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**THE AGRI-ENVIRONMENTAL SITUATION AND POLICIES IN THE CZECH
REPUBLIC, HUNGARY AND POLAND**

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**THE AGRI-ENVIRONMENTAL SITUATION AND POLICIES IN
THE CZECH REPUBLIC, HUNGARY AND POLAND**

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Organisation for Economic Co-operation and Development
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FOREWORD

This report provides a first evaluation of the agri-environmental situation and policies related to agriculture and environment for the three new OECD Member countries from Central Europe. Since the early 1990s these countries underwent a difficult process from centrally planned toward market economies. Also the agricultural sector and policies were subject to important reforms and the report evaluates the situation and policies in place during this transition period with a special emphasis on environmental effects and environmental components of policies applied.

As all the three countries are EU associate countries and potential candidates to EU accession, a part of this report is devoted to the adaptation of domestic policies towards EU type agri-environmental policies.

This report was prepared by the OECD Directorate for Food, Agriculture and Fisheries in close co-operation with the Czech, Hungarian and Polish experts and authorities. It was declassified in August 1999 under the responsibility of the Secretary-General.

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ACRONYMS AND ABBREVIATIONS

AEP	Agri-Environmental Programme
CAP	Common Agricultural Policy of the European Union
CR	Czech Republic
ECONET	European network of high nature value areas
EU	European Union
GDP	Gross Domestic Product
GLP	“Green Lungs of Poland”
IFOAM	International Federation of Ecological Farming
K ₂ O	Potassium (Potash)
LFAs	Less Favoured Areas
NEP	Natural Environment Policy of Poland
OECD	Organisation for Economic Co-operation and Development
PHARE	Poland and Hungary Assistance for Restructuring Economy (European Union programme targeting now all the Associated Countries)
P ₂ O ₅	Phosphoric Acid
PSE	Producer Support Estimate
PTRE	Polish Society of Ecological Farming
SAPARD	Special Accession Programme for Agriculture and Rural Development (funded by the EU)
SO ₂	Sulphur dioxide
VAT	Value Added Tax

CURRENCIES AND UNITS OF MEASUREMENT

Ckr	koruna (Czech)
Ft	forint (Hungarian)
ha	hectare (10 000 m ²)
kg	kilogram
NZl	zloty (Polish)
US\$	dollar (United States)

EXECUTIVE SUMMARY

Although the three countries examined in this report have different agricultural systems, several common conclusions can be drawn. Some burdens from the past still persist, resulting from decades of collectivisation (especially in case of the Czech Republic and Hungary), and inappropriate management of intensive production units. Moreover, in these countries, the agricultural sectors have been exposed to industrial pollution from other sectors of the economy. Water is the natural resource most polluted by agriculture, while erosion is a significant threat to large areas of agricultural land.

The environmental degradation caused by agriculture, however, appears to be generally lower than in most OECD countries, and it has diminished with the transition to a market economy, and the resulting policy changes. The collapse of the central planning system led to the elimination of administered agricultural prices for crops and livestock and, because of budgetary constraints, farm input subsidies were sharply reduced leading to higher input prices. As a result of these changes there was a steep decline in overall support to agriculture, followed by decrease in use of agricultural inputs, which has had a positive effect on the environment.

At present, the environmental risks caused by agriculture are mainly associated with poorly developed infrastructure, education, and lack of codes of good farming practice. There is a possibility that the environmental risks will increase, as agricultural sector productivity improves, especially where agricultural policies stimulate intensive use of inputs.

The natural environment in the Czech Republic, Hungary and Poland has been significantly affected by agriculture, shaped by centuries of farming activities. Although this has led to some environmental damage, it also provided some benefits. Certain rural areas are rich in natural habitats and agricultural landscapes, which can provide a sound basis for the development of a sustainable agriculture. Sustainability in the agricultural sector can be encouraged by well-targeted agri-environmental policies that maintain and enhance the environmental benefits associated with agriculture, but minimise the negative impact from farming, while providing sufficient and safe food in the most economically efficient way.

Environmental problems caused by agriculture do not appear to be a priority target for these countries. Few agri-environmental policy measures are applied, and the environmental problems of agriculture are treated in a fragmented manner by environmental policy measures. However, as these countries prepare for eventual EU membership, they are in the process of adjusting their policies to EU legislation, which is requiring the adaptation of current agri-environmental schemes, and the introduction of new legislation in this area.

AGRI-ENVIRONMENTAL SITUATION — CZECH REPUBLIC

1. The state of Czech agriculture

The role of agriculture in the economy is small and decreasing. As a share of GDP, agriculture declined from 7 per cent in 1989 to 2 per cent in 1997, and its employment share fell from 10 per cent to 4 per cent. Agricultural land accounts for 54 per cent of total land area, and has been fairly stable. The ratio between output and input prices declined, in particular during the first years of the reforms (1991-1993). However, due to important reduction in labour the profitability of the sector is improving slowly.

Agriculture was collectivised under the communist regime. The importance given to agriculture in the centrally directed system resulted in its disproportionate size and low efficiency. In order to adapt to the market economy, agriculture had to change in terms of size, structure and performance. The move towards private property in agriculture was made through restitution, privatisation and transformation. Privatisation of state-owned agricultural assets has been almost completed (85 per cent of the state-owned non-land agricultural assets had been privatised by end-1997), except for state owned land, which accounts for around one fifth of total agricultural land. The as yet non-privatised agricultural assets are managed by the Land Fund, which leases the land and other assets to private farm enterprises. At present, roughly three-quarters of agricultural land are farmed by corporate farms and farm co-operatives, and one-quarter by individual farmers. The average size is 1 350 ha for co-operative farms, but only 36 ha for individual farms.

Agricultural production is falling and the trade deficit increasing. Over half of the arable land is planted with cereals, mainly wheat and barley, and about a quarter by fodder crops (mostly maize silage for cattle), but fodder area and its share in arable area has been declining in line with decreases in livestock production. The livestock sector had been particularly hard hit during the transition period. Cattle and sheep numbers fell respectively by about 52 and 78 per cent between 1989 and 1997. Recently, cattle numbers have been stabilised and do not show any significant fluctuations. For milk production, the decline in cow numbers has been offset by an increase in the milk yield. The poultry and pig sectors are showing some signs of recovery, and are currently at around 5-15 per cent below the pre-transition levels. A steady increase in food imports combined with stagnation in exports have led to an increasing trade deficit, especially with the EU — the Czech Republic's biggest trading partner. Imports are mainly of tropical fruit animal feed, while exports are mainly of dairy products, beer and other beverages, and oilseeds.

Support to agriculture has declined significantly since the beginning of the economic transition process, but seems to have bottomed up in 1998. The percentage PSE¹ has fallen from the average of 54 per cent in the period 1989-1991 to estimated 10 per cent in 1997. This was due mainly to a sharp decrease in market price support, caused by exchange rate movements and increase in world prices, and to a lower extent to cuts of budget expenditures to agriculture in the early years of the reforms. In 1998, the percentage PSE is estimated to have increased to 17 per cent (from 10 per cent in 1997), which is roughly a half of the OECD average. In 1998, PSE increased by 82 per cent, which was a combined effect of increases in market price support (mainly for grains and milk) and in direct payments (area and headage payments). The share of market price support in total support increased from a half in 1997 to almost two-thirds in 1998.

2. Agriculture and the environment

Strongly centralised, intensive and non sustainable systems of production were created under the centrally planned economy. This form of agricultural management brought a series of predominantly negative impacts on the environment. Large scale agriculture accounted for a very high portion of arable land (75 per cent of total agricultural land), and its degradation by soil compaction, as well as water and wind erosion. Over 60 per cent of arable land is threatened with erosion, due to inadequate or unadjusted cultivation techniques. Erosion was the source of silting of rivers and water reservoirs, eutrophication and loss of soil fertility. Some water resources were heavily polluted by fertilizers and pesticides. Livestock production has been mainly concentrated in large-scale units, often poorly equipped with manure storage and management facilities, causing important point-source pollution of soils and water.

Transition to a market economy has forced changes in inefficient agricultural systems, with some positive effects on the environment. There has been a reduction in the labour force, the production structure has been simplified, numbers of animals have diminished, and there has been a fall in the use of inputs (fertilizers, pesticides) with a less marked fall in production. The level of contamination of food products is not significantly different from other OECD countries. Out of the total number of analyses focused on foodstuff contaminants in 1997, only 0.03 per cent were evaluated as unsatisfactory. The loading of soils and water with pollutants from chemical fertilizers and pesticides is decreasing very slowly. But the high content of these substances in the sediments of watercourses and reservoirs remains an unsolved problem. The management of liquid and solid manure from large-scale production units also remains an urgent issue.

Burdens from the past continue to damage Czech agriculture. Agricultural areas have been negatively affected by heavy industrialisation. Acid rain is the most severe pollutant affecting Czech agriculture, although its influence is decreasing. Between 1989 and 1997 Sulphur dioxide (SO₂) emissions have been reduced by 65 per cent, mainly due to the installation of desulphurisation equipment in coal power plants. Soils located in the vicinity of industrial plants are contaminated by heavy metals. The negative effects from agricultural production as water pollution and soil damage (decrease in the fraction of humus and living organisms) have been only slightly reduced so far.

¹ The Producer Support Estimate (PSE) is an indicator of the annual monetary value of gross transfers from consumers and taxpayers to support agricultural producers, measured at farm-gate level, arising from policy measures, regardless of their nature, objectives or impacts on farm production and income. It can be expressed in monetary terms — the **PSE**; or as a ratio to the value of total gross farm receipts, measured by the value of total production (at farm-gate prices), plus budgetary support — the **percentage PSE**.

a) *Nutrient use*

The use of chemical fertilizers and manure during the communist period was relatively high. In the mid-1980s, the nitrogen balance was over 100 kg per hectare of agricultural land. Between 1989 and 1992, chemical fertilizer consumption plummeted by more than two thirds (nitrogen, phosphorus, potassium dropped by 55, 84 and 86 per cent respectively). This was due to the reduction of state subsidies to agriculture, worsening output-input price ratios, and ownership changes through the privatisation of collective and state farms. In the 1993-1997 period, the use of industrial fertilizers stabilised at around the 1992 levels. Only the use of nitrogen has increased slightly, but it still remains far below the 1989 level. The use of manure also decreased, due to the decrease in the number of farm animals. As a result, the nitrogen balance decreased significantly from over 100 kg per hectare of agricultural land in the mid 1980s to 51 kg per hectare of agricultural land in 1997 (see Annex Figure 2).

b) *Pesticide use*

During the transition period the use of pesticides decreased substantially, with some delayed effect on pollution levels. However, in recent years there has been an upward trend in the use of plant protection substances, although it still remains under half that of the pre-transition use levels. In 1997 3 890 tonnes of active substance of plant protection products were used in the Czech Republic, as compared to 11 217 tonnes in 1989 (see Annex).

c) *Water use and water quality*

Czech water resources are relatively limited, but the intensity of use is high. Agriculture is not a big user of water resources, but it is the largest source of non-point water pollution through the use of manure, industrial fertilizers and pesticides. In addition the large-scale animal production units, not equipped with appropriate systems for the management of manure and slurry, are significant sources of point water pollution. Moreover, the management of large land fields does not always permit an appropriate use of water resources. The country is sensitive to floods, but in some regions where the availability of water is reduced it is compensated by water irrigation systems.

