TRANSITION OF ENVIRONMENTAL POLICY IN CENTRAL EUROPE – CASE STUDIES CZECH REPUBLIC, HUNGARY & POLAND

An evaluation of the first 10 years of transition

Working paper

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Lessons Learned for Future Sustainability: Ten Years' Experience of Environmental Protection in Central and Eastern European Countries

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INTRODUCTION

Central Europe inherited a serious legacy of environmental pollution from the past regime. Flawed development policies associated with four decades of central planning created a highly energy and natural resource intensive economy. The poor air, water and soil quality had serious implications for nature, human health and economic well being. Simultaneously during this period some environmentally friendly solution exist, but not as an effect of environmental policy. For example high share of public transport or less intensive agriculture giving the high level of biodiversity.

In order to ease the environmental problems there was a need first of all for progressive environmental legislation and regulations and significant amount of money to clean up the most pressing environmental damages and build the environmental infrastructure at the same time. The environmental restructuring of businesses and economic was also urgent. In the new political, economic and social stance the institutions, instruments and operation of environmental policy should also change. Besides this demanding task further challenges arose for environmental policy as the public formed significant environmental expectations - at least in the beginning- from the new, democratically elected governments. During these 10 years after the changes the new environmental problems, connected with building consumption societies, arrive as specially related to mass motorization, waste increasing as well as strong pressure on open space.

The data of the first ten years after the democratic changes are available by now, thus it is possible to assess a longer period, which was vital in the history of the transition. At the same time the tenth anniversary of the UN 1992 World Conference on the issues of Environment and Development is approaching. For this event it is timely to overview those country results which were achieved on the road towards a sustainable development.

The present paper based of three country reports from Czech Republic, Hungary and Poland first of all overview and assess the environmental policy after the changes. Tries to find answers for the question: how much was the politics able to live with its possibilities that were given by the transition and consequently what are those areas where further development is a must or a possibility. Second, based on answering the questions, the concluding part covers recommendations for future environmental policy. The OECD model entitled Pressure – State – Response was used as a methodological framework for the study.

PRESSURE

The effect of economic transformation on the use of natural resources and the environment

To take to account whole period these three countries have achieved the success in restructuring the economy but not in all of key areas. Transition has brought sweeping and fundamental changes to the structure of the economy and to introduce the deep institutional reform. The solid base for market economy was established including important institutions and instruments (taxes, tariffs, banking system, stock exchange, insurance, pensions etc.). The
stabilization processes were introduced as liberalization, decentralization, demonopolization, restructuring, ownership changes etc. Foreign trade relations were built and strengthened.

These processes in the first half of the 1990-ies influenced environmental pressure in a positive way. In the first years of the transition the huge backdrop of production diminished environmental pollution in an extensive way. As the effect of the economic transition the production of the most polluting sectors (mining, metallurgy, energy production, and chemical industry) fell the most. The drop in agricultural production has also brought favourable environmental changes as the use of fertilizers and pesticides diminished. The simply solution related to market force have started to give the results very quickly but enterprises, municipalities and households were too weak for much stronger sustainable oriented environmental policy why it wasn’t able to introduce.

Between 1992-1994 the economy in these countries began to grow again. By now, earlier or later, the GDP and the industrial production have reached the 1989 level. At the moment it seems likely that due to the economic restructuring despite the economic growth the industrial pollution will not grow substantially excluding pollution from mobile sources and municipal waste. There has been a quality transformation involving the effects of production on the environment. Reduced state subsidies and price liberalization resulted in a rationalised production and use of raw materials. The trade liberalization facilitated a rational distribution of supplies. With strengthening western trade relations modern, less polluting technologies were introduced, partly encouraged by the demands of the western market and partly as the side effect of importing western machinery.

However, the structure of investment has not been the most advantageous in terms of increasing economic performance. Most investments in Czech case for example have not enhanced exports or future economic growth, they have neither brought with them the expected know-how nor contributed to increasing Czech competitive strength on foreign markets. The Czech Republic has too often served as a “cheap assembly line” for more advanced countries. The approach of strategic foreign investors in the region to environmental management can be summed up in two sentences – Environmental protection yes. But not beyond the framework of the regulations set by law (anyhow, we are investing in environmental protection sufficiently). The proclaimed endeavour to behave in an “environmentally friendly” manner is not borne out by actual results.

In the middle of nineties all of these countries related to better economic situation had a chance for starting more deep sustainable oriented restructuring with promotion by economic instruments to use more efficient natural resources and with support for environmental oriented solutions as well as for example public transport. The traditional way of development based of Western experiences was chosen. This way produce more profit for Western companies then the sustainable option. This opportunity is loosing year by year.

Transition transformed consumption patterns as well. Strengthened market economy and the liberalization of trade paved the way for the consumption patterns of the developed countries. The differentiating incomes also contributed to this process, because a more affluent social layer emerged that was able to take over western consumption patterns. These tendencies effect sustainability controversially: car use, waste production and some others. Economic growth has not yet lifted the average living standards substantially and a significant part of the population had to endure declining living standards. This trend was particularly painful for some socially disadvantaged groups (e.g. elderly retired people, big families with many children, unskilled labour, employees of the public health care and education sectors, in Poland workers of state own agriculture farms). The marginalization of some social groups provided to negative or neutral relation to environmental problems. They are not interesting to take part in environmental actions or campaign and their slogan is “first more or better jobs next environment”. Hence, living-standard improvement is a priority issue
for the government, an issue that enjoys preference over many other issues including environmental ones.

To achieving the spectacular success in macroeconomics not provides to the same level of success in the quality of environment and effective use of natural resources with priorities for renewable one. Macroeconomic and general conditions for economic activity during the transition period in some sectors were not favourable to meet the principles, priorities and goals of environmental policy.

**The environmental implication of ownership changes**

Due to fast privatization and the development of new private companies, the private sector play imported role in GDP. In Hungary it was accounted for 85% of the GDP in 1999, in Czech Republic 80% in 2000 but in Poland more than 70% in 1999. The ways of ownership changes in these countries were different.

The Hungarian way of privatization benefited those methods that involved real capital investment. Thus there was enough capital for new investments and the industrial restructuring happened swiftly. Foreign direct investors invested extensively into new products and technologies, which were not only more developed in technical terms but they were more environmentally friendly and less energy and resource intensive. From the environmental point of view privatization brought other indirect benefits.

Privatization created resources and possibilities for environmental damage mitigation, but the Hungary did not capitalize on this to the limits of possibilities. During the privatization process the environmental damage assessment, damage mitigation tasks were slowly more regularly done, but the backlog in legislation and practice was constant, because the privatization agency did not urge the environmental engagements of the buyers in order to reach the highest possible selling price. Its strategy was to pass over environmental damages to the buyers at the same time and it encouraged investors to take over environmentally damaged facilities by underwriting guarantees. Guarantees often resulted in a waste of state resources, furthermore environmental damages were not always mitigated in privatized firms.

Nonetheless foreign investors showed a greater environmental sensibility than Hungarian ones and it seems likely that with another type of privatization method the environmental aspects would have been even less taken into account. Real capital investment created resources for environmental mitigation and there has been a major step forward regarding the state of hazardous waste.

At the same time the process showed that the competitiveness of polluted or polluting firms are limited. It became evident that the lack of environmental problems is a very important element when the company wants to participate in the western market. So foreign participation in the privatization also influenced management approach. Foreign investors changed and improved management, as well as introduced more advanced environmental management, which also resulted in decreasing environmental pressure.

The Czech way of privatisation, so-called coupon privatisation, ostensibly resulted in smooth and rapid transfer of state property into private hands. In fact, it only divided thousands of state utilities among millions of owners who did not have a sufficient ownership share to be able to effectively influence these companies. This merely strengthened the

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1 Transforming state enterprises should have made an environmental mitigation plan as part of the transformation plan since 1992, but decrees did not come about and therefore the basic examinations of the environmental plan were not set in regulation. The treatment of environmental problems was therefore occasional.

existing management, often formed by the communist nomenclature, for the most part not interested in carrying out the restructuring that would threaten their positions. New owners neither brought the necessary capital into these companies nor (with regard to their fragmentation) had the necessary power and means to affect operation of the companies. A combination of mass privatisation, insufficient regulation of capital markets and weak supervision on the part of creditors resulted in mass “tunnelling” of enterprises. Other CEE countries that chose a more orthodox manner of selling utilities to foreign and domestic persons attained much better results. At the end of the millennium, in the CR there is a clearly visible gap in labour productivity and overall efficiency between the utilities privatised in coupon privatisation (the worst results) and companies entered by foreign capital.

In this sense the privatisation didn’t bring positive effect to the environment how was happened in Hungary case.

In Poland three basic methods are used relative to state owned enterprise:

♦ Commercialization i.e., the transformation of an enterprise:
  a) into a sole shareholder company of the State Treasury for the purpose of privatization or for another purpose; privatization is conducted through:
    - the sale of share or holdings – individual privatization;
    - the transfer of shares or holdings to the National Investment Funds (NIF) – mass privatization;
  b) into company with creditors’ participation established as a result of debt conversion;

♦ direct privatization based on the disposition, by the founding body, of all tangible and intangible assets components of an enterprise (sale, transfer to a company, leasing);

♦ the liquidation of and enterprise due to an economic reasons.

The main purposes of privatisation were first to strengthening the market with increasing the number of private entities and second to support social and economic reforms in the country. The environmental goals were not taken to account fully but only partly.

From environmental point of view capital privatization in Poland was the most advantageous form of privatization. This form of changing ownership from state to private hands provided greater opportunities for:

♦ environmental-oriented restructuring of enterprises;

♦ removal of old pollution;

♦ restoring enterprises to their proper condition to comply with the environmental law standards;

♦ conducting an enterprise development policy on the basis of environmental criteria ("greening" the production processes, the products, marketing policy and the sale system).

The effect of bankruptcy liquidation of state-owned enterprises was the abandonment for a longer period of time of any sort of land or buildings and equipment re-cultivation measures. Environmental protection equipment was often devastated due to a lack of funds. On the other hand, liquidation processes supported the reduction of emissions e.g. the work of equipment or divisions burdensome for the environment was temporarily or completely stopped. This often involved social costs and met with passive or active resistance on the part of the employees. Generally, neither the environmental situation nor the current state of environmental liabilities of enterprises privatized through liquidation or liquidated for reasons of their bad financial situation were checked or examined. When privatization through liquidation or bankruptcy liquidation were applied, it was difficult to enforce legal regulations of environmental protection, including legal and material environmental obligations incurred by the liquidated enterprises.

Environmental effects of ownership changes in Poland generally were positive but the effects could be greater and stronger if the process would covers more strict environmental criteria and conditions in procedures and instruments of privatization.
The effects of economic restructuring

Industry

The industry in the three respective countries especially heavy industry and mining drastically decrease in these results the pollution and use of natural resources drastically decrease as well. Market forces, new technology and modern style of management strengthening this process. The new industry sector arrived, but still some big sources of pollution exist.

During 1990-1999 in Poland in industry the great improvement happened in technology and effective way of using energy, fuel, land and other natural resources. The quality of the products improved as well. In spite of these positive effects still the pressure on the environment is significant. The efficiency of restructuring and modernization activity is still not sufficient.

In Poland influence of environmental policy on industry was and is limited. Main reasons are to slow structural changes and most polluted industries still play the important role in economy. These industries are concentrated in few regions and they are state own what strongly limited the environmental restructuring. Mining industry, metallurgy industry, chemical industry still plays critical role in size and structure of industrial pollution.

The main weakness point of industrial environmental policy in Poland is to lack of integrated policy against SME. They are so many and disperse entities that environmental authorities do not record them. It is mean that they are without any control and monitoring as well as professional advice and financial support how to achieve environmentally friendly restructuring and meet the legal standards. They are out of the polluter pay principle.

