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<tr>
<td>ALMP</td>
<td>Active Labour Market Policies</td>
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<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
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<td>BCC</td>
<td>Business Centre Club</td>
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<td>RDB</td>
<td>Regional Data Bank</td>
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<td>CATI</td>
<td>Computer Assisted Telephone Interview</td>
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<td>CAWI</td>
<td>Computer Assisted Web Interviewing</td>
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<td>CPI</td>
<td>Consumer Price Index</td>
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<td>CSO</td>
<td>Central Statistical Office</td>
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<td>DG REGIO</td>
<td>Directorate General for Regional Policy</td>
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<td>ECB</td>
<td>European Central Bank</td>
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<td>ERDF</td>
<td>European Regional Development Fund</td>
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<td>ESF</td>
<td>European Social Fund</td>
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<td>EPRC</td>
<td>Economic Policy Research Centre</td>
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<td>CF</td>
<td>Cohesion Fund</td>
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<td>KBE</td>
<td>Knowledge-Based Economy</td>
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<td>GIME</td>
<td>Gdańsk Institute for Market Economics</td>
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<td>IBS</td>
<td>Institute for Structural Research</td>
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<tr>
<td>ICT</td>
<td>Information and communications technology</td>
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<td>IDI</td>
<td>Individual In-Depth Interviews</td>
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<td>IGSO</td>
<td>Stanisław Leszczycki Institute of Geography and Spatial Organization of the Polish Academy of Sciences</td>
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<td>BEI</td>
<td>Business Environment Institutions</td>
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<td>IPPC</td>
<td>Integrated Pollution Prevention and Control</td>
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<td>ISCED</td>
<td>International Standard Classification of Education</td>
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<td>TSGU</td>
<td>Territorial Self-Government Units</td>
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<td>NWMP</td>
<td>National Waste Management Plan</td>
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<td>NPMWWWT</td>
<td>National Programme for Municipal Waste Water Treatment</td>
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<td>CNSD</td>
<td>Concept of National Spatial Development</td>
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<td>NSS</td>
<td>National System of Services</td>
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<td>MRD</td>
<td>Ministry of Regional Development</td>
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<td>SME</td>
<td>Small and Medium-sized Enterprises</td>
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<td>NDP</td>
<td>National Development Plan</td>
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<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>NSRF</td>
<td>National Strategic Reference Framework</td>
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<td>NCS</td>
<td>National Cohesion Strategy</td>
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<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>RES</td>
<td>Renewable Energy Sources</td>
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<td>PAED</td>
<td>Polish Agency for Enterprise Development</td>
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<td>PEFS</td>
<td>Subsystem for monitoring of the European Social Fund</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>CAC</td>
<td>Consulting and Advisory Centres</td>
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<td>OP</td>
<td>Operational Programme</td>
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<td>HC OP</td>
<td>Human Capital Operational Programme</td>
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<td>OP TA</td>
<td>Operational Programme Technical Assistance</td>
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<td>PUP</td>
<td>Poviat Labour Office</td>
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<td>CSF</td>
<td>Community Support Framework</td>
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<td>RFI</td>
<td>Regional Financing Institutions</td>
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<tr>
<td>HRD</td>
<td>Human Resources Development</td>
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<tr>
<td>SIMIK</td>
<td>Information System for Monitoring and Control (Polish: System Informatyczny Monitoringu i Kontroli)</td>
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<tr>
<td>SOP</td>
<td>Sectoral Operational Programme</td>
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<tr>
<td>SOP AGRI</td>
<td>Sectoral Operational Programme Restructuring and Modernisation of the Food Sector and Rural Development</td>
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<tr>
<td>SPO FISH</td>
<td>Sectoral Operational Programme Fisheries and Fish Processing</td>
</tr>
<tr>
<td>SOPT</td>
<td>Sectoral Operational Programme Transport</td>
</tr>
<tr>
<td>SOP ICE</td>
<td>Sectoral Operational Programme Improvement of the Competitiveness of Enterprises</td>
</tr>
<tr>
<td>PAS</td>
<td>Project Accounting System</td>
</tr>
<tr>
<td>TEN</td>
<td>Trans-European Networks</td>
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<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>WB</td>
<td>World Bank</td>
</tr>
<tr>
<td>WMDT</td>
<td>Multimodal Transport Accessibility Index (Polish: Wskaźnik Międzygałęziowej Dostępności Transportowej)</td>
</tr>
<tr>
<td>IROP</td>
<td>Integrated Regional Operational Programme</td>
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</table>
This report has been prepared on the basis of “National Development Plan 2004-2006” adopted by way of Ordinance of the Council of Ministers on 22 June 2004. As a result of negotiations between Poland and the European Commission this document has been significantly changed as reflected in the “Community Support Framework for Poland 2004-2006”, adopted pursuant to the decision of the European Commission of 22 June 2004. As the National Development Plan is broader than the Community Support Frameworks since it also defines the amount of intervention from the Cohesion Fund and Community Initiatives: EQUAL and INTERREG, in the ex post evaluation process both documents were taken into account since both of them constitute the actual basis for implementation of the Cohesion Policy in the first period of Poland’s membership in the European Union.
In 2004 Poland became a full member of the European Union and also one of the biggest beneficiaries of support under the EU Cohesion Policy. The strategy on the use of EU funds received by Poland in the short-term perspective 2004-2006 has been specified in detail in the National Development Plan 2004-2006 (NDP 2004-2006). This document constitutes the basis for disbursement of nearly EUR 20 billion\(^1\) as part of EU Cohesion Policy implementation in Poland.

The NDP 2004-2006 was an unprecedented project in the history of Poland (in terms of the amount of financial resources, as well as in terms of the process of preparation and implementation of the strategic document). It has also been the largest structured public intervention, consistently implemented over three consecutive parliamentary and government coalitions. At the same time, the NDP constituted a certain introduction to the opportunities of using significantly more resources under the National Cohesion Strategy 2007-2013.

The main objective of the NDP 2004-2006 was the development of a competitive economy based on knowledge and entrepreneurship, capable of long-term, sustainable development, ensuring growth in employment and improvement of social, economic and spatial cohesion in relation to the European Union, at both a regional and national level\(^2\). NDP 2004-2006 was implemented by means of seven operational programmes and two community initiatives as well as infrastructural projects co-financed by means of resources from the Cohesion Fund.

**Has the intervention implemented under the NDP 2004-2006 in fact contributed to an increased competitiveness of the economy, capable of long-term and sustainable development at the national and regional level?** Finding the answer to this question is the main purpose of this report. Moreover, the report is also aimed at indicating the types of intervention which proved to be successful and effective as well as those which should not be continued in future financial perspectives\(^3\).

The results of fourteen ex post evaluations constituted the basis for this report implemented by independent research institutions and commissioned by the Department of Structural Policy Coordination, Ministry of Regional Development. The projects

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1. EU and national resources (public and private) in current prices.
3. Obligation to conduct ex post evaluation of the NDP results directly from Article 61 (1) of the Act on the National Development Plan (Dz.U. No 116, item 1206, as amended).
were implemented within three dimensions: horizontal, sectoral and territorial and conducted in the years 2009-2010. The full versions of reports, together with reports on methodology and appendices, are available at www.ewaluacja.gov.pl, under the “Ewaluacja ex post” tab. All research projects were co-financed with resources from the European Regional Development Fund under Technical Assistance Operational Programme 2007-2013.

The report includes a synthesis of the most important conclusions from the above-mentioned evaluation projects, earlier research, analytical projects and many others. It consists of the following six parts:

- Macroeconomic effects
- Human capital and employment
- Competitiveness and innovativeness of enterprises
- Transport infrastructure
- Environmental protection
- Implementation system

Each part contains the same elements, namely a short socio-economic diagnosis at the moment of commencing NDP implementation, the main directions of interventions under the NDP, the most important consequences as well as conclusions and recommendations. It includes also conclusions and recommendations of a horizontal nature, concerning the entire Cohesion Policy.

The evaluation should provide information that will be useful in the essential decision-making process. Therefore, conclusions and recommendations following on from this report should contribute, among others, to:

- improving the quality of the intervention implementing process under the National Strategic Reference Framework and Operational Programmes 2007-2013, particularly through finding optimal directions for the allocation of the performance reserve,
- establishing the shape and the system of implementing the Cohesion Policy after 2013, including in particular preparation of operational programmes for the next financial perspective,

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4 The structure of the report is in accordance with the system of six groups administering the process of evaluating the NDP and NSRF (under which research is being conducted), which in turn are a derivative of objectives of the National Cohesion Strategy 2007-2013 (see “NDP evaluation system 2004-2006 and NSRF 2007-2013”, MRD 2007).
• improved implementation of national public policies supporting development, in particular integrated strategies which are currently being prepared\(^5\).

The final quality and usefulness of this report will be indicated by the degree to which the presented conclusions and recommendations\(^6\) are used in practice, thereby constituting the realisation of *evidence-based policy* in the measures taken by the Polish public administration.

\(^{5}\) It applies to the following strategies: 1) Strategy for the development of the Republic of Poland’s national security system 2) The security of energy supplies and environmental safety, 3) An efficient state, 4) The strategy for innovativeness and efficiency of the economy, 5) The strategy for the development of transport until 2020, 6) The strategy for the development of social capital, 7) The strategy for the development of human capital, 8) The strategy for sustainable development of rural areas, agriculture and fisheries.

\(^{6}\) These conclusions should not be used, unless they have been verified properly in terms of validity in reference to the current socio-economic situation and the practice of implementing EU funds in the 2007-2013 perspective.
The objectives and context of programming and implementing the National Development Plan 2004-2006

Programming logic of the NDP 2004-2006

Programme documents for the period of 2004-2006 were prepared during an economic downturn linked to a significant increase in levels of unemployment in Poland and a reduction in GDP growth. These factors had the greatest influence on the selection of objectives and instruments for implementing the NDP.

Moreover, circumstances connected with economic conditions coincided with Polish economy’s structural problems indicated in the diagnosis for the NDP, including in particular: the low level of employment in the economy (particularly of women), the very high proportion of inefficient and fragmented agriculture in the structure of employment resulting in low economic efficiency and high hidden unemployment in rural areas, the low endogenous development potential of rural areas, deepening inter-regional divergence (e.g. resulting from Warsaw’s rapid development), structural issues with certain sectors of the economy (mining, heavy industry, etc.), the entire economy’s low level of innovation (very low and declining expenditure on R&D and little inclination of cooperation between the business sector and R&D) and the weak development of a knowledge-based society, high levels of unemployment (particularly among young people and the long-term unemployed), the poor condition of transport infrastructure hindering the competitiveness of the entire economy, while the role of road transport is dominant and growing.

The diagnosis is reflected in the main objective.

The strategic objective of the Community Support Framework is to develop a competitive economy based on knowledge and entrepreneurship ensuring employment and the improvement of social, economic and spatial cohesion.

The methodology behind achieving the strategic objective was based on two pillars: high and sustainable growth and employment, as well as five partial objectives of the CSF:

- Assistance in achieving and maintaining of high, long-term GDP growth,
- An increase in employment and education levels,
- The incorporation of Poland into European infrastructure networks,
The intensification of processes to increase the share of high-value-added sectors in Poland’s economic structure,

- Assistance in the participation of all Polish regions and social groups in development and modernisation processes.

The total amount of public funds (both national and EU), allocated to the implementation of the National Development Plan 2004-2006 amounted to EUR 17,085.8 million. The value of available EU funds is EUR 12,814.9 million. This amount consists of co-financing seven Operational Programmes implemented under the Community Support Framework:

- SOP Improvement of the Competitiveness of Enterprises
- SOP Human Resources Development
- SOP Transport
- SOP Restructuring and Modernisation of the Food Sector and Rural Development
- SOP Fisheries and Fish Processing
- Integrated Regional Operational Programme
- OP Technical Assistance

an amount of EUR 8,275.8 million, co-financed from two Community Initiatives (Interreg and Equal) an amount of EUR 355.3 million and funds from the Cohesion Fund amounting to EUR 4,183.8 million. Absorption of all these EU funds required the involvement of national public funding of EUR 4,270.6 million.

What is more, voivodeship contracts were performed under the National Development Plan 2004-2006. Apart from measures implemented under the Integrated Regional Operational Programme and Community Initiative INTERREG, these contracts also included activities undertaken as a part of voivodeship programmes of regional development financed entirely from national public funds. It is estimated that approximately EUR 281.9 million were allocated for implementation of voivodeship contracts in the analysed period.

NDP 2004-2006 – funds used and the context of implementation

Over 88 thousand projects were implemented under the NDP. The division of funds contracted among various support areas indicates that the role of investment

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8 Most of them have already been completed but for projects co-financed from the Cohesion Fund – Poland will also be allowed to complete them in 2011.
in transport infrastructure (40% of the allocation) and the environment (26%) predominating (cf. Figure 1).

**Figure 1. Division of funds contracted among various areas of support (%)**

- Agriculture: 6%
- Information society: 6%
- Social infrastructure: 5%
- Transport: 40%
- Enterprises: 7%
- Human resources: 10%
- Environment: 26%


Spending the funds granted was not evenly distributed over time. After the initial period of slow spending, a significant increase could be observed in 2006 (almost 75% of funds were spent in 2006 and 2007) with the total allocation finally being exceeded in the first half of 2009 (cf. Figure 2).

**Figure 2. NDP payments in relation to the allocation, on the basis of monthly reports on implementation state (%)**


One should bear in mind that spending funds significantly outstrips the positive social and economic effects actually experienced. Relevant positive effects could therefore be (depending on the area of support) observed only after the turn of 2008/2009.

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9 Calculation without the Cohesion Fund whose spending period was extended to 2011.
Expenditure from European funds compared with remaining development expenses

Expenditure for implementation of development tasks has been rapidly growing in Poland since the accession to the EU. Not only has the total structural expenditure increased in relation to support funds from the EU (they accounted for approximately 30% of the total) but also national spending on financing its own projects has grown. Furthermore, national structural expenditure increased even during the slowdown of EU spending in 2008. It can therefore be concluded that the inflow of EU funds resulted in nominal growth of the national expenditure incurred in the areas of Structural Fund intervention. EU funds led to a much deeper change in the structure of public spending than the change caused by the need to provide resources for co-financing.10

![Graph showing structural expenditure and structural expenditure as % of expenditure of public finance sector]


The most important effects

Analysis of the impact of intervention co-financed from EU funds on basic macroeconomic categories enables one to make a synthetic evaluation of the efficiency and effectiveness of Cohesion Policy. Macroeconomic effects of Cohesion Policy implementation were assessed with evaluation studies by means of measuring (using models) the impact of EU funds on the development of basic macroeconomic indicators, in particular on the level and growth of Gross Domestic Product, change in the sectoral structure of the economy, employment level and unemployment rate.

Evaluation results\textsuperscript{11} indicated that the level of GDP (in current prices) in the period of 2004-2009 was on average about 3% higher in 2009 because of EU funds (cf. Fig. 3).

**Figure 3. Impact of EU funds on GDP level (in current prices, deviations from a scenario without EU funds in %)**

![Impact of EU funds on GDP level](image)

Source: Own elaboration based on studies carried out at the request of the MRD\textsuperscript{12}.

Cohesion Policy, therefore, contributes clearly to an increase in the socio-economic well-being of Poland. Most effects (particularly demand effects caused by increased level of labour productivity) will only be observed over a longer period: according to forecasts, one can expect that the Polish GDP will have increased by 2015 by more than 6% due to structural funds.

The implementation of EU funds in Poland has also had an obviously positive impact on GDP growth in Poland in the analysed period (cf. Fig. 4).

\textsuperscript{11} Studies were carried out with the use of three macroeconomic models: (1) the calculation model of general equilibrium MaMor3 developed by Prevision and Gdańsk Institute for Market Economics, (2) the dynamic, stochastic model of general equilibrium at a large scale EuImpactMod III, developed in the Institute for Structural Research, (3) the 5-sector model Hermin of the Polish economy (HPLS) which is a component of the model system developed at the request of the European Commission’s Directorate General for Regional Policy (DG REGIO) by the Wrocław Regional Development Agency. For substantial and methodological reasons, results of studies for 2009 include also (apart from NDP impact) the impact of the National Strategic Reference Framework forming an integral part and continuation of intervention under cohesion policy.

As a result of implementing the Cohesion Policy, the annual average rate of GDP growth in Poland for 2004-2009 was about 0.4 pp. higher.

In 2009, a period of global economic crisis, EU funds played a significant part in supporting GDP growth in Poland. It proves the positive pro-development (as well as stabilising) role Cohesion Policy had in Poland. Poland was the only European Union country which recorded positive GDP growth (1.7%) in 2009 - it is estimated that approximately a half of this growth was the result of implementing the Cohesion Policy.