Water quality is improving slowly. The transition to a market economy, and the big drop in the use of fertilizers and pesticides, had some influence on water quality. As of 1997, a decrease in surface water pollution from point-sources occurred as measured by indices of biological oxygen demand, suspended substances, dissolved inorganic salts, oil substances, apparent alkalinity/acidity. Values of the most important surface water quality indices (organic pollution, ammoniacal nitrogen, phosphates) in the rivers *Labe*, *Vltava*, *Morava*, and *Odra* decreased, while nitrates were stable. Small water streams continue to be burdened with a high content of nutrients, particularly nitrates (28 per cent of monitored samples correspond to heavily and very heavily polluted water) and phosphorous (17 per cent). A persistent problem is the expansion of algae in streams causing secondary pollution (eutrophication). Underground waters continue to show a high level of pollution; particularly serious is the rate of nitrate, nitrite and ammonium contamination. Policies are in place to prevent water pollution from agriculture in the most sensitive areas. In “water resources protective zones” (17 per cent of agricultural land) and “natural water reservoirs protected regions” (18 per cent of agricultural land), the use of fertilizers and chemicals is limited or prohibited.

d) *Agricultural land use and soil quality*

Agriculture is the biggest land user in the Czech Republic. Agricultural land covers 54 per cent of total territory, and 72 per cent of it is arable land. The agricultural land area shows a slight downward trend, with the arable land and perennial crops (vineyards, hop gardens and orchards) decreasing slightly, giving way to fallow land, meadows, pastures and forest. In the period 1990-1996 the share of grasslands increased by 3 percentage points. A large part of agricultural land is subject to special water regimes. This concerns mainly large areas with drainage infrastructure, which represents over 1 million of hectares (25 per cent of total agricultural area). Only some 124 000 hectares of agricultural land (less than 3 per cent) are irrigated.

Erosion is the biggest threat to agricultural land. According to Czech sources, in 1996, over 60 per cent of agricultural land was endangered by water (54 per cent) and wind (10 per cent) erosion. Erosion is classified from "slight" to "medium" over most of the country. This is mainly due to a big proportion of arable lands located on slopes.

The contamination of soil is mainly of industrial origin. It is associated with mining, power plants using low quality coal, and metal industries. The most significant source of basic risk substances inputs is the atmospheric deposition (providing 90 per cent of lead contamination, 75 per cent mercury, 65 per cent cadmium). For cadmium and chromium, chemical fertilizers account respectively for 32 and 40 per cent of the total input. However, high contents of heavy metals are detectable only locally, and the extent of contamination is not very significant.

e) *Agricultural greenhouse gases*

The contribution of Czech agriculture to the total gross emissions of the main greenhouse gases was on average 3.4 per cent in the period 1993-1995. In comparison to the 1990-1992 period, this contribution decreased by over 35 per cent, while the average for the OECD countries decreased by less than 1 per cent.

f) *Biodiversity*

Biodiversity was affected significantly by large-scale agriculture during recent decades. Historically all Czech landscape has been formed by agriculture and forestry activities. However, the enforced collectivisation of land in the 1950s and subsequent operation of large-scale farms had a particularly negative effect on biodiversity, wildlife habitats and landscape. A high proportion of habitats was destroyed, especially wetlands, semi-natural meadows, field banks, scattered trees, small woodlands, and ponds. In some regions, semi-natural habitats were preserved or restored, thanks to traditional farming, but the proportion is small. Overall, it is estimated that 45 per cent of higher division plant species, 35 per cent of mammal species, 57 per cent of bird species, 95 per cent of Amphibians species, 100 per cent of serpent species and 28 per cent of fish species are endangered in the Czech Republic. The grass eco-systems rich in species are more exposed to danger due to agricultural land abandonment. In order to preserve landscape, biodiversity and wildlife habitats, the most valuable areas are declared as National Parks and Landscape Protected Areas (8.6 per cent of total agricultural land).

3. *Agri-environmental policy, objectives and measures*

Intensive agriculture was developed under the centrally planned economy, regardless of its impact on the environment. The period 1948-1989 was characterised by a high output oriented, intensive,

soviet style agricultural system which, through collectivisation, destroyed the social fabric of the countryside. The style of management also brought negative influences on the countryside, as the state of the environment was not regarded as a priority.

Within the agricultural policies applied during the reform period, some steps were undertaken to diminish negative effects of farming on the environment. The “Agricultural Policy of the Government of the Czech Republic up to 1995 and Beyond” recognises the need to preserve the natural environment in agricultural areas, making mention of it in the “related long-term goals” of the policy. According to these goals, the government shall “strive to ensure that agriculture fulfils its productive and ecological functions in the countryside, and especially to work for:

- enhancing natural and non-renewable resources;
- encouraging the production and exploitation of renewable resources of energy and raw materials;
- encouraging the creation and maintenance of a high quality rural environment and landscape, involving the co-operation with other sectors of the economy and local governments.”

The “*Act on Agriculture*” was adopted in Autumn 1997. The document sets up a basis for rural development and agri-environmental policies. Among other goals, the document specifies the:

- creation of instruments for the development of the non-agricultural production functions of agriculture, which would contribute to the protection of the environment, and landscape;
- setting up scheme for compensation of loses incurred due to legal restrictions for the protection of the environment;
- setting up aid programmes supporting less favoured areas.

The land privatisation process offered an opportunity to enhance good farming practice. In the course of the land ownership restoration process, environmental goals are being taken into consideration. This is in order to enhance landscape, introduce protection against water pollution and land erosion, and implement a national ecological network. However, this is a long-term and expensive project, with an annual budget expenditures estimated at CKr 700 million (US\$23 million).

There are several programmes supporting environmentally friendly activities in agriculture with potentially positive effects on the environment. The framework for these programmes was provided by the Government Decree, issued following the Act on Agriculture. Programmes are being developed in three main areas provided for in the decree:

- Non-agricultural production functions of agriculture;
- Landscape maintenance (afforestation; payment for support of organic farming);
- Aid for less favoured areas (conversion of arable land into grassland with extensive production of cattle; afforestation; payments for extensively used grasslands).

Most of these programmes are based on direct payments to farmers in the less favoured areas (LFAs) and their main objective is to reduce actual or potential overproduction in agriculture, and to provide additional income to LFAs. Environmental benefits are a secondary objective.

Box 1. Organic farming in the Czech Republic

Organic farming was introduced in the Czech Republic in 1990, when several co-operatives, state farms and several private farms started to form associations of organic producers — a requirement to obtain a subsidy from the Ministry of Agriculture. In 1992 over 15 000 ha (135 farms associated in 5 producer associations) were in the process of being transformed to organic farming. This represents less than 0.4 per cent of the agricultural area.

In 1993 the Ministry of Agriculture published a document “Methodological Instructions for Ecological Agriculture” (“*Metodický pokyn pro ekologické zemědělství*”) based on the IFOAM (International Federation of Ecological Farming) outlines for organic farming, and EU regulations, which set out rules for certification and imports of organic products. The document is being updated systematically, following the changes in EU legislation and IFOAM directive.

The associations of organic producers, food processors and traders have to be recognised by the Ministry of Agriculture and they operate according to the rules outlined in the document. At present, two associations are in the market. In 1998, 339 farms certified as organic. They accounted for over 60 000 ha (1.6 per cent of total agricultural area). These farms produce mainly food cereals, root crops, and to a smaller extent, fruits, vegetables, eggs and milk.

So far, there is no law regulating organic farming in the Czech Republic. In the current situation, farmers, processors and traders with biological products and bio foodstuffs voluntarily observe the regulations published in the Methodological Instruction issued by the Ministry of Agriculture as an internal regulation. The final phase of Czech ecological agriculture accreditation in Brussels is under way and should be completed by incorporating the Czech Republic in the list of third countries according to Article 11, Clause 1, Paragraph (a) of the Council Regulation No. 2092/91 of 24 June 1991.

Increasing importance has been given to support production and the use of renewable energy resources, especially the processing of rapeseed into bio-diesel fuel. In 1993, a special programme for the production of bio-diesel was launched. The production of bio-fuel provides an additional outlet for agricultural crops. Up to 1996 the government supported the production of bio-diesel with interest subsidies and loan guarantees for equipment purchased by private investors. From 1995 the consumption of bio-diesel was supported by lower VAT (reduced from 23 to 5 per cent) and exemption from excise taxes applied to mineral fuels. As for the programmes mentioned above, the main objective of the bio-fuel programme was to create additional outlets for agricultural production, and the potentially positive environmental effect was a secondary objective. Moreover, the positive environmental effect of bio-diesel use may be offset by negative effects from intensive rapeseed production.

Investment support. Support for investment in environmentally related facilities can be paid from the “*Supporting and Guarantee Fund for Farming and Forestry*” (PGRLF). Two of the fund’s programmes are related to environment:

- *Programme “Farmer”*: Farmers participating in this programme can ask for guarantees and interest subsidies for investments into technologies limiting the negative impact of agriculture on environment (manure storage facilities, erosion prevention etc.);

- *Programme “Landscape”*: Farmers can participate in this programme if they are farming in protected areas and participating in the programme “Farmer” and “Short-term loan”. Support takes the form of additional interest subsidies to those extended under the above mentioned programmes.

Research and education support. In 1996, budget expenditure on research in the field of environmental goals in agriculture was CKr 102 million (US\$3.8 million), and CKr 0.7 million (US\$26 000) for education.

Organic farming. In 1998 subsidies on per hectare basis were introduced to support farmers who have adopted organic farming rules. At present, an equivalent of CKr 2 200 (US\$68) is paid per hectare. Following this incentive, during 1998, an additional 50 000 ha of agricultural land was converted into organic farming. Most of this land is grassland, located in Less Favoured Areas. Currently an *Act on Organic Agriculture* is being developed.

The gene reserve programme. The programme consists of three national sub-programmes:

- programme of conservation and utilisation of genes of micro-organisms and small organisms;
- programme of conservation and utilisation of plant genes;
- programme of conservation and utilisation of animal genes.

The collection of genes is one of the largest in the world, and support is based on compensation of increased costs of lower profit entrepreneurs who take care and utilise it. The total budget expenditure to this programme amounted to CKr 445 million (US\$16.4 million) in 1996.

4. Environmental measures affecting agriculture

The Czech “State Environmental Policy” was approved by the Government in 1995. It envisaged the implementation of 28 measures within the period 1995 to 1998. By 1997, 13 of these measures had been implemented, and a further 12 measures were in an advanced stage of preparation. The main goal of the policy is to ensure that the “*implementation of the policies create the necessary conditions to ensure that by the year 2005 the quality of the environment in the Czech Republic will be comparable to levels achieved in the early 1990s by western countries and that favourable conditions will have been created for the systematic improvement of the state of the environment.*”

Czech policy makers do not identify agriculture as a major polluter. They consider that in view of the fall in agricultural production (especially in livestock), the risk of environmental damage coming from agriculture has diminished. In the case of agriculture, the most important issue is food safety: “*it is critically important to provide safe food which will be facilitated by minimising the content of heterogeneous substances in food chains, supporting environmentally-sound farm management and increasing the land’s water retention capacity within the framework of the afforestation projects and grassing of plots of land.*”

Several restrictive measures imposed by legislation affect agriculture. Most of them have been developed in accordance with the EU standards and regulations, and relate to waste management, protection of wild fauna and flora, authorisation of pesticides and fertilizer use, and water management.

Farmers' environmental performance is under the control of the Czech Environmental Inspectorate, as well as regional and local governments.