The one of the most important effect of the changes is to dramatically increase the number of production and consultant companies in the sector of environmental protection. Nowadays in Poland there are few thousands of them employing a dozen thousands of employees.

During the past ten years in Hungry the pressures on environmental resources have been cut significantly. Improvement is partly the result of the transformational recession and partly the technological change.

The proportions of industrial production in Hungry have changed. Primary production and the production of energy intensive industries have decline, while some sectors of manufacturing (e.g. machinery) and services became stronger. The production of the most polluting industries declined the most. The biggest fallback was experienced in the mining sector, it produced 38.8% of its 1990 volume, but the production of the chemical industry, the power industry, metallurgy and the cement factories have also stayed below their 1990 production level in 1999. The decline in mining has not only eased the pressure on the natural resources and energy production, but has also lead to a reduced water consumption and thus water was able to reappear in creeks and fountains it has left decades ago (the reappearing water is causing some trouble nowadays). The decline of metallurgy also deduces energy production and the emission of polluting substances.

The sinking emission levels beyond the effects of the economic restructuring can be explained by the development of environmental infrastructure and modern technology in Hungry. Without technological advance the economic recovery would pose renewed pressure on the environment, but according to the present tendencies it will not happen. The sign of economic restructuring and technological advance is the rapid and constant growth in productivity. Integrated environmental investments as well as the spreading use of end of pipe technologies have positive results. For example the use of industrial smoke filters facilitates the reducing emissions of sulphur dioxide and thus contributes to efforts against acidic rain.
Agriculture

The agriculture transformation is most difficult problems in these three countries and still not finally solves. Last 10 years has shown less impact on the environment from this sector. Less production, less use pesticides and fertilizers there are the most important reasons of the changes but still it is difficult sector to control because a lot small sources of pollution are disperse in the countryside. The organic agriculture slowly but step by step is growing.

Czech agriculture is characterised by its strongly obsolete stock of mechanisation means that is not renewed sufficiently rapidly due to the minimal amount of investment finance available in individual agricultural subjects. This state of affairs not only hinders gradual growth of production effectiveness and labour productivity in agriculture but also results in excessive environmental burden.

Mineral fertilisation of crops in the period of intensive soil farming exceeded the optimum limits acceptable for agricultural ecosystems. In 1985 fertilisation reached its highest level but thereafter has been continuously decreasing. In comparison with 1990 (100%) the indicator of mineral nutrient consumption decreased in 1995 to the value of 42 % and in 1999 to 33 %. In some localities supply of nutrients does not cover their consumption and another problem remains the unsuitable manner and terms of applying fertilisers. As in the rest of the world, consumption of preparations for plant protection (pesticides) has declined in the Czech Republic too. One of the main reasons for reduced consumption of pesticides is their financial inaccessibility owing to the bad economic situation of agricultural subjects in the Czech. The environmental impacts of the slowdown in agriculture, particularly its impacts on the landscape, are evident.

A positive trend is the increased share of ecological farming in total agricultural production in the Czech Republic. Ecological farming is based on a very sound approach to the countryside with a positive relationship to nature, soil, plants and animals. Environmentally friendly agriculture, respecting the principles of sustainable development and natural cycles of substances, energies and information in ecosystems, produces high-value and high-quality food without using artificial fertilisers, chemical preparations, crop spraying, hormones and artificial compounds. At the end of 1999, 454 establishments farmed according to the principles of eco-agriculture, the total land area tended by them was 110,756 hectares (i.e. 2.59 % of the total area, in the EU the figure is 2.3 %). Thus, year-on-year growth of the number of farms and areas is satisfactory, however, the share of ecologically farmed soil in the total land area of agricultural land resources of the Czech remains very low. Other examples of environmentally sound approaches are integrated cultivation systems (particularly, viniculture and fruit growing) and biological-dynamic farming.

The agriculture and food sector in Hungry is almost completely privatized. The land restitution process resulted mainly in very small and very large farms and very few medium-sized units. The former cooperatives have either remained cooperatives or have transformed into (joint) stock companies. State farms have been turned into (joint) stock companies as well. In the first half of the 1990s, output diminished due to the loss of major markets, changing prices and other economic conditions. The major challenge for the sector is to become prepared for EU accession, to meet competitive pressure and increase output. To improve competitiveness, the sector in Hungary needs to: make significant investments; adjust the farm structure by increasing the share of middle-sized farms; restructure production focusing on high quality products (including bio-products); and develop food processing and agricultural marketing. Intensive connections with the western market may encourage bio-agriculture.

Without these changes, the sector will be unable to realize the opportunities stemming from the fertile, relatively unpolluted soil, geographical location, competitive prices and other positive elements. The slow pace of agricultural restructuring mainly hinders changes. In
addition, there are strong lobbies interested in maintaining the current structure of the sector. Therefore, a significant share of agricultural support continues to finance the maintenance of the existing farming structure and thus provides little incentive for restructuring. Without firm political will to support restructuring, the annual 38 million Euros that will be allocated by the EU SAPARD program to Hungary for restructuring and rural development will not effect sufficient progress in this field.

With the decreasing share of agriculture and the changing production pattern, environmental pressure from agriculture in Hungary has also diminished significantly. In the first half of the 1990-ies, livestock density declined heavily, and the number of livestock has been stagnating on these recession levels ever since. The use of fertilizers dropped dramatically to less then the third of the original quantity in a spell of only a year by 1991. Since then the used quantities are growing again, supported by governmental subsides. Still, the fertilizer doses per hectare are lagging behind the average EU doses. The use of pesticides has followed similar trends to fertilizer application.

The environmental impact of intensive, industrial forms of agriculture in Czech republic was critical in the late 1980s. Therefore, the trends occurring in agriculture in the 1990s may be considered favourable in terms of environmental protection. In the period after 1990 the total area of uncultivated agricultural land was significantly extended (from 3 - 6 thousand hectares in 1990-1992 to 56 - 58 thousand in 1994 - 1999).

The transformation goals in agriculture in Poland weren’t achieved. After eleven years of transformation the rural areas still need an incredible amount of financial resources for increase the production capacity, to build needed infrastructure and to achieve the Western European standard of living. High unemployment, overpopulation, low labour productivity, weak technical support and low quality of the products provided to necessity of strong state interventions for keep going on pro market and pro effectiveness changes. The government supported investment programs from domestic and foreign sources, new regulations and institutions for create the market and competitiveness, especially to adjust the EU requirements.

The one of most important process was to change ownership of agriculture state farms. There were 1.600 farms covered 4.5 mln hectares, 13% of total area of Poland. On the farmland were located 300.000 hectares of lakes and ponds, 200.000 hectares of forest and 20.000 hectares of strict nature protected areas and thousands of hectares of landscape protected areas. In whole process was lack of environmental awareness. For example the protected areas weren’t excluded from privatisation process. The priority was to sell land for best price without worry about needs of new protected areas or environmental sound land management. Many others environmental problems were not solved as well.

In an effect of transformation the share of agriculture sector in GDP decrease from 11,8% in 1989 to 3,8% in 1999. During this period the use of pesticide and fertilisers drastically decrease on the beginning. But the sector still play important role in soil, water and air contamination. The polluter pay principle almost not exists or implementation is very weak. The environmental awareness of the people from rural areas is not sufficient.

The organic farming slowly increases in Poland but still not play important role in food supply. In thanks of BSE and foot and mouse disease the organic farming starting to be really recognising as a potential specialisation of Polish agriculture in EU. Some government support just has started.

**Transport**

The new functioning system of the state requires a new look at the development of transport. The economic growth started in 1992-94 and the renewed consumption by society (after the freeze period in the previous years) increased the pressure for car ownership and
road development. A mass increase in car purchases could be noted under the influence of advertising campaigns. In 1999, the Poles bought about 640,000 new cars, with the car ownership rate exceeding 240 per 1000 inhabitants and even as much as 400 in some cities. Despite a decline in car purchases over the last two years, the number of cars still continues to grow dramatically. In Czech Republic the number of personal cars per thousand inhabitants increased from 233 (in 1990) to 360 in 1999. After several decades of a scarcity of cars, Hungarians as a Poles and Czechs started to buy cars, while many of the old obsolete vehicles were still kept in operation - approximately 51% of motor vehicles in the Czech Republic being older than 10 years. Between 1990 and 1999 the number of personal cars / 1000 inhabitants in Hungary grew about 20% (more than 220), though car density is still lower than the EU average. The stoppage on the trade of leaded petrol contributed to reduced lead emissions as well as is increase in the number of vehicles using catalytic converters (in Czech from 0.8% in 1990 to 26.6% in 1999). Increasing car transport is of growing concern for several reasons: for its energy use, pollution, use of space, congestion, etc.

Car traffic increased substantially, both in urban areas and on ex-urban roads. City sprawl also contributed to this growth. In mid-2000, 1,500 super- and hypermarkets were registered in Poland. Very often they are located far from the town/city centre or public transport routes and can be reached only by car. Very often new housing estates are built on the outskirts of towns/cities without their own local services centres.

The strong pressure exist from individual drivers and delivery company to build more road specially motorway and it is strongly supported by constructing company as well as by car and fuel industry. Whereas in the 1990s the number of automobiles in the Czech Republic rose, the road network density remained approximately the same (0.7 km of roads per km² of the republic’s territory). In comparison with 1990 the density of the motorway network expanded by 40%. Poland has just started to implement motorway program and wants to build more than 1.500 km of motorway.

In parallel, the significance of rail and public transport continues to decline. The proportions between individual cars and public transport in Poland used to be 10 to 90, whereas now it is estimated as 30 to 70.

The transformational recession also effected the freight transportation sector. Reduced need for raw materials halved the total quantity of transported goods in Hungary in the early 1990-ies. Along with the economic recovery, however, the output of road transport has been increasing again. Although because of the less resource intensive industry the rate of increase in the freight transport is much smaller than the rate of economic growth.

The total volume of goods transport fell, with a simultaneous increase in the share of goods transported by road (which is now 80% in Poland) at the expense of rail transport. Passenger transport fell by 50% and the intensity of car traffic doubled on Polish domestic roads. In Czech Republic growth in the number of personal automobiles has resulted (besides other things) in the decreased number of people travelling by public transport. In this country the number of people transported by railways declined by 59% in the 1990s, the number of person-kilometres by as much as 85%.

The public transport network (buses, railways, tramways, trolley-buses) still continues to play the basic role in passenger transport services. In Poland municipal transport operates in 265 towns/cities, servicing 19 million persons (49% of the total population). However, since the early 1990s the passenger transport could be seen to decline in importance, while the quality of its services in towns/cities is, in general, low. Data from Prague reveals that the number of passengers transported by public transport in 1999 represented only 68% of the number transported in 1991. For example in Budapest the number of passenger in public transport turnover fell by 20% between 1990 and 1997, but by the end of the decade, the number of passengers seems to have stabilized.
In Hungary the structure of transport has also changed. The decrease affected mainly rail transport while road transport continued to grow. The fallback is particularly huge regarding water transport. International trends suggest that shipping will not regain its original proportions even after the full viability of the Danube watercourse. In the latter years the means of rail transport widened by the building of container terminals and investments which made the convey of trucks on rail possible. Although the biggest transport investments were into new roads and motorways, which created ground for road transport. The role of road transport will be strengthened by the economic recovery of the neighboring countries as it enhances the importance of transit routes across Hungary. Despite this tendency it is important to note that the environmental pressure from road transport grew much slower in Hungary than in the Czech Republic or Poland.

The effect of this is an increase in air pollution, particularly in the emissions of the basic greenhouse gases, to which road transport makes the greatest contribution. In Poland in 1998, CO$_2$ emissions from the road transport grew by 73.7% compared with 1991. It is estimated that about 40% of persons in this country are exposed to transport noise levels (mostly generated by car transport) in excess of limit values.