Assessing results of Cohesion Policy implementation in a macroeconomic dimension, one should also take into account the long-term nature of EU funds’ impact mechanisms on the Polish economy, including positive structural changes. By 2009 the Cohesion Policy had had a limited impact on changes in the sectoral structure of the Polish economy (cf. Figure 5).

Because of the nature of the intervention (relating mostly to infrastructure development and support for enterprises), the Cohesion Policy causes an increase in the importance of the industry sector at the expense of services and agriculture. The implementation of EU structural funds resulted in a systematic increase of the share of industry in gross value added in 2004-2009: in 2009 this increase amounted to about 0.3 pp. of the share by value.

According to the theory of three sectors, such change can be assessed as moderately positive (economies at higher stages of development are characterised by a relatively high share being taken by the service sector, a low share by the agricultural sector and a moderate share by the industrial sector). When assessing the economic impact of EU funds it should be emphasised that the structure of the Polish economy is subject to broader, long-term and clearly positive trends while the impact of the Cohesion Policy is limited and determined by the nature of intervention targeted at specific pro-development goals.
Figure 5. The impact of EU funds on sectoral structure of gross value added (deviations from a scenario without EU funds, pp.)

Sector 1 (agriculture)

Sector II (industry and construction)

Sector III (services)

Source: Own elaboration based on studies carried out at the request of the MRD.

What is more, the impact of the Cohesion Policy on a macroeconomic level during the analysed period was mainly of a demand nature\textsuperscript{13}. Results of evaluation complementing econometric studies confirm that, in addition to targeted impact of

\textsuperscript{13} Ibidem.
Cohesion Policy intervention on the supply side of the economy (whose effects manifest themselves over the long term), demand is also important (demand generated by implementation of projects co-financed from structural funds).\footnote{Institute for Structural Research, “Amount and structure of expenditure under the National Development Plan 2004-2009 in terms of its impact on changes in the structure of the Polish economy in the context of implementing strategic pro-development objectives of the State”, study carried out at the request of the MRD, Warsaw 2010.}

Nearly 60% of the value of projects implemented under the NDP strengthened the demand in the construction sector. The influence on other sectors was several times smaller: 17% of the project value was transferred to industry, 13% of their value was used to finance services. Contractors from the agriculture sector received an insignificant part of projects whereas one tenth of their value was used other than in contracts, and therefore classified as consumption.

**Figure 6.** The impact of direct and indirect demand (in PLN billion, current prices) on chosen industries

![Diagram of the impact of direct and indirect demand on chosen industries](image)


The demand generated by implementation of the National Development Plan was 2% of the global value of production in various sectors of 2004-2008 and in the case of construction it was as much as 9% (cf. Fig. 6). It provided an almost 30% increase in construction during the analysed period which mitigated results of the economic crisis in this sector. This allows one to conclude that the Cohesion Policy has played a stabilising role in the construction industry.
As a consequence, projects under the NDP affected mostly construction and to a lesser extent - innovative industries. They **contributed indirectly to the increased participation of high-tech industries as well as those with high added value in manufacturing**, particularly sectors of innovation and market services (the impact-generated demand on innovative industries, measured by its share in the global value of 2004-2008 was approx. 2.6% and it was 0.7 pp. higher than for other economic sectors).

The sectoral breakdown of demand generated by intervention is the result and effect of the Cohesion Policy and not its objective. The Cohesion Policy should therefore be focused on efficient and effective implementation of its main objectives and the structure of generated demand should be of secondary importance. The impact of EU funds on the demand side remains outside the process of programming and monitoring of the Cohesion Policy. **When implementing the Cohesion Policy (in the course of programming, implementation, monitoring and evaluation) there is therefore a need to consider issues related to the potential impact of intervention on the structure of the economy through demand generated by projects co-financed from structural funds.**

**What is more, the Cohesion Policy played an important role in a social dimension.** A clearly positive impact of was observed on the labour market in the period analysed due to the intervention implemented under the Cohesion Policy: **EU funds contributed to a reduction of unemployment and an increase of employment in Poland.**

**Figure 7. EU funds’ impact on unemployment rate (deviations from a scenario without EU funds in pp.)**

Source: Own elaboration based on studies carried out at the request of the MRD.
Growth in employment rate achieved in 2009 through the use of EU funds is estimated at between 0.5 and as much as 2.5 pp., which on average represents about 200 thousand jobs. The largest effects will be observed in the period 2013-2014 (from about 2 to even 5 pp.) which will result in the employment rate reaching 61%. The Cohesion Policy has therefore contributed to stemming the decline and increasing the professional-activity coefficient in recent years.

The implementation of Cohesion Policy contributes to reducing the unemployment rate by stimulating the creation of new jobs. Funding from the EU contributed to reducing the unemployment rate by over 1 percentage point in 2009. Similar to the employment rate, the biggest effect is expected in 2013-2014, when the unemployment rate will fall by about 2 pp.

Evaluation studies\[^{16}\] show that investments under the Cohesion Policy are consistent in the regional dimension with the directions of foreign investments and proportionate to the scale of regional economies. This allows one to conclude that the criterion of economic efficiency of expenditure incurred in the implementation of structural funds has been met. Nevertheless, the question of the diffusion of positive economic impact to areas with lower economic potential has yet to be answered.

Most infrastructural projects were situated in richer voivodeships which meant that less developed voivodeships were sent less money in absolute terms and per capita\[^{17}\]. The structure of expenditure from EU funds in weaker regions was, however, more innovative. This enabled formulating a conclusion that the role of Cohesion Policy in supporting innovation in areas with lower socio-economic development was moderately positive.

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\[^{15}\] Such a high result is estimated in the EUImpactModIII which provides that EU funds will affect the economy in 2004-2009 mainly through the demand channel.

\[^{16}\] Ibidem.

\[^{17}\] Regarding the relation of funds used by particular voivodeships to their GDP, it turns out that the distribution of EU funds is relatively even.
The territorial nature of the Cohesion Policy contributes to underdeveloped regions making up development distance more quickly in comparison with the richer regions and to slowing down the growth of internal differentiation in economic development. On the one hand, during implementation of the NDP, Polish regions have come closer to the EU per capita GDP level of the entire European Union, however, on the other hand, this process did not occur evenly in a territorial dimension. The voivodeships in which large metropolises and strong development centres are located were the most dynamic.

Map 1. Level of socio-economic development in voivodeships in 2003 and 2008

An analysis of differences in development processes in regions in 2003-2008 (cf. Map 1) indicates a minor decrease in the growth rate of differences in the level of socio-economic development mainly between the leaders of economic growth (the Mazowieckie and Śląskie Voivodeships) and the regions of Eastern Poland and other economically weaker regions (e.g. the relation between the highest and lowest GDP level per capita amounted to 2.20 in 2003 and 2004, 2.37 in 2007 and 2.28 in 2008).

The macroeconomic effects of Cohesion Policy implementation in Poland are also pan-European. The results of evaluation studies show that European Cohesion Policy is not only redistribution, but brings economic benefits for the entire EU through macroeconomic mechanisms. These benefits are mainly in the form of

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increased export to Poland generated as a result of implementation of EU funds in Poland.

Investment stimuli caused by Cohesion Policy translate into additional demand for goods and services which are partly imported, mostly from EU-15. This demand arises both at the stage of project implementation (additional import related directly to implementation of projects such as buying goods and services), and later when the accumulated investment or human capital is used in production processes (import indirectly related to implementation of projects i.e. generated as a result of the development of the Polish economy and increase in demand for foreign goods and services).

During the period of 2004-2009 Cohesion Policy was the reason for an increase in export from the EU to Poland of EUR 4.5 billion (PLN 17.8 billion). It will be EUR 37.8 billion (PLN 151 billion) for the entire period of 2004-2015. These amounts represent 27% of the co-financing amount for Poland under the Cohesion Policy in 2004-2009. This coefficient would be 52% for the entire period of 2004-2015. Figure 9 presents the distribution of benefits for individual EU States.

**Figure 9. Estimation of the additional export from EU-15 States to Poland, caused by the implementation of the Cohesion Policy in 2004-2015 (EUR billion, prices of 2008) - division by countries**

The German economy obtains the greatest benefits from the increased demand of the Polish economy on imported goods and services (EUR 16 billion 2004-2015). This is mainly due to the fact that Germany is the most important partner in Polish foreign trade.

A characteristic feature of additional export from EU-15 induced by the implementation of the Cohesion Policy in Poland is a significant (over 60%) share of high or medium-high technology goods (cf. Figure 10).

Figure 10. Additional export of EU-15 States to Poland in division into industries producing goods and services for export by levels of technological advancement (2004-2009).

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage</th>
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<tr>
<td>Agriculture, forestry, fishery, mining and extraction</td>
<td>1.40%</td>
</tr>
<tr>
<td>Construction</td>
<td>8.20%</td>
</tr>
<tr>
<td>Less knowledge-intensive services (LKIS)</td>
<td>0.70%</td>
</tr>
<tr>
<td>Knowledge intensive services (KIS)</td>
<td>4.00%</td>
</tr>
<tr>
<td>Low technology and lower average technology production sectors</td>
<td>27.60%</td>
</tr>
<tr>
<td>High technology and higher average technology production sectors</td>
<td>58.20%</td>
</tr>
</tbody>
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This means that additional import associated with disbursement of EU funds in Poland contributes to development of the most modern industries in EU-15 countries, resulting in accelerating the modernisation of European economies and the growth of social welfare.

What is more, as shown by evaluation studies¹⁹, effects in the form of additional import are not overly sensitive to the occurrence and scale of economic crises. This

¹⁹ Ibidem.
allows concluding that the EU’s Cohesion Policy plays a stabilizing role for the economies of Europe.

Analysis of benefits gained by EU-15 State provides an answer to the question about the actual costs of the European Cohesion Policy. In the light of analyses performed, the actual costs are significantly lower than costs measured only by the contribution of particular countries to the EU budget. It is estimated that over the entire period of 2004-2015 for each euro paid to the Community budget to implement the Cohesion Policy in Poland, countries of EU-15 receive EUR 0.46 in the form of increased export. Germany, Poland’s main trading partner, has gained the greatest benefits: EUR 0.85 per EUR spent on implementation of Cohesion Policy in Poland (cf. Figure 11).

Figure 11. Additional export to Poland in relation to net payments of EU-15 States to the Community budget in 2004-2015, in the part transferred to Poland under the Cohesion Policy

Conclusions and recommendations

Analysing the results of evaluation studies concerning impact of Cohesion Policy on the Polish economy in the macroeconomic dimension allows us to formulate several conclusions regarding the effectiveness and efficiency of intervention.

Firstly – implementation of the National Development Plan had a significant impact on increasing the overall scale of public pro-development structural expenditure in Poland, while EU funds alone accounted for about 30% of these expenses. EU funds were thus crucial for national development policy.

Secondly – the Cohesion Policy meets the criterion of effectiveness (a clearly positive impact on the basic macroeconomic indicators – including the generation of about half the additional GDP growth in the crisis of 2009) and efficiency (effects of the Cohesion Policy are relatively high given the scale of intervention which is limited in comparison with the economy’s size).

Thirdly – we can only observe some positive effects at present, most of which are of a demand nature. According to forecasts, positive effects will grow systematically, at the same time increasing the importance of supply effects that meet the criterion of sustainability.

Fourth – it is advisable to include in the structural funds management process (especially programming) the cyclicality of the economy and use Cohesion Policy as an instrument to stabilise the macroeconomic situation, maintaining its structural nature at the same time. What is important, the positive effects of implementing the Cohesion Policy were practically immune to the effects of the financial crisis.

Fifth – in Cohesion Policy programming and implementation, it is advisable to include the potential impact of intervention on the structure of the economy through demand (and not only supply as yet) generated by projects financed by the Structural Funds.

Finally, it should be noted that not only beneficiary countries of the funds benefit from the Cohesion Policy. Positive macroeconomic effects (in the form of increased trade caused by Cohesion Policy implementation) significantly reduce the real costs borne by countries which are net payers and contribute to the development and modernisation of their own economies as a result of the favourable structure of additional imports.
One of the most important challenges placed before the European Union consists in running efficient as well as effective employment and human capital development policies. In the assumptions to the Lisbon Strategy, whose primary aim originally was to make Europe the most dynamic and competitive economic region worldwide, the need to make a transition into the knowledge-based economy, including a significant improvement of the education system and full employment, was especially emphasised. The demands related to the human capital development were sustained in the newest strategy for the next ten years – “Europe 2020”.

The socio-economic situation at the time of launching the implementation of the NDP

Entrepreneurship and employment

The gap between Poland and EU-15 countries in 2003 was significant as regards basic socio-economic indicators. At the moment of Polish accession to the EU structures Poland had one of the lowest indicators of employment activity and the lowest employment rates of the EU-25 countries. This constituted an enormous challenge to the Polish labour market. In 2003 the employment rate in Poland amounted to 51.2%, 13.3 percentage points lower than the average indicator in the EU-15. One of the significant contributing factors for such a low employment rate was the very small percentage of young working people aged 15-24 years, which in 2003 amounted to only 21.2%, compared to 40.1% in the case of EU-15. Also in the case of elderly people aged 55-64 years the unfavourable difference in the level of the employment rate compared to the EU-15 was considerable; shaped as it was at the level of 14.8 percentage points, while for women this difference amounted to 10.2 percentage points. But yet more disturbing was the fact that in the period 1997-2003 these differences in indicators for Poland and EU-15 steadily increased, deepening the gap between Poland and the European Union. Moreover, on the eve of accession to the EU, Poland with the indicator at a level of 57.9 years old was in a group of 3 states with the lowest average age of retirement. In 2003 the employment rate for elderly people aged 55-64 amounted to only 26.9% in Poland and in EU countries it set at 41.7%.

20 The data in this chapter comes from EUROSTAT databases, unless otherwise stated.
The situation of women on the Polish labour market in 2003 was much worse than that of men. The difference between the employment rates for these two groups amounted to 10.5 percentage points, despite the fact that women were considerably better educated. The stereotypical perception of women’s professional and social role caused them to be at greater risk of dismissal as well as the additional difficulties they encountered returning to the labour market after a break related to childbirth and bringing up children or a period of unemployment. The need to take care of elderly family members of the family and children was, in case of women, one of the most significant elements affecting the reduction of their professional activity. In 2003 only 13.2% of women working in Poland were employed in part-time jobs, while in EU-15 this rate amounted to as much as 33.8%.

The continuing high unemployment rate, including the long-term unemployment rate, was one of the key socio-economic problems in Poland. Since 1998 the unemployment rate had been growing systematically until 2002 when it reached 20%. At the same time, it needs to be stressed that the unemployment rate showed a very high regional differentiation. In 2003 the unemployment rate in Poland (19.7%) was the highest among all states of the future EU-25 (9%). The intensification of long-term unemployment in 1998-2003 was also a disturbing phenomenon in Poland. The percentage of long-term unemployed among all professionally active persons increased within this time from 4.7% to 11% and was the highest just after Slovakia, both among Member States as well as candidate states. In 2003 over half of unemployed Poles (55.9%) were in the long-term unemployed group, which was related to a serious threat of social exclusion.
Within the period of launching the implementation of programmes co-financed from the ESF, the sector of SMEs in Poland was characterised by significant fragmentation and, just like in other EU countries, it was predominated by micro-entrepreneurship. Employment in the entrepreneurship sector reached 67.1% of the overall number of people employed in the national economy and it generated 48.4% of the GDP. At the same time, in other EU countries with only a slightly higher employment level, SMEs generated almost 2/3 of the gross national product and as regards the percentage share, the greatest was the share of enterprises employing 49 workers.

It can be observed that as far as regions are concerned, a clearly higher level of entrepreneurship, measured by means of newly registered business entities in 2004 per 1,000 inhabitants, was achieved, apart from the Mazowieckie Voivodeship, also by the voivodeships in Western and Northern Poland such as: Zachodniopomorskie, Pomorskie, Dolnośląskie, Lubuskie and Wielkopolskie. “The difference between the voivodeships was twice as big, irrespective of the fact whether the inflow of new enterprises or the quantity of all entities is concerned”\textsuperscript{21}.

The education and training system

Since 1997 Poland has observed a growing trend in the percentage of persons having at least secondary education (level ISCED 3), which in 2003 reached the level of 82.3% as compared to 64% for the EU-15. At the same time, the percentage of persons aged 18-24 years, which left the education system was shaped in Poland at a very low level (6%) as compared to the EU-15 countries (16.1%).

However, Poland’s rank was definitely unfavourable within the scope of lifelong learning and non-formal education. In 2001-2003 the percentage of adults engaged in any form of education maintained at a fixed level of 4.2 - 4.4%, while in EU-15 it increased from 8% to 9.8%. Thereby being over two times higher compared to the indicator for Poland\textsuperscript{22}. In Poland too little attention was paid to the development and promotion of the idea of lifelong learning, which resulted in the low level of education and qualifications possessed by elderly people of a working age. It needs to be remembered that less educated people, failing to improve their skills, constitute one of the groups most at risk from unemployment.