- Fees are imposed for air and water pollution, as well as for waste disposal and change of use of farmland. There are levies collected on the basis of ammonia emissions, especially from animal production units;
- In protected areas (water resources, landscape protection, national parks) farming activities and the use of some inputs are limited (or prohibited). Farmers are supposed to be compensated for the incurred losses, but the compensation system is not developed yet.
- *Act on the Protection of Agricultural Land Resources (1992)* regulates the use of agricultural land. Land can be withdrawn permanently from the agricultural use only with the approval of the Agricultural Land Resources Protection Authorities. Special fees are imposed on the land withdrawn from agriculture. As stated in the law, “*Users of agricultural land must manage agricultural land resources in a way that does not contaminate the soil, and the food chain and sources of drinking water*”. If that condition is not complied with, the authorities might withdraw the land from food production.
- *Decree specifying details of agricultural land resources protection (1993)*, determines the procedures for protection of agricultural land. It also sets the highest permissible soil pollutant levels, although no specific mention of agriculture is made.
- *Law on fertilizers (1998)*, defines the conditions for marketing, labelling and storage of fertilizers, as well as outlines for the use of fertilizers and manure. A control system, and fine scheme, have been put in place.

Food safety is also an important issue related to agri-environmental policies. To be able to monitor food quality related to the level of anthropogenic contamination of the environment, monitoring of heterogeneous substances in food chains is carried out. In accordance with the governmental decrees Nos. 368/91 and 408/92, these monitoring programmes are carried out jointly by the Ministry of Agriculture, the Ministry of Environment and the Ministry of Health (see Table 1). Representatives of the three ministries are organised a Monitoring Council established as an advisory body to the Minister of Environment. The Czech Ministry of Agriculture allocated to this programme CKr 26 million in 1997.

The issues of monitoring of heterogeneous substances in food chains are also reflected in recently adopted acts:

- Act No. 110/1997 Coll. on Foodstuff and Tobacco Products;
- Act No. 91/1996 Coll. on Feed.

Both of these Acts declare in their procedural regulation the highest permissible limits for the content of heterogeneous substances in foodstuffs and feed.

Table 1. Ministry responsibilities in heterogeneous substance monitoring and risk evaluation

Ministry of Health	Ministry of Agriculture	Ministry of Environment
Human dietary exposure	Food and raw materials	Food chains
Potable water	Surface water (small streams and reservoirs)	Surface water (streams important in water management terms)
Atmosphere – town areas	Atmosphere – rural areas	Atmosphere, climatology, overall co-ordination
Biological monitoring	Bio-monitoring (water and forest ecosystem)	Protected landscape areas
Noise	Agricultural land	
Demographic statistics	Feeds and feed water	

5. Conclusion

Damages to environment from agriculture still persist from the past, resulting from decades of collectivisation and inappropriate management of large-scale intensive production units. The environmental degradation caused by the use of intensification inputs has diminished with the transition to a market economy, due to the falling use of these inputs as a result of worsening output/input ratios for agriculture.

Under current policies the environmental problems linked with agriculture are mainly addressed by environmental policy measures. Relatively large areas of agricultural land are located in environmentally sensitive areas (natural parks and reserves, water protection areas, etc.) with specific farming regimes imposed by regulatory measures. Specific agri-environmental policy measures are not applied yet. However, the country is in the process of setting legal and institutional framework adjusted to EU legislation and in the medium term it is supposed to apply CAP type policies including the agri-environmental measures.

Despite efforts realised since the beginning of the reforms, agriculture poses risks for the environment, which are mainly associated with poorly developed infrastructure and codes of good farming practice. There is also a possibility that environmental risks may increase as the agricultural sector productivity improves, leading to higher output.

AGRI-ENVIRONMENTAL SITUATION — HUNGARY

1. The state of Hungarian agriculture

Although the share of agriculture in the Hungarian economy has diminished during the years of transition to a market economy, it remains significant. In 1997, agriculture's share of GDP was 5.5 per cent, compared to 15 per cent in 1989. The share of agriculture in total civilian employment was 8 per cent as compared to 17 per cent in 1989. Agricultural land covers 67 per cent of the total country area (6.195 million ha), of which 76 per cent is arable land, 19 per cent is pasture land, and 5 per cent is gardens, orchards and vineyards.

The ownership structure has recently changed significantly, with a shift towards private property. In the years of transition, privatisation increased the role of private farmers. Between 1994 and 1997, the share of the total agricultural area of the country cultivated by collective and state farms decreased from 56 per cent to 42 per cent.

Agricultural production is recovering from the initial reduction at the beginning of the 1990s, but its value remains lower than in communist years. Since 1989 the value of agricultural production has decreased and in 1994, it was two-thirds of the 1989 level of production. Since 1994, it has started to grow again. The present level of crop production is about four-fifths of the average in 1989-1990, due to the severe droughts in the beginning of the 1990s, decreasing fertility of soils combined with the usage of biologically poorer seeds, and changes in land ownership. Crops cover nearly 60 per cent of the arable land of the country — a situation which has not been significantly altered by changes in land ownership. Between 1990 and 1997, there was a 40 per cent fall in the total number of animals, and a 35 per cent fall in the production of milk and the numbers of animals for slaughter. Horticulture represents an important share of incomes and labour in rural areas, although it covers only 1-2 per cent of the total agricultural area.

Hungary is a net agricultural exporter, and agricultural products account for nearly a quarter of the country's exports (including processed foodstuffs). After a fall in 1993, exports started growing again in 1994, and this trend has continued. Agricultural imports have also been growing steadily since 1994, but total exports (US\$2 849 million) were almost three times that of imports (US\$1 088 million) in 1997. European countries are by far Hungary's biggest trading partners, representing up to 88 per cent of Hungarian exports, and 57 per cent of imports.

A steep decline in overall support to agriculture has occurred as a result of moving to a market-based economy. The collapse of the central planning system led to the elimination of administered prices, and the closing of state monopolies, which resulted in a more liberal trading regime. Because of budgetary constraints, input subsidies were sharply reduced (mainly in the first years of the reforms), leading to higher prices for energy, fertilizers and rail transport. Assistance to livestock operations was largely discontinued. These changes are also reflected in the support measured by PSEs. The percentage PSE fell by two-thirds between 1989 and 1991 due to a sharp decrease in market price support. From 1992 to 1997 the percentage PSE showed some fluctuation (mainly due to MPS changes) with an overall downward trend. In 1998, the percentage PSE is estimated to have increased to 12 per cent (from 8 per cent in 1997), which still remains low compared with the OECD average of 33 per cent. This increase is

essentially the effect of an increase in market price support (mainly for milk) and to a limited extent of increased budgetary support (payments based on input use).

2. Agriculture and the environment

Before the political and economic transition, the need to prove that the large collectivised sector was more productive than the small private sector led to the development of an “industrialised”, strongly controlled, input-intensive agricultural sector. State support for fertilizers and other chemicals was introduced along with state support to land improvement practices, stimulating input use and yields. Intensive farming techniques were implemented, irrespective of their impact on the environment. The quantity-oriented regulations stimulated neither rational input reduction, nor quality production with less environmental deterioration. Lack of ownership led to short-term thinking, and general lack of concern for the negative environmental effects of farming.

Adoption of free market rules has forced change in agricultural practices. With the introduction of market rules, the quantity-oriented concept of production failed, due to: saturated internal and traditional external markets; increasing quality requirements of new importers (mostly from the EU); increasing significance of the efficient use of resources; and higher environmental standards related to air, water and soil pollution and degradation. Overall, quality, efficiency and environmental sustainability became more important.

3. Influence of agriculture on the environment (agri-environmental indicators)

a) Nutrient use

Intensive use of fertilizers before 1989 has resulted in increasing risk of environmental side-effects, including: soil acidification; contamination of surface waters by phosphate compounds (due to surface run-off, lateral erosion and sediment transport); contamination of sub-surface drinking water resources by nitrates (leaching); and accumulation of harmful toxic elements in the various stages of the food chain.

After 1989, the use of both mineral and organic fertilizers fell significantly, leading to a worsening nitrogen balance. A sharp decrease in the nitrogen surplus began in 1989, leading to a temporary net removal of nitrogen in soils in 1991, and a return to moderate surpluses in the following year. The change in nitrogen levels was mostly due to a decrease in chemical fertilizer use, linked to policy changes: state support for the use of fertilizers has diminished steadily since 1986, and was abolished in 1991. In 1995, the nitrogen balance was 5 kilograms per hectare of agricultural land, as compared to 64 kg/ha in 1988 (see Annex Figure 2).

b) Pesticide use

The use of pesticides was influenced by the same trends as the use of fertilizers, and a significant drop occurred after 1989, from 35 438 tonnes of active ingredient, to 16 129 tonnes in 1991. The downward trend in consumption of pesticides continues. In 1995, 7 696 tonnes of active ingredient were used (see Annex Figure 3).

c) ***Water use and water quality***

Agriculture accounts for 36 per cent of total fresh water withdrawals, but only 4 per cent of total cultivated area (including arable and permanent crops, but excluding permanent pasture) is irrigated. Several subsidy programmes for use of water in agriculture exist in Hungary.

Hungary is rich in water, but its resources are very vulnerable. Hungary is a transit country for water, so most of its resources depend on the neighbouring countries. Concerning drinking water, the maintenance of its quality is of crucial importance, as two-thirds of it consists of vulnerable ground resources.

The quality of the drinking water meets public health requirements throughout the country, but meeting EU norms would present a problem in many places. Piped water supply is available for 97 per cent of the population, including rural areas.

The majority of water pollutants in agricultural areas comes from the community public sewage system. The state of sewage and sewage treatment is unsatisfactory. Only 44 per cent of dwellings have sewers. The aim is that by 2015 all settlements with a population bigger than 2000 will have biological sewage treatment facilities. Approximately 54 per cent of all collected waste-water is discharged into treatment plants where 33 per cent is biologically treated. Some irrigation canals built in the Great Hungarian Plain are used for drainage of sewage from settlements, which limits the use of water for irrigation.

Nitrate pollution in surface- and ground-water resulting from the use of fertilizers remains a problem. A part of the problem is due to the excessive and inappropriate use of mineral and organic fertilizers in the pre-reform period. Liquid manure from large concentrated livestock farms is another source of point pollution. Groundwater is also polluted mainly by nitrates, primarily because of the lack of sewers at settlements and animal breeding plants, and non-point source effect of fertilizers and manure.

d) ***Agricultural land use and soil quality***

Water and wind cause the greatest problem regarding soil erosion and quality in Hungary. The lack of experienced privatisation increases the damage of erosion. Regarding the chemical state of the soil, fertility problems are mainly caused by increasing soil acidification, due mainly to excessive or incorrect use of fertilizers and atmospheric acid sedimentation.

e) ***Agricultural greenhouse gas***

The average contribution of agriculture to the emissions of main greenhouse gases in Hungary in the 1993-1995 period was 4.6 per cent, and has diminished by 28 per cent since the 1990-1992 period, due mainly to a decrease in livestock numbers.

f) ***Biodiversity, wildlife habitats, landscape***

The state of biodiversity in Hungary has been affected by the political and economic changes, resulting in: changes in the size of cultivated land, as a result of compensation and privatisation; increased cultivation of foreign hybrids, and the development of eco-farming; development of infrastructure (affecting size of habitats and topography).