External costs resulting from damaged infrastructure, traffic accidents, deteriorating public health, ecological damage and costs connected with congestion that to date have been paid not by users but by other persons or society as a whole total 5 % of GDP. In 1999 road transport in the Czech Republic was accompanied by losses in the form of external costs resulting from a total of 26,918 traffic accidents, which took the lives of 1,455 people, with 34,710 suffering injuries. In 1998 in Poland, 7,080 persons were killed on roads and 77,560 were injured compared with 558 killed and 803 injured in rail accidents. A preliminary attempt to estimate the time lost by passengers using public transport and individual cars in towns/cities in Poland in 1995 indicates that traffic jams caused a loss of 870 million hours, with their cost estimated at 3 billion PLN. In addition, since 1993 in Poland, there has been an annual increase of about 10-15% in air transport, causing poorly identified environmental damage.

Energy sector

The energy industry is a sector that was one of the main sources of environmental pollution in these three countries in the past. The main reasons were:

♦ domination of fossil fuels specially hard coal and lignite in the energy production;
♦ unfavorable structure of economy with very low efficiency of using energy and materials;
♦ hard difficulties in implementation of environmental control programs;
♦ low environmental awareness of society including politicians and managers from energy sector.

During the 1990-2000 in all of the three countries the production from energy sector stabilize or decrease but generally the GDP is growing. This is the result of increasing the energy efficiency and saving. The share of renewable source is very similar and very low but some activity starts to going on. In behind of these positive changes still some big sources of pollution from energy sector exist.

In the late 1980s energy consumption per capita and energy intensity of GDP creation in the Czech Republic were among the highest in the world. Partial restructuring of Czech industry in the 1990s resulted in a 20% reduction of energy consumption, as well as the energy intensity of GDP creation. The second indicator even declined by 58 %, if GDP is expressed in current prices. Despite this decline, the energy intensity of GDP creation in the Czech Republic remains almost twice as high as the average in EU countries. High intensity is affected by the structure of Czech industry, the high share of solid fuels in energy generation (53 % in the Czech Republic in comparison with 19 % in the EU) and the negligible use of...
renewable sources (1.7% compared to 6% in EU countries). We must also consider important the increased power consumption in households – private electricity consumption grew by 52% in the 1990s, natural gas consumption recorded a 54% rise. This growth bears witness to the fact that solid fuels as electric power and gas has replaced the main source of heat in households. Hence, the environmental burden is only transmitted into different regions. It confirms the unsustainable development of consumption patterns in the Czech Republic in the 1990s.

In Hungry energy consumption is stagnating since the mid-1990-ies when the economic growth began so the amount of energy needed to produce a 1000$ of GDP is continuing to decline. By 1999 energy consumption was reduced by 20% compared with the 1990 level. If we examine energy consumption by sectors we find that deductions in industrial and agricultural use of energy was high enough to counterbalance the increasing use of the service sector.

Domestic energy production in Hungry fell more than energy consumption as the proportions of imported energy grew. The proportions of fuels in the energy balance have also changed. The process is not clearly favourable for sustainability. The share of renewable energy within energy use is still very low about 3%. The role of nuclear energy somewhat grew. Out of fossil fuels the use of lignite grew in the fastest pace, which fuel has a low caloric value, but this process was counterbalanced by the diminishing use of other types of coal. The natural gas program facilitated the wider use of gas in households, while the use of oil has dropped somewhat. The 50% drop in the use of brown coal is the most favourable event from the environmental point of view, because it has resulted in the reduced emissions of sulphur. Environmental investments in air cleansing devices of public power plants have also contributed to the lesser SO₂ and dust emissions.

In Poland the energy sector is in the process of deep restructuring but still its play crucial role in environmental pollution. The energy sector is responsible for more than 63% of total amounts of sulphur dioxide, about 55% of total CO₂ emission, 41% of nitrogen dioxide and about 30% of dust. During the nineties the process of the decoupling between GDP and primary energy consumption has happened in Poland. The main reasons for declining the energy production were:

- changes in structure of the economy;
- increasing the energy efficiency in industry;
- structural changes in primary use of energy (decreasing of use the hard coal and lignite and increasing gas, crude oil and renewable);
- switching to more clean fuels;
- increasing efficiency of energy production;
- beginning to implementation of energy saving programs including local self-governments and households.

During the nineties the process of saving and rationalization of energy use in Poland was strengthening by institutional changes. The sector is ready for privatization the first step was done by starting a commercialization and some privatization acts happened. The energy stock exchange has just started. The Energy Regulatory Agency was set up in 1997.

The positive changes mention above is not enough to say the Poland is on way to build sustainable energy sector. Mining and energy sectors are very strong lobby and from political, social and economic (from individual enterprises point of view) reasons they are block or slow down environmentally friendly restructuring of the sector. The great opportunity for this restructuring is in the increasing the energy efficiency and drastically increasing the
production from renewable resources. According to Hille in Poland exist an incredible opportunity for increasing energy efficiency (6-8 time higher than to-day) by:

- better answer for client needs;
- declining the needs of end energy use;
- declining the losses during production and transmission.

The share of renewable sources of energy in Poland is currently estimate on 2,5% and last few years the climate for them slowly starting to be better than before but still the government support is very low. The experts have calculated that with strong government support the share of renewable in primary energy use can increase in short time to 12 – 15%.

Water management

The consumption of the water in the respective countries thanks to recessions and next rationalization of water use declining. The important problem is big gap between number of households connected to drinking water network and number connected to public sewerage system. The capacity of sewerage treatment stations is growing but still a lot of these facilities need to be built.

In Czech Republic the rate of water use expressed through the ratio between total water consumption and water runoff from the areas was 12.9 % in the calendar year 1999. Since 1990 the trend of consumption for all main categories of users has been descending. Decrease in water consumption between 1990 and 1999 accounts for 88 % in agriculture, 47.2 % in industry, 48.7 % in the energy sector; consumption of public water and sewerage lines represents 34.5% of the values in 1990. At the present time, per capita water consumption in households is almost the lowest in OECD countries. Still problematic are significant losses in the water-pipe network, usually reaching 30 %.

In 1999 the number of inhabitants living in houses connected to the public sewerage system was 7.67 million, i.e. 74.6 % of the Czech Republic’s population. 592 million m³ of wastewater was discharged into the public sewerage system, of which 95 % was at least in some way purified. 86.9 % of inhabitants were connected to public water mains. However, costs for connection of more inhabitants to sewerage networks and costs for construction of new wastewater treatment plants will be extreme with regard to the settlement structure of the Czech population (a large number of inhabitants live in relatively small villages). It is the medium-sized and small villages that lack water treatment plants and sewerage, therefore, the local quality of water resources often remains critical.

During 1990-1999 in Poland, water intake was reduced by 21% and reached the level of 11.3 billion m³. This is the effect of economical management of water both by the industry and by households. Over 94% of water taken for the needs of the industry come from surface waters. Clean mining waters were still not properly used. In 1999, only 22.3% (in 1994 – about 33%) of these waters was used, and the rest was uselessly discharged to surface waters.

Water consumption in Poland could be observed to fall from the early 1990s; first, as a result of the economic recessions, then to become steady fall (by 10% in industry and by 20% in the municipal economy), caused by the rationalization of water use by consumers and suppliers. 91,5% of urban population and 30 % of the rural population use water delivered by water supply networks. However, more than 80 % of used water returns to rivers as wastewater. For example discharges of saline waters from mines in 1999 still amounted to 177 thousands dam³, but in 1990 – 1 207 thousands dam³.

Over the last 10 years in Poland there came a major drop in the quantity of wastewater discharged in untreated form and increase in the quantity of wastewater subjected to

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biological treatment and enhanced nutrient removal - the quantity of untreated effluents was reduced to about 28%, while at the same time the number of biologically treated effluents was increased by 9%. About 40% of sewage was chemically and biologically treated in the required extent in 1999, while 32% were insufficiently treated (mechanically), and about 14% of sewage i.e. 376 hm³ were discharged into surface waters without any prior treatment. The cause of this state of affairs was still the lack of adequate number of waste treatment plants or their inadequate throughput. In 1999, as many as 97 towns, that is 11% of all Polish towns, had no wastewater treatment plants. In addition, about 5% of towns only had mechanical treatment plants.

In Poland, about 5000 wastewater treatment plants were in operation at the end of 2000, including about 1500 municipal wastewater treatment plants. Starting in the mid-1990s, this brought a systematic improvement of the quality of waters in rivers and lakes. During 1991-1999, 3 400 sewage treatment plants were put to use (of which 2 200 were biological treatment plants) with a total throughput of 7 million m³/24 hours. At present, about 300 municipal treatment plants are under construction. When they become operational, the quality of waters will greatly improved. Despite this fact, the index of servicing the population by water treatment plants is still one of the lowest in Europe and in 1997 amounted to as little as 50% (for towns it was 78%). For comparison in Western Europe this index exceeds 90%. Thus, the inadequate development of urban wastewater collecting systems still substantial hazards to waters.

Unsatisfied quality of Polish surface waters resulted in a great measure from situation on the rural areas, where is generally lack of sewage systems and wastewater treatment plants. Share of population living in towns connected to public sewerage systems was 55.6% in 1991, 65.1% in 1995 and 78.0% in 1999. Share of population living in countryside connected to public sewerage systems was 3.1% in 1995. Differences in using sewage and waste water treatment plants between population living urban and rural areas were very big at the beginning of transformation; they are smaller at the end of 1990s but still considerably. Polish wastewater treatment plants are to great extent old fashioned and required to be modernized.

All kinds of (agricultural, industrial and household) water consumption in Hungary have been on the retreat. By its proportions the reduction of irrigation water is the most significant event. The drop in water consumption is the result of ceasing water price subsidies. Reducing state subsidies in the price of water have resulted in a more rational use of these resources. Household water consumption has been decreasing, despite the growing number of households using public water supply. Total use of water decreased by 30 % between 1992 and 1999. Water consumption per capita is under the EU average. The question is open whether by the growing living standard how much will spread the use of some household appliances that can boost water.

Water pollution from industrial sources in Hungary has been significantly reduced since 1996. By now, most of the wastewater is adequately treated, i.e. it satisfies legal requirements. The share of adequately treated industrial wastewater has been gradually increasing from 37 percent in 1994 to 73 percent in 1999.

Pollution discharges from urban areas remain a major problem in Hungary. Municipal wastewater discharges are the largest source of organic pollutants all over the region. In Hungary, over 90 percent of households were connected to the drinking water network, but only 52 percent of them (i.e. 48 percent of all households) were connected to the sewer network. The discrepancy between the drinking water conduit network and the sewer system has decreased during the 1990s. Between 1990 and 1999, the length of the public sewer network (as compared to 1 kilometer of the drinking-water conduit network) has increased by 50 percent. However, the estimated amount of wastewater generated by households in areas
without a sewer-system is about 100 million m$^3$ yearly. About 90 percent of this amount are oozing away due to the inappropriate construction of septic tanks.

An extended sewer system takes up an increasing share of municipal wastewater the percentage of flats connected to the sewer system in Hungary has grown from 40% to 49% between 1990 and 1999. However, the capacity of sewage treatment plants is lagging behind the capacity of the sewer system and only 22% of the flats are connected to a treatment plant. The main cause of it is the uneven distribution of treatment plants: plant capacity is not used in the smaller settlements. So despite the dynamic expansion of sewage treatment capacity as well as the amount and share of adequately treated municipal sewage, an increasing amount of the sewage gathered by the system was discharged into the surface water without any treatment.