At the moment of Poland’s accession, the position concerning access to information technologies and the development of an information society was also shaped in an unfavourable manner. In 2004\textsuperscript{23} only 22% of Polish society used the Internet, while the average indicator for the EU-15 amounted to 41%. In the case of Poles aged 55-

\textsuperscript{21} IBS, “Evaluation of the implementation of intervention co-financed from ESF on the improvement of the quality of human resources”, study carried out at the request of the MRD, Warsaw 2010.
\textsuperscript{22} Value estimated according to Eurostat.
\textsuperscript{23} There are no data for Poland for 2003 in Eurostat databases.
64 this indicator was shaped at a much lower level of only 7%. Only in Greece was this indicator registered at a lower value. The problem of digital exclusion concerned Polish schools as well, which is indicated by the number of students per computer station with Internet access; in the 2001/2002 school year this co-efficient amounted to nearly 42. Such data provide for the fact that on the eve of accession to the EU Poland was characterised by a phenomenon of digital exclusion.

Social integration and cohesion

Within the framework of the intervention implemented with the use of the ESF, first of all persons without income were recognised as being at risk of social exclusion. It is estimated that within the discussed period about 3 million people used different types of welfare benefits. At the same time, it is interesting to note that there was a very high indicator of heterogeneity of this group, and thereby variation in the tools that should be used to support it. According to the SOP HRD diagnosis, this group covered in particular the homeless, persons addicted to alcohol and/or drugs, the disabled (mental disorders), persons leaving penitentiary institutions or immigrants. A special category was constituted by the group experiencing dysfunctions at the level of family environment or school, or in conflict with law. Each of these groups, despite sharing a difficulty to function on the labour market, were characterised by distinct social and demographic aspects, and hence by different needs, motivations and possibilities to reposition themselves in a direction that is socially and professionally desired.

The disabled

Within the period when SOP ICE was being created, the number of disabled persons aged 15 or older was estimated at 4.23 million, which represented 14% of people in this age group. Fractionally above 17% of this group could be regarded as economically active.

Youth

The fullest picture of the threat of social exclusion in the case of this group can be obtained from analysis defining the percentage of youths outside the school system and that does not have a job. In 1999, 4% of women and 5% of men aged 15-19 and 31% of women and 23% of men aged 20-24 found themselves in such circumstances. It is important to point out in this context that the percentage of children repeating the same grade of education in 2008 oscillated between 1-2%.
Persons leaving penitentiary institutions

According to the diagnosis included in SOP ICE, the number of persons leaving penitentiary institutions increased on average by 5,000 a year and reached 85,895 by the end of 2001. Subject to the provisions of legal acts, those leaving penitentiary institutions are entitled to social assistance. On that account, 13,000 families have used such assistance.

Persons addicted to alcohol and/or drugs

The number of individuals in Poland that were addicted to alcohol and/or drugs in 2002 has been estimated at approximately 800,000 - 1 million, and within the decade preceding the implementation of SOP ICE, those undergoing treatment for addiction to alcohol has increased by circa 60%. At the same time, clinical examinations carried out in this field indicate that 17 - 44% of people in this group have no job and thus represents the group that is at the highest risk of social exclusion. The scale of the problem is also indicated by the fact that in 2000 nearly 47,000 families used social assistance, and an additional 3,500 families used social assistance on account of addiction to substances other than alcohol (and tobacco).

The homeless

The homeless represented an extraordinary group of recipients of the intervention carried out under social assistance. Due to the specifics of this group, the data on its size are approximate, yet social-assistance institutions provided support for approximately 30,000 homeless people annually.

Objectives and scope of intervention under NDP

One of the major objectives of the National Development Plan for 2004-2006 within the area of human-resources development covered ensuring employment growth in Poland and efforts towards shaping a knowledge-based economy. These objectives were equally implemented through the Sectoral Operational Programme Human Resources Development and the Integrated Regional Operational Programme. The Community Initiative EQUAL played a specific role within this scope as it is a peculiar laboratory for formulating efficient and effective interventions. This study refers also to other programmes such as: the Sectoral Operational Programme Increase in Competitiveness of Enterprises or the Sectoral Operational Programme Restructuring and Modernising the Food Sector and Rural Development. They have been

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25 At the same time, CIP EQUAL was not aiming at direct action for employment but only the development of efficient solutions within this scope, which could be duplicated in the future.
indicated wherever there is a basis for stating their direct impact on employment, despite the fact that they were not co-financed under ESF. The projects co-financed from the ESF under the SOP HRD and Priority II of the IROP were primarily integrated into the implementation of the second partial objective of the NDP – An increase in the level of employment and education and its fifth objective – Assistance in the participation of all regions and social groups in Poland in the development and modernization processes, and they have partially contributed to the implementation of the fourth objective – The intensification of the process to increase high-value-added sectors’ share in the structure of the economy, the development of information society technologies. The support in the area concerned on the one hand was system support aimed at an improvement in systems and structures (institutional and legislative). At the same time, activities provided for that were targeted at improving the circumstances of defined social groups, particularly difficult situations on the labour market and support for the educational market.

The project influencing the achievement of the II and IV partial objectives of the NDP co-financed from the ERDF were mainly executed through the implementation of SOP ICE. This programme was to support the development of enterprises and thereby increase employment, as well as information-society development. Support for persons establishing an economic activity was designed both under SOP ICE, as well as SOP HRD and IROP.

**Entrepreneurship and employment (including ALMP, consultancy and employment agencies)**

As a result of the funds it was possible to extend the scope of tools counteracting unemployment, including the extension and intensification of activities undertaken within the framework of the Active Labour Market Policies (ALMP), improved quality of vocational guidance and improved operation of the public employment services. Prolonging the period of professional activity of individual workers constitutes another significant challenge. There was also a need to support the development and promotion of flexible forms of employment in Poland. Within the framework of the SOP HRD it was possible to establish alternative pre-school education centres in rural areas. Providing children with day care constituted a significant factor supporting the involvement of women in professional activities. Moreover, within the framework of the NDP preventive measures were also executed aimed at facilitating the entry of youth to the labour market. Through SOP HRD support was channelled to graduates in the form of training, internships, guidance, job intermediation and assistance in setting up economic activity. At the same time, measures have been taken under SOP AGRI to enable young farmers (including those up to 25 years old) to start up their own rural activity.
Education and training systems (including lifelong learning, access to education and training)

In response to the need to develop the idea of lifelong learning in Poland and constantly increase the qualifications of members of society, many activities were targeted at providing support to: education institutions, workers, the unemployed and students. As a result of the implementation of SOP HRD and IROP activities addressed at youngsters and training projects, it was expected that qualifications would increase and that youths would be better adjusted to the requirements of the labour market. Scholarship programmes under these activities were to facilitate access to education of those in a more difficult situation, including pupils from rural areas and students coming from areas at risk of marginalization. Under the NDP it was also planned that training activities would be carried out for persons belonging to other groups experiencing a difficult situation on the labour market. The following were all able to improve their skills as a result of this support: farmers, the long-term unemployed, graduates, women, the disabled, teachers, workers from enterprises and the administration sector, prisoners and persons at risk of losing employment as a consequence of restructuring processes, in particular those at risk of social exclusion. Moreover, it was planned that the support would also be provided to the development of lifelong learning institutions and the establishment of lifelong learning centres in rural areas.

Moreover, under the NDP a significant amount of support was also designed for the information society through the construction of information infrastructure and development of information techniques, which were to contribute to the greater use of modern information and communication techniques, inter alia, in educational institutions and to decrease the gaps between regions within the scope of access to the information and communication technologies.

Social integration and cohesion

The need to increase social integration has been emphasised in the primary objective of the National Development Plan 2004-2006. The implementation of this objective was served by the measures provided for implementation under Priority I of the Sectoral Operational Programme Human Resources Development. The measures taken, as a rule, were to contribute to strengthening the potential of the institutional handling of clients under social assistance, taking measures tailored to a greater extent to the needs of the homeless and special-risk persons, the reduction of social marginalisation and preparation of those at risk of social exclusion for entrance onto the labour market, retaining a job or returning to active professional life, as well as to measures for equal opportunities. The implementation of measures aimed at the above-mentioned groups was to contribute to changing the attitudes of both employers and those at risk of social exclusion, as well as the disabled, and in conse-
quence to improvement of their chances on the labour market. At the same, it was assumed within this scope that the main objective of professional integration and reintegration of women consisted in assuring equal opportunities in access to the labour market and employment. Such an approach resulted in disregarding measures under the intervention implemented that affected other important aspects for the formulation of an equal opportunities policy.

**The effects of intervention**

**14% of the total available co-financing** in 2004-2009 was allocated to the development of human capital under the NDP. The total value of projects implemented in the area of human resources exceeded **PLN 8 billion**.

Differentiation in the allocation and structure of expenditure between voivodeships was larger than indicated by the distribution of factors taken into account in the determination of regional allocation, among others from the differences in the size of regions, disproportion in the level of economic development or the situation on the labour market. The Śląskie, Wielkopolskie and Małopolskie voivodeships, which belong to the most densely populated areas of Poland, represented a relatively small share in the expenditure incurred for an increase in the quality of human capital, unlike the Mazowieckie voivodeship, to which more funds were transferred than the amount indicated by its population. According to the calculations of evaluators, its share in the population amounted to 13.7% and in the expenditure from ESF for increasing human capital – 22.1%. It can be concluded from the analysis of the value of co-financing falling to 1 inhabitant of individual voivodeships that apart from the Mazowieckie voivodeship, higher expenditure for the development of human resources was incurred in regions with a lower level of human capital. In addition, the evaluators have observed that most funds were earmarked for co-financing of projects in metropolitan areas, which could contribute to increasing the intra-regional differentiation of voivodeships.

As a result of numerous studies (in the 2004-2006 perspective over 50 evaluations were carried out in Poland within the area of human resources) and the experience gained in the implementation of the National Development Plan it is possible to indicate the types of activities, which proved to be efficient and effective and those which need modification or restrictions as they failed to bring the expected results. The following diagram presents the frequency of individual types of support implemented with the use of ESF co-financing.

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27 IBS, “Evaluation of the implementation of intervention co-financed from ESF on the improvement of the quality of human resources”, op. cit.
**Figure 2. Types of activities which covered beneficiaries (research sample)**

![Type of activity distribution](image)

Source: IBS, “Evaluation of the implementation of intervention co-financed from ESF on the improvement of the quality of human resources”, study carried out at the request of the MRD, Warsaw 2010.

*The support from ESF contributed to an increase in the scope of application of the instrument of the Active Labour Market Policies.* The share of resources allocated for the purpose under the Labour Fund expenditure increased in 2007 by over 35 percentage points (to the amount of 50.9%) as compared to the ceiling in 2004\(^\text{28}\). In 2005 an additional PLN 600 million more was allocated to the ALMP under the Labour Fund while in 2007 almost PLN 1.3 billion more was spent on the purpose than in 2004.

**Table 2. CSF indicators’ level of achievement**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Baseline value in 2001</th>
<th>Target value in 2008</th>
<th>Value achieved in 2008 (CSO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population employment indicators (aged 15-64 years)</td>
<td>52.7%</td>
<td>54-55%</td>
<td>59.2%</td>
</tr>
<tr>
<td>Total unemployment rate</td>
<td>19.9 (2nd quarter of 2002)</td>
<td>15.0</td>
<td>9.2%</td>
</tr>
<tr>
<td>Long-term unemployment (share of long-term unemployed in the total population of the unemployed in %)</td>
<td>48.3</td>
<td>44.0 – 45.0</td>
<td>33.5% (Eurostat)</td>
</tr>
<tr>
<td>Share of employed persons according to the sectors of economy (I/II/III)(^\text{29})</td>
<td>19.1/30.5/50.4</td>
<td>17.5/30.5/52.0</td>
<td>14/31.9/54.1</td>
</tr>
<tr>
<td>Level of education (primary/secondary/higher)</td>
<td>32.2/56.1/11.7</td>
<td>15.0/72.0/13.0</td>
<td>11.3/64.8/24</td>
</tr>
</tbody>
</table>

Source: Own elaboration on the basis of CSF, CSO and Eurostat data.

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\(^{28}\) Final report on the implementation of the Sectoral Operational Programme Human Resources Development.

\(^{29}\) Agriculture, industry, services.
On considering the level of achievement of the main indicators for employment and education areas in 2008 it needs to be recognised that Poland made significant developmental progress as compared to the situation before EU accession. The data included in the above table show that the expected values of indicators were achieved and in some cases they even greatly exceeded the target values (e.g. unemployment rate).

After the accession a positive trend could be observed in Poland as regards changes on the labour market. In 1999-2003 the employment rate dropped at a pace of 1.33 percentage points per year, and in the period 2004-2008 it increased at a rate of 1.86 percentage points. For the population aged 15-64 years it increased within the researched period by 8.1 percentage points and it was visible that the gap between Poland and the European Union within this respect was decreasing. In the CSF it was assumed that in 2008 the value of the employment rate would be at a level of 54-55%. The actual value of the employment rate of the population aged 15-64 years amounted in 2008 to 59.2% – thus the CSF objectives were not only achieved, but in fact exceeded. However, at the same time, the employment rate for women (52.4% in 2008) was still far from the assumed values. The long-term unemployment rate dropped in 2008 to 33.5%, i.e. below the EU average of 37%.

Special attention should be drawn to the structure of people working in the Polish economy. A decrease in the share of those employed in agriculture from 9.1% to 14% should be recognised as a positive change that has occurred in the Polish economy, as is the drop in the share of people with just primary education in overall society from 32.2% in 2001 to 11.3% in 2008. At the same time, the share of those with higher education increased considerably (from 11.7% to 24%). It should also be pointed out that both the indicators quoted above and most indicators specified at the level of CSF were contextual indicators, and therefore they referred to changes that took place during implementation of funds without the possibility of defining the net impact of implementing structural funds on individual aspects of the Polish economy.

Simultaneously, the data show that “in those sections of innovative services, where it was impossible to state the intensification in the increase in employment in the post-accession period, the quality of work measured in the share of the employed with higher education increased.” However, on the other hand, from the research it follows that although the growth in the employment in the Polish Classification of Activities sections classified as knowledge-based economy increased in 1999-2008, after the accession the growth rate of changes was lower. The results concerning the structure of employment in large professional groups are also ambiguous. They made it impossible to state with conviction that after the accession there was an

31 Ibidem.
intensification of the information-society building processes in Poland and transition into a knowledge-based economy\textsuperscript{32}.

In Poland during the implementation of the National Development Plan for 2004-2009, the positive impact – initially slight, but, gradually increasing – of the European Funds on the socio-economic development of the country was becoming more and more visible, including its impact on labour market, the quality of human resources in Poland and the development of information society. Support from EU resources contributed to the quantitative and qualitative changes seen on the Polish labour market, although these changes were visible on a slightly smaller scale than in the case of GDP.

The support from the EU funds brought measurable benefits to different social groups in Poland, including those in particularly difficult circumstances on the labour market. The effects of the support are visible in the increased scope of active labour-market policy, facilitated/possible access to education and the use of information techniques for youngsters and adults in rural areas. In towns the effects can be seen in the increase or change in qualifications of the homeless and employed on an unprecedented scale.

**Entrepreneurship and employment (including ALMP, consultancy and employment agencies)**

It was estimated that in 2008 (compared to 2003) the impact of the Cohesion Policy on the increase in employment amounted from 46 to 124 thousand people\textsuperscript{33}. After considering the change that occurred in the number of working people in Poland at that time, “a 2.1-5% increase of the total in employment could have been attributed to the Cohesion Policy; an especially positive impact was stated in case of youngsters aged 15-24 years and people with only primary education (ISCED 0-2)”\textsuperscript{34}. In 2009 the employment level was higher by 0.3-0.7 percentage points than it would have been had the Cohesion Policy not been implemented\textsuperscript{34}.

The positive effects of the Cohesion Policy can include convergence in respect to the employment rate on regional labour markets. The correlation between the volume of the support transferred and the changes in the regional labour markets proved to be quite small, but positive which implies that in places at which the highest level of support was directed a visible improvement occurred on the labour market\textsuperscript{35}.

\textsuperscript{32} Ibidem.

\textsuperscript{33} The most recent results of research that used macroeconomic models show that this impact in 2009 could even be at the level of approx. 200 thousand people (see the chapter “Macroeconomic effects”).

\textsuperscript{34} Final report on the implementation of the Sectoral Operational Programme Human Resources Development.