4. Agri-environmental policy, objectives and measures

Changes in government policy towards agriculture and the environment, as a result of the new economic and political conditions, created opportunities to reconcile nature conservation and agricultural policies. Many policy changes favourable to the environment have taken place, even if environmental protection was not the immediate goal. Because of rising concerns about the macroeconomy, the state needed to cut back agricultural subsidies from the end of the 1980s. This led to the cessation of hidden state supports, and to a more realistic picture about production costs, such as energy, fertilizers, pesticides and natural resources. The decrease in the application of agro-chemical resulted in the reduction of adverse environmental impacts. However, a lack of capital and credit contributed to a fall in the number of environmentally unfriendly investments. Given that integration with the EU has been the most important goal of Hungarian foreign policy, this contributed to providing the opportunity to adopt environmentally sound solutions in agriculture.

In addition to changing conditions of production, privatisation was an important factor in benefiting the environment, but it has also created problems. Many privatised areas are not cultivated, and an increase in fallow land has occurred. Simultaneously, current uncertainties of ownership have slowed down the process of designating protected areas. Even in protected areas, nature conservation authorities often fail to supervise the large number of landowners.

The importance of the effects of agriculture on the environment for the Hungarian authorities is reflected in the existence of a Department for Plant Protection and Agro-environment Management in the Ministry of Agriculture and Regional Development. The Department has two main divisions:

- The *Division for Plant Protection*, which deals with matters concerning the registration of pesticides and fertilizers, plant health regulations, plant protections regulation, quality control of inputs and safety control of outputs.
- The *Division for Agro-environment Management*, which is concerned with legislative and administrative matters regarding soil conservation, environmental aspects of agricultural production, water management, waste disposal, nature conservation and international co-operation.

Since 1976, The Plant Health and Soil Conservation Inspectorate has been attached to the Department, directed and supervised by it. Under the management of the Ministry, there are 19 plant health and soil units, one in each county, and one in Budapest.

The Hungarian government has recently adopted the “EU Integration Programme”, which includes the development and introduction of an Agri-Environmental Programme in Hungary. It also points out that “the environmental conditions of Hungarian agriculture show a more favourable picture than those in the developed European countries. In Hungary agriculture has played a smaller role in the degradation of the soil quality, pollution of the surface and subsurface waters, reduction of and damage to natural habitats in comparison with the countries with developed industries and industrialised agriculture” (Box 2).

Box 2. Hungarian Agri-Environmental Programme

Within the Hungarian Ministry of Agriculture and Rural Development, an agri-environmental EU harmonisation working group analysed the legislative framework of EU Regulation 2078/92 as well as EU member States' experience with its implementation. As a result, the Ministry took legislative and institutional steps to introduce the Hungarian Agri-Environmental Programme (AEP). In the first step, a land use zone study identified target areas for different agri-environmental schemes. Furthermore, a proposal for a future Hungarian AEP was elaborated.

The structure of the EAP is pyramidal. Its base is formed by several horizontal schemes that apply to all agricultural land. The schemes provide support for environmentally friendly production methods (reduced use of fertilizers and pesticides, environmental farm plans) and nature oriented land use systems targeted at quality food production. Horizontal measures combine environmental protection (soil, water) with nature conservation targets. Higher on the pyramid are area specific zone schemes that target high nature value areas. These schemes focus on nature conservation and landscape protection.

a) *Horizontal schemes:*

- Environmental Farm Plan Scheme (farmers and expert advisors drawing-up farm plans according to local farming conditions on fertilizer and pesticide use, crop rotation, anti-erosion measures, basic on-farm nature conservation) and related training programmes;
- Integrated Farm Management Scheme (use of integrated pest management, optimisation of input use);
- Organic Farming Scheme;
- Grassland Scheme (grassland management according to environmental guidelines);
- Wetland Scheme (maintenance and development of wetland areas).

b) *Zone (regional) schemes:*

Two types of scheme are proposed for selected areas: those supporting low-input, extensive farming systems; and schemes aimed at specific nature conservation objectives. The following measures are envisaged for the zone schemes:

- conversion of arable land to grassland;
- use of extensive farming methods;
- maintenance of endangered breeds;
- habitat restoration and development;
- landscape reconstruction measures;
- provision of favourable conditions for important bird species.

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In addition, the establishment of a training, demonstration and extension network is planned to improve the understanding, update and implementation of the schemes by farmers.

The elaboration of the AEP, including the designation of target area, was finalised by the end of 1998. For 1999, Hungary has obtained a grant of Euro one million (Ft 254 million = US\$1.15 million) through PHARE to address the following issues:

- development of institutional structures and procedures for AEP implementation;
- selection of pilot areas for testing different schemes; and
- preparations for the use of SAPARD funding for agri-environmental measures.

In 2000, certain schemes will be introduced financed by SAPARD funding, while institution building will continue. From 2001 onwards, the gradual enlargement of the AEP is envisaged, so that by EU accession the whole programme is operational.

a) *Organic farming*

Financial support for organic farming has been in place only since 1997. The Ministry provides support for costs linked to the transformation to organic farming. Around 30 per cent of support is given for the acquisition of appropriate production inputs; soil and seed analysis, and consulting. The farmer has to present a financial plan of the undertaking to receive 60 per cent of the grant. The remaining 40 per cent is paid only after the actual incurred costs are submitted. This system has been criticised as being too complicated.

Box 3. Organic farming in Hungary

- *BIOKULTURA* was the first organisation for organic agriculture in Central Eastern Europe. Registered in December 1987, it became a member of IFOAM in January 1987. Its foundation generated a positive reaction from the Ministry of Agriculture, which ordered a study on the production and marketing possibilities for the “eco” market. In 1992, *BIOKULTURA* was registered by the Ministry as a national certifying organisation.
- After the publication of EU Council regulation No. 2092/91 *on organic farming, certification of its products and food inputs*, the Hungarian Government — based on the competence of *BIOKULTURA* — has argued for the inclusion of Hungary on the list of third countries allowed to export their organic products to the EU market.
- In 1995, Hungary was among the first five countries whose production and control systems were in line with regulation 2092/91. However, the lack of a specific legal framework did not create a barrier for the implementation of organic production in Hungary, as the existing market law already provided a basis. Only the international responsibilities (Regulation 2092/91) forced the need of legislative action. The Ministry has formed a Commission, composed mainly of *BIOKULTURA* experts, which has started work on formulating the appropriate law.

b) Fertilizers

To contribute to the reasonable, environmentally aware and safe use of fertilizers, maximum tolerance limits for toxic element content were introduced in 1992, with the objective that only high-quality fertilizers and yield-increasing compounds are put on the market.

c) Pesticides

Plant protection products are classified into categories with respect to their toxicity (including environmental toxicity), and restrictions and prohibitions are laid down for the different categories.

d) Agricultural farming practices

A law on land tax, introduced in 1992, allows for a 50 per cent reduction on the land tax if a farmer adopts environmentally sustainable technology. The following activities are subsidised: liming of acid soils; sustainable nutrient management based on soil tests; increasing the proper use of manure and land use with appropriate soil conservation measures. The land tax regulation was suspended in 1994. From 1997 liming of acid soils and specific soil conservation measures have been subsidised up to 40 per cent of their costs.

5. Environmental measures affecting agriculture

The National Environmental Programme (based on Hungarian environmental protection and nature conservation acts) also addresses environmental problems caused by agriculture. The Programme adopted in 1997, was elaborated in accordance with the Act on Environmental Protection (1995). It is a sustainable development framework programme which will serve as basis for the development and implementation of concrete action plans. It sets out the basic objectives and formulates general policies for all key socio-economic sectors. A General Implementation Plan has also been prepared which already describes concrete guidelines for the fulfilment of the various elements of the Programme. The Programme contains a 6 years intervention plan, which is intended to resolve the current environmental problems, or start to resolve them and prevent future problems.

a) Joint actions of Ministries of Environment and Ministry of Agriculture and Regional Development

In implementing the means in The National Environmental Programme, the Ministry of Agriculture and Regional Development is engaged in 10 joint programmes with the Ministry of Environment, falling into three main categories:

- conservation of surface- and ground-water;
- conservation of agricultural soils;
- nature protection, biodiversity.

b) Waste management

The National Environmental Programme deals in a separate chapter with the different tasks of waste management. The strategic tasks in waste management puts stress on the “*elaboration of governing principles for waste utilisation concept and guidelines of implementation in case of characteristic wastes of certain industrial sectors*”. It also states the need to prepare action programmes for the fulfilment of this task. Another goal is the launching of a programme for the improvement of municipal waste management.

The new act on waste management, which is being developed at present, is intended to make up for the deficiency of uniform responsibilities and regulatory powers covering all waste. The Ministry of Agriculture and Regional Development participates in the public administration of waste and sewage sludge management.

c) Land protection and soil conservation

The 1994 Land Act (Chapter VI) deals with soil protection, defined as protection of the fertility and quantity of arable land. It sets the responsibilities of the State and Land User in this field. The Land User “. . . shall adjust itself to the ecological features of the land and pursue such land protecting type (...) which takes also into consideration the requirements of nature protection, environmental protection, water protection, public hygiene and veterinary requirements defined in separate legal acts”. The Act also imposes on the land user the requirement to protect it from erosion and acidification.

The implementation of the Act is being supervised by the Soil Protection Authority. In case of infringement of soil protection obligations and requirements, the Soil Protection Authority imposes a soil protection fine against the land user, or other persons causing damage.

d) Biodiversity

The main legal instrument for protecting wildlife sites is to designate areas as nature reserves. This type of protection depends on the voluntary co-operation of landowners because the state owns only 10 per cent of the reserve areas and has few funds available to purchase more land.

6. Conclusions

The natural environment in Hungary has been shaped by centuries of farming activities, combining positive and negative effects on the environment. However in the past decades, under the centrally planned economy, the farming practices linked with enforced collectivisation and large-scale farming practices (both in crop and livestock production) were rather harmful to the environment.

The environmental degradation caused by the use of intensification inputs (industrial fertilizers and pesticides) is generally lower than in most European OECD countries. It has even diminished with the transition to a market economy, due to the falling use of these inputs as a result of worsening output/input ratios for agriculture. However, environmental risks may increase as the agricultural sector productivity improves, leading to higher output. This potential negative effect may be stimulated by agricultural policies stimulating production and input use.

In the perspective of future EU membership, Hungary recently adopted an integration programme, which includes the development and introduction of an Agri-Environmental Programme (AEP) in Hungary. The schemes developed in the AEP are intended to provide support for environmentally friendly production methods (reduced use of fertilizers and pesticides, environmental farm plans) and nature oriented land use systems targeted at quality food production. Horizontal measures combine environmental protection (soil, water) with nature conservation targets. Schemes focusing on nature conservation and landscape protection are designed for specific high nature value areas.

AGRI-ENVIRONMENTAL SITUATION — POLAND

1. The state of Polish agriculture

Despite a drop in the share of agriculture in the GDP, the sector continues to play an important role in Polish economy. In 1996, the share of agriculture in the GDP was about 6 per cent, compared to 8 per cent in 1989. Over the same period of time, agricultural employment remained unchanged around 25 per cent of total employment. More than 90 per cent of the country is located in rural areas and agricultural land accounts for 60 per cent of total area. In 1996, 38 per cent of the total population lived in rural areas, a share virtually unchanged since 1989. The rate of unemployment tends to be higher in the rural areas — in 1995, 42 per cent of the total unemployed lived in rural areas.