**Waste management**

Simultaneously to air pollution from mobile sources the new environmental threats are drastically growing the amount of municipal waste. This is typical for all CEE thanks to western consumption pattern including packaging and one-use products. The main portion of the waste is going on landfills but the capacity of existing ones are very limited. This is a new ecological bomb. The situation with industrial waste is more stabile.

The amount of waste in Hungary (total waste as well as hazardous waste) generated by industry decreased between, 1990 and 1996, which was possibly due the recession. Since the recovery, the amount of waste has increased again. Waste generation, as compared to the GDP, is higher in Hungary than the OECD average but significantly lower than in the Czech Republic. In 1997, 75 percent of the generated waste was used for some productive purpose, 16 percent was transferred to waste management companies, and the producers stored the rest. The accumulated industrial waste stored by producers amounted to three years' waste production.

With more processed food products, and the spread of hypermarkets, consumption involves more and more waste so the amount of municipal waste in Hungary has grown significantly in the last decade. Waste management remained a problem and the creation of modern, large disposal sites and waste incineration plants were facing heavy protests by the local municipalities. The estimated per capita amount of municipal waste in Hungary corresponds to the average of the European OECD countries and is much higher than in other Visegrad countries and it is increasing by 2 percent annually. Eighty-two percent of municipal waste is collected. Reuse and recycling of municipal waste is insignificant, below 5 percent. Most of the waste is disposed of at waste disposal sites, 15 percent is incinerated. Capacity of presently existing waste-deposits is sufficient for 5 more years but only 30 percent of them meet environmental standards. There are numerous illegal dumpsites and waste disposal sites, which do not meet environmental standards.

Waste, particularly municipal waste, is one of the greatest problems of the Polish society whose consumption, impetuously growing in the 1990s, was confronted with the backlogs in the construction of modern landfills and waste disposal facilities. The damage done by waste to the environment primarily takes the form of water and soil pollution and the destruction of aesthetic and landscape values. However, the growing care of the correct waste management can be seen among both companies and local governments, as evidence by the increasing number of plants disposing of waste generated and new municipal investment projects. New legal and economic measures favour (and partly force) these tendencies.

Quality of the environment in Poland is much suffered because of big industrial and municipal waste generation. In comparison to other sources areas of pollution the quantity of waste generated each year fell in comparison to the beginning of 1990s only moderately, municipal waste by about 12% and industrial waste by 4%. Out of 126.254,7 thousands tones
of waste (excluding municipal waste generated in 1999), most of waste consists of tailings from the extraction of coal and non-ferrous ores as well as mixed bottom ash and slag from furnace cleaning and 30% consists of waste from the processing of coal, slag and residues from exhaust gas cleaning.

In 1999, 1.13 million tons of hazardous wastes were produced in Poland, of which 36% were utilized economically, while 10% were discharged into the environment.

Not much of waste generated has been recycled. Thus every year more and more waste has been accumulated on landfills. The overall amount of wastes discharged into the natural environment in Poland at the end of 1999 was 2.0 billion tons. Much of this amount was concentrated in six industrialized voivodships e.g., Silesia, Lower Silesia, Little Poland, Great Poland a. s. o.

In the 1990s, as a standard of living and the diversity of consumer goods increased, the growing quantity of municipal waste became a great problem. In 1999 12.316,9 thousands tons of waste were depositing at landfills, out of which 10% was sorted and 18% composted. In 1999, in Poland, 998 landfills were in operation, including 82 with a gas capture installation, with the total surface area of 3129 ha. In 1999, too, 71 landfills on a total 176 ha were closed down and 67 landfills were set in operation with the total surface area of 180 ha; the first municipal incineration plant is still at the start-up stage in Warsaw. The legal measures being adopted in 2000 may increase the efficiency of material recovery from waste and provide solutions to waste management issues. Over the last 15 years in Poland the quantity of waste deposited on landfills has doubled.

In Czech Republic waste represents one of the major anthropogenic environmental burdens. Its composition and quantity clearly reveals production and consumption patterns. The estimated amount of municipal waste per head (310 kg in 1996 and 326 kg in 1999) is comparable with OECD and V4 countries. On the other hand, the totally unsatisfactory share of its utilisation as secondary raw materials accompanies the positive trend of greater use of waste potential. The quantity of waste that is further recycled in the Czech only accounts for 25 % of total municipal waste production. A mere 2.6 % of waste is disposed of in incineration plants with energy use.

**Urban development versus green areas**

In Hungary due to the liberalized property market, the differentiation of incomes and formation of a well paid social class as well as the growing fleet of personal cars has felt their effects in the urban development during the transition. The pace of change was most spectacular in Budapest metropolitan area, but the same tendencies emerged in the other major cities. Suburbanization tendencies have strengthened. The migration of urban population to the surrounding green areas has been accelerating during the 1990s. The process has brought negative effects. The build up of green areas goes hand in hand with ruining the ecosystem and the living conditions of urban population. It is worsening by the spread of car use that needs new roads and increasing urban territories and fragmenting green areas. Inefficient and unregulated land use patterns are formed which constrains sustainable urban development on the long run.
Very similar process is observed in Poland specially that after the changes the role of land use planning starting to be weaker and corruption behavior is observed on the local level in setting and contracting permits decisions. The build up areas is increasing 1% yearly.

**Air pollution**

Last ten years as a result of the changes brought in these countries drastically fall down of main air pollution specially: particulate, SO$_2$, CO$_2$ and slightly NO$_x$ as well as heavy metals. The structure of pollution is changing – industrial pollution declining and mobile pollution is increasing. Despite of these positive trends still levels per capita of some crucial pollution are higher then in UE. The comparison of emissions per unit of GDP is eventually even more disadvantageous.

In Poland, due to efforts in the field of energy saving, modernization of technology and the installation of air pollution controls, the 1990s brought a systematic drop in CO$_2$ emissions (by 14%) in comparison to 1990) and a reduction of SO$_2$ (47%) and nitrogen emissions (by 25%). The dust emissions to the air were more than halved and so were the total emissions of heavy metals.

Still, the reduction of greenhouse gas emissions should be recognized as the considerable success. However, for comparison, according to Main Statistical Office Poland was in the fifth place in 1999 in Europe in the emission of carbon dioxide into the atmosphere and this was largely emission from industrial and power engineering stationary sources, the total emission of carbon dioxide was estimated by Polish sources to equal 330 million tons i.e. approximately 8.7 tons/cap e.g., one of the highest in Europe.

At present, the greatest problem is air pollution from means of transport and still from power plant throughout Poland. The greatest sources of CO$_2$ emission in Poland are still power generation and combined heat and power plants. Their share in the overall CO$_2$ emission was significantly higher than the European average (and reached 54.7%). Equally high was the share of combustion processes in the industry, 11%. While the share of CO$_2$ emission from mobile sources was much lower than in Europe (but considerable in terms of the volume of emission) and was equal to 9.5%.

High emission of pollutants from domestic sources and from abroad led to their high ambient air concentration so as in many regions in the country (including the many of towns), the permissible standards of air pollution continue to be overstepped.

In 1999, out of 1 704 plants included in the Central Statistical Office Yearbook, only 14% (that means 2 percent points more than in 1994) plants possessed installations reducing gaseous pollutants, hence the average level of pollution reduction of produced gases amounted to as little as 44.6% (in 1994 - 22%) for SO$_2$, 11.8% (in 1994 - 9%) for NO$_x$, and 50.6% (in 1994 - 39%) for CO. In the case of dust reduction this index was 98.8% (e.g., better than in 1994 - 97.4%).

As a result of the reduction of the emissions of gases causing acid rains, the pH reaction in precipitation also fell. An example of the success story in air protection can be that of the black triangle, the area covering the northern part of the Czech Republic, southern Saxony in Germany and the south-western part of Lower Silesia in Poland, until recently considered to be one of the European regions with the highest environmental pollution levels. The impact of pollutant emissions from the numerous power plants and huge industrial plants situated there, mainly lignite-fired and equipped with very tall emitters, had a regional extent.

Industrial restructuring and the changing structure of energy production in Hungary have decreased the emission of traditional air-polluting substances. The different polluters followed different patterns. Emissions of SO$_2$ and solid particulate have significantly and constantly decreased during the 1990s. Despite this improvement, per capita as well as per unit of GDP,
emission of the mentioned pollutants is much higher than the EU average. The reduced emission of SO₂, CO₂ and solid particulate strongly correlated with the change in the amount and the structure of energy production. Emissions of heavy metals have been also reduced (with special regard to lead) by phasing out leaded gasoline.

In Hungary emission of some other traditional air pollutants, e.g. NOₓ, CO, CFCs have also decreased, though not so significantly. After the rapid decrease in NOₓ emissions in the recession period the release of these substances began to grow, driven by the spread in the use of natural gas and the growing number of personal cars. Still the amount of NOₓ released into the atmosphere is smaller than it was before the transition. Per capita emission of NOₓ and CO₂, however, is lower in Hungary than the OECD average. CO emissions tell the same story: the rapid decrease slowed and finally gave way to a moderate increase.

In comparison with the early 1990s, the quantity of SO₂ emissions gradually fell in Czech Republic by 86 % by 1999. On the other hand, the quantity of NOₓ emissions stabilised at 53 % of the 1990 amount. However, abatement of total nitrogen oxide emissions was not as smooth as that of sulphur oxide emissions. Total emissions of this gas were decreasing until 1996, when a slight increase occurred followed by reduction again. The situation is not at all propitious due to the growing share of nitrogen oxide emissions from mobile sources, whose number has been permanently increasing. In comparison with the EU average, the amount of SO₂ and NOₓ emissions per capita in the Czech Republic is high. Average SO₂ emissions in the Czech Republic were 25.6 kg/person/year, in comparison with 21.3 kg/person/year in the EU. Also different are average NOₓ emissions: 38.8 kg/person/year in the Czech, 28.3 kg/person/year in the EU in 1999. In comparison with the beginning of the 1990s, flue dust emissions were significantly reduced (by 89 %), as were emissions of volatile organic compounds (by 39 %) and heavy metals.

As a result of adopting the Montreal Protocol, the Czech Republic rapidly reduced emissions of substances depleting the Earth’s ozone layer (from 5,500 tonnes in 1986 to 9.8 tonnes in 1998). Production and import of substances depleting the Earth’s ozone layer was banned in 1996, but the subsequent collection, recycling and disposal of such substances remains a great problem. Unlike stratospheric ozone, problems with tropospheric ozone have been increasing and the number of instances of with summer (oxidising) smog growing.

Despite the abatement of “greenhouse gas” emissions by 23 % in comparison with 1990, the threat of global warming remains one of the major challenges for national and international environmental policies. Until 1995 the quantity of greenhouse gases emitted was gradually decreasing but afterwards emissions slightly grew. Specific carbon dioxide emissions per inhabitant are still high in comparison with the EU average (12.1 t CO₂/inhabitant in the Czech Republic in comparison with 8.9 t CO₂/inhabitant in the EU).

STATE OF THE ENVIRONMENT

Air quality

Since the early 1990s air quality in the three countries have improved. This phenomenon occurred after significant abatement of emissions of major polluting gases (SO₂, NOₓ, volatile organic compounds, dust aerosol and others), which resulted in most emission sources being put in accordance with air protection limits. Despite general improving tendencies, urban air quality of major cities is generally polluted due to traffic and heating. Pollution generally
remains below sanitary limits. The reduced emission levels have had limited effect in urban air quality. The modernized household and industrial heating procedures, (e.g. the increased use of natural gas at the expense of coal and oil) together with the positive effects of industrial restructuring helped to reduce the levels of SO$_2$ and particulate matters concentration, but transport born pollution have altered less.

Problems with air pollution remain in small towns and villages during municipal waste incineration, particularly in the heating season when many households use low-quality fossil fuels.