\textsuperscript{35} PAG Uniconsult, “Impact of the Cohesion Policy on the level and quality of employment in Poland”, study carried out at the request of MRD, Warsaw 2010.
A significant increase in employment was observed in the case of enterprises supported under the SOP ICE. In these companies the number of jobs in 2004-2008 increased on average by 7.57, while in the examined control group (the PSM method) an average increase was observed at a level of only 0.45 jobs.\(^{36}\) The deadweight effect (jobs that would have been created even without the support of public resources) was estimated at 22%. At the same time, the total increase in the number of net jobs in the group of beneficiary companies amounting to approximately 30 thousand was ascribed in its entirety to the impact of EU support. Taking into account an enterprise’s size, it can be observed that relatively the greatest increase in the number of jobs resulting from EU support was registered in medium-sized enterprises – an average of 19.03 jobs. In micro companies, however, where EU support in many cases prevented job reduction, the highest relative increase in the grant impact on the employment level was observed. It has, therefore, to be concluded that the implemented support had a direct impact on employment in SMEs, but it also indicates that the support implemented in this scope needs to be diversified – depending on the size of enterprise.

In the evaluation study on the impact of structural funds on employment it was stated that in enterprises covered with support under the SOP ICE, the reduced jobs of women constituted a lower percentage than in the case of enterprises from the control group, which may provide for the support effect in the form of increased opportunities for women to keep their employment.\(^{37}\)

In the case of the unemployed, it was estimated that the support contributed significantly to an increase in their professional activation. From over 700 thousand unemployed persons supported from by ESF, 42% found employment and a further 16% established their own company, which translates into over 400 thousand people that returned to the labour market.\(^{38}\)

The “Research on SOP HRD 2004-2006 final beneficiaries” measured the net effect of different types of support provided to this group of people. Comparing the fate of the final beneficiaries who completed their participation in the project in the 1st and 2nd quarter of 2007, with the control sample made it possible to estimate the net effect in the form of undertaking employment within 6 months at a level of 9-16 percentage points.\(^{39}\)

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\(^{36}\) Ibidem.

\(^{37}\) Ibidem.

\(^{38}\) Ibidem.

The results pertaining to the establishment of economic activity turned out to be especially interesting. In the case of both the discussed activities, the percentage of the beneficiaries conducting their own company significantly exceeded the percentage of such persons in the control sample. The difference was the most significant in the case of men using the Measure 1.3 and it amounted to 40 percentage points. For that reason, the above data make it possible to conclude that the support offered was a very efficient instrument in encouraging one to establish one’s own economic activity.

The knowledge on the quality and efficiency of the very training aimed at helping the unemployed in finding employment was intensified in the research on employment conducted by PAG Uniconsult. The use of a control group (PSM method) in the study brought about the defining of the net effect of the impact of training on these individuals’ professional future. “When considering the whole period of project implementation, there was no significant net effect of EU-funded training of unemployed persons stated, with the exception of delays in their undertaking work by about one month in connection with the lock-in effect.” After conducting more in-depth research a very interesting phenomenon was observed - „the employment net effect increased from negative for the training completed in 2004 or 2005 to a decidedly positive one for training completed in 2007 or later“.
on figure 4. An especially positive effect was observed in the Pomorskie Voivodeship where, at the end of the examined period, it amounted to approximately 10 percentage points. Such evaluation results can provide for the process of learning by mistakes and a \textbf{gradual increase in the quality of the training offered}. Another possible explanation for the negative net effect in 2004-2005 is the inclusion of the phenomenon of mass migrations after the accession to the EU.

\textbf{Figure 4. Comparison between the status of final beneficiaries and the control sample on the labour market 18 months after completion of the project (employment net effect of training in percentage points)}

Despite the negative net effect in the initial stages, training projects \textbf{targeted at the unemployed} also had an aspect assessed as positive in comparison to other training. From the research it follows that \textbf{training of this social group had a large impact on their psyche and behaviour, i.e. counteracting apathy and discouragement from job seeking}\textsuperscript{40}. The evaluators assessed the projects targeted at providing support to the start-up of economic activity as very positive\textsuperscript{41}. In line with the research carried out by the Institute for Structural Research \textbf{“the impact on the development of entrepreneurship and starting up one’s own economic activity was one of the most efficient types of intervention implemented under the ESF”}. It provided a considerable contribution to the increase in the number of companies in Poland. At the same time, the survival rate of new companies was comparable both in the group of companies established

\textsuperscript{40} IBS, “Evaluation of the implementation of intervention co-financed from ESF on the improvement of the quality of human resources”, op. cit.

\textsuperscript{41} Ibidem.
owing to financial instruments co-financed by structural funds and in the control group.

**Figure 5. The survival rate of companies established under the ESF and in a corresponding control group (PSM) [quarters]**

![Graph showing the survival rate of companies](image)

Sample count = 938

Source: IBS, “Evaluation of the implementation of intervention co-financed from ESF on the improvement of the quality of human resources”, study carried out at the request of MRD, Warsaw 2010.

However, it does need to be pointed out that under SOP HRD the support to establishing economic activity was also provided to people with fewer chances on the labour market – mainly the homeless. Under these circumstances the lack of a negative effect as regards the survival rate of these companies provides for a positive and permanent impact of the projects on the professional activity of those persons supported. At the same time, it has to be noted that new enterprises generate additional jobs at a later time. This effect should be assessed as an extraordinarily positive one in light of study results\(^\text{42}\) that indicate that newly-established enterprises in the majority of cases employ more than one person.

However, the intervention targeted at the **disabled** was assessed in an ambiguous manner. Whilst the professional activation and support provided to increase these people’s skills are extremely desirable, **according to the evaluators’ assessment it was those already active on the labour market that were the beneficiaries of the activities designed under the NDP**, evidence of which is the large scale of the deadweight effect\(^\text{43}\). To a greater extent such study results reflect a broader problem, the so-called “pension trap”. The introduction of comprehensive solutions in

\(^{42}\) Ibidem.

\(^{43}\) Ibidem.
Human capital and employment

Social policy: enhancing the attractiveness and possibility of taking up a job by the disabled is a contributing factor to the effectiveness of measures implemented in this regard with the involvement of structural funds. The bill in question\textsuperscript{44} – in its assumptions aimed at removing the pension trap by retaining the value of a minimal-pension benefit and the abolishment of an earnings cap (in practice resulting in cancellation or even withdrawal of these benefits) – should be extended with comprehensive solutions in the scope of increasing the employability of the disabled. Additionally, another problem is the necessity to continue measures aimed at increasing the awareness of advantages arising from the employment of the disabled, orientated both directly to the employers and the disabled as well as their immediate environment.

Education and training system (including lifelong learning, access to education and training)

EU funds, in particular the European Social Fund made it possible to undertake a number of activities facilitating access to education at all levels of education, with particular consideration given to pre-school education, lifelong learning of adults, education in rural areas and improving the qualifications of persons from disadvantaged social groups. The qualitative changes on the labour market should be recognised as a value added of the support. They consisted in different forms of lifelong learning, e-learning or vocational education.

As a result of activities implemented with the support of the Cohesion Policy there was an improvement in the access to education in rural areas and in small towns. In 2004-2009 over 3,100 development programmes were prepared and implemented within SOP HRD as well as over 1.5 thousand centres of lifelong learning were established on rural areas\textsuperscript{45}.

Evaluation studies of the 2004-2006 perspective, including “Evaluation of the implementation of intervention co-financed from ESF on the improvement of the quality of human resources”\textsuperscript{46} made it possible to distinguish the types of projects in education and training, which proved to be extremely useful and effective, and such which should be cancel or modified.

In the 2004-2006 perspective a significant part of ESF resources was disbursed on training hence the instrument underwent many assessments. The general opinion on training was not positive – it was accused of lack of practicality, low quality

\textsuperscript{44} Parliamentary printed document No. 1678.
\textsuperscript{45} Final report on the implementation of the Sectoral Operational Programme Human Resources Development.
\textsuperscript{46} IBS, “Evaluation of the implementation of intervention co-financed from ESF on the improvement of the quality of human resources”, op. cit.
and failure to match the needs of the labour market\textsuperscript{47}. One of the factors which significantly contributed to the negative opinions concerning training was a low employment effect after the completion of the beneficiaries’ participation in the projects. Such circumstances could have resulted from the fact that support by EU funds was mostly aimed at the supply side of continuing education of labour offices and public and private training institutions. As a consequence, the training offered was not always tailored to the actual needs of employees and requirements of their employers\textsuperscript{48}. Research has indicated that support was transferred to individuals with relatively a good educational background who cope well on the labour market, which could contribute to an increased level of the deadweight level. On the other hand - after a more detailed examination of individual types of training and offers targeted at different groups of beneficiaries it was possible to separate the types of training that brought positive effects, which induce the development the types of support and training, whose further implementation should be seriously considered.

An example of the positive effects are training for the staff of the education system. Over 53 thousand teachers completed post-graduate studies or training within the scope of foreign languages, vocational guidance, ITC or distance learning. The indicator of “the percentage of teachers prepared to use information and communication techniques in the educational process” was achieved at a level of over 136\% of the assumed value. The training for teachers co-financed from ESF constituted a coherent complement of projects from the scope of equipment and new distance-learning programmes. Over 90\% of staff confirmed an improvement in the quality of the learning process\textsuperscript{49}. The quality and effectiveness of the overall testing process also underwent an improvement according to over 80\% of respondents.

Employees of public employment services also used the training co-financed from the EU resources. This support contributed to an improvement of the quality of jobs and services of the employment services, their better matching of the needs of the client and greater efficiency. The satisfaction indicators of the customers of these offices reached a level of 116.3\%. Apart from the positive effects of institutional support the evaluation, however, showed an insufficient level of cooperation between institutions\textsuperscript{50}.

The training offered to employees of enterprises, including mainly SMEs were positively assessed by the beneficiaries in respect of their scope and level. Almost 60\% of companies taking part in the projects recorded an improvement related to

\textsuperscript{47} Ibidem.
\textsuperscript{48} Ibidem.
\textsuperscript{49} Final report on the implementation of the Sectoral Operational Programme Human Resources Development.
\textsuperscript{50} Ibidem.
their own functioning. Among them, 70% noticed a relationship between increasing the effectiveness of labour and the share of workers in training projects and over 80% of projects’ participants declared that they use the knowledge obtained in this manner in their job. Over 100 thousand enterprises felt an improvement in the functioning as a result of the participation of their employees in training co-financed from ESF51. In particular, in cases of micro and small companies the co-financing constitutes a strong incentive for the entrepreneurs to send their employees to training. Research showed that as many as 41% of micro companies covered by the support have never before used any other form of training52. In response to the evaluation surveys the employees assessed the training either as good or very good (90%). Also according to 93% of entrepreneurs training turned out to be very useful for their companies and 28% of them noted an improvement in activity. Employers assessed training as well matched it to the needs of their companies (92%).

“Hard training” within the scope of specific professional skills constituted a group of training, which obtained a definitively more positive assessment in the research than the overall training co-financed from the EU resources53. However, it was disturbing that the employers were not willing to participate in training on the rule of gender equality. They clearly indicated that the type of support under implementation is not adjusted to actual needs in this respect54. The analysis of the low implementation level for this indicator has indicated several causes for such a situation. First of all, was the absence of basis in research and/or previous experience justifying the determination of the indicator value at such a high level, the absence of additional measures encouraging project providers to organise training for employers and the absence of strategic criteria awarding bonuses to this type of project.

Due to EU funds, almost 850 thousand young people could use the scholarship programmes aimed at making it possible to undertake learning and increase their skills. However, the assessments of this instrument, which followed on from the evaluation research, proved to be rather negative. Given the failure to match them to the actual needs and the conditions of awarding support, these instruments proved to be inefficient and as a result they failed to have any impact on educational paths or the equalisation of educational opportunities55. Scholarship programmes were

51 Final report on the implementation of the Sectoral Operational Programme Human Resources Development.
52 Ibidem.
53 IBS, “Evaluation of the implementation of intervention co-financed from ESF on the improvement of the quality of human resources”, op. cit.
54 HRD report, the indicator has reached 1.1%.
55 IBS, “Evaluation of the implementation of intervention co-financed from ESF on the improvement of the quality of human resources”, op. cit.
aimed at equalising the access to education those in less favourable situations had and therefore, despite the bad opinions, they cannot be considered as a completely useless instrument. Within the framework of the next perspective, attempts were already being made to better match this tool to actual needs and therefore in the future research on the efficiency of scholarship programmes should be continued.

In Poland in 2004-2008, over 800 alternative pre-school education centres in rural areas were established. The establishment of alternative forms of pre-school education in rural areas, which are characterised by shortages in infrastructure and low population density, should be considered as a special value added of ESF support. Moreover, this type of activity was not previously implemented in Poland. The suggested forms of education were aimed at contributing to the diagnosis and prevention of educational barriers, faced by children before they start school education. The activities consisting in support to the establishment of alternative forms of pre-school education contributed to the equalisation of educational opportunities for children aged 3-5 years, which without the support from the ESF would not have the possibility to attend to a „standard” kindergarten. Moreover, the support also managed to increase the level of awareness of parents, educational environments and local-government authorities within the scope of benefits following from early pre-school education. These projects turned out to be especially useful and efficient due to their complexity. They ensured educational facilities in rural areas along with relevant equipment and qualified staff. It should be pointed out at the same time that the most essential factor determining the success and sustainability of changes in the scope of structures, systems and tools supported both by the ESF and national policies will be constituted by development of assumptions (of strategic approach) for the creation of a system coordinating the measures implemented under structural funds or domestic budget funds under a given policy. These measures should contribute to the assurance of continued support from domestic funds when EU financing ceases – in accordance with the principle of the sustainability of support.

An expert’s analysis, carried out in the area of adjusting the education and training system to the needs of the labour market, has also made it possible to formulate recommendations in reference to vocational education. It has been advised in this regard first of all that it is necessary to integrate curriculum bases for vocational and general education, to make vocational education more flexible (the modularity of education), to modify education methods for students from the vocational segment and to make them more attractive, in particular from basic vocational schools (“drop-in”), the reformulation of the choice of vocational education into a positive choice and the completion of work on the National Qualification Framework.

\[56\] On the basis of CSO data at the end of 2008 the pre-school education covered 28.5% of children aged 3-5 years and living in rural areas. This implies that over 199.3% of the assumed value of the employment rate was obtained in the 2004-2006 perspective.
The evaluation studies conducted fail to give a uniformed response as regards the impact of Cohesion Policy implementation in Poland on the intensification of the process of transition into the knowledge-based economy. On the one hand, **ESF co-financing made it possible to implement activities contributing to increasing the access of society to the ICT** through, *inter alia*, the purchase of computer equipment for schools and e-learning development. It contributed to the equalisation of educational opportunities and access to modern information technologies for the youths and adults from rural areas and smaller towns. All over the country almost 12 thousand Internet-multimedia centres were established which enabled e-learning development\(^{57}\). Due to the implemented projects it was possible to retrofit schools with specialist equipment to work with children that have special needs and thus facilitate their access to education. In 2009 almost 55% of all schools in Poland were equipped with computer rooms in which, with support, it was possible to create almost 250 thousand jobs\(^{58}\). This significantly contributed to the increase in the computerization of Polish educational institutions. Projects concerning the computerization of educational institutions were assessed as definitely positive. The research shows that the equipment transferred under the projects contributed to the improvement of the quality of education in the supported educational institutions (79.5% of respondents provided a definitely positive answer). At the same time, the results of research carried out in the area of impact exerted by intervention conducted with the use of structural funds on the education and training system indicate the low informatisation of education, and hence the use of purchased equipment for classes beyond regular “IT classes” at schools. However, it has to be admitted that co-financing from EU resources contributed significantly to the implementation of the horizontal objective, which covered an increase in the use ICT in the educational process in Poland. Before commencing the delivery of computers funded from EU resources, the indicator determining the number of students per 1 computer with Internet access in the 2001/2002 school year amounted to almost 42, while in 2008 it dropped to 11.76\(^{59}\).

Also the questionnaire surveys conducted by PAG Uniconsult among entrepreneurs allow for positive conclusions to be drawn concerning the transition into a modern economy. Categories of professions and specialisations perceived as “carriers of knowledge-based economy” constituted in these companies 46% of jobs created and 33% of those liquidated, confirming not only the quantitative but also the qualitative change in employment in this group of companies.

\(^{57}\) Final report on the implementation of the Sectoral Operational Programme Human Resources Development.


\(^{59}\) Final report on the implementation of the Sectoral Operational Programme Human Resources Development.
At the same time, information obtained within the framework of a survey entitled “Assessment of the level of development of the information society under the Sectoral Operational Programme Human Resources Development”\textsuperscript{60} indicate the need for basing the ICT training implemented on the diagnosis of needs to a much higher extent. The results of the research inscribe well into the general trend concerning the increasing role of the demand side in relation to the intervention implemented under ESF.