Ownership changes have further increased the proportion of private farms. Contrary to many other centrally planned economies in Central and Eastern Europe, Poland has kept most of its agricultural land in private ownership and privately managed by small individual farms. The total number of these farms has fallen by more than 120 000 since 1989, to reach some 2 million at the end of 1997. Very small individual farms occupy 75 per cent of total agricultural land. The Agricultural Property Agency of the State Treasury, created in 1992, was given the responsibility for the administration, restructuring and privatisation of the state's agricultural property, which accounted for 19 per cent of the total agricultural area (mainly by large-scale state farms). The Agency manages assets mainly through sales and leases. Up to the beginning of 1996 the Agency sold only 6 per cent of agricultural land, and leased 76 per cent of the area under its administration. By the end of 1997, about 9 per cent of the administered land had been given back to the Agency, after the expiring of the lease term, which illustrates that leasing land for farming is less attractive under current economic and legal conditions.

The most salient feature of the structure of the Polish agriculture is its fragmentation. In 1996, the average size of a private holding was 8 ha, compared to 7 ha in 1989. The biggest share of small farms (over 80 per cent of all holdings do not exceed 5 ha), is in the eastern and southern "voivodships" (administrative regions), while state farms (half of which have more than 1 000 ha) prevail in the northern and western parts of the country. The share of farms smaller than 2 ha has increased since 1990 from 18 to 21 per cent, and the share of farms larger than 15 ha rose from 6 to 8 per cent over the same period.

There is a great disparity between the number of people living in agricultural areas, and those actively employed in agriculture. Only 23 per cent of people living on private farms earn all their income from working on their own farm. However, this varies widely according to the farm size as 82 per cent of the rural holdings below 3 ha rely on non-farming incomes, while this share is only 20 per cent in the case of holdings over 15 ha.

The majority of small individual farms operate at near-subsistence level, employing mostly traditional and extensive methods of production. Livestock production represents more than 60 per cent of agricultural output. The density of animals on agricultural land diminished considerably from 54 cattle and 22 sheep per 100 hectares in 1990, to 39 and 3 respectively in 1996. Crop production is characterised by yields (the average yield of grains is 2.9 tonnes per hectare) which are low compared not only with EU

but also with some other Central European countries (Hungary, Czech Republic, Slovakia). Yields for oilseeds are currently 1.9 tonnes per ha; 20 tonnes/ha for potatoes, and 39 tonnes/ha for sugar beet. The fall in production was in large part due to the transition to a market economy but also the result of breaking up the traditional eastern markets.

Assistance to agriculture declined sharply with the radical move towards market economy, and increased later with the introduction of border measures and market price support. The effects of the economic liberalisation reform initiated in 1989, reinforced by the Balcerowicz Programme (1990), were reflected in negative PSE values in the years immediately following (i.e. the farmers were implicitly taxed, as domestic prices were lower than world market prices). With border measures and new market support mechanism in place, support to agriculture as measured by the PSE has tended to increase up to 1996, especially market price support (MPS). After a decline of about 10 per cent in 1997, the total PSE increased by about 17 per cent in 1998, mainly due to a greater decline in world prices than in producer prices for grain and milk. In 1998, support to producers, as measured by the percentage PSE, increased by 4 percentage points to 25 per cent, which is below the OECD average.

2. Agriculture and the environment

Agricultural activity in Poland for many decades was not the main source of pollution of agricultural areas. The main contamination of land and food was mainly caused by ageing, inefficient, and polluting heavy industry. Unlike many Western European countries, Poland has developed intensive agriculture only in some regions, mostly where state farms dominated. The idea prevailed that agriculture is a set of ecosystems with the ability to sustain itself. That concept may be relevant to small individual farms using low levels of industrial inputs, but to a lesser extent applicable to large-scale state farms. As underlined in the OECD report, *Environmental Performance Review of Poland* (1995), 11 per cent of Polish territory has been considered to be “severely environmentally threatened”, but 27 per cent was in natural or close to its natural state. Overall, in Poland the harmful pressures on the environment from human activities were estimated to be lower than in other OECD countries.

Agricultural areas have been polluted mainly by other sectors. The pollution risks are still considerable, although improvement has occurred following the overall trends in the state of environment in Poland. Several measures have been taken to improve the environmental performance of the energy and industry sectors. Consequently, there was a reduction of emission of Sulphur Dioxide, particles and dust. These steps allowed the reduction of acid rains, dust, particles and heavy metals disposition, improving considerably the quality of arable soils and planting conditions. Water quality for agricultural purposes has also improved, due to important investments in industry and municipalities. However, the problem of rational waste management (including illegal dumping), droughts caused by climate changes, lower than usual rain-fall, lack of snow-cover and lowering of the ground-water level continue to negatively affect agriculture.

The landscape in Poland reflects to a large extent centuries of farming practice. According to the ECONET data (European network of the high nature value areas), 8.7 per cent of Polish agricultural land is located in the areas of key importance according to international criteria, with a further 2 per cent in so called “corridors” (areas which allow for the maintenance of the biodiversity through migration of species). Including the areas of national importance, these shares would be higher, 19.7 and 5 per cent respectively. Although these figures are rough estimates, they give an indication of the high natural values of Polish agricultural land. As agriculture uses nearly 60 per cent of the total area, many landscapes have been formed by farming activity, and a large part of wildlife is linked to agricultural practice.

Box 4. The Green Lungs of Poland

“The Green Lungs of Poland” (GLP) programme is promoting sustainable development principles on an area covering over 60 000 square kilometres (that is, an area larger than Denmark or Switzerland), protecting the exceptional values of the natural environment in north-eastern Poland.

The main points of the GLP’s programme are as follows:

1. to designate this area of Poland as a separate unit within a spatial management plan;
2. to define the appropriate technical, social and economic conditions that would stop environmental degradation and contribute to the purification of the region’s soil, air and water;
3. to reduce industrial and agricultural sources of pollution;
4. to promote production of clean and healthy agricultural produce, capitalising on the unspoiled environment;
5. to develop eco-tourism;
6. to protect and manage water resources;
7. to protect and develop forest areas.

In the years immediately following the economic transition, environmental risks from agriculture fell. This does not however mean that risks do not exist. Due to a deterioration of the terms of trade for Polish farmers the use of fertilizers and pesticides fell, decreasing the risk of soil and water pollution. However, many problems still exist, linked mostly to inappropriate agricultural practice, and to an often careless approach of Polish farmers, lacking appropriate education, training and advice.

Monitoring of the environmental performance of agriculture in Poland is not well developed. The State Environmental Monitoring Network monitors agriculture and all other sectors of the economy. However, there is no recognition of the specificity of each sector. In the case of agriculture, pollution sources are scattered, and relatively small (when compared to factory or municipality pollution), and therefore difficult to detect. Some work has been carried over in order to improve the estimates, particularly of the surface and sub-surface run-off and infiltration of pollutants contaminating water.

3. Influence of agriculture on the environment (agri-environmental indicators)

a) Nutrient use

The use of chemical fertilizers in Poland has never been high (compared to European levels), and has dropped even further during the years following the economic transition, reflecting the worsening financial situation of Polish farmers, combined with the deterioration of output/input ratios, the collapse of the state support system, and the elimination of input subsidies. The OECD net nitrogen balance calculation for Poland fell sharply from 66 kg per hectare of total agricultural land in 1989, to 16 kg in 1996 (Annex Figure 2).

The use of industrial fertilizers dropped from 164 kg per hectare of arable land in 1989, to 85 kg in 1996. However, the numbers vary significantly from region to region. Traditionally state farms used twice as much fertilizer as private individual farms. More intensive use of fertilizers was usually coupled with higher yields of crops, although this relationship is not clear-cut, with other factors (soil, climate)

playing an important role. The decrease was also not evenly spread throughout the country, with the former state farms being the most affected. Research conducted on private farms larger than 10 ha, shows that the use of industrial fertilizers was significantly higher than the statistical average (185 kg of pure ingredient of fertilizer per hectare).

b) Pesticide use

The use of pesticides was affected by the same factors as fertilizers. The drop in pesticide use however was not as pronounced as for fertilizers, as it was already very small in the pre-transition period. Pesticide use decreased from 20 620 tonnes of active ingredient in 1989, to 8 535 tonnes in 1996 (Annex Figure 3).

c) Water use and water quality

Polish water resources are small, coupled with intensive water use. The water availability per capita is one of the lowest among the OECD countries and the water balance is worsening. Within the last 30 years, the level of groundwater has fallen by 2 metres on average. This has been caused by climate changes (so called hydrological droughts) resulting in the low snow cover in winter seasons and heavy intensive rain-falls causing damaging surface run-off and floods, but not recharging aquifers. Another reason was inappropriate drainage. It is estimated that nearly 30 to 45 per cent of wells do not satisfy fully the needs of their users. Large areas of farmland are suffering from lowering ground-water levels, and too small retention capacities.

Agriculture and households on farms are the biggest polluters of groundwater. In 1996 agriculture used 9 per cent of the amount of total water used, compared to 12 per cent in 1990. Most Polish water resources are located in farmed areas, making them more vulnerable to pollution from agricultural activities arising from nutrient leaching (both artificial and organic fertilizers), poor on-farm sanitation infrastructure (both nitrates and bacterial pollution), leading to non-point pollution of surface waters and groundwater.

Individual rural households are the biggest pollutants. This is mostly due to the very poor state of the sewage infrastructure. Most rural households dispose sewage directly on the ground. According to the 1996 Agricultural Census, over 49 per cent of individual farms are provided for by public water supply systems, but only 4 per cent of disposals of sewage are linked to the system, and 74 per cent of total sewage from individual farm holdings remains untreated.

Water pollution caused by the use of fertilizers. According to the Central Statistical Office data, water in 66 per cent of house wells has concentrations of nitrogen compounds above the safety level. The worst situation is observed in the central *voivodships* (about 85 per cent) and in southern Poland (83 per cent). The loss of nitrogen not consumed by plants is estimated to be about 20 kg/ha per year. According to the Ministry of Environmental Protection estimates, the yearly inflows of nitrogen to the Baltic Sea represent about 200 000 tonnes, of which around 60 per cent is of agricultural origin (6 kg per hectare). The rest (about 14 kg/ha per year) contaminates surface and groundwater. This unfavourable situation is mostly due to bad agricultural practice.

Water contamination is also caused by organic fertilizers, mainly due to inappropriate storage of manure slurry and other animal waste, as well as the lack of sewage disposal infrastructure. Not only large-scale animal farms, but also many small farms in Poland do not possess appropriate systems for the disposal of manure. The arable land cannot absorb it fully and residues leak into the water. In some cases, manure is drained off directly into the water system.

Water pollution caused by the use of pesticides. Although the use of pesticides in Poland is much lower than in most OECD countries, the backward technology used for the storage and application of pesticides creates significant environmental risks. Moreover, large quantities of pesticides are beyond their “use by” date, remain without appropriate protection and packaging, and are stored inadequately.

d) *Agricultural land use and soil quality*

Poland has a relatively large area of agricultural land, but its quality is generally low. There is on average 0.5 ha of arable land per head, which is high in relation to other European countries. However, the quality of the land is not very high, coupled with unfavourable climate conditions. As a result, the production capacity of Polish land is comparatively low. The overall amount of arable land has been diminishing steadily (by about 30 000 ha a year), due to urbanisation, and its worsening condition (lower humus and micro-elements content, increasing acidity).

Polish soils are not very polluted. In 1995 Poland started a monitoring of the quality of soils, plants as well as farms products under a concept approved by the Ministry of Agriculture and Food Economy.² Monitoring tests of quality of soils, plants, agricultural production and food show that the average weekly diet of Polish population contains 20-40 per cent of the allowed norm of contaminants, and that the production environment of agriculture and food products are generally free from contaminants and pollutants — over 90 per cent of soils are not polluted with heavy metals. Less than 2 per cent of soils have been declared contaminated. Soils in Poland are polluted mainly by industry (heavy metals), not by agriculture.