**Water quality**

The progress in water quality is not so impressive as an air quality. In the three respective countries some improvement is going on but still the capacity and quality of sewerage treatment stations are to low.

Due to decreasing emissions and declining pressure on natural resources in Hungary, environmental quality in general has improved in the 1990s, producing sometimes-spectacular changes, (e.g. fish returned to previously highly polluted, dead rivers; creeks reappearing after mining was abandoned and underground water was no longer pumped). Progress in the past few years was less visible and less quick, but still very important, like the gradual improvement of water quality in Lake Balaton, the decrease of the COD$_p$\(^4\) of major Hungarian rivers, or the increase of protected areas.

These positive examples indicate that consequent efforts to reduce emissions finally will result in environmental improvement. However, there is still a long way to go. There is no surface water in Hungary, which meets 1$^\text{st}$ class quality criteria.\(^5\) The river stretches having 1$^\text{st}$ and 2$^\text{nd}$ class water represent roughly 20 percent of the rivers, while some 80 percent of rivers belong to 3$^\text{rd}$- 5$^\text{th}$ classes. According to microbiological parameters, the whole Hungarian section of the Danube is classified into the 3$^\text{rd}$ class. The water quality of rivers entering the country have dampened in the last decade in the case of the Danube to a lesser while in the case of the Tisza tributaries to a larger extent. Domestic pollution of surface waters has eased compared with the 1980-ies, There is diminishing frequency of 5$^\text{th}$ class water but average water quality has more or less stayed the same.

Data for surface water quality was processed in Czech Republic on the basis of indicators of BSK$_5$, CHSK$_{Cr}$, N-NH$_4$, N-NO$_3$, phosphorus (total) and the saprobe index of macrozoobenthos into the so-called fundamental classification. Based on this classification, the quality of surface waters in most registered courses in the Czech Republic has markedly improved. From larger courses, longer sections of the Jihlava, Lužnice and Bílina rivers are in the worst water quality class V. (very contaminated water). The worst water quality was recorded in the Teplice brook.

It is worth to note that the river classification system in effect in Poland is still significantly different from the systems observed in the countries of the EU. However, in general, the Polish requirements are more demanding, and, as a result, the quality evaluation is underestimated, although the pollution levels do not essentially differ from similar parameters in other countries. During 1990-1999 according to physico-chemical criterion the

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4 Chemical Oxygen Demand, an indicator of water quality.
5 The standard classifies water quality in 5 classes according to oxygen balance, nutrient balance, microbiological parameters, micropollutants and "other parameters".
6 In Polish system three classes of purity exist started from I class that is the best one and the worst it is fourth class called out of any standards.
first (3.3% - 1999), second (25.8%), out of any standards (31.9%) classes decreased but third class increase (39.0%). According to biological criterion the purity of rivers a little improves because out of any standards class decreased but still it is 2/3 of length of controlled rivers. The first class no exist. The figures show the great necessity for water quality improvement.

In Poland, monitoring testing covers lakes with a surface area in excess of 50 ha, with an important role in the country’s water resources, and smaller reservoirs of importance for a given region of the country. Lake quality classes correspond to the levels of their eutrophication estimated on the basis of purpose-selected physical, chemical and biological indicators. At the same time, the natural susceptibility of lakes to degradation is evaluated. The improvement of the quality of lakes as observed in the 1990s but still 3.6% is out of any standards and third class it is more than 20%.

Comparison of the results of the underground water monitoring in Poland carried out at 700 measuring stations throughout the country indicates that from 1991 to 1999 the quality of these waters did not change significantly. The situation is difficult because more than ¼ belongs to worse class.

The consistent water management policy in Poland pursued over the last 10 years brought the reduction of water consumption in the economy by diminishing its waste and more efficient use as well as by improving the quality of water resources with view to restoring their features present in natural conditions; this is all the more important as the morphological conditions of a large number of watercourses are close to natural ones. This also gives the effect of systematically diminishing pollution loads discharged into the Baltic Sea from the catchment areas of the Vistula, Odra and the Pomeranian rivers.

**Soil**

At the moment mainly soil erosion poses the greatest threat to soil quality in Hungary. The land-restitution created small-segmented parcels on the hillsides and slopes and sufficient anti-erosion agricultural methods proved to be too expensive for the farmers on these already unfavourable agricultural areas.

Waste management deficiencies in Hungary are also harming soil quality. Hazardous waste as well as municipal sewage is oozing away from numerous irregular dumping sites.

Airborne soil pollutants in Hungary are causing decreasing problems due to the smaller acidifying gas emissions. If the present tendencies continue the acidity of the soils will re-establish the pre-contamination levels.

The soil environment is threatened by wind and water erosion in Czech Republic. Water erosion above all threatens soil fertility but also causes damage to villages and roads; erosion streams deteriorate the quality of surface water and also cause silting (so-called “ageing”) of water basins, which in the next phase results in high expenses for their desalting. In comparison with the previous period, the situation in 1999 had not changed much, thus more than half the area of agricultural land is threatened by water erosion. In addition, in recent years the occurrence of erosion phenomena has increased as a result of the tendency for higher total daily precipitation, especially above 10 mm and 20 mm, despite declining total precipitation. Wind erosion of soil in the Czech affects mainly dry and warm climatic areas with light soil. Various levels of wind erosion threaten 23% of arable land in Bohemia and 40% in Moravia.
Urban environment

For urban people that represent more than 60 percent of the Hungarian population first of all poor air quality creates a problem. The numbers of people suffering from of asthma bronchiales which disease can be connected to polluted air have tripled since 1990. The urban population is facing other unfavourable effects as well. The ratio of people living in unacceptably noisy conditions is 30 percent. Many others work in such conditions.

An expert group has evaluated the different tendencies concerning the living quality of the residents of Budapest. In environmental aspects the effects are rather favourable. There was a significant step forward in noise protection and sewerage by new investments. The growth in the area closed off from the traffic, the introduction of air monitoring and the expansion of sewage treatment plants are also positive elements. The stance of green areas and nature conservation is rather ambiguous: Protected areas enjoy a higher rate of protection than before but the pressure on green areas has intensified. The urban environment lacks green spaces, e.g. trees, gardens, parks and forests. According to the National Environmental Program, the share of green spaces within the cities is insufficient, and it is further shrinking due to new constructions. Reconstruction and reuse of brownfields is neglected, and instead development focuses on large greenfield investments.

Nature conservation and land use

Traditionally the nature conservation in these three countries plays important role. During the transformation period the amount of protected area is growing specially as a part of EU accession (Natura 2000). The new danger for the nature conservation is the fragmentation of ecosystem and landscape as a result of motorway network expanding and increasing the pressure from build up area closed to big cities as well as attractive tourist regions. The new features are growing the area of uncultivated land.

The preservation of the natural heritage in Poland is favoured by the well developed system of nature conservation, consisting of legal measures, research and development work on the state and transformations of nature, the designation of protected natural sites and their boundaries, and the development of the principles of their use and access to the public. Nature conservation also includes species-specific protection of animals and plants, as regulated by ministerial decrees and special regulations within individual voivodships.

In the 1990s the areas covered by legal protection systematically grew in Poland, so that in 1999 the protected areas in Poland amounted to 101,588 km$^2$, representing 32.1% of Poland’s territory.

The national parks in Poland consist of protected areas with special scientific, natural, social, cultural and educational values, with a surface area of at least 1000 ha, where the whole of the nature and the singular landscape values are protected. All the national parks are open to visitors. At present, in Poland, there are 22 national parks, with the total surface area of 3070 km$^2$, representing 1% of the country’s territory. It should be emphasized that seven of them were established in the 1990s and soon another park will be established; exactly 23$^{rd}$ national park was set up in June 2001 at the confluence of the Warta river into Odra river.

There are on territory of Poland nature reserves e.g., areas consisting of ecosystems preserved in a natural or hardly changed state; landscape parks e.g., areas protected because of their natural, historical and cultural as well as tourist values, protected landscape areas consisting of areas with different types of ecosystems which were distinguished by their
landscape (their management should ensure a state of relative ecological equilibrium between natural systems).

Apart from this there are also other forms of nature conservation. The status of the world Biosphere reserve of the UNESCO “Man and Biosphere” Program in Poland was granted to: Babiogórski National Park, Białowieski National Park (which is part of the trilateral Polish-Slovak-Ukrainian International Biosphere Reserve), Słowiński National Park, and Lake Łukajno Reserve. Tatrański and Karkonoski National Parks are also parts of International Biosphere Reserves. In 1979, Białowieski National Park was designated as one of the sites, which constitute the world heritage of culture and culture (World Heritage Sites).

In Poland under the Ramsar Convention, Lake Karaś, Lake Łukajno, Lake Siedmiu Wysp (lake of seven Islands) and Słoński Reserve were designated as wetlands of international importance.

Species-specific protection of plants and animals is now established in Poland by the Regulation of the Minister of the Environment in agreement with the Minister of Agriculture. Voivodas can also establish the protection of specific species in their jurisdiction.

In Hungary in the past industry and agriculture posed the greatest threat towards nature conservation. Old type industry collapsed with the economic restructuring and it looks like so that new industry is using clean technologies.

Agricultural production has also changed and now poses a lesser threat toward nature as earlier. The main problem in Hungary in connection with agriculture is that during the land restitution process much ecologically valuable area has come under private ownership. At the moment the national parks are trying to buy back these territories with more or less success. Silviculture is also very challenging on the small, segmented parcels that were created by the restitution process.

EU accession will necessitate to lay aside about 1 million hectares of agricultural lands (about 20% of all cultivated territory in Hungary). It depends on the latter use of these areas whether this change will benefit nature, but as these areas do not densify around settlements probably these areas will not be built in.

The main problems of nature protection in Hungary are urban sprawl and the construction of roads. Significant interest groups are backing these constructions and they generally are paying the least attention to nature. In many cases environmental audits are missing or despite the legal constraints the decision-makers are not taking the results of the audits into account.

The area of uncultivated land has risen by 10%, while the process of reforestation has slowed somewhat in the years of the transition in Hungary. Hence the area of forests have risen by 1 percentage point to 19% of the countries territory. The rapid loss to the area of meadows and pastures are threatening ecologically valuable areas. On the other hand the area of protected territories - considered, as the unit of biodiversity- is favourable. The area under protection has increased and particularly significant was the territorial extension of national parks.

The environmental impact of intensive, industrial forms of agriculture was (similarly as in the case of the energy sector) critical in the late 1980s in Czech Republic. Therefore, the trends occurring in agriculture in the 1990s may be considered favourable in terms of environmental protection. In the period after 1990 the total area of uncultivated agricultural land was significantly extended (from 3 - 6 thousand hectares in 1990-1992 to 56 - 58 thousand in 1994 - 1999). The total land area of land resources as of 31.12.1999 represented 7,886,410 hectares, of which agricultural land comprised 54.3 % and forestland 33.4 %. The share of arable land (72%) remains high in comparison with EU countries. Enlargement of the area of built-up zones is also characteristic – growing demands of the tertiary sphere (trade, services, transport etc.) are making themselves felt markedly.
Environmental policy and its implementation in Czech Republic

Policy documents

Since the regime in the former Czechoslovakia changed in 1989, a total of three environmental policies have been adopted (in 1990, 1995, 1999, updating in 2001). The first one, the so-called Rainbow Programme (1990), was aimed at creation and institutionalisation of basic rules for environmental protection in a country that was one of the most polluted in the world. This policy laid the foundations for the current legislative system of environmental protection and instigated strengthening and establishment of new institutions necessary for its protection. The material managed to make use of the existing moods in society favourably inclined to “ecology” and environmental conservation. In the early 1990s these issues ranked among the public priorities of primary importance; unfortunately, since then interest in the environment has been declining and is being substituted by preferences for private, particularly economic, issues.