<table>
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<tr>
<th>Effects of support – facts and figures</th>
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<tr>
<td>The share of schools in Poland equipped with computer hardware through support from funds</td>
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<td>The number of new computer workstations in schools, purchased thanks to ESF support</td>
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<tr>
<td>The increase in the net number of jobs in the group of beneficiaries</td>
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<tr>
<td>The number of alternative kindergarten care facilities in rural areas created through funds</td>
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**Social integration and cohesion**

In the area of social policy, which is understood primarily as support for groups in the most difficult circumstances, implementation of Measure 1.4, 1.5 or 1.6 has largely contributed to the effects of higher qualifications, motivation and a change in social attitudes on an unprecedented scale in relation to groups such as the disabled, beneficiaries of social assistance or women returning to the labour market after a break in professional activity. Social groups for which the support hitherto had turned out to be ineffective, covered by support from ESF, have regained a willingness and motivation for self-development and for decisions aimed at economic independence, which is beyond doubt a success of the support granted. As a means of combating social exclusion, the ESF has also provided youngsters at risk of social exclusion with social protection against the status of “aggrieved person” that they have inherited or obtained in their environment.

Since 2004, the ESF has been a new and important source financing for various social-assistance and integration institutions (mainly NGOs) and activated many new measures not taken before among the social assistance institutions. In this context, **initiatives in the scope of social economy**, developed both under SOP ICE and under CI EQUA, turned out to be exceptionally important and effective. The implementation of projects promoting the establishment of new social economic entities and the amendment to the act on social cooperatives as well as the appointment of the

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\textsuperscript{60} PAG Uniconsult, “Evaluation of the level of development of the information society under the SOP HRD2004-2006”, study carried out at request of the MRD, Warsaw 2008.
Social Economy Team constitute measurable effects of the measures carried out to develop a common concept of social entrepreneurship and to start a debate about new support instruments for those at risk of social exclusion. The development of social cooperatives, establishment of professional-activity organisations or social integration centres and clubs has become a method used to support long-term unemployed or disabled, and it has allowed a more effective activation of persons using social transfers over the long term.

In this context it should also be pointed out that ESF has ensured not only an additional source of financing, but also has initiated a change in the quality of services provided. An additional effect of implementing SOP ICE Measure 1.5 was constituted by the professionalization of personnel in social assistance centres, contributing to a change in attitudes and work methods for social employees acting alone for the benefit of people at risk of social exclusion.

Conclusions and recommendations

The establishment of a coherent system for labour-market and educational-policy implementation, emphasising the principles of lifelong learning.

Results of research into improved adjustments of the educational and training system to labour market needs to point to the necessity of establishing a coherent vision of a system to implement labour-market and educational policy, focussing on the principles of lifelong learning. It is particularly necessary to adjust education faculties to the needs highlighted in research on labour demand. Such a solution should form the basis of better coordination of measures implemented with structural funds and public means.

The support of entrepreneurship – the diversification of support tools for persons planning to set up businesses.

Conclusions of research clearly demonstrate that subsidies for setting up businesses are highly effective instruments for the activation of the unemployed on the labour market. The companies set up typify survivability. This form of support (combined with bridge and advisory and training support) should be continued in the future. It is also advisable to increase the allocation of funds for this type of measure. Simultaneously, due to the limited availability of funds for supporting economic activity compared to demand for this form of support, the diversification of tools for the respective recipient groups is of the utmost importance.

Using repayable instruments to support the set-up of businesses seems a more appropriate tool for supporting those already employed. Meanwhile, non-repayable financial instruments remain a recommended tool for supporting groups in a more
difficult position on the labour market, in particular women, the young and those at risk of social exclusion. If such persons run their own companies, they have a chance to gain professional experience and to have easier access to the labour market, even if the company fails to become a sustainable entity. Also, groups at a higher risk of the deadweight effect (e.g. the well-educated individuals with earlier experience running a business) should have stronger incentives to initiate riskier projects with at the same time, greater potential for profitability for the whole economy, namely innovative projects.

**Measures focused on development and investment in human capital.**

Measures focused on the development of educational units, including development and establishment of new pre-school education centres based on monitoring of demographic trends, should be continued in the future perspective. These measures should provide those children to whom it previously would have been inaccessible without the support of funds with access to education, including the use of high-quality education on offer adjusted to actual development needs.

Continuation of measures aimed at better adjustment of the schools and educational units on offer to labour market needs is also recommended. Measures in this regard will require intervention relating to educational methods and programmes as well as the establishment of an effective system to diagnose labour market needs.

Put this way, it is necessary not only to use knowledge regarding the current circumstances, but also the possible changes when graduates of the respective school types enter the labour market. Implementation of the solution suggested will require the development of labour-market forecasts to form part of a minimum five-year perspective. In addition, it will also be necessary to take measures to increase students’ interest in education at faculties with a predicted demand on the labour market.

The development of pre-school care centres as regards the policy of increasing professional activity of mothers returning to the labour market is also very important. Therefore, a policy of financing investments in the area of education from Community funds should be incorporated into a wider vision of social policy in a way to ensure real assistance and sustainability of measures.

**An increase in the adjustment of training on offer to actual labour market requirements.**

The necessity to change the way in which the training market is organised by limiting the role of the supply side against the demand side as regards the topics and scope of support offered is an important conclusion of lessons learnt throughout ESF implementation. In this regard it is necessary to put greater emphasis on
implementation of training based on the actual needs of their recipients and producing a document recognised on the open labour market confirming the skills gained. Consequently, it should be recognised that effectiveness of training implemented with the European Social Fund will depend on establishing a structural and organisational framework based on a system to build knowledge, skills and competences. Solid research into the demand for labour, a national qualifications framework and qualifications development system should also form a significant part of this system.

Training offered should be adjusted to labour market requirements through active participation of local/regional employers in the process of identifying and forecasting demand for specific skills or professions. Mechanisms to control and verify the quality of training delivered should be introduced in education and training by establishing an independent system to evaluate skills and knowledge gained by participants and to evaluate institutions providing the training services (including the enhancement and development of their accreditation system). Intervention in the development of IT competence building is a particular area requiring such changes.

Support under Active Labour Market Policy should be continued, however, it is necessary to improve its effectiveness.

An increase in the quality of services offered by public employment services (including measures focused on decreasing the number of the unemployed per one career adviser and employment agent) needs further support, as well to extending cooperation between job centres and employers. Attention should also be given to the fact that the current division of funds for co-financing the labour fund is based on algorithms promoting local-governments with the highest number of unemployed and not the most effective measures. Restructuring the fund-division system, consisting in promotion of the most effective territorial local-government units in terms of activation of the unemployed, would contribute to a reduction in the number of people on social benefits.

Greater diversification and comprehensiveness of support aimed at groups in particular circumstances on the labour market is necessary.

Plans regarding support aimed at various groups recognised as being in a particularly difficult situation on the labour market should, at every opportunity, take into consideration the fact that there is high variation, both between and within respective groups (e.g. varying the existence of barriers among persons of different types and levels of disability).

Therefore, it is necessary to ensure that the support provided is based on thorough diagnosis of the problem forming barrier in the cases of the respective groups and will
demonstrate precisely the ways planned to eliminate these barriers. Simultaneously, research in this regard demonstrates that comprehensive measures, integrating various complementary methods and instruments (financed both under one and under various funds or sectoral policies), turned out to be the most effective way of support.

The effectiveness of interventions implemented in this area will, to a large extent, depend on the state policy and quality of reforms introduced in the respective areas. The necessity to eliminate the so-called “pension trap”, which limits the effectiveness of support provided for the benefit of the disabled, provides example of such a situation.
One of the main markers of the Polish economy’s competitiveness is the competitiveness of enterprises operating on the Polish market. The improvement of welfare measured by the level of Gross Domestic Product and employment depends on the economic condition of enterprises, their capacity to generate high revenues in international competition, their investments as well as their capacity for innovation, which is particularly important in the modern economy.

The Socio-economic situation at the time of starting NDP implementation

In 2003, prior to starting the implementation of the National Development Plan, the level of competitiveness and innovation of Polish enterprises was relatively low. Polish companies were much weaker than their European competitors in terms of human resources, capital and technology. Their competition capacities were based primarily on traditional advantages.

One of the main factors identified in the programming phase which determined the level of competitiveness of Polish enterprises, was low investment expenditure related to a shortage of capital and high consumption of tangible assets at the same time. In 2003 investments in the enterprise sector amounted to PLN 77.4 billion and were 1.8% higher compared with the previous year. Despite the increase of investments in relation to previous years (in 2001-2002 a decline in investment had been recorded for the first time since 1991), it was still an insufficient level for the needs of modernization and restructuring Polish enterprises and the economy. In this context, structural measures programmed under implementation of the Cohesion Policy in Poland were to be an important addition to scarcity of domestic resources.

Particularly unfavourable circumstances developed in the area of innovation. According to the „European Innovation Scoreboard” Poland, in the initial phase of implementing structural funds in 2004, was the least innovative economy out of 25 European Union countries. The low level of innovativeness of Polish enterprises resulted in a small capacity for creating competitive advantages based on modern technologies and innovative products.

The unfavourable situation in innovation was reflected in the value the indicator measuring the share of innovation companies in industrial enterprises (innovation rate) had. In 2001 the share of innovative companies (engaged in innovation activi-
ties) amounted to 16.9%. Although in 2003 the increase in expenditure on innovative activities was more than 12%, the value of the above innovation indicators were relatively low compared to other European Union countries. The structure of spending on innovation activities in enterprises seems also unfavourable: only about 11% of expenditure in 2003 was spent on R&D (the share of R&D expenditure on innovation activities in highly developed countries greatly exceeds 50%).

The low level of entrepreneurs’ willingness to cooperate with the sphere of science and research was a significant problem and barrier to the development of the Polish economy before the deployment of the National Development Plan. Only 8% of companies collaborated with research or research and development units in 2003. Weak links between science and the economy resulted in a small reflection of scientific results of research and development studies in terms of their application in the economy. This barrier was a major constraint for the creation of innovative solutions that could improve the competitive position of the country and companies. The lack of developed infrastructure and commercialization of research results in addition to a shortage of the appropriate funding mechanisms caused investing in new technologies and creating new companies to be associated with too high a level of risk. This resulted in the inhibition of applying scientific research in the economy.

What is more, processes in Polish enterprises’ surroundings had a significant impact on the level of their competitiveness and innovation. One of the major factors shaping conditions for raising the level of competitiveness and innovation of businesses and the economy is the scale of expenditure on research and development (R&D) in the economy as a whole. The innovative capacity of the economy can be assessed, through, among other methods, investment in R&D activities in relation to GDP. Expenditure on R&D in 2003 amounted to only 0.56% of Gross Domestic Product and had a relative decrease compared to the previous year (2002 - 0.58%). This value was one of the lowest in countries of the EU and OECD. The structure of expenditure on R&D incurred in the economy was also unfavourable in 2003: 62.7% of expenditure on R&D activities were financed from the State budget, and only 23.5% were expenses of economic entities (while according to the theory it is assumed that the most desirable ratio of private to public spending is 65:35).

A reliable indicator for evaluating innovation processes is the so-called inventiveness indicator showing the number of inventions or patent applications per 10,000 inhabitants. In Poland in 2003, this indicator was at 0.6 (while in Germany for example this rate was about 6.0).

Competitiveness and enterprise innovation is conditioned to a large extent by the development level of the institutional system (system of business environment institutions - BEI) under which economic entities operate. The role of the business

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61 According to Eurostat.
environment should be to support enterprises’ economic activity through the provision of consulting and information as well as financial services and act to an ever larger degree as an intermediary and animator in creating a network of relationships between science and business.

Before deployment of the National Development Plan, the institutional system was, nevertheless, characterized by a high diversity (approximately 3,000 non-profit institutions and more than 1,000 commercial entities supporting entrepreneurship in Poland). The most important are the National System of Services for Small and Medium-Sized Enterprises (NSS) (together with Regional Financing Institutions - RFI), consisting of Consulting and Advisory Centres (CAC), EIC, associations of loan and guarantee funds and the National Innovation Network.

That said, the institutional system of the business environment did not provide in the period analysed conditions for optimal development of competitiveness and innovation of Polish enterprises. The main problems include inconsistent systems (the uneven distribution of centres), varying qualities of services, inadequate technical equipment and staff shortages.

A significant problem of business institutions in Poland in 2003 was the unsatisfactory level of development of institutions supporting innovation as well as of knowledge and technology transfers from science to economy. This thesis may be illustrated by the fact that in 2003 there were only four science and technology parks in Poland. Barriers to development of such institutions in Poland were primarily low capital expenditure and a low level of awareness of the opportunities and benefits from innovation and cooperation between science and economy.

In 2003 at the regional level, the most competitive Polish voivodeship was Mazowieckie, followed by other voivodeships with dynamic urban centres, such as Małopolskie, Pomorskie, Dolnośląskie, Śląskie and Wielkopolskie. The other end of the scale includes poorly developed regions (e.g. Lubelskie, Podkarpackie, and Świętokrzyskie), characterised by their negative economic structure, such as freezing potentially significant labour resources in underproductive and limited agriculture. The process of locating new investments and the transfer of technology occur and have occurred at a relatively slow pace in those areas (cf. Map 1).
Map 1. Regional diversification of synthetic competitiveness (2003)\textsuperscript{62}

<table>
<thead>
<tr>
<th>Synthetic competitiveness indicator</th>
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<tr>
<td>0.5 to 1 (1)</td>
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<tr>
<td>0.4 to 0.5 (3)</td>
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<tr>
<td>0.3 to 0.4 (2)</td>
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<td>0.2 to 0.3 (4)</td>
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<td>0 to 0.2 (6)</td>
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Scope of intervention under the NDP

An important instrument for increasing the level of competitiveness and innovation of the economy in Poland is the Cohesion Policy co-financed by structural funds of the European Union. The diagnosis of the socio-economic situation in terms of competitiveness and innovation of Polish enterprises and the economy, presented in the previous subsection, was the starting point for a public intervention structured in the form of operational programmes and selected measures under the National Development Plan for 2004-2006.

The strategic objective of the National Development Plan was “to develop the competitive economy based on knowledge and entrepreneurship capable of long-term harmonized development to ensure employment growth and the improvement of social, economic and spatial cohesion with the European Union at a regional and national level.” This objective was planned to be achieved through, \textit{inter alia}, “the intensification of the process to increase the share of high-value-added sectors in the structure of the economy” through supporting development with “a high rate of production and productivity (including construction)” as well as “an increase in expenditure for scientific and research areas, particularly in domains whose results can directly be utilized to make the development of enterprises more dynamic, and in a long-term perspective to create foundations for a new economy.”

\textsuperscript{62} This indicator includes features of regional economies such as openness, quality of human resources, capacity to attract foreign investments, innovation and transport accessibility.
The main instruments for achieving these objectives of the NDP were the Sectoral Operational Programme Improvement of the Competitiveness of Enterprises and selected measures under the Integrated Regional Operational Programme and the Sectoral Operational Programme Human Resources Development. Under the programmes mentioned previously the following types of intervention aimed at increasing the level of competitiveness and innovation of Polish enterprises and the economy were implemented:

- Direct or indirect co-financing investments undertaken by enterprises
- Increasing enterprises’ access to infrastructure as well as advisory and business services
- Supporting the accumulation of human capital in enterprises and higher education institutions
- Supporting the development of research related to the economy and its use in enterprises
- Supporting the internationalization of enterprises

The addressees of support characterized above under the Cohesion Policy were companies in the strictest sense - employees of enterprises and business environment institutions.

The effects of intervention

The value of projects completed in this area in the period 2004-2009 amounted to over PLN 17 billion, which represented a relatively significant share of the National Development Plan (17% of the value of all interventions under the NDP). The vast majority of support was addressed directly to companies - 52%. Most intervention was of the project-investment type - 58% (cf. Figures 2 and 3).
Figure 2. Support structure (by value) in terms of beneficiary type

- Direct support for enterprises: 52%
- Support for business environment institutions: 33%
- Development of human resources: 15%

Figure 3. Support structure (by value) in terms of thematic area of intervention

- Investment projects: 58%
- Supporting for research used in the economy: 7%
- Supporting internationalization of enterprises: 1%
- Accumulation of human capital in enterprises: 15%
- Increasing enterprises’ access to infrastructure as well as advisory and business services: 19%


In relation to direct support for enterprises (which is the predominant type of intervention) most funds (over 70%) were targeted at the processing industry (cf. Figure 4).
The support structure for the industrial sector, despite the predominance of certain sectors\(^6\), was largely diversified.

The above analysis shows that intervention directly supporting companies under the Cohesion Policy related mainly to the second sector of the economy (industry), while interventions were not targeted at specific and narrowly defined sectors (e.g. high technology).

The analysis of the relationship between the productivity of sectors and the amount of support received by companies indicates that the absence of a stronger focus and concentration of intervention caused a reduction in the effectiveness of Cohesion Policy in this regard since support was provided for, inter alia, less productive sectors (which is inconsistent with the strategic objectives of the NDP). Nevertheless, as regards industrial processing, enterprises from more productive sectors received relatively more support. The above connection is presented in Figures 5 and 6.