Land abandonment can increase the vulnerability of soils to erosion. The poor quality of soils in Poland indicates that there is generally insufficient use of organic fertilizers. The collapse of state farms and changes in profitability of production contributed further to land abandonment. About 10 per cent of Polish agricultural land is exposed to medium and heavy soil erosion.

e) *Agricultural greenhouse gases*

The contribution of Polish agriculture to total gross emissions of the main greenhouse gases in 1994 was 5.2 per cent. As compared to the 1990-1992 period, a drop of over 18 per cent in gross emissions has occurred. Over the same period, the OECD average has declined by less than 1 per cent. This decrease is mostly due to the fall in livestock numbers, following the change in agricultural policies.

f) *Biodiversity, wildlife habitats, landscape*

Most landscapes in Poland have been formed by farming activity and a large part of wildlife is linked to agricultural practice. The high nature value of Polish farmland is, however, threatened by water pollution, abandonment of good farming practices, intensification of agricultural production, soil erosion, and worsening water conditions. The list of species endangered by agricultural activities has not yet been compiled.

² The co-ordination of monitoring of tests is in the hands of the State Inspection Office for Agricultural Produce, Purchase and Processing (PISiPAR), where a Monitoring Department was created in 1995. In a parallel development, the Minister of Agriculture and Food Economy appointed a Scientific and Programme Monitoring Board, comprising representatives of various departments of the Agriculture Ministry, scientific research institutes, the Environmental Protection Inspection Board, and other organisations involved in studying the state of the natural environment and food quality.

4. Agri-environmental policy, objectives and measures

Agri-environmental policies and measures are not high on the policy agenda in Poland. This is mostly due to the fact that the main environmental problems in Poland, which also affect agriculture, were caused by heavy industry (mining, metallurgy), outdated technologies (chemicals, energy), and ageing industry in big urban and industrial agglomerations (especially in Upper Silesia).

However, increasingly more attention is being given to agri-environmental issues. In 1992, the National Fund for Environmental Protection and Food Economy commissioned a study entitled "The Pro-Ecological Orientation of Polish Agricultural Policy at the end of the 20th Century". The study, published in July 1993, underlines the elements which should be included in a coherent agri-environmental policy in Poland. The study stressed the insufficiency of the existing legal framework, and the need of widening Polish agricultural policy with inclusion of the following objectives:

- Assuring supplies of ecologically safe food (low contamination by heavy metals, pesticides, nitrates, nitrites, radioactive elements etc.).
- Protection of agricultural ecosystems (threatened by excessive acidulation, drying, and contamination of soils; contamination of water used in agriculture; declining biodiversity and wildlife).
- Assuring ecological safety for the rural population (threatened by lack of legal procedure for the treatment of old pesticides; possibility of infection with animal diseases; lack of technical infrastructure in rural holdings for sewage treatment).
- Protecting agriculture from ecological downgrading of the environment by non-agricultural sectors of the Polish economy.

Poland still does not have a coherent agri-environmental policy. Risks to the environment arising from agriculture have been mentioned within the framework of the document "The Outlines of Socio-Economic Policies for the Polish Countryside, Agriculture and Food Processing industry until the year 2000".

The necessity to integrate environmental aspects into agricultural policies and measures is recognised. The above mentioned document was formulated by the Ministry of Agriculture and Food Economy in December 1994 and states that the protection of agricultural production area, and the improvement in the quality of the foodstuffs produced will require within the next few years an integration of agricultural policy, with environmental protection goals.

The policy statement *Environmental Protection Policy of the Country*, 1991, as well as international agreements signed by Poland, commit the Polish agricultural and food economy to limit agricultural contamination sources. For the fulfilment of this task, it is agreed to take the following actions:

- Protecting agriculture from environmental degradation caused by other branches of the economy. That should especially involve: working out of a code of specific regulations for the use of highly contaminated agriculture areas (e.g. in Upper Silesia); withdrawal of contaminated soils from agricultural production, and the provision of an appropriate legal framework in order to assure protection from contamination of the arable land.

- Removal of the effects of soil acidity, through appropriate liming.
- Neutralisation of old pesticides and their packaging, which will require setting up of a specific programme.
- Carrying out investments in rural infrastructure, giving priority to the speeding up of the development of: countryside sewage collection systems; waste-water treatment; waste disposal.
- Bringing into general use programmes for the improvement of drinking water in rural holdings.
- afforestation of border areas of agricultural territories (in total around 230 000 ha), and the development of agro-forest holdings.

Creation and development of organic farming is an important direction in agricultural production, aimed at the raising the quality of agricultural production and encouraging the positive effects of agriculture on the environment. The government is developing rules for the functioning of organic farming in Poland. In order to achieve this goal, the following actions are being considered:

- adjusting the Polish organisational and legal framework to the EU directives and regulations in the field of organic farming (e.g. attestation of laboratories, certification);
- creating a financial support system for rural holdings that switch to organic farming;
- providing support for the promotion and distribution of products from organic farming.

However, organic farming can be one of the solutions to develop agriculture, as a market oriented sector, with potentially positive environmental effects but should not address some other sensitive issues. The development of specific organic farming depends directly on the market for “healthy” organic food and products. The market driving-forces can be developed through the education of consumers on the one hand and economic measures on the other. However, this issue cannot resolve the outstanding economic and social problems, and also the lack of competitiveness in foreign markets.

The potential for “healthy food” production remains high in Poland. Agricultural production in a clean environment, and non-polluting agriculture are regarded in Poland as important mostly because it is estimated that Poland has a comparative advantage in “healthy food” production and trade on foreign markets. This may be significant in the light of accession to the European Union. Therefore, agri-environmental measures are being designed at first for the areas related to environmentally sound agricultural production. However, even in this aspect, the process seems to be rather slow. The following measures have been recently adopted:

- “The Implementation of Standards for Production, Processing, Trade of Ecological Agricultural Products and Food, and the System of Attestation of Eco-farms and Food

Processing Companies”.³ The main goal is to develop concrete proposals of legal regulations for standards and certifications in the field of ecological farming, to conform to the EC Regulation (2092/91 of 24 June 1991), concerning ecological farming and the labelling of its products. Within the project, the following elements have to be established:⁴

- national standards for plant production in ecological farms and the food processing industry;
 - certification system;
 - procedures to receive permits for selling Polish ecological food on the EU market;
 - computerised system for collecting data on ecological farming.
- Preferential credits for the purchase of production inputs for ecological farming, and for switching to ecological farming.

Box 5. Organic farming in Poland

Farmers producing in accordance with ecological methods are members of EKOLAND, an organisation founded by Professor Mieczyslaw Gorny of the Higher School of Rural Economy in Warsaw. EKOLAND was established in 1989, as a member of the International Federation of Ecological Farming (IFOAM). IFOAM aims to define international principles of ecological food production, processing and trade. At present, the Polish Society of Ecological Farming (PTRE) operates alongside EKOLAND. Based on general IFOAM guidelines, these two organisations have worked out their own production standards, and introduced a system of control and certification of ecological farms which have the right to use registered EKOLAND and PTRE trademarks.

The organisation groups more than 200 farms, with a total arable area of 3 540 ha, compared to the total number of 2 million private farms in Poland. Moreover, recently this number has fallen — 30 farms have withdrawn from the programme, leaving under 0.1 per cent of total arable area in ecological production.

The reasons for the low interest among farmers to switch to ecological farming is mainly due to:

1. **Lack of a legal framework**, defining the sector, the concept of ecological food, and agreed and established eco-labelling. Because of this, the sector is not subject to state support. Without legal bases, ecological farming will have no chance to exist on the market — “pseudo”-ecological products would create misunderstandings in the market, and as a result of this, the demand would fall. When Poland enters the EU, it will have to adopt the EU *acquis* in the field of ecological farming. Research in this field has been carried out, and a group of experts has established: appropriate standards of production in eco-farms; outlines the implementation of certification systems; and ways to obtain a permission for selling eco-food on the Single European Market.
2. **Low incomes of the population**, which is often not ready to pay a higher price for “ecologically safe” products.
3. **Slowly developing export market**: the production is scattered, which makes it difficult to prepare adequate export packages. This also causes a weaker competitive position in relation to the Czech Republic and Hungary.

³ The study was commissioned by the Polish Ministry for Agriculture. It was executed by the Agri-Ecological Consulting Bureau ROL-EKO in December 1996. The project was financed from the EU PHARE fund.

⁴ It should be noted that these are only temporary measures, as at the moment of joining the EU, Poland will have to adopt the total “*acquis communautaire*”, and within this, the acts concerning ecological farming. So far, the proposal has not become a legal act.

The Polish Council of Ministers approved a “Medium-term Strategy for Agriculture and Rural Areas” in April 1998. Environmental protection is not explicitly targeted in the agenda. The strategy focuses mainly on the need to resolve severe economic and social problems in rural areas, particularly in the light of future membership in the European Union. Ways of improving the sector’s national and international competitiveness is the priority issue addressed by the strategy. However, some environmental measures have also been included, such as the rational use of fertilizers and pesticides, land management, afforestation of soils, and sanitation in rural areas.

The process of European integration should support the adoption of agri-environmental measures in Poland. Due to the necessity to comply with the environmental and agricultural *acquis* of the European Union the process of development of agri-environmental measures should be accelerated. In the pre-accession process Poland may finance these activities using some of the EU financial and technical assistance (e.g. PHARE, SAPARD).

5. Environmental measures affecting agriculture

Payments for the use of the environment were the basic measure used in Poland over many decades to compensate for the environmental losses caused by industry and other anthropogenic activities. Initially the payments were restricted to the use of water and sewage disposal, but since 1980, payments have been extended to air pollution and litter dumping. The system was designed to comply with the “Polluter-Pays-Principle”. The money raised by the system was intended to be used for the amelioration of the environment. In practice however, the system has proven to be inefficient, as these “end of pipe” measures are considered to be less effective than preventive and incentive methods.

The instruments of the “National Environmental Policy” are applicable to the agriculture, including “polluter-pays principle”; however, their real impact is limited by the nature of this sector. Agriculture is subject to the same administrative, legal and economic instruments in environmental protection as any other economic sector. However, due to the relatively small individual consumption of resources and emission of pollutants, individual farmer’s effects on the environment remain undetectable. Thus the majority of farmers remain outside the tight instrumentation of environmental policy. The development of new economic instruments like “greening” the tax system, environmental fees for fuels, stringent water metering and pricing have recently been undertaken in Poland. These may contribute to extend the “polluter-pays principle” to the dispersed, small individual polluters, including farmers.

Certain elements and instruments of the current country environmental policy address agriculture directly or indirectly. The “National Environmental Policy of Poland” (NEP), adopted in 1991, is based on sustainable development principles as defined in the “Brundtland Report”, and the UN Agenda 21. The NEP refers to major economic sectors having harmful impact on environment (such as energy, industry and transportation). It also deals with the major natural resources such as water, forestry, minerals, landscape and living natural resources. Currently the NEP concept does not provide direct references and recommendations to other economic sectors affecting the environment such as agriculture and food production, tourism, fisheries, and housing. However, most of the legal, economic and administrative instruments of the NEP can be adopted to agriculture to improve its environmental performance. Moreover, the NEP provides certain recommendations, closely related to agriculture and food production, i.e.:

- conservation of cultivated soils;
- improvement of food crop quality;

- reduction and elimination of negative impacts of farming on the environment;
- abatement of the soil degradation process including biological, physical and chemical characteristics of soil, surface erosion, salinity, land groundwater lowering;
- rational land management and physical planning, particularly regarding highly productive land;
- conservation of surface and groundwater resources, including afforestation, changes in land cover, development of small reservoirs;
- encouragement of bio-dynamic and organic farming systems and production of “healthy food”;
- reclamation of land degraded by industrial and military activities.