In 1995 the “revolutionary“ Rainbow Programme was replaced by a new environmental policy that was a significant step backwards. It ignored a whole range of modern requirements for environmental protection (for example, integration of environmental requirements in other departmental policies) and was too determined by the blind technocratic economise of that period. This policy totally neglected the principle of sustainable development, which was on the “black list” of the government of that time. The measures proposed in this policy were based on the end-of-pipe principle, i.e. rectifying the consequences of pollution of individual environmental compartments. Pollution prevention and systemic changes were omitted in practice.

In its statement of policy of 1998 the new Social Democrat government declared the principle of sustainable development. However, after three years the question remains unanswered of whether or not this principle was merely one of numerous pre-election (and subsequently, post-election) political proclamations. Although the principle of sustainable development is included not only in the new environmental policy but also in some other policies of this government, it has not been fulfilled in practice. The latest environmental policy approved in 1999 and updated this year. This policy has successfully stepped out of the shadow of the former policy and, at least formally, contains a number of modern principles, including greater emphasis on horizontal approaches and prevention. Its main engine has become the Czech Republic’s integration in the EU and the requirements resulting from it. The key principle of the new environmental policy is sustainable development, the policy also points to the principle of public participation and the necessity of interdepartmental co-operation and interconnection of sector policies. To a minor extent, other “standard“ principles, common in documents and legislation of the international community, are contained in it. In our opinion, particularly in the updated version, this environmental policy represents a relatively comprehensive, modern and high-quality material for environmental protection in the Czech Republic.

7 It concerns the precautionary principle, the prevention principle, the principle of risk reduction already at the source, the economic responsibility principle, the shared and differentiated responsibility principle, the subsidiarity principle, the integration principle, the principle of best available technologies, the principle of cost-effective solutions and the substitution principle.
Legal framework

In 1991-92 a set of new environmental standards was adopted. The right for a favourable environment and the right for environmental information were included in the Constitution of the Czech Republic. The new legislation provided a comprehensive legal framework for environmental protection. In the course of the 1990s new Acts and amendatory Acts covering a whole spectrum of environmental protection were passed. They are also necessary in terms of harmonisation of Czech legislation with EU requirements. In the beginning of the process of implementing EU law Czech environmental legislation met these requirements to 60%.

Adherence to and enforcement of new environmental legislation is not fully effective, particularly concerning forest economy, waste management and protection of endangered species. The key problem in implementing environmental law lies in insufficient definition of criminal liability, lack of supervisors from the Czech Environmental Inspection, low professional level of representatives of the public administration, judges and public prosecutors.

Institutional instruments

In connection with a new regional structure and the necessity of harmonising Czech environmental legislation, the existing system of state administration will have to be restructured and its performance in implementing laws and supervision, as well as enforcing their observance improved. Amid the prepared and gradually introduced legal regulation of to date unregulated areas (integrated pollution prevention and control) and also harmonisation of the entire current Czech environmental legislation with regulations of the European Community. It will be necessary to restructure and extend the existing state administration system (the Ministry of the Environment, the Czech Environmental Inspection, Administrations of Protected Landscape Areas and National Parks, district authorities) and supporting institutions of the Ministry of the Environment of agency type (as new legal regulations come into effect), and reorganise the state administration of environmental protection in compliance with the new regional-administrative division of the state.

The present specialist base is formed by the Czech Environmental Inspection, the Czech Environmental Institute, the Czech Institute of Geology, the Czech Institute of Hydrometeorology, the Agency for Nature Conservation and Landscape Protection of the Czech Republic, the Administration of Protected Landscape Areas of the Czech Republic, the Research Institute for Ornamental Gardening, the T. G. Masaryk Water Research Institute and the Geofund of the Czech Republic. In particular, conducting and co-ordinating tasks of the Ministry of the Environment have not yet had an appropriate specialist base. Therefore, it is necessary to strengthen the Czech Environmental Institute and to improve co-ordination between sectional institutes with the prospect of establishing the Czech Office for Environmental Protection after the function of regions has been assessed.

In 1991 the State Environmental Fund of the Czech Republic (SFŽP ČR) was established. In a decisive manner this public-law state financial institution supports environmental investments of municipal and other subjects. Finance from the SFŽP ČR is provided directly (subsidies, loans) and indirectly (credit guarantees, allowances for partial reimbursement of interest on credit); this support adheres to the Directive of the Ministry of the Environment and its annexes. The fund’s main revenue is from charges and penalties. Certain competencies in the environmental area were also delegated to other ministries: the Ministry of Agriculture (water and forest management), the Ministry of Industry and Trade (rocks, energy), the Ministry of Regional Development (land-use planning) and the Ministry of Health.
The new vision of an institutional set-up is defined in the updated State Environmental Policy. Its specific objectives and measures are as follows:

- To create at ministries whose activity relates to environmental issues conditions for preparation of conceptions, programmes and/or material decisions important in terms of environmental protection and sustainable development.
- To establish committees for sustainable development in the Chamber of Deputies and the Senate; to discuss the State Environmental Policy, Environment Status Reports and departmental policies of individual ministries in the Chamber of Deputies and the Senate.
- To establish bodies responsible for drawing up conceptions of sustainable development at the level of higher regional autonomous units and to support origination of equivalent bodies at the level of municipalities.
- With regard to high specialist demands for decision-making in a medium-term outlook, to establish a Czech Office for Environmental Protection that will concentrate decision-making and supervisory powers in issues of EIA, IPPC, accident control, decision-making according to CITES and the like.
- To consolidate the specialist-technical basis of the Ministry of the Environment.
- On the basis of thorough analysis of the present status, to carry out objective evaluation of competencies of central state administration authorities in land-use planning and forest and water management with regard to the necessity of consistent implementation of sustainable development principles in practice both at the state and regional level.
- To strengthen the Czech Environmental Inspection as an important instrument of enforcing environmental law and the specialist basis for IPPC.
- To ensure organisational preparation of the Ministry of the Environment and regions for projects pertaining to drawing of international funds for regional development support.

Economic instruments and financing of environmental protection

Czechoslovakia used economic instruments for environmental protection from the 1960s. After 1989 new environmental legislation significantly extended the system of economic instruments. The present system includes charges for environmental pollution (water and air), for using natural resources (water, agricultural soil, forests, and rocks) and for waste disposal. In the early 1990s an environmental tax (“ecotax”) was formally incorporated in the law on the tax system, however, it has never been applied in practice.

Since 1998 the Czech Republic also charges for the use of roads through road tax (revenue of USD 145 million), highways through the highway fee (USD 54 million) and fuels through consumer tax (USD 1,273 billion in 1999). Exemption from legal and natural persons’ income tax is valid for operators of small hydroelectric power stations and alternative energy sources. Ecological products also have a lower VAT rate (5%).

Expenditure on environmental protection has gradually grown; in 1990 it was 1% of GDP and in 1998 2.5%, approximately CZK 1.5 billion. In 1996 investments in environmental protection formed almost 7% of total investments (in comparison with other OECD countries in which they formed 1 - 3%). The quantity of public investments in environmental protection in the Czech Republic (0.8% of GDP) was similar to that in most OECD and EU countries. On the other hand, the amount of private investments in environmental protection was much higher (1.6% of GDP[8]).

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[8] The method of calculating these costs used in the Czech Republic differ from the method used in the OECD.
The state budget is the largest public source for financing environmental projects. It provides subsidies, redeemable monetary assistance and guarantees for commercial credits. Total expenditure from the state budget peaked in 1992 (USD 353 million) and then gradually decreased to USD 157 million in 1998. The state budget funded only 12% of all investments in the environment this year.

The second-largest public source of these investments is the State Environmental Fund of the Czech Republic. Expenditure of this fund reached its maximum (USD 185 million) in 1995 and fell to USD 73 million in 1999. Recently, the share of loans, combined subsidies and loans and guarantees for commercial credits in the Fund’s expenditure has been growing, whereas the share of subsidies declining.

The third public source is the National Property Fund, founded by the privatisation law to collect payments for sale of state property. It grants financial support to new owners for rectification of former environmental damage. The Fund’s expenditure steadily grew since its origination in 1993 (USD 300 thousand) up to USD 72 million in 1998.

In this expenditure foreign financial sources play a relatively minor role; in 1996 they accounted for USD 50 million (5% of total expenditure). The main source was the PHARE programme for air pollution reduction.

During the period of transformation, the private sector significantly contributed to environmental improvement. The share of private investments increased from 1.4% of GDP (72% of total costs) in 1993 to 1.6% of GDP in 1996. The most important role (in terms of sectors) in these private investments was played by industry. However, most measures funded were based on end-of-pipe technologies (for example, in 1994 only 8% of expenses were formed by innovations of obsolete technologies).

**Participation and information of the public**

At the beginning of the 1990s environmental legislation introduced completely new regulations for participation of the public in environmental decision-making: environmental impact assessment and administrative procedure pertaining to environmental protection. In 1998 the Act on the right for environmental information was adopted. Since 2000 the generic law on free provision of information has been in effect. Every year the Ministry of the Environment issues the Environment Status Report in the Czech Republic. The report is approved by the Government and discussed in Parliament. The mentioned changes have significantly contributed to the possibility of the public’s participation in the decision-making process.

A serious problem remains the practical enforceability of these rights. Wider and more effective information for the public and its real participation is hindered on the one hand by lack of willingness of "officials“ (in the widest sense of word and at all levels of state administration) to provide the information required, and on the other by general passiveness and apathy about public matters on the part of citizens. Whereas the unwillingness of officials can be broken down by perseverance and consistent implementation of legal standards, lack of citizens’ interest, a legacy of the all-embracing apathy of the previous regime supported by the disgust at the "transformation crimes“ of the new regime, is much more difficult to overcome.

At the present time, the role supposed to be played by citizens is undertaken by various citizen associations, which frequently enter administrative procedures and defend citizens’ interests. Often it is also non-governmental organisations (and not the respective bodies authorised to do so) that disclose deficiencies and mistakes in these procedures. Mistakes of officials then lead to revocation of procedures and delay of decision-making proceedings (frequently, it is even a question of years). Delays in these proceedings are automatically attributed to "ecologists“, not mistaken officials.
In general, it can be said that the public becomes familiar with the majority of controversial projects and plans too late, when its chances to change or influence things in a favourable direction are significantly limited. Engagement of both the public and citizen associations in preparation and approval of strategic materials, which for a long time to come determine the development of an area and condition its protection (for example, land-use plans, regional development strategies etc.), is very often insufficient and formal. Local Agenda 21 programmes provide a suitable platform for engaging and informing the public. Unfortunately, properly functioning projects of this type in the Czech Republic can be counted on the fingers of one or two hands. If the public does become engaged, in a vast majority of cases it has merely a consultative nature, not a real share in decision-making.

The public’s interest in the environment

The overall ecological situation in the Czech Republic at the end of the "transformation decade" is still considered critical. Only 24 % of citizens are satisfied with it, 41 % “quite” satisfied and 29 % dissatisfied with the environmental status in the country. Rather more favourable is local evaluation. 55 % of citizens are satisfied with the environment in their immediate vicinity, 31 % express mid-satisfaction and 13 % are dissatisfied (IVVM, 2000). In comparison with previous years, slight growth of satisfaction with the ecological situation in both the place of residence and the whole country has continued. In 2000 evaluation of environmental legislation and its practical implementation also improved slightly. However, highly critical remains the view of environmental behaviour of companies and their land demands when building new facilities.