\(^6\) Institute for Structural Research, “Evaluation of the impact of the cohesion policy on the growth of the competitiveness and innovativeness of Polish enterprises and economy”, study carried out at the request of the MRD, Warsaw 2010.
Figure 5. The relationship between support intensity (share in added value) and sector productivity (all industries)

Figure 6. The relationship between support intensity (share in added value) and sector productivity (industrial processing)

Ensuring a high effectiveness level (implementation of strategic objectives) and efficiency of the Cohesion Policy concerning direct support for enterprises, therefore requires a closer focus of intervention and a larger concentration of funds.

In the regional dimension, the Cohesion Policy had a more important role in the case of poorer regions and those with a lower level of competitiveness and innovation of the economy. In spite of the fact that support of funds in absolute value was aimed usually at the wealthiest regions (Mazowieckie, Śląskie, Wielkopolskie voivodeships), the scope of intervention was the largest for the poorest voivodeships in relation to the level of the Gross Domestic Product (cf. Figure 7).

**Figure 7. Aid from the EU under implementation of projects supporting competitiveness and innovation in relation to the GDP of voivodeships (Poland’s average=100)**

![Graph showing aid from the EU under implementation of projects supporting competitiveness and innovation in relation to the GDP of voivodeships (Poland’s average=100)](image)


Similar conclusions concerning the role of the Cohesion Policy in supporting competitiveness and innovation of Polish regions can be formulated based on analysis of the relationship between the size of the intervention and the level of innovation along with regional competitiveness. Voivodeships which are characterized by a lower level of innovation and competitiveness received relatively more EU funding in this area (cf. Figure 8).

Based on the above analysis of the structure of interventions aimed at increasing competitiveness and innovation at a regional level, conclusions can be made (assuming a strong pro-development nature of investments analysed) that the Cohesion Policy’s role in breaking down disproportions among regions in Poland is positive...
(similar conclusions are drawn based on the analysis of evaluation studies on the macro-economic impact - see the chapter “Macroeconomic effects”).

Figure 8. The correlation between the competitiveness index and the size of support under intervention in favour of competitiveness and innovation\(^{64}\) by voivodeships (taking into account the volume of GDP in a given voivodeship).

![Graph showing the correlation between the competitiveness index and the size of support under intervention in favour of competitiveness and innovation by voivodeships.]


Table 1. NDP/CSF indicators’ level of achievement

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Baseline value in 2001</th>
<th>Target value in 2008</th>
<th>Value achieved in 2008 (CSO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenditure on research and development activities in total (% of GDP)</td>
<td>0.65%</td>
<td>Approx. 1.5%</td>
<td>0.61%</td>
</tr>
<tr>
<td>Expenditure on innovative activity in industry</td>
<td>PLN 12.2 billion (2000)</td>
<td>PLN 13-14 billion</td>
<td>PLN 24.3 billion</td>
</tr>
<tr>
<td>Percentage of innovative companies in the total number of companies (every three years)</td>
<td>16.9% (1998-2000)</td>
<td>17.5 – 18%</td>
<td>21.3% (2006-2008)</td>
</tr>
</tbody>
</table>

Source: Own elaboration on the basis of NDP/CSF and CSO data.

\(^{64}\) This indicator includes features of regional economies such as openness, quality of human resources, capacity to attract foreign investments, innovation and transport accessibility. Indicator value can be between 0 and 1.
The implementation of the National Development Plan had a positive effect on the level of expenditure on research and development in the economy and an increase in enterprises’ spending on innovation (cf. Figure 9)\(^65\).

**Figure 9. The impact of the NDP on indicators relating to research and development as well as innovation activity**

![Figure 9](image_url)


Although the objective of the National Development Plan for expenditure on research and development (approximately 1.5% of GDP in 2006) was not achieved (at the end of 2008 the share of expenditure on research and development amounted to only 0.61% of GDP) the impact of the Cohesion Policy in this area was positive and included, primarily, an acceleration of the growth of R&D spending. At the peak intensity of the transfer of EU funds into the economy in 2007, the estimated effect of the support provided under the NDP reached about 15% of total expenditure on R&D in the Gross Domestic Product. In relation to the absence of significant changes in the index value in the analysed period, this means that the share of expenditure on R&D would have fallen without the support of the Cohesion Policy.

The planned target values of indicators relating to enterprises’ innovative activities were achieved: expenditure on innovation activities in industry in 2008 amounted to over PLN 24 billion, with the planned target of PLN 13-14 billion; the share of innovative enterprises in 2004-2006 amounted to over 20%, while the planned target value was about 17.5-18%.

Evaluation studies on the impact of the Cohesion Policy on the values of these indicators show that increase in the share of expenses of innovative enterprises compared to 2003 was about 6 pp. higher than in a situation whereby the NDP had not been implemented. A significant impact of the Cohesion Policy on the share of innovative companies in the economy was not, however, observed.

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\(^65\) The results of macroeconomic impact in this chapter present only the influence of the National Development Plan and do not include additional positive impact of the National Strategic Reference Framework after 2007.
The evaluation process suggests therefore a **positive impact of the Cohesion Policy on the level of innovativeness of the Polish economy at a macro-economic level**. It should be noted, however, that for the level of expenditure on research and development (one of the key indicators of economy innovation) Cohesion Policy only “saved” the Polish economy from a worsening of the situation in this area.

**Direct support for enterprises**

The results of numerous evaluation studies allow us to draw a conclusion that the Cohesion Policy plays a positive role concerning direct support for companies. Nevertheless, they point also to the inefficiently of State intervention in certain areas which is a barrier to the full use of the Cohesion Policy’s potential in this regard.

**Investment support** gained under the Cohesion Policy was a relatively effective and efficient instrument for improving competitiveness and innovativeness. Evaluation studies indicate that it contributed not only to the development of enterprises (99% of companies reported a positive impact of the support on company’s development) but also to an increase of their competitiveness and innovativeness (96% and 92%). The impact of support on the growth of innovation in Polish enterprises can be seen especially in the modernization of technology applied by them and the extension of their products and services on offer. The projects implemented were also associated with an increase in job security, investment potential and companies sales volumes. **Innovations created as a result of support** are, however, usually a novelty at the country (43%) and company (40%) level. The share of innovations of the highest, global scale is small (12%). Most companies granted support report significant growth in their basic economic indicators (sales, profitability, etc).

According to the results of evaluation studies concerning **support addressed to micro-enterprises**, the list of effects that were achieved due to the implementation of co-financed projects includes, among others, an increase in employment, obtaining the capital necessary at a given stage of development, introducing a new product or service to the market, an expansion of the customer base, improving the

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66 More than 60 evaluation studies concerning competitiveness and innovation of companies and economy in the period 2004-2009.

67 “Evaluation of results of Measure 2.1 and 2.3 of the SOP ICE after 18 months. Results after 6 rounds of the study”, PAED, Warsaw 2008.

68 PAG Uniconsult, “Impact of the implementation of the Sectoral Operational Programme Improvement of the Competitiveness of Enterprises 2004-2006 on the level of innovation of Polish enterprises”, study carried out at the request of the MRD, Warsaw, 2008.

69 PSDB WYG International and ASM Research and Market Analysis Centre, “Evaluation of the impact of Structural Funds on increase of competitiveness of enterprises”, evaluation study carried out at the request of the MRD, Warsaw 2008.

70 Resource, “Analysis of the impact of support granted under Measure 3.4 of the Integrated Regional Operational Programme on increase of micro-enterprises competitiveness”, study carried out at the request of the MRD, 2007.
economic situation of the enterprise, the purchase of machinery and equipment (including computerisation of the company) and the diversification of activities.

In beneficiaries’ opinions, in the case of advisory support a majority of the projects implemented (81%) had a positive impact on enterprises’ development (out of which 95% of beneficiaries assessed this impact as at least moderate)\(^71\). This impact was manifested mainly in improving the quality of business management, better customer service and obtaining necessary quality certificates and on the other hand - an increase in brand recognition, business profitability and products’ appeal. What is more, although most beneficiaries associate the support with increased competitiveness of their companies, the relation with improvements in innovation is clearly less common according to the analysed companies (about 50% of beneficiaries). It should be noted that beneficiaries’ evaluation of advisory intervention is worse than in the case of investment support\(^72\).

Support for private R&D contributed both to an improvement in competitiveness and increase in the level of innovation in relation to the period before project implementation (the percentage of companies that associate growth of competitiveness or innovativeness with obtaining support is 90%)\(^73\). An important aspect of support for private R&D activities was cooperation with scientific institutions.

The above selected gross effects of interventions in the field of direct support for enterprises can therefore be regarded as unequivocally positive. It should be emphasized, however, that in order to obtain a full evaluation of the Cohesion Policy in this area and the possibility of making reliable, useful conclusions and recommendations, the key issue is to estimate the net effects as well as the scale and scope of deadweight\(^74\).

The occurrence of positive effects of the Cohesion Policy coincided to a large extent with the period of economic recovery during typical of which is an improvement in enterprises’ economic situation. This is why in order to “isolate” the impact of intervention on enterprises’ operations, it is necessary to estimate the net effects. Research results in this regard are not unequivocal in spite of the fact that they show the positive impact of intervention. The scale of net positive effects of interventions aimed at direct support for enterprises is different depending on the study

\(^{71}\) “Evaluation of results of Measure 2.1 and 2.3 of the SOP ICE after 18 months. Results after 6 rounds of the study”, PAED, Warsaw 2008.

\(^{72}\) Ibidem.

\(^{73}\) Resource, “Effects of supporting research and development in the Sectoral Operational Programme Improvement of the Competitiveness of Enterprises in the context of starting implementation of the Operational Programme Innovative Economy”, study carried out at the request of the MRD, Warsaw 2009.

\(^{74}\) Deadweight shows whether and to what extent the project would have been implemented in the absence of support from EU funds.
and methodology used. An evaluation study of 2009\textsuperscript{75} estimated the net effect of Cohesion Policy intervention at PLN 2.4 million in the case of sales for companies under investment support. What is more, according to evaluations, companies which are beneficiaries of the Cohesion Policy were also characterized by a higher level of salary funds (600 thousand PLN), higher expenditure on fixed assets (approximately 650 thousand PLN), higher employment (estimated net effect of the support on the level of employment was 14 full-time jobs) and higher expenditure on research and development activities. According to a survey of 2008\textsuperscript{76}, beneficiaries of investment support presented a relatively greater increase in sales, larger market share and recognition of their brands, as well as higher quality products and higher profitability in their operations. Nevertheless, the estimates of the net effect for all intervention on the competitiveness of relevant enterprises indicate that net effects of support (e.g. employment, fixed assets and profits) are relatively small and an order of magnitude smaller than the gross effects (often not exceeding even 1%)\textsuperscript{77}.

Despite the above results’ ambiguity, ex post evaluation allowed one to determine\textsuperscript{78} that intervention involving the co-financing of innovative research and development projects with low chances of commercialization in a short period of time is highly effective with large-scale net effects. In other words, subsidies for private R\&D activity are purposeful and public funds do not generally replace private funds (they are complementary)\textsuperscript{79}. The results also show a lower level of net effects for consulting projects in comparison to other types of support\textsuperscript{80}.

Evaluation studies provide relatively consistent knowledge about the scale and scope of the occurrence of deadweight. The percentage of enterprises that would not have implemented a project without the support fluctuated between 10 and 15\%. Although over 80\% of projects would have been implemented without the support, State intervention affect enterprises’ behaviour to a greater or lesser extent (depending on the study and methodology).

Analyses of the impact of the Cohesion Policy clearly indicate that the effect of deadweight loss is the lowest in the case of highly innovative projects (in particular R \& D projects subject to long-term commercialization) implemented by small and

\textsuperscript{75} “Analysis of net effects of projects supporting an increase in enterprise competitiveness”, PAED, Warsaw 2009.
\textsuperscript{76} PAG Uniconsult, “Evaluation of relevance and effects of implementing Measure 1.2. of the Sectoral Operational Programme Improvement of the Competitiveness of Enterprises”, evaluation study carried out at the request of the MRD, Warsaw 2009.
\textsuperscript{77} PSDB WYG International and ASM Research and Market Analysis Centre, “Evaluation of the impact of structural funds on increase of competitiveness of enterprises”, study carried out at the request of the MRD, Warsaw 2008.
\textsuperscript{78} Institute for Structural Research, “Evaluation of the impact of cohesion policy on growth of competitiveness and innovativeness of Polish enterprises and economy”, op. cit.
\textsuperscript{79} Ibidem.
\textsuperscript{80} Ibidem.
medium-sized enterprises. This follows on from the fact that they are costly undertakings with high risks and a long-term rate of return for which it is not easy to find the source of funding. At the same time, these projects are characterized by high social rates of return and as such are eligible for effective public support.

The Cohesion Policy evaluation process allows one to conclude that direct support for enterprises is a relatively effective instrument of raising their level of competitiveness and innovativeness. However, in order to improve the efficiency of Cohesion Policy implementation it is necessary to increase the degree of concentration and a stronger focus of intervention.

Therefore the need to distinguish between funding for highly innovative projects (including research and development projects) from financing for projects of a purely investment nature is of particular importance. The results of evaluation studies indicate that non-returnable State aid under the Cohesion Policy should apply to highly innovative projects carried out mainly by small and medium-sized enterprises (a key role of the selection process). These types of intervention are an effective (reducing the equity gap and reducing investment risk for innovative projects) and efficient (minimizing the deadweight-loss effect) instrument for raising the level of competitiveness and innovativeness of Polish enterprises. In the case of investment projects (which are an effective means of stimulating private investment spending and increasing employment levels), State aid should be returnable (in order to increase the efficiency of the Cohesion Policy - to minimize the deadweight-loss effect and reduce support costs). Investment support (non-innovative) for large enterprises and support of an advisory nature (high deadweight loss) should be restricted.

Support for business-environment institutions

Evaluation studies show that relatively the most highly regarded form of support for the development of institutional business environment was loan funds, guarantee funds and seed capital funds. In light of these studies, aid granted through seed capital funds deserves a particularly positive assessment. Most customers of funds operate in sectors representing the innovative high-tech industry (about 70% of clients of this type of funds) and extensively cooperate with universities and research units (about 50%). Seed funds supported by the Cohesion Policy applied a favourably evaluated individualized approach to clients.

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82 PAG Uniconsult, “Evaluation of relevance and effects of implementing Measure 1.2. of the Sectoral Operational Programme Improvement of the Competitiveness of Enterprises”, op. cit.
Support for enterprises provided through financing institutions, apart from effectiveness (the positive economic effects of the intervention) is also characterized by a **relatively high level of efficiency**. Effects of intervention in the form of the amounts of the launched resources and the number of supported enterprises are comparable with direct support, but with less involvement of the EU funds\(^8\). The impact of intervention undertaken within the Cohesion Policy **to develop and build a common infrastructure for enterprises** (industrial, scientific and technological parks and business incubators), must be regarded as **good for business competitiveness** – however, they contributed to supporting the innovativeness to a lesser extent\(^4\).

For most companies (56%) the placement of activities in the park / incubator has **positively affected the improvement of their level of market competitiveness**. However, the image of pro-innovation services in the form of technology transfer and brokering between the private sector and the R & D sector is relatively weaker\(^5\). That said, the **scope and extent of cooperation with R & D is, after all, bigger than that of companies operating outside the parks and technology incubators**\(^6\).

In the case of **support for scientific units and research units in the field of R & D**, the evaluation process allows for a **moderately positive assessment of the intervention**. The established objectives in the field of products and the expected outcome of intervention have been achieved, and in many cases have been significantly exceeded\(^7\). Research laboratories have been established where the level of modernity has proved to be significantly higher than among non-supported units. The research infrastructure created appears to fulfil its role, and the degree of its use is relatively high\(^8\). In beneficiaries’ opinion, the intensity of cooperation between the private sector and R & D has also increased. It should be noted, however, that the same trends were also observed in those companies and research units outside the sphere of support. Studies also indicate that a **relatively large proportion of projects**

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\(^8\) IBS, “Evaluation of the impact of Cohesion Policy on growth of competitiveness and innovativeness of Polish enterprises and economy”, op. cit.

\(^4\) IBS, “Evaluation of the impact of Cohesion Policy on growth of competitiveness and innovativeness of Polish enterprises and economy”, op. cit.; Ecorys, “Benchmarking of technological parks in Poland. Research results”, PAED, Warsaw 2008; and PAG Uniconsult, “Evaluation of the results of the support granted to industry parks, technical and scientific parks and technology incubators under Measure 1.3 Creation of good conditions for enterprises development”.

\(^5\) PAG Uniconsult, “Evaluation of the results of the support granted to industry parks, technical and scientific parks and technology incubators under Measure 1.3 Creation of good conditions for enterprises development”, study carried out at the request of the MRD, Warsaw 2008.


\(^7\) Report on the implementation of the Sectoral Operational Programme Improvement of the Competitiveness of Enterprises.