Environmental funds can support environmental activities in rural areas. Agriculture has the same access to support from the environmental funds as other sectors provided that applications meet the fund’s priorities and the projects are properly prepared. So far, the majority of financial support from environmental funds has been directed to the projects related to the sanitation of villages and farms (water supply systems, sewage systems, waste-water treatment plants), improvement of the quality and quantity of water supplied for food production, afforestation, soil reclamation, and environmental and agri-environmental education.

The legal framework in Poland related to the reduction of environmental risk arising from agriculture seems to be insufficient. While the environmental regulations protecting the environment and particularly arable areas and food production from industrial and municipal sources are well developed and consequently enforced, there is a common feeling of the lack of specific provisions related to agriculture as the polluter, particularly of both surface- and ground-water resources. As pollution from farms is difficult to monitor, individual farms are not subject to the “polluter-pays principle” and consequent fees and fines scheme. Any attempt to introduce payments on polluting farms and introduce the necessary changes has been neglected due to tradition, political and social reasons. Some provisions in the new *Act on Wastes*, the draft amended *Act on Water Law* and the new framework *Act on Environmental Protection* are related to the pollution generated in agriculture, particularly regarding hazardous waste management, water supply and waste-water point discharge. Until special fees included in the price of fertilizers and pesticides and their packing are introduced any specific environmental administrative or economic measure will have no chance to be realistically implemented. The main legal acts setting the environmental regulation (although not specifically for agriculture) are presented in Box 6.

Box 6. Main legal acts for the environmental regulation for agriculture

Act on Environmental Protection and Management (30 January 1980, as amended to 1997). This Act has been crucial for environmental protection in Poland since its adoption by the Parliament. This Act regulates the general relationship between humans and the nature and introduces the common obligation to protect an environment by any legal and natural person. This Act establishes the rules and targets for the major areas of environmental protection, such as emission to the atmosphere, noise and vibrations, non-ionising radiation, and protection of soils and green cover. This Act regulates the management structure, public rights to participate, responsibilities of users and polluters, the Environmental Impact Assessment scheme, and establishes the fees and fines scheme and environmental funds structure.

Act on the State Inspectorate for Environmental Protection (20 July 1991 as amended). This Act has established the scheme of environmental law enforcement at national, regional and local levels, the State Environmental Monitoring System and reporting scheme, inspection schedule and rights, environmental emergency prevention and mitigation structure.

Act on Water Law (24 October 1974 as amended). This Act regulates water use and waste-water discharges. It further establishes the fees and fines system for consumers and permit system, and also regulates the rules and standards for hydrotechnical constructions and their safe maintenance. The Act identifies three areas of water consumption, depending on the type and scale of use of water resources and effects of consumers on water quality due to waste-water discharge. Farmers are subject to a special (much lower) payment schedule, when using water for irrigation and food production purposes.

Act on Waste (27 June 1997). This Act regulates the management of all types of waste, depending on its type and production source. The Act classifies waste into two groups: hazardous and non-hazardous, sets the specific responsibilities for waste producers, types and ways of recycling, methods of safe utilisation and dumping. Among the executive ordinances having been issued by Minister of Environmental Protection, Natural Resources and Forestry, the Minister of Economy and the Minister of Finance the most important are these promoting cleaner production and recycling, and regulating the cross-border traffic of waste. This Act also introduces extended producer responsibility for used products and packing particularly in the case of hazardous waste. For farmers, the most important provisions are those related to the safe use and removal of chemical fertilizers, pesticides, detergents and their packing.

Act on Nature Conservation (16 October 1991 as amended). This Act regulates the management of living natural resources, including wildlife, landscape, natural heritage and biological diversity. The Act does not refer specifically to the agricultural activities. However, its provision may be used to support environmentally sound farming when necessary. The provisions on protection of eco-systems can be used to negate effects of intensive, chemical-based agricultural practices and deforestation.

Act on Protection of Agricultural and Forest Soils (3 February 1995). This Act sets regulations protecting soils against degradation and devastation caused by non-agricultural activities, and regulates the use of soils suitable for agricultural activities and afforestation for non-agricultural purposes.

Act on Plant Protection (25 August 1997). This Act aims to protect human health and life as well as the wildlife against the hazards arising from the inappropriate use of chemicals (fertilizers and pesticides) in the farming practices. The Act specifies the structures and procedures to certify the safety of products. It does not include provisions promoting organic food productions and eco-farms.

Act on Health Conditions for Food and Feeding. This Act regulates the use of chemicals for production, protection, storage and transport of food. It establishes the standards for chemicals content and maintenance as well as the system for their inspection and, where necessary, punishment by law.

6. Conclusions

The mid-term strategy for the development of agriculture in Poland is mainly focused on structural improvements leading to higher efficiency. The environmental issues are not specifically highlighted in the developed strategy due to a common need to address first the severe economic and social problems in the rural areas. However, some measures addressing environmental problems and sustainable development in agriculture have been already applied (e.g. legislation regulating the use of fertilizers and pesticides, land management, water use; afforestation of agricultural land).

The legal framework related to the reduction of environmental risk arising from agriculture seems to be insufficient. While the environmental regulations protecting environment — including agricultural land and food production — from industrial and municipal pollution are well developed and enforced, there is a common feeling of the lack of provision related to agriculture as the polluter. According to Polish policy makers the only efficient way to tackle the issue is the introduction of specific taxes on inputs such as fertilizers and pesticides. The side effect of this measure is the higher price of inputs and reduced competitiveness.

Specific agri-environmental policy measures are not applied yet. However, the country is in the process of setting legal and institutional framework adjusted to EU legislation and in the medium term it is supposed to apply CAP type policies including the agri-environmental measures.

DEVELOPMENTS IN THE CZECH REPUBLIC, HUNGARY, AND POLAND IN THE AGRI-ENVIRONMENTAL AREA, WITH THE VIEW TO JOINING THE EUROPEAN UNION

The European Union's legislation in the field of environment and agriculture provides a blueprint for appropriate legislative changes in all three countries. Integration with the European Union is the main goal of foreign policy in both countries. If it is to be achieved, they will have to adopt the whole body of European legislation (*acquis communautaire*), unless otherwise decided in the course of accession negotiations. It can be therefore assumed that this will stimulate Czech, Hungarian and Polish authorities to move towards adopting EU environmental legislation, and agri-environmental scheme which is a part of the Common Agricultural Policy.

The European Union and the applicant countries have been working for many years on the establishment of a framework for legal harmonisation, including environmental and agricultural legislation. The relationship between the Czech Republic, Hungary, and Poland, and the EU is based on European Agreements. Certain articles of the European Agreement regulating different sectors — such as agriculture — contain environmental objectives, apart from the fact that Article 79 already deals with the issue of environmental protection.

At the EU Summit in Cannes (1995) the "White Paper" was submitted to the Associated Countries, containing pre-accession strategy requirements including a special paper devoted to environmental regulation of the Internal Market. Integration with the EU covers three areas in the field of environmental protection: approximation of environmental policy; approximation of environmental regulation including legislation harmonisation; and institutional strengthening to reach environmental policy goals.

The Opinion ("Avis") of the European Commission on the applications for membership to the European Union, issued as a part of the Agenda 2000 package, assesses the capacity of applicant countries to adopt the obligations of membership (in the form of the *acquis communautaire* of the Union, as expressed in the Treaty, the secondary legislation, and the policies of the Union). During the work related to the answer by the applicant countries to the EU questionnaire (on the basis of which the Commission's opinion was developed), it became evident that the adaptation, enforcement and control of the of 250 environmental directives, will require significant efforts.

- In relation to agriculture, the Commission stated that Hungary as well as the Czech Republic need to align further to European legislation, particularly in phytosanitary and veterinary issues. Providing this is done, accession in the medium term should not be accompanied by significant problems in applying the CAP in an appropriate manner. In Poland, important efforts of alignment are still necessary, but accession in medium term is also envisaged.
- In the evaluation of the environmental situation in Hungary, the Commission drew attention to the issue of water quality, closely linked to agricultural activities and exacerbated by the lack of waste-treatment plants in many settlements. This is conceived to be the main problem

and requires major investment. Given current trends and plans, complete adoption of the environmental legislation can be achieved in Hungary in the medium term. However, effective compliance with some of the legislation requiring a substantial high level of investment and considerable administrative effort (e.g. urban waste, water treatment, drinking water, aspects of waste management and pollution legislation) could be achieved only in the long- to very long-term. In Poland and the Czech Republic it is also expected that in the medium term, complete adoption of the environmental legislation, except for some legislation on urban waste treatment, drinking water, aspects of waste management and air pollution, is possible.

The Accession Partnerships name the priority areas, and set up the financial framework for the preparation for membership. The purpose of Accession Partnerships is to set up in a single framework the priority areas for further work identified in the Commission's opinion, and link them to the financial means available to help applicant countries to implement these priorities. Since 1998, assistance from the PHARE programme (financial aid for the EU associated countries) will be focused on the adoption of the *acquis* in the priority areas identified. Accession Partnerships also define the conditions which will apply to that assistance.

- In Hungary and the Czech Republic, the environment has been identified among short-term priorities, and agriculture among medium-term priorities. The Commission has stressed the environmental aspects of agriculture and biodiversity.
- In Poland, both agriculture and the environment have been identified as short-term priorities. In tasks to be accomplished in the medium term, stress has been put on the environmental aspects of agriculture and biodiversity.

The major issue for the Czech Republic, Hungary and Poland in the field of agri-environmental policy, is the adoption of the 2078/92 EEC regulation. European agri-environmental regulation (Council Regulation 2078/92) was introduced as a so-called "accompanying measure" within the framework of the 1992 CAP reform. Its aim is to grant aid to farmers for the introduction or maintenance of production techniques, which encourage the protection of the environment, the landscape and natural resources. Farmers can apply for payment or compensation if they employ the following measures:

- reduce their use of fertilizers and pesticides; maintain reductions already made; introduce or continue with organic farming methods;
- adopt more extensive production methods or convert arable land into grassland;
- reduce livestock densities;
- use other farming practices compatible with the requirements of the protection of the environment and natural resources;
- ensure the upkeep of abandoned farmlands or woodlands;

- set aside land for at least 20 years with a view to use it for purposes connected with the environment;
- manage land for public access and leisure activities.

The Czech Republic is currently developing an agri-environmental policy, based on the 2078/92 EEC Regulation. The legal base for its development is provided by the 1997 Agricultural Law; a government decree specifying programmes for the support of non-production functions of agriculture and the Law on Organic Agriculture, is currently under preparation. In February 1999, a set of programmes will be identified, accompanied by a timetable for implementation. The agri-environmental policy will be targeted to the following goals:

- erosion prevention;
- valuable habitats preservation;
- water quality improvement;
- support for organic (alternative) agriculture.

Currently, three projects are being developed in the Czech Republic: an Environmentally Sensitive Areas Programme, Programme for Water Protection (within the framework of the Nitrate directive), and Codes of Good farming Practice.

