerated modernisation and restructuring. Between 1990 and 2001 the food processing sector received USD 5 billion of foreign capital, i.e. 10% of all direct investment in Poland; 65% of this amount originated from EU member states.

The modernisation process in the food processing industry differs from sector to sector. During the last five years the highest investment level was observed in the secondary processing sector, whereas investments in primary processing were negligible.

There is a need for investment, particularly in the fruit and vegetable processing sector, the conservation sector and contemporary storage management.

Since 2000 a decline has been observed in investment in the food processing sector. Therefore, in order to achieve an improvement of competitiveness in the Polish agri-food sector, it is extremely important to apply appropriate measures to support investment processes in this sector.

Raw Material Base

The effective operation of the Polish agricultural and food processing industry also depends upon an adequate source of raw materials. The processing sector mainly relies on domestic raw materials and frequently faces barriers associated with the destabilisation of sources of raw materials and the heterogeneous quality of raw materials. Fluctuations in the supply of farm produce and the lack of uniform quality produce limits the necessary installation of new technology in processing.

The Polish processing industry is still poorly integrated with agricultural production and, therefore, is more sensitive to supply fluctuations and the unstable quality of raw materials than in the EU member states. Stronger links between farmers and processing plant (vertical integration) and the establishment of producers' groups (horizontal integration) supplying the industry with uniform quality raw materials may help overcome the problems. These solutions also help to increase and stabilise a farmer's income (due to the better quality of raw materials supplied).

Safety and Quality of Products and Compliance with EU Standards

Raw material supply problems and under-investment in many Polish agricultural and food processing plants also contribute to insufficient safety and often the unsatisfactory quality of finished goods as well as to poor compliance with EU standards.

At present, few meat, milk and fish processing plants comply with EU veterinary and sanitary standards. Polish meat processing plants (slaughterhouses, carcass cutting plants, meat processing plants) must, in the first instance, conform with EU sanitary and veterinary standards. The necessary adjustments include, *inter alia*: finishing floor and wall

surfaces complete with corners to a standard which enables their washing and disinfection, elimination of points where personnel routes between different plant zones cross transport routes, separation of "clean" and "dirty" zones, separation of livestock facilities from slaughter halls and mechanical processing rooms from heat treatment areas. Compliance with EU standards also implies a better cooling of carcasses and carcass partition rooms, improvement in animal welfare, etc. Another problem faced by the Polish agricultural and food processing sector is compliance with EU standards in the area of food safety.

Apart from unsatisfactory sanitary conditions of production, the Polish agricultural and food processing sector is poorly adjusted to EU environmental protection requirements. The volume of waste (including sludge) produced by the food industry is between 3% and 90% of raw material, depending upon the sector. The largest volumes of waste are produced in the meat, potato and sugar sectors. The problem of liquid waste treatment is, in particular, faced by small and medium sized meat processing plants due to the large volumes of waste and under-investment in technology. In order to comply with EU environmental standards, these plants will have to ensure proper management of offal, the construction of liquid waste treatment or pre-treatment plants, the reduction of pollution emissions to the atmosphere, etc. It is estimated that e.g. 30% of untreated liquid waste produced by the meat processing sector is discharged into surface waters.

Given the significance of the agricultural and food processing sector to the national economy, farmers and local labour markets, it is necessary to support modernisation processes in those plants that are likely to comply with EU standards, will most likely remain on the market and will also be competitive after accession.

Management, Marketing and Distribution

The Polish agri-food sector still does not attach sufficient importance to management and marketing activities. In the opinion of many agricultural producers and businessmen marketing is expensive and its results uncertain.

During the second stage of restructuring in the agri-food sector after 1998, the marketing, distribution, supplies, financial management, development and investment functions became concentrated in the headquarters of concerns and holdings. In small and medium size businesses these processes are little developed and, therefore, their competitiveness on the domestic and foreign markets is reduced.