\(^8\) IBS, “Evaluation of the impact of Cohesion Policy on growth of competitiveness and innovativeness of Polish enterprises and economy”, op. cit.
(47%) owe their implementation to support from EU funds. However, the effect of partial deadweight loss is at the same level as in the case of direct support for enterprises\textsuperscript{89}. It should be emphasized that for institutions operating on a smaller scale, the possibility of obtaining funding was a necessary condition to initiate and carry out research and development\textsuperscript{90}.

Results of analysis indicate that a small proportion of funding was directed towards the development of cluster initiatives. Meanwhile, contemporary economic theories attribute essential importance to this kind of instrument as well as the results of evaluation studies according to which the network and clustering initiatives and other initiatives related to the promotion of cooperation are very important components worth mentioning in the process of promoting competitiveness and innovativeness\textsuperscript{91}. Support for the Cohesion Policy in the development of innovation systems, although positively evaluated, due to its relatively limited scope of intervention, its impact is described as point-specific\textsuperscript{92}.

The Cohesion Policy evaluation process allows one to conclude that intervention in support of the construction and development of business-environment institutions is a relatively effective means of raising the level of competitiveness and innovativeness of the Polish economy. However, in order to increase the effectiveness of intervention in this regard, it is necessary to make modifications, consisting particularly in:

- **the extension of returnable support through funding institutions** (particularly increasing the role of venture capital funds), while extending the scope of services provided by them

- **increasing the support of cluster initiatives** (State intervention in this area should focus on assisting emerging cluster initiatives, rather than trying to directly create links between companies)

- **better alignment of services provided by business environment institutions to the needs of enterprises** (in particular services related to innovation activities).

\textsuperscript{89} Ibidem.

\textsuperscript{90} Resource, “Effects of the support granted to research and development under the Sectoral Operational Programme Improvement of the Competitiveness of Enterprises in the context of the commencement of the implementation of the Operational Programme Innovative Economy”, IBS, “Evaluation of the impact of Cohesion Policy on growth of competitiveness and innovativeness of Polish enterprises and economy”, op. cit.


One of the main barriers to the development of the Polish economy is poor cooperation between the enterprise sector and the R & D sector (in particular with universities). This is due to many factors, in particular, the low level of awareness and pro-innovation attitudes of both the economy and science sectors, but also of the public authorities. This barrier is one of the main factors affecting the efficiency and effectiveness of the implementation of the Cohesion Policy in the promotion of the Polish economy. The creation of an entirely new model of cooperation between the aforementioned groups is therefore required.

This finding indicates, on the one hand, the strong interdependence in national public policies, and on the other hand, the need for an integrated approach to development, enabling (through the use of a problem approach rather than a sectoral approach) the coordination of activities of public authorities in particular areas.

Support directed to the development of human capital in enterprises

Assessment of the impact of intervention aimed at developing human capital in enterprises, allows one to conclude that the efficiency of support for business start-ups is relatively high. Were it not for the opportunity to receive assistance, a substantial part of newly established enterprises would probably not arise (about 50% of the beneficiaries). The level of deadweight loss is therefore relatively low for this type of intervention. In addition, results show the innovative nature of new undertakings given that many companies created with the help of EU funds are IT companies and service-consulting companies. Due to the fact that the aid concerns companies at an early stage of development, support should be non-returnable (not to limit the incentive to take risks).

In the case of intervention aimed at improving the skills of workers and entrepreneurs (training), the aid for microenterprises proved, relatively speaking, to be the most effective (about 80% of small companies would not send their staff for training if not for EU funding). Although the evaluation process has identified numerous examples of the positive effects of training support, the overall assessment is influenced by the fact that the training on offer does not match the needs of workers and employers. This follows from the fact that the beneficiaries of support were entities representing the supply side, i.e. institutions and training companies, not companies and their employees notifying the demand for training services. The impact of intervention on the market for training services was also clearly nega-

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94 IBS, “Evaluation of the impact of implementation of intervention co-financed from ESF on the improvement of the quality of human resources”, op. cit.
95 Ibidem.
96 “Quarterly survey of Final Beneficiaries of SOP HRD Measure 2.3”, PAED, Warsaw 2008.
97 Ibidem.
tively assessed (reducing the demand for training pursued on a commercial basis, pushing smaller training companies out of the market, increases in prices)\(^9^8\). Moreover, despite a significant increase in public expenditure (mostly resources of the European Social Fund) in this area during the period 2004-2010, the percentage of people participating at this time in a system of lifelong learning, has remained practically unchanged\(^9^9\).

The training support system therefore requires modifications to increase the impact on the demand side of the training market, so the companies notifying the demand for training services become, to a greater extent, the beneficiaries.

<table>
<thead>
<tr>
<th>Effects of support – facts and figures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of supported investment projects in enterprises</td>
</tr>
<tr>
<td>Number of supported projects in the business environment institutions</td>
</tr>
<tr>
<td>Number of SME employees who have completed training</td>
</tr>
<tr>
<td>Increase in investments in R &amp; D in 2007, obtained under the National Development Plan</td>
</tr>
</tbody>
</table>

Conclusions and recommendations

Results of the ex post evaluation of the Cohesion Policy allow us to conclude on unambiguously positive effects of intervention (both at the macro-and microeconomic level) aimed at increasing the competitiveness and innovativeness of Polish enterprises and the economy. However, the process of ex post evaluation has identified areas in the inefficiency of public intervention, constituting a barrier to the full potential of the Cohesion Policy in this regard.

Evaluation of the effects of public intervention undertaken in the framework of the Cohesion Policy in this area is an illustration of the thesis of a need for an integrated approach to development. Ex post evaluation indicates that only the implementation of the long list of interventions in the form of complementary and well-focused packages constitutes a guarantee of obtaining the required level of effectiveness and efficiency of Cohesion Policy implementation, in particular intervention packages aimed at linking research with enterprises.


\(^9^9\) Ibidem.
Given the diverse nature of the underlying needs and problems of the Polish economy’s low competitiveness and innovativeness, it is advisable to maintain a wide range of support in the form of direct support for enterprises, support for business environment institutions and human resources development in enterprises (the implementation of a policy-mix concept and systemic approach to the issue of economic competitiveness and innovativeness).

In accordance with the evaluation, the accurate targeting of intervention and the concentration of financial resources is a precondition for efficient and effective use of the integrated approach to the development of the Cohesion Policy in the area of competitiveness and innovativeness (in addition to implementing a broad and diverse package of instruments). Given the financial constraints of the Cohesion Policy, it is therefore necessary to make modifications involving the removal of ineffective types of support and application in appropriate cases of returnable support. Those financial resources are then released for allocation and concentration in intervention considered optimal from the point of view of the Polish economy’s competitiveness and innovativeness.

The process of ex post evaluation of the Cohesion Policy confirmed the thesis about the crucial importance of direct support as an effective and efficient instrument of the Cohesion Policy. A system to promote the competitiveness and innovativeness of Polish enterprises must take into account the problem of scarcity of capital for innovative activity. However, the following directions of the process of direct support for companies are recommended:

- extending the scope of returnable support: non-returnable State aid under the Cohesion Policy should apply only to highly innovative projects (in particular those related to research and development) carried out mainly by small and medium-sized enterprises (a key role of the selection process),
- support for investment projects should be to a great extent in the form of returnable grants,
- investment support (non-innovative) for large enterprises and support of an advisory nature should be restricted.

The results of evaluation studies show that applying these solutions will significantly increase the effectiveness of the Cohesion Policy (e.g. by minimizing the effect of deadweight loss), concentration of resources in key areas in terms of strategic objectives and the most vulnerable to the adverse effects of inefficiency of market mechanisms.

These findings supplement the results of evaluation studies concerning the support for the system of business environment institutions. In view of the results of the
studies, the following modifications are recommended, which will allow an increase in the efficiency and effectiveness of the Cohesion Policy in this area:

- extension of returnable support through funding institutions, while extending the scope of services provided by them,
- an increase in support to cluster initiatives,
- better alignment of services provided by business environment institutions to the needs of enterprises.

In the area of intervention for the development of human capital in enterprises, desirable lines of action in light of the results of evaluation studies are in particular:

- a continuation of non-returnable support for those wishing to start a business and reorientation of professional training, by increasing the impact on the demand side of the training market in order to increase the level of usefulness of intervention (adaption of the training on offer to the needs of beneficiaries).

Ex post evaluation in the area of competitiveness and innovativeness of the economy confirms the observation that one of the basic conditions for effective and efficient implementation of EU funds is the quality of major national policies implemented in the support areas of the Cohesion Policy. The strong interdependence of national public policies therefore requires the need for an integrated and comprehensive approach to socio-economic development of the country.
The modernisation and construction of new facilities of the technical infrastructure constitutes the most essential element of socio-economic development in Poland, which determines the sustainability of economic growth on the regional and local scale and location of new investments. One particular role in the development is played by well-developed transport infrastructure, among others by means of improvement in the accessibility of regions and labour markets, a reduction in the nuisance of congestion and a reduction in travel (transport) time. This brings measurable economic benefits in the form of growth in enterprise and regional productivity and competitiveness. Great importance is also attached to the social dimension of investments, which is expressed by, among others, an improvement in road-traffic safety and the accessibility of public services (education, healthcare and culture), which translates into the development of human capital and growth in social satisfaction.

The socio-economic situation at the moment of commencing the implementation of NDP

EU funds for 2004-2006 were very important for the Polish transport infrastructure, particularly due to the long-term period preceding them when investment expenditure in the field of transport was low. This led to substantial decapitalisation of railway and road networks. Road transport in Poland at the moment of commencing the implementation of NDP featured above all: the lowest percentage of motorways and express roads in Europe, poor road conditions, including their failure to adjust to the EU-required load-bearing capacity transfer of 11.5 kN/axis (as of 2010, only 1/5 of all national roads comply with this norm) and the low level of road-traffic safety, including national roads. Additionally, the high number of cars on the roads

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100 High intensity of traffic on communication routes, traffic jams.
101 According to CSO data, the network of these roads covered 405km of motorways and 226km of express roads in 2003.
102 According to the “Report on technical condition of tarmac and concrete surface of national roads at the end of 2009”, GDDKiA, March 2010, almost 60% of national roads in 2003 required repairs in the coming years whereas nearly 30% of these roads required immediate repairs.
103 J. Burnewicz, “Modern transport infrastructure as the main element of intensifying the development processes in the designed strategic documents”, expert’s report commissioned by the MRD, Warszawa 2010, p. 35.
104 According to GDDKiA statistics in 2005 within the network of national roads there were 20% more accidents, in which nearly 37% of all casualties died.
Transport infrastructure

(11.4 million cars - 294.4 cars per thousand inhabitants in 2003) and the high share of road transport in the total structure of goods transit (73.6% when calculated per thousand tonnes and 33% per million tkm) with the low number of express roads in the network of public roads with hard surfaces (in 2003 two-lane roads constituted only 1.2% of public roads in Poland\(^\text{105}\)) limited the transport accessibility of Poland and individual regions\(^\text{106}\).

Rail transport remains – due to its economic and environmental features – an important factor in the economic development of Poland. Despite the large railway network resources in Poland (in 2003 the length of railway lines used was 20,321 km, with the average network density amounting to 6.5 km per 100 km2), the deteriorating condition of the railway infrastructure (in 2001 23% of railway tracks were in a good condition that required only maintenance, and nearly 40% were in an unsatisfactory condition requiring comprehensive repairs\(^\text{107}\)) leads to a systematic decrease in the capacity of the network and a reduction in goods transit (in 2003 the share of railway in the transit of goods amounted only to 19.5% when calculated per thousand tonnes). In 2004 the length of railway lines adjusted to the speed of 160 km/h and higher amounted to a mere 1,213 km of tracks.

Although Poland has a relatively poorly developed network of flights and airports adjusted to passenger transport, the aviation market had substantial potential for growth at the moment of commencing the implementation of NDP. Passenger flights (regular and charter) handled by 12 airports in 2003 served 7.1 million persons in arrivals, departures and transit (23% more than in 2000 when 5.8 million passengers were catered for)\(^\text{108}\).

The level of use of sea and inland navigation in Poland’s economy is low and still decreasing (in 2003 the share of transport of goods by sea and inland water transport amounted to 2.1% and 0.6% respectively when calculated per thousand tonnes). Efficient public transport is one of the factors determining the harmonious development of urban space, and it exerts significant influence on the safety of road traffic. The main problems of public transport in the period discussed were insufficient investment outlays, and thus outdated rolling stock and the absence of collision-free transport solutions in the network infrastructure. In 2003 the

\(^{105}\)“The Influence of EU funds on the economy of Polish regions and convergence with the EU Member States”, MRD, Warsaw 2010, p. 61.

\(^{106}\)ESPON research of 2006 shows the potential accessibility level of Polish regions (with accessibility understood as the shortest weighted time needed to reach these regions by means of air, road or rail transport from any other EU region) at 25-75% of the EU average, with the exception of the Mazowieckie Voivodeship, which features accessibility similar to the Community average. The positive aspect thereof is the high growth rate for the improvement of this accessibility in Poland in 2001-2006, much higher than the average growth rate in the EU-27 (see J. Burniewicz, „Modern transport infrastructure ...“, op. cit., p. 28-30).

\(^{107}\)J. Burniewicz, „Modern transport infrastructure ...“, op. cit., p. 39.

\(^{108}\)According to CSO.
number of passengers transported by means of urban (land) transport amounted to 4,199 million passengers (in Kraków it was 314,300 persons, 540,600 in Poznań and 2,205.6 in Warsaw\textsuperscript{109}), featuring a downward trend.

### Objectives and scope of interventions under the NDP

The huge investment needs in the field of transport infrastructure resulting, among others, from unsatisfactory condition of road and rail network, the lowest percentage of motorways and express roads in the EU, a deficiency of ring roads for cities and roads with an appropriate load-bearing capacity, the insufficient development level and technical parameters of the railway network, the modernisation needs of airports are discussed in detail in national and EU documents covering 2004-2006, as well as 2007-2013.

The development of transport infrastructure has been defined as one of the main NDP assumptions. In the list of main objectives of the Cohesion Policy for 2004-2006, a postulate emerged for Inclusion of Poland into European transport and information infrastructure network (Objective 3), whose implementation was to cover\textsuperscript{110}:

- the continuation of investments launched in the pre-accession period in the modernisation and extension of road and railway network in the pan-European transport corridors
- investments on roads and rail lines of national importance, assuring improvement in the quality of handling traffic between large urban agglomerations and preventing the peripheralisation of areas located in eastern Poland
- the infrastructure of airports in order to meet the standards of intercontinental traffic in the main ports (Warsaw, Gdańsk, Kraków, Katowice)
- the infrastructure of sea ports in order to improve their accessibility from both land and sea sides, as well as the creation of reloading container and ferry terminals, as well as logistics centres in their vicinity.

Furthermore, under individual measures, the provision of support for the development of public transport and purchase of rolling stock for railway and urban communication was predicted.

The main tools for the implementation of the above-mentioned assumptions was represented by the Cohesion Fund under the Cohesion Fund Implementation Strategy (in the transport part) and the European Regional Development Fund under the

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\textsuperscript{109} Information on the results of the audit of measures taken in order to facilitate the transport system in the largest cities of Poland, NIK, Warsaw 2010.

Sectoral Operational Programme Transport, and under the extension and modernisation of regional transport systems – the IROP and 7 Interreg III A programmes. In 2004-2006 it was assumed under the above-mentioned instruments to construct and modernise the sections of A1, A2, A4 motorways and S1, S7, S8, S22 express roads, modernisation of key sections of national roads (among others No. 3, 4, 7, 50), as well as modernisation of important railway routes in sections: Warsaw-Gdynia, Warsaw-Terespol, Warsaw-Poznań, Warsaw-Łódź, Legnica-Zgorzelec, Wrocław-Poznań.

The effects of intervention

The 2004-2006 programming period was crucial as far as expenditure incurred in Poland in transport infrastructure is concerned. The level thereof has increased manifold in relation to the value recorded in the previous dozen of years. The distribution of investments under implementation within this period was determined by their previous preparation (in the case of ISPA, also by the commenced implementation). The general spatial distribution of EU support was decided by the largest investments concentrated in the most important transport corridors of TEN (mainly I, II, III/IIA and VI) and in major agglomerations. It was not fully proportional to the distribution of demographic and economic potential. Relatively less support per capita has been provided for southern Poland (in particular the Małopolskie Voivodeship, as well as Śląskie and Opolskie) whereas a relatively larger inflow of funds in relation to the population number took place in the Warmińsko-Mazurskie Voivodeship and in the northern part of the Podlaskie Voivodeship.

When broken down by branch, clearly the largest appropriations were given for road transport (over 65% of funds earmarked for transport). The subsequent 28% fell for rail investments while 3% for public transport (cf. Map 1, Fig. 1). Śląskie Voivodeship was the leader in the ranking of voivodeships with the largest support for the road sector. With reference to rail and urban transport, investments in the Mazowieckie Voivodeship dominated absolutely. Support for sea navigation and intermodal transport infrastructure

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111 In 2002-2006 investment expenditure incurred annually by state budgets in part 39 (concerning transport, communication and national defence) ranged from PLN 1.4-2.2 billion, and in 2007 it increased to PLN 4.9 billion.