The Hungarian authorities have adopted necessary measures within the framework of the 1997 Environmental Programme. In the medium-term plans of the Environmental Programme the following areas have been given priority as far as regulation procedures and payments for the agri-environment policy means are concerned:

Programmes (policy measures):

- minimisation of environmental risk of chemical fertilizer and pesticide application;
- propagation of ecological farming;
- propagation of extensive plant and animal production;
- land use reform (cropland to grass land conversion, afforestation);
- environmental, nature and landscape protection measures.

For the adoption of the 2078/92 EEC regulation, an Agri-Environmental Programme is being developed in the Hungarian Ministry of Agriculture and Regional Development. The Programme is being developed on three levels: national, regional and local. The common part for all three levels is a

farm environmental management plan. It deals with fertilizers and pesticide use, crop rotation, farm wastes and the maintenance of agri-environmental records.

- At the national level, further schemes will be applied, targeting production, organic agriculture and handling of endangered species.
- At the regional level, schemes will be developed aiming at the enhancement of natural values and habitats, and the maintenance of high natural value farming. Different regional targets will be fixed, and appropriate management regimes developed to meet them.
- At the local level, specific targets with associated management practices will be formulated.

In order to enhance the efficiency of this programme, a comprehensive educational and research network will be established. The programme will begin in 2000. In 1999 the different schemes will be tested through pilot programmes.

Concerning Poland, a working group has been formed within the Polish Ministry of Agriculture and Food Economy, to oversee the adoption of the regulations. The group has identified six major areas in which agri-environmental programmes should be developed:

- education, training and demonstration projects;
- maintenance of (or restitution of lost) biodiversity in agricultural areas;
- promotion of organic farming;
- establishment and restitution of small-scale water retention measures on agricultural land;
- preventing and counteracting detrimental effects of pollution from agricultural sources;
- preventing and combating detrimental environmental effects of soil erosion.

According to the working group, some of these proposals could be developed solely on the basis of the 2078/92 regulation, whereas others could benefit the environment more if combined with Structural Funds aid (last three points). Currently the group is developing proposals for agri-environmental programmes within the six areas described above.

The working group has identified several factors specific to Polish agriculture and the Polish administration system, which could create problems in the process of designing and implementing the policy measures: the high number of very small farms (over 2 million); small and centralised agricultural administrative structure, and lack of a system of direct payments to farmers except from subsidised credits for specific investments.

In order to ensure the successful future application of national agri-environmental measure, the working group proposes to test various options through following pilot projects:

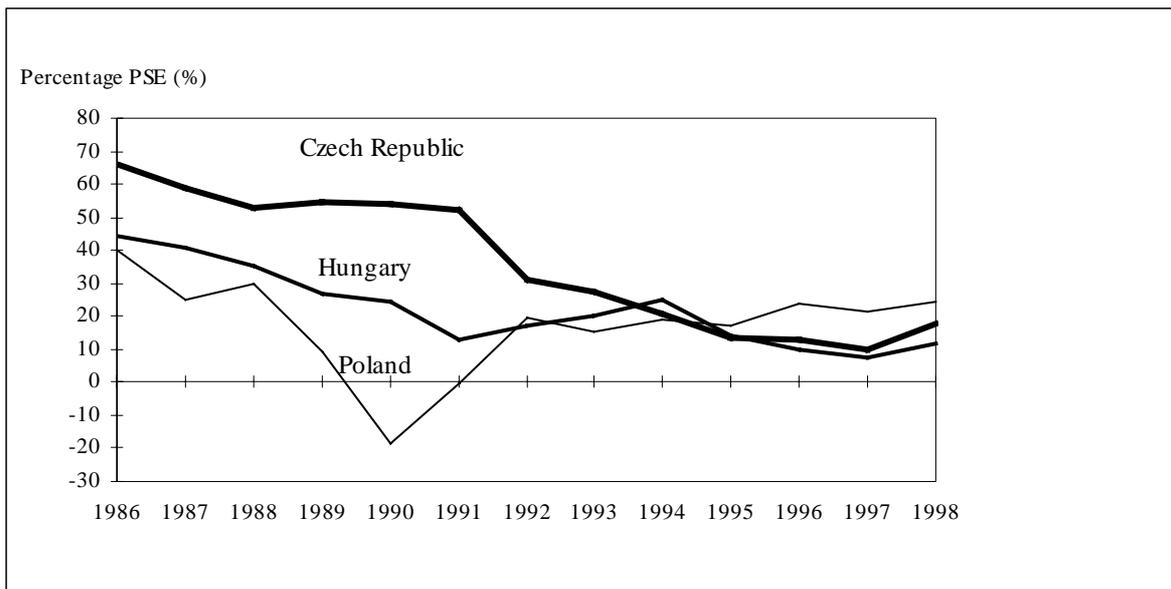
- to test measures of the biodiversity protection programme;

- to test measures of the environment and landscape protection programme;
- to promote Code of Good Agricultural Practice;
- to promote organic farming.

The implementation of the pilot projects is foreseen to start in 2000, all of which will be supervised by the Ministry of Agriculture.

The EC Nitrate Directive is amongst the environmental legal acts that are most important for agriculture. The Directive requires designation of Nitrate Vulnerable Zones, and Action Programmes to tackle their nitrate pollution. The Polish Ministry of Environment has incorporated the designation of these zones into the priorities of the National Programme for the Adoption of the *Acquis*. Part of the plan is to develop Codes of Good Agricultural Practice.

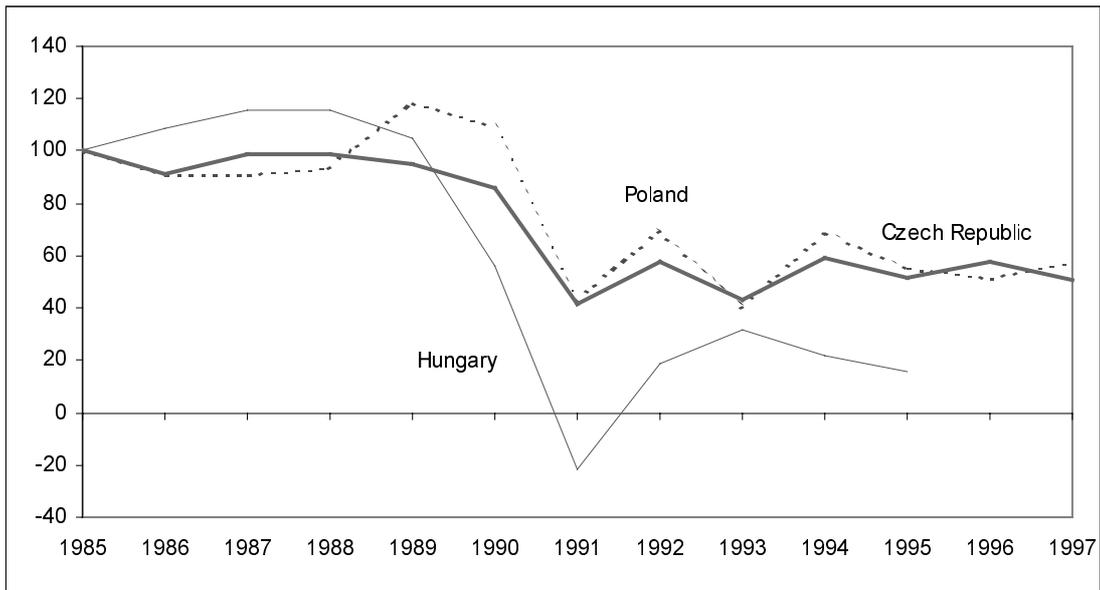
ANNEX

Figure 1. Assistance to agriculture in the Czech Republic, Hungary and Poland

1. The percentage PSE is the ratio to the value of total gross farm receipts, measured by the value of total production (at farm-gate price), plus budgetary support.

Source: OECD Secretariat.

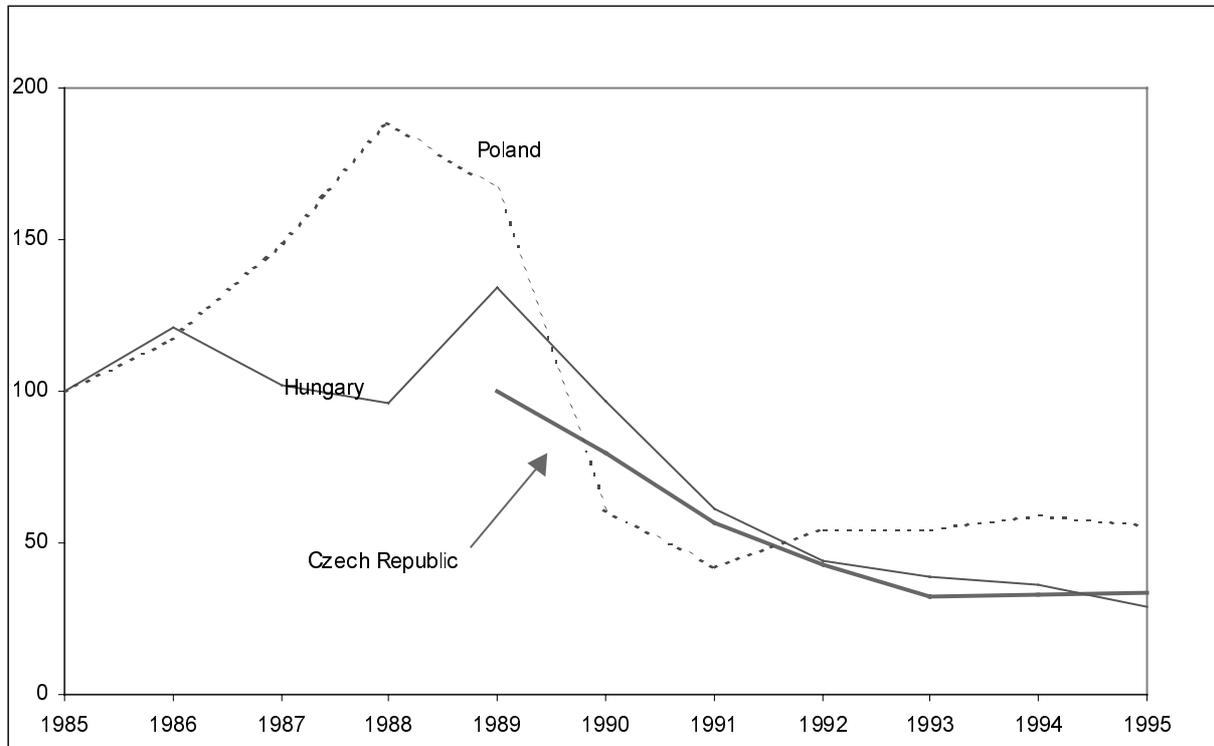
Figure 2. Index of nitrogen surplus in the Czech Republic, Hungary and Poland
(1985-87 = 100)



1. Calculated as the balance of nitrogen input and output per hectare of total agricultural land, taking into account input from inorganic fertilizers and animal manure, and nutrient uptake by plants.

Source: OECD Secretariat.

Figure 3. Index of agricultural pesticide use in the Czech Republic, Hungary and Poland
(active ingredients)



1. Agricultural pesticide use (insecticides, fungicides, herbicides and other pesticides) in tonnes of active ingredients. While data on pesticide use is necessary for the development of pesticide risk indicators, great caution is required in drawing any correlation between trends in pesticide use data alone and environmental and human health impacts.

Source: OECD Secretariat.

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