More than two thirds of the Czech Republic’s citizens (70.2 %) appreciate the conduct of environmental organisations in the Czech Republic, while 17.4 % have the opposite opinion, as was revealed in a survey published in August 2000 (Sofres-Factum, 2000). Almost one third of citizens (29 %) consider "most allegations of environmental organisations false and misleading". 54.9 % disagree with this statement, the remaining 16 % do not know. Even greater proportions of citizens (37.5 %) believe that "all ecological associations are basically extremist organisations". 48 % of people disagree with this claim, the remaining 14.5 % do not know.

Environmental policy and its implementation in Hungary

Hungarian environmental policy of the transition period has been subordinated to the absolute primacy of economic and fiscal considerations. The government and the Parliament were pre-occupied with economic stability and transformation issues. Environmental policy was not an issue in elections (including local government elections) and did not constitute an important part of the political program of the parliamentary parties. The low political prestige of environmental issues was demonstrated by the consecutive governments in several ways: for instance, by freezing the use of the national environmental fund for years when environmental investments were already particularly low, or keeping in office for 2 years an environmental minister who proved repeatedly incompetent.

9 See report of the CES prepared by T. Rettich, (1998)
10 The only exception, though important exception was the case of the Bos-Nagymaros dam which did influence election campaign. However, it was a single issue, an independent decision that was not embedded into a systematic environmental policy.
Sustainable development is hardly mentioned as a national, comprehensive goal for Hungary, let alone as a "key priority" even in a form of lip-service. Politicians, political documents focus on sustained economic growth instead. Promoting sustainable development as a goal appears only in some specific sectoral policies: in environmental policy, of course, in rural development policy (which is influenced by the SAPARD program of the EU and its environmental goals), in the energy efficiency program of the government or in the research-innovation strategy.

While the European Commission proposes that the Council and the European Parliament integrate environment and sustainable development into economic policy, environment is still seen by Hungarian politicians as a separate, distinct section of policy. It is perceived as an obstacle to economic growth, which consumes financial resources that could be better used for economic investments. The start-up of environment-related programs, like the agro-ecological program, and the energy efficiency program as well as the parliamentary debate on the proposed law on user charges, have been delayed for years. It is argued that there are no funds for these programs, or charges will hamper the competitiveness of the Hungarian economy. These arguments are not based on strategic environmental impact assessments as strategic environmental impact assessments of policies; plans and programs are not applied in Hungary. Due to the lack of integrated approach, there are contradictions between environmental and economic aspects in the fiscal policy. The OECD has urged Hungary to abandon unsustainable subsidies that divert the price of energy and natural resources from their real value. Nevertheless, this practice has been continued. (For instance, subsidies for fertilizers have been re-introduced.) This approach to economic governance is an obstacle to green budgeting as well.

If compared to the state of the environment, the need for sustainable development or the requirements of environmental harmonization with the European Union, environmental policy can be criticized with good reason. International assessments, which generally focus on the work to be done, are very critical. The EU Commission regularly confirms that environmental harmonization is one of the weakest point in the harmonization process. The latest EU regular report also found that Hungary has satisfactorily addressed most of its short-term Accession Partnership priorities with the exception of agriculture and environment, among others. The OECD Environmental Performance Review of Hungary assumes that "the road towards environmental convergence with other European OECD countries will be a long one."12

If, however, the recent environmental policy is compared with the policy on the beginning of the transition period, the progress is impressive.

The new Hungarian environmental policy and its documents, including the National Environmental Program for the 1998-2002 period, are based on the Environmental Action Plan for CEE, the Fifth Environmental Action Program of the EU, as well as Agenda 21 as guidelines. The Hungarian policy refers to and applies the same principles, as its models, e.g. the precautionary principle, the polluter pays principle, public involvement, etc. Harmonization of environmental legislation with the EU legislation is under way. A series of important laws were adopted, including the comprehensive law on environment protection, the laws on nature conservation, formation and protection of the built environment, environmental impact assessment, environmental protection product charges, waste management, etc. Environmental regulations were incorporated into other new or existing laws (e.g. the law on public procurement, the law on accounting, the law on bankruptcy, on taxes). Standards have been updated; new standards and new financial instruments have been introduced.

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11 In their Paris meeting in 1998, ministers from OECD countries reiterated that the achievement of sustainable development is a key priority for OECD governments. OECD (1998)
12 OECD (2000).
Environmental expenditures have been increased and reached about 1.5% of GDP in 1997. Compared with OECD Europe, this share is relatively high, however, other Visegrad countries with similar challenges of environmental convergence allocated a higher share of their GDP to pollution abatement and control investments. Environmental investments are also inadequate if compared to the cost of meeting EU environmental requirements. These costs are staggering. They are estimated at $7.2 - 10 billion \[^{[3]}\] some other sources\[^{[4]}\] put the estimate at 8.2 billion. With the current level of pollution abatement and control expenditures, however, it would take Hungary 30 years to meet present EU environmental requirements.

Environmental investments were directed mainly to water pollution abatement, but there were significant investments in waste management, clean-up of former Soviet military bases and some industrial sites with hazardous waste, as well as in air pollution abatement.

With the EU accession tasks in focus, there have been little attention given to urban environmental issues. Urban dimensions are missing from the national environmental policy. There are no special goals set for urban environment. It is assumed that urban environment will benefit from other policies, e.g. general air pollution abatement or clean-up projects. Basically, the urban dimension is left with local governments (which obviously do not have financial and human resources to cope with this task), or referred to the national land use concept, which is focusing on economic and social issues and does not address specific urban environmental problems either). Unlike the European Union, which has special urban project, the Sustainable Cities Project, in Hungary there is no governmental support, coordination or technical assistance to city governments to deal with the problems. As a consequence, there are very few cities that work on Local Agenda 21 projects, and only one Hungarian city has signed the Aalborg charter (while there are several Albanian, Ukrainian, Polish and other CEE signatories).

### Environmental policy and its implementation in Poland

**Policy documents**

The environmental policy during transformation period was defined in three major documents:

- National Environmental Policy (NEP) adopted by the Parliament of the Republic of Poland on May 10, 1991 contained a list of environmental protection directions and priorities in Poland. They were implementing guidelines for all agencies of government and self-government administration and business and municipal entities, as well as for the citizens and all types of their associations for next 10 years of transformation period. The NEP became a key document specifying the main objections and tasks intended to check the environmental degradation in Poland and identifying strategic goals for improving the quality of Poland’s environment. The NEP formulated general rules, which the users of environment in Poland should follow in order to meet the requirements laid down by the policy of sustainable development. The main task of environmental protection administration was supposed to be the enforcement of these principles. The rules were connected largely with the transformation processes, in particular with adjustment processes taking place in the enterprises sector, communal sector, and the households determined the effects of the policy of sustainable development during the transformation period. The rules of strategic importance for the implementation of sustainable

\[^{[3]}\] Kiss, K., Budapest University of Economics and Public Administration

\[^{[4]}\] Magyar Hirlap, 05/31/200
development in economic activity and every day life in Poland during the transformation period.

- Implementing Program of the NEP by the year 2000 adopted by Council of Ministry in September 1994. The Implementing Program was a first attempt to conceive the assumptions of a medium-term national environmental policy for the next few years (by the year 2000). This was also the first attempt to update and specify the goals and tasks of the NEP during the period of Poland's economic transformation. The Implementing Program was also the first government document, which launched a thesis about the economic and systemic conditionally of the effectiveness of the national environmental policy. In the introduction to the Implementing Program we read that the implementation of adopted medium-term goals and tasks was not certain due to the lack of government economic programs going until the year 2000 in the energy, industry, transport, building construction, agriculture sector and other branches of the national economy. These goals and tasks will have to be adjusted as and when such economic programs were created and adopted. The introduction also mentions the availability of financial resources as a condition of the performance of the Implementing Program.

- Second National Environmental Policy (II NEP) adopted by Council of Ministry in July 2000 presents directions, priorities and goals of environmental policy for the next 20 years. The main reason for update the environmental policy was new conditions that happened during last 10 years of changes in Poland.

Poland’s National Environmental Policy (the NEP) of 1991 has been the basis for all policy decisions regarding the environment in the past 10 years, and has contributed to the great improvements in environmental quality that the country has seen since then. The policy is modern and far-reaching in that it emphasizes cost-effectiveness, decentralization of environmental responsibility, and public participation, as well as the use of economic instruments. It established short, medium and long-term priorities. Short-term actions concentrated on the most immediate threats to public health. Medium term priorities included systematic actions to reduce pressures on the environment and to protect air, water, soils and natural systems, with precise goals for further reductions in key pollutants, improved sanitation coverage, improved quality water supplies, safe storage or disposal of water. They aimed to bring Poland gradually in line with the environmental policies of the EU as well as to meet country’s obligation under international environmental agreements.

Despite the fact that the introduction unequivocally referred to sustainable development, the Implementing Program did not really contribute anything new to the goals and tasks of the NEP formulated at the beginning of economic transformation in Poland. In this respect, the Implementing Program was a continuation of a conservation way of thinking in solving environmental problems in Poland. The Implementing Program which one should assume, was supposed to attempt to spell out Poland's environmental policy in line with the recommendations of the Program of Action for CEE countries (Lucerne 1993), still lacks a clear vision of how to activate macroeconomic policy and systemic adjustments to increase the possibilities of implementing environmental policy. The Implementing Program did not make references to the government program of economic development "Strategy for Poland". It also did not formulate specific postulates for the government economic policy for the coming years.

II NEP is rather inventory of current environmental problems and future challenges than new, modern environmental policy for the beginning of XXI century. The priorities and goals aren’t integrated in a one framework and the implementation program was not developed. Lack of connection with economic activity and social needs provide this document on the margin of Polish political scene. The integration with others policies and strong implementation scheme there the most important weakness points of the document. II NEP
takes to account the state of art of institutions, instruments and legal system in modern environmental management in developed countries. But all of them are presented without the background of Polish conditions for their implementation.

The main reasons of low effectiveness of Polish environmental policy we can find in:
- Domination of economic and social goals on environmental ones;
- Lack of financial and technical support for SME on their way to eco-innovation and environmental friendly restructuring;
- Inconsistent in privatization policy as well as policy against domestic and foreign private investors;
- Lack of consistence between environmental policy and sectors ones;
- Too little use of effective economic instruments;
- Too short horizon use in economic and financial analyzes of environmental investments;
- Not sufficient public participation;

Instruments and regulations of environmental policy

Apart from the weaknesses of environmental policy in Poland during the 1990-2000 a lot of mechanism, instruments and regulations were prepared and adopted. Important are to mention that many of them working in the conditions of macroeconomics and fiscal policy as well as structural changes reforms. The most important were:
- system of environmental funds from nationwide up to local one;
- set up and strengthening the environmental standards but some of the from political and social reasons work not efficient;
- regulation that allowed to shot down a company violated against environmental law;
- to create the list of “80” and “800” most polluted companies of national and regional level with to prepare and implement an environmental action program;
- to introduce the areas of ecological hazards as a legal entity;
- to create and implement a lot of programs focus on natural resources efficiency specially on energy one.

The implementation of environmental policy met a lot of difficulties. For example:
- polluter pay principle was adopted selectively;
- internalization of external costs were very limited;
- prevention instruments were used not on time and with narrow scope (product charges, deposits etc.).

Legal system

Polish environmental legislation currently being in force has been developed to most extent in the early 1990s when the new market economy has been created and in great measure amended in 1997 - 2000 when Polish economy has started to be adopted to the EU legal system. The legal basis for protection of specific components of the environment: air, water, land, natural resources, is the Act on the Protection and Shaping of the Environment from 1994. Up to 1994 was valid the Act on the Protection and Shaping of the Environment from 1980 amended in 1989, 1990 and 1993. The same procedure of improvement has been applied to some other environmental acts for example to the Act on Land Use Planning or the Act on Geological Concessions. However since 1991 after the Parliament approved the National Environmental Policy that up to 2000 created framework for activities of all administrative bodies, economic entities, self-governments and individuals affecting or influencing the condition of the environment the process of producing new legislative acts has been sped up.
There are some reasons which caused that new environmental regulations was necessary to introduce:

♦ adjustment the environmental regulations to the EU legal requirements,
♦ adjustment the environmental regulations to free-market economy,
♦ making the existing environmental law provisions more effective in democratic society,
♦ removal of environmental law provisions non-compatible with requirements of the new National Environmental Policy,
♦ introducing new environmental institutions and tools adequate to principle of sustainable development,
♦ eliminating gaps in existing environmental regulations,
♦ introducing of environmental regulations into areas where the environmental law has not existed or has been insufficient.

The package of new environmental laws consisted of:

♦ the Act on the State Inspectorate of Environmental Protection (1991),
♦ the Act on Forests (1991),
♦ the Act on Nature Conservation (1991),
♦ the Act on Mining and Geological Concession (1994).
♦ the Act on Land Use Planning (1994),
♦ the Act on Wastes (1997),
♦ the Act “Energy Law” (1997),

Along with the acts dozens of decrees and executive orders has been passed to make the enforcement of environmental laws more effective. For the execution of environmental laws has been established in 1991 the State Inspectorate of Environmental Protection which was the main administrative body for supervising and controlling entities and individuals if their activities comply with the environmental law provisions (ecological police) and for examining and recording changes in the quality of the environment (monitoring).

The main features of Polish environmental legislation in transition period are following:

♦ going in line with systemic and political changes resulted from development of market economy,
♦ giving priorities rather for administrative regulations than for civil code provisions,
♦ shifting responsibilities for the state of the environment from central and regional administration to the self-governments, local communities and users of the environment,
♦ addressing of international requirements resulted from signed and ratified by Poland international environmental agreements and protocols,
♦ harmonization of law provisions with EU environmental law mechanism (more intensive feature since 1996),
♦ taking into account real economic and financial capacity of the state and the users of the environment as a factor crucial for their possibilities to commit environmental law requirements,
♦ adopting of sectors of environmental law that were lacking in Polish legal system for example connected with the right to know on state of the environment and contribution of the society in processes of taking decisions referring to the environment or its changing.

The main goals achieved in environmental legislation in the nineties were:

♦ creating of effective mechanism of monitoring and controlling of compliance with environmental regulations (legal and institutional solutions),
introducing of effective mechanism of co-financing the environmental investments and other undertakings by the environmental funds (supplied from charges and fines levied from users of the environment,

- introducing the new legislation tools into every-day practices of administrative, economic, self-governments bodies and other users of the environment (requirements of performing of Environmental Impact Assessment by the Acton Land Use Planning,

- introducing of transparent system of responsibilities for the state of the environment and resulted from it system of charges and fines,

- introducing of solutions corresponding with creating democratic society in Poland: the right to know on environmental information.

To take to account the whole period of transformation the environmental legislation has increased as a tool of environmental policy. But still it is not enough to fulfill of market economy requirements. The legal gaps specially affected: waste and hazards materials management including packaging, water management, renewable energy sources, natural resources management, forestry and agriculture, chemical substance and fertilisers, land use. During 1990-2000 these gaps effected negatively implementation on NEP.

**Funding environmental protection**

A characteristic feature of environmental management in Poland is its integrated system for funding environmental protection. Primarily, it is based on environmental funds: the National Fund for Environmental Protection and Water Management, the provincial (voivodship) funds, the local (poviat) funds - since 1999 and the community (gminas) funds, and the Bank for Environmental Protection which co-operates with them.

This system supports investors’ own funds with preferential loans and credits as well as grants. They are complemented with central budget funds, the Polish debt-for-nature-swap funds managed by the EcoFund, the funds from a variety of environmental foundations, commercial banks, foreign assistance funds, provided, e.g., within the framework of the Phare Program, The Global Environmental Facility, bilateral assistance and foreign bank credits.

The funds for environmental protection and investors’ own funds still remain the main source of funding environmental projects in Poland and that the other sources play auxiliary role. Still, particularly the Bank for Environmental Protection and the EcoFund, they are a very essential element of the whole funding system.

During the transformation period the role of different source of environmental financing is changing. On the beginning the crucial role-play environmental funds with the peak in 1992 with the share of 58%. After that the role of the funds was declining up to 25% in 1999. Simultaneously increase the role of own resources and banking credits up to 46% in year 1999. State budget was declining from 7% up to 2% in 1999 and local budget and credits of local self-government moving between 13 to 23 % during this period. In 1999 first time the foreign source break the level of 10% before it was something about 5%. During the period 1990-1995 the share of environmental investments in total investments as well as share in GDP were growing from 3,6% up to 6,7% and from 0,7% to 1,0%, respectively. In 1996 the classification of environmental investments was change why is impossible to compare with data from second period of nineties. From 1996 both indicators are declining from 9.4% up to 6.8% in 1999 and from 1.6% up to 1.4%, respectively. This is the effect of deep social reform that was started three years ago as well as the declining of dynamics of GDP growth.

**Public participation in environmental decision-making**

During discussed period the important changes for public participation has happened. In 1990 the system of EIA was introduce, similar to international standards but with weak
procedural mechanism. The EIA Commission was set up and the few regional one as well. These last ones without the success. The formal public participation was guaranteed in the process of land use planning.

After Rio conference the some activity to introduce the Local Agenda 21 in Poland happened. Unfortunately the answer was very limited. For almost 2,500 local communes probably only 10% have started more or less serious process to prepare the local sustainable program with strong public participation.

Unfortunately is necessary to mention that public participation and access to information is not fully understand and accept by authorities. Very often the authorities disrespect public opinion and presented the lack of understanding importance of public participation. As well as it is long way for society to understand the mechanism of civic society including public participation and access to information. Many people are neglected and not believe in this mechanism.

The years 2000 and 2001 are formally critical. As a part of accession process the Act on access to environmental information and environment impact assessment was adopted by Parliament and Poland ratified the Aarhus Convention. The strategic impact assessment was introduced as well.

**Changing to public awareness**

The ten years period showed clearly that from one side the society see some positive changes in the state of environment (45% in 2000 see the positive change in last five years) but the difficulties of day by day life has changed the importance of environmental issues between 1992 and 2000. From first position between tenth issues more important for societies to fifth position. Simultaneously the consumption western pattern is growing and some people see environment and environmentalists as the barriers for future development. Between 1992 and 2000 the pro-ecological group was declining from 34% to 22%.

The society see local governments and themselves as a most responsible for environmental protection. In 1992 the statement about local governments was accepted by 63% but in year 2000 72%. The role of individual activity was grown from 35% in 1992 up to 53% in year 2000. Specially the relations between health and environmental condition are most promise. Simultaneously the society very critically sees the activity taken to account by Parliament and government. In year 2000 60% said that they do nothing or almost nothing.

During the period 1992-2000 still was the tendency to know more about international environmental organizations as the Greenpeace then about the local ones.

**Similarities and differences between Czech Republic, Hungry and Poland**

To compare the polices and their implementation from the three countries we can find a lot of similarities. Each of these countries produce the nice but difficult to implement documents call national environment policy. The enforcement of the policy including legal system, economic instruments as well as public support are too weak. Societies, politicians, political documents, sector policies focus more on economic growth and partial social problems but very little on environmental issues.

The economic instruments and legal system have a lot of similarity but of course some detail solutions are different. The understanding of public participation and role of access to information among the authorities and public are very similar. Both sides are not read yet for introduce fully the civic society. The level of public awareness is the similar one.
The differences between policies and their implementation are not too big. The first it is the time when similar solution was taken to account. The process of privatization was and is still different in respective countries and it is affected the environmental issues as well. The role and legal framework of environmental funds is different. Some innovated instruments were introducing for example the first step of eco-taxation in Czech Republic.

CONCLUSIONS

The report has demonstrated that the first ten years of transition brought visible improvement in environmental quality and spectacular development of environmental legislation, regulation and institutional system in three respective countries. However, despite these significant achievements, the approach of this policy was conservative. One dimension of this conservatism was that the still very low prestige of environmental protection. This is reflected by the fact that the goal of environmental protection and sustainable development has not yet been introduced on the higher levels of policy-making even as a lip-service. These goals appear only at lower levels of goals, in some sector policies related to environment.

Another dimension of conservatism is that environmental protection is usually perceived as an obstacle to economic interest. As a result of this, environmental policy is just added up to other policies creating conflicts between different policies. Integration of environmental considerations into other policies, which is a more progressive approach, has also occurred only on lower level of policy-making and mostly in the second part of the examined period.

Due to this approach, environmental policy has pursued a tracking strategy, taking the path of development of the developed countries, and following their examples, developing the economy first and putting off environmental development to a later phase, after having achieved a higher level of development, despite the fact that this strategy implies environmental decline in some fields (the share of railway transport as well as the share and level of public transport) or blocks development of environmentally friendly alternatives for many years in some other areas. Increasing environmental expenditures are anticipated only after the integration of the country into the European Union.

This conservative approach can be justified by several reasons:

- First, the public as well as the politicians was much more worried about the economy than the environment.
- International pressure urged economic catch up instead of a break-through.
- Environmental friendly alternatives of economic development did not look feasible. Development of environmentally friendly technologies was hindered by the lack of inexpensive, proved technologies, investors/capital or financial resources to subsidize the introduction and the operation of such technologies. This way, neither the production of renewable energy nor alternative waste management and recycling technologies posed real break-through opportunities for industrial development.

Due to these circumstances, environmental industries did not provide a realistic general economic alternative. However, there were some areas where faster introduction of environmentally friendly alternatives could be achieved without significant financial support and could bring economic results. The production and use of biomass or organic agriculture seem to be such areas. Due to its tracking strategy and risk avoiding character, environmental policy did not support these activities by this avoiding potential economic losses as well as preventing the potential extra profit of innovation as well.
While the general conservative approach can be justified by the economic circumstances of the 1990s, this does not imply the conservative approach to the application of economic and financial tools presented earlier in the paper. Subsidies to environmentally adversary or unsustainable activities entail incorrect decisions from the producers and the consumers and result in pollution or the waste of the natural resources. Lack or delay of internalizing external costs involves similar consequences, no matter whether economic tools are perceived as incentives of innovation and environmentally sound decisions or as sources for generating governmental revenues. Therefore, the lack of such tools is a weakness of the current Czech, Hungarian, Polish economic policy.

Economic problems of the 1990s also implied the development of monitoring and controlling capacities as well as the development of the non-governmental environmental organizations, which has its bearings on the enforcement of the regulations as well as the performance of NGOs. These are problems to be solved in the very near future in order to improve the output the effectiveness of environmental policy.

The XXI century opens for the CEE countries a great opportunity for switching from traditional development and western pattern of consumption to more sustainable society. First ten years was more focus of solve very difficult problems came from past. Now is the time to starting new step, environmentally friendly step of restructuring. It’s generally means:

- Take to account long term consequences in current decision-making process;
- Integration of sectoral policies with environmental one;
- Promote eco-innovation technology and management;
- Introducing the external costs in the price of goods and services;
- Mobilizing new and widening traditional sources of funding environmental investments;
- Creation of strong institution for public participation and free access to information;
- More focus on new problems as: mass motorization, municipal waste and urban environment and development;
- Switching from formal integration with EU to sustainable oriented one.

To put more pressure on sustainable way of development during our process of integration with EU gives opportunity not only be the passive actors of this process but the active ones. The Czech Republic, Hungry and Poland need to be their ambitious not only to join EU as quickly as possible but to join on most sustainable way and conditions. The three countries with long and difficult environmental history in the past and currently have duty and rights to be in „green“ in the new comers and to join the club of „green“ countries in wider EU.