112 The projects related to the development of sea navigation in the largest Polish sea ports in the 2004-2006 financial period were provided with support under SOPT (the construction of infrastructure of Zachodniopomorskie Logistics Centre has been completed in Szczecin and the implementation of port infrastructure for container base in Ostrów Grabowski; projects improving road access to the industrial coast, Duty Free Zone (in the port) and Westerplatte ferry terminal were launched in Gdańsk; modernisation of entrance to the internal sea port was commenced in Gdynia. Furthermore, IROP has provided support for the project for improvement of road access to the port in Leba, and support under INTERREG Lithuania-Poland-Kaliningrad Oblast was provided for the extension of the municipal port in Elblag. Some road investments in the immediate and further port base also constituted support for the development of sea navigation). In principle, co-financing did not cover inland navigation. The exception is the project
solutions\textsuperscript{113} was insignificant whereas for aviation\textsuperscript{114} and inland navigation, it was limited to a few investments. The total value of projects that were provided with support under NDP 2004-2006 has exceeded PLN 33 billion, of which PLN 22 billion fell to co-financing alone. This meant allocation in the sector of transport amounting on average to slightly over PLN 900 per Polish citizen. Nearly EUR 2.8 billion fell to the Cohesion Fund (including previous ISPA investments), and the remaining ones are relatively proportionally distributed between SOPT and IROP (PLN 10-8 billion). The share of INTERREG projects was low (PLN 302 million).

\textbf{Figure 1.} The structure of transport investments implemented under NDP 2004-2006 according to the awarded co-financing (data as of 30 September 2010)

related to the construction of touristic harbour on Oder in Cigacice, Nowa Sól and Bytom Odrzański, supported under INTERREG Poland-Brandenburg.

\textsuperscript{113} Apart from projects improving the accessibility of sea ports, major investments in this category can only include undertakings implemented under SOPT in Sławków (modernisation of reloading terminal and construction of International Logistics Centre EUROTTERMINAL) and in Małaszewicze (modernisation of rail container terminal).

\textsuperscript{114} The only major project directly related to aviation was the modernisation of passenger terminal in the Szczecin-Goleniów airport, co-financed under INTERREG Poland-Mecklenburg programme. The modernisation of the fragment of railway line No 8 (Warszawa Zachodnia–Warszawa Okęcie) is also indirectly related to transport. This line will assure efficient handling of public transport of the Warsaw Chopin airport. Similar function will be performed by the road connecting Rzeszów Jasionka airport with national roads No 9 and 19 (co-financed by IROP).
Map 1. Transport investments implemented under NDP 2004-2006 broken down by transport branches

The implementation progress level for assumptions concerning the development of transport infrastructure under the NDP 2004-2006 differs depending on the network. The assumed implementation level of the express road indicator was surpassed by 30% whereas the motorway construction indicator by 90%, which is justified by the implementation of transport projects extended until 2011, financed by the Cohesion Fund. Problems emerged that concerned the implementation of target length of the railway lines modernised for speeds of ≥ 160km/h\textsuperscript{115} according to NDP assumptions, where the value at the end of 2009 amounted only to 64% (cf. Table 1).

Table 1. NDP indicators’ level of achievement

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Baseline value in 2001</th>
<th>Assumed target value</th>
<th>Value achieved in 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motorways/express roads (km)</td>
<td>398/206</td>
<td>940/399</td>
<td>849/522</td>
</tr>
<tr>
<td>Modernised railway lines (km)\textsuperscript{116}</td>
<td>300</td>
<td>2,434</td>
<td>1,568</td>
</tr>
</tbody>
</table>


By the end of 2009, under the implementation of NDP 2004-2006 projects in the scope of transport infrastructure, the following effects have been achieved\textsuperscript{117}:

- In total, over 4,900km of motorways, express roads, voivodeships, poviat and commune roads have been constructed or modernised, including:
  - a total of over 282km of motorways have been constructed or modernised (owing to projects co-financed by the Cohesion Fund), which represented 63% of the total increase in the length of motorways in 2003-2009 (amounting to 444km);
  - 4,704 km of express, national, regional, poviat and commune roads have been constructed and modernised (including 465.5km of express roads under the Cohesion Fund);
  - the construction and modernisation of 443 bridge structures has been completed (including bridges, flyovers, footbridges, underpasses), and manoeuvre structures, technological roads and car parks with an area of ca. 96,900m\textsuperscript{2} have been constructed and modernised, and 3,500km of breakwaters and embankments have been constructed and modernised;

\textsuperscript{115} A speed of 160km/h can be achieved on the Central Trunk Line Grodzisk Mazowiecki – Zawiercie, within the section of line No 3 Warsaw – Kunowice border of the country, No 2 Warsaw – Siedlce and within the section Opole Zachodnie – Brzeg within line 132.
\textsuperscript{116} Modernised lines – adjusted to travelling speeds ≥ 160km/h.
over 635km of railway tracks and over 335km of railway surfaces have been modernised; the construction and modernisation of a total of 301 engineering structures has been completed (including bridges, flyovers, channels, underpasses and overpasses for animals); not including prototypical animal deterrent devices installed by tracks at individual lines. At the same time, 42 railway vehicles have been purchased and 169 track vehicles modernised.

The assessment of the distribution alone of investments supported in 2004-2006 only allows for the indication of priorities in the subsequent transport policy to a limited extent. In no region was the scope of measures covered by the support large enough to be a premise for limitation of investment in the future. Uneven spatial distribution of resources cannot be the subject of criticism in these conditions. The initial stage of development of modern transport infrastructure in Poland determines the necessity of accumulating funds within the most important transport corridors. The assumptions and achievements of the transport policy in 1990-2004, as well as the absence of thematic and spatial prioritisation for the investment’s implementation deserve a negative assessment in this context.

The development of public transport under NDP 2004-2006

The support for public transport was connected with the completion of the first Warsaw underground line and development of city public transport in agglomerations (under Measure 1.6 of IROP, 14 projects have been implemented in 7 metropolitan areas). A section of tramway line has been constructed in Warsaw (Bemowo–Piaski), a line in Aleje Jerozolimskie has been modernised, and works on the integrated traffic management system have been commenced (with reference to public transport). A cross-town tramway line has been modernised in Wrocław and a multimodal hub at pl. Powstańców Wielkopolskich has been constructed. Modernisation of tramway network has been started in Łódź (regional tramway Łódź–Pabianice), and the construction of a new line has been launched in Poznań (fast tramway) and in Elbląg. The remaining projects concern mainly modernisation of networks as a whole, integration of urban communication (Kraków) and efficient traffic management.

Projects related to urban transport were also included in Measure 1.1 of IROP and they concerned the improvement in functioning of communication systems of minor cities, among others Zielona Góra, Białystok, Olsztyn and Szczecin, and the conversion of tramway and bus line in Kraków. In total the largest aid for the development of public transport was granted to Warsaw, Tricity, Kraków, Łódź, Wrocław and Poznań. The co-financing for the largest urban transport system in the Upper Silesia agglomeration turned out to be inconsiderable. Limited assistance was used only by certain medium-sized centres. Furthermore, substantial funding by IROP was earmarked in numerous cities for the purchase of rolling stock for urban communication.
Between 2004 and 2006 cities were significant beneficiaries of EU funds (with large cities receiving almost 29% of the support\(^{118}\), of which 26% was allocated to transport infrastructure). According to the analyses formulated in the report entitled “Evaluation of the Cohesion Policy’s impact on the development of Polish cities”, the ratio between the value of projects financed from EU funds between 2004 and 2006 to large cities’ own investment expenditure amounted to as much as 0.88, with 0.50 in the case of transport. **Without Cohesion Policy funds, investment activity in the cities would be radically reduced considering their relatively low budgets.**

Analyses and assessments of the effects of developing the transport infrastructure under the Cohesion Policy 2004-2006 have been carried out in the context of\(^{119}\):

- efficiency of intervention, i.e.: 1) elimination of transport bottlenecks and congestion, 2) reduction of travel time, 3) reduction of costs of operating the means of transport and 4) improvement in the traffic safety level;
- assessment of demand and supply effects, including the reduction of costs of access for investors;
- cohesion and complementarity of investment (in the context of the challenges of building an integrated transport system) and satisfaction of socio-economic needs.

**The road transport projects implemented under NDP** include clearly too few investments significantly increasing their capacity (inconsiderable share of two-lane roads) since modernisation of one-lane national and regional roads with simultaneous preservation of the cross-section does not bring substantial changes in the capacity of the sections. Besides, what is typical is the **small number of investments in metropolitan areas, in particular on access roads to major cities where most bottlenecks are found**, in which traffic congestion significantly surpasses the capacity. Furthermore, **the funds in certain cases were earmarked for controversial investments located within areas of low traffic congestion** (e.g. the conversion of the national road No. 22 within the section Elbląg-Grzechotki and conversion of the national road No. 2 within the section Siedlce-Terespol) or on roads parallel to future motorway routes (e.g. hardening the surface of the national road No 4 within section Kraków-Tarnów-Rzeszów-Korczowa).

The analysis of a reduction in car travel times (referred to as isochronous analysis) due to transport investments carried out on national and regional roads shows the

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\(^{118}\) EUROREG, “Evaluation of the influence of the cohesion policy on the development of Polish cities”, study carried out at the request of the MRD, Warsaw 2010, p. 33.

\(^{119}\) The assessment of effects of upgrading the transport infrastructure under NDP 2004-2006 was carried out on the basis of results of IGSO PAS evaluation study entitled: “Evaluation of influence of transport infrastructure investments implemented under the Cohesion Policy on the growth of regions’ competitiveness”, which was carried out on commission by MRD, Warsaw 2010.
weak impact exercised by EU investments, expressed by a reduction on average of merely 1.5 - 3.6% of the time needed to reach a destination. In the combination: Warsaw – other regional capital cities, it is on average 3.6%, whereas the best results (approximately 10%) were reported in counties situated with Warsaw as their central point as well as in sections of new or modernised roads, in particular at A2 and S8 routes and within the national road No. S7 (cf. Map 2). Another characteristic feature is represented by the disproportionate changes of travel time, observed both on the national scale and in particular voivodeships. What is noticeable here is the positive impact of investment accumulation within longer sections and the weak impact of dispersed investments. Particularly effective for improvements in time accessibility between regional capitals are provided by the conversion of exit roads from urban centres of city systems. Positive effects for a reduction in travel time in cities were also ensured by investments in public transport, primarily such as the new tramway routes in Poznań and Elbląg.

The analysis of the accident rate during the implementation of the NDP prevents a clear definition of the importance of the condition of transport infrastructure in improving the traffic safety between 2004 and 2009 (all the more that a significant improvement in fact took place between 2008 and 2009, in particular on national roads). In county groups with the highest and lowest expenditure on roads under the 2004-2006 perspective, there are cases showing both a decrease and an increase in the Accident and Collision Index. Despite the fact that it is hard to infer a correlation on a national scale, the case studies of transport investments have indicated a significant improvement in safety in the subjective feeling of inhabitants, yet the largest change occurred in reference to county and commune roads, whereas the smallest was in the case of regional roads. The investments that should be assessed positively are particularly those in which car traffic was separated from pedestrian and bicycle traffic.

The largest investments in public transport per kilometre of network were carried out in major cities: Warsaw, Kraków, Gdańsk and Łódź. Elbląg stood out among minor cities. However, they did not cause an increase in the share of public transport in serving the inhabitants, which in general demonstrates a downward trend. Generally, however, they have fulfilled the role of stopping a decrease in this share. It can be supposed that were it not for them, the decrease would be much higher.
Map 2. A reduction in travel time from the capital city of the country as a result of implementing transport projects under NDP 2004-2006

Usually the resources of local labour market, local companies and construction enterprises were employed for the investment works, and local services used. Therefore, it can be concluded that a significant yet short-term demand impact of EU investments was exercised. The long-term supply effects related to the creation of new jobs and transformation of functional structure is much harder to assess. Local leaders have usually indicated the development of business activity, nonetheless to a small extent. Entrepreneurs operating in the neighbourhood of modernised road sections usually did not notice the influence of renovation/construction of roads on the volume of sales or the number of customers. Despite a generally positive assessment of modernised roads and improvement in the travel comfort, they were rather sceptical about the possibility of the development of companies operating in the
vicinity of roads and the possibility of establishing new enterprises. In the opinion of half the beneficiaries, the analysed investments would not be successful were it not for the European Union’s co-financing.

An improvement in potential accessibility (assessed by means of Multimodal Transport Accessibility Index – WMDT) in the examined period results mostly from investments in road transport. A railway investment that was clearly noticeable at the national level is the modernisation of Skierniewice–Łódź line. The distribution of effects expressed by means of improvement in spatial accessibility is diverse in a regional context. Clearly the largest improvement was achieved within transport corridors of a mainly transit nature in an East-West direction (Berlin-Warsaw-Minsk and Dresden-Wrocław-Kraków-Lviv), with particular concentration in the region of Upper Silesia, Łódź, Poznań and the German border area. The fewest projects developing the transport infrastructure were carried out in the central and northern part of the country. The peripheral areas that have clearly benefited from the analysed investments are: (a) German border areas, in particular the southern part thereof, (b) the western part of the Kaliningrad Oblast border area, (c) the Terespol area (cf. Map 3).

In the opinion of local communities, commune and poviat investments were adjusted to a greater extent to the needs of users, owing to which they were rated higher in the scope of improvement in the quality of surface and hard shoulders, a reduction in travel time and safety. These effects were named as the main goals of renovation works undertaken on roads, which indicates a high level of general social satisfaction from the effects of the analysed projects modernisation works. Both road investments and the ones connected with public transport were assessed positively by the surveyed user groups, which indicates a high satisfaction level of the final recipients in the analysed projects. This assessment was always higher than the assessments of the satisfaction of needs degree that was moderate.

The case of this investment proves that concentration on the selected transport route of measures concerning both infrastructure (including the modernisation of the railway station in Skierniewice) and rolling stock, financed by various sources brings very good effects for the increase in transport and a reduction in travel time (M. Wolański, M. Gil, W. Pander, B. Ledzion, “The predicted impact of selected SOPT projects concerning modernisation of railway lines within the Warsaw agglomeration and between the Warsaw and Łódź agglomeration as well as the purchase of vehicles for the increase in the share of railway transport”, research carried out on commission of MRD, Warsaw 2008).
When analysing the integration of agglomerations with their facilities, improvement occurred in the outlying zones. Linear investments improved accessibility of areas outside agglomerations to a city’s outskirts. The situation inside the largest cities generally did not change; relatively, it has become worse due to progressive traffic accumulation and congestion. This offset the effects described in the investment. Among regional centres, the largest beneficiaries of support for the improvement of integration with direct facilities in 2004-2006 included Poznań, Łódź and Katowice. The location of the investments supported within suburban areas of major centres was not correlated with the spatial system of the most intense access roads to workplaces.
Research on case studies indicates improvement in accessibility to agglomeration centres and 2nd level centres from the counties examined. This proves that frequently even a small (in the statistical meaning and in terms of macro-scale) improvement in spatial accessibility is noticeable on a local scale. It is mainly major investments that can contribute to the improvement of cohesion of the national settlement system. Therefore, what should be regarded as the most efficient in this respect is represented by projects supported by the Cohesion Fund (partially launched as ISPA projects). The scale of investments necessary excluded a significant improvement of mutual accessibility of agglomerations in 2004-2006. Yet the travel time between certain cities has been considerably reduced, mainly as a result of investments connected with the construction of motorways and express roads and one important railway investment (Skierniewice-Łódź).

As a consequence of implementing EU investments, the total reduction in travel time between 16 regional capitals by nearly 37 hours, i.e. 3.3%, occurred. From the point of view of improvement in the accessibility to other regional centres, the largest beneficiary of EU support was Poznań (cf. Table 2). There was a substantial improvement in the case of Gorzów Wielkopolski, Szczecin and Łódź. Practically no benefits from investments were derived by cities such as Bydgoszcz, Gdańsk (admittedly, its accessibility has been improved, but that was the result of constructing the first section of the A1 motorway, which is being built under the concession system), Olsztyn and Rzeszów. Wrocław has considerably improved its accessibility in relation to German metropolises. The support for the missing sections of A4 motorway caused an improvement on an international scale covered also Opole, Katowice and Kraków.

Local and regional projects under implementation were complementary for the target network (in particular the road one) entered in the planning documents, including regional development strategies. One could consider whether certain investments on roads directing the traffic to regional roads were purposeful if there was no modernisation of the latter. On the local scale, the level of complementarity of investments supported differed to a great extent, as a rule it was higher in reference to major undertakings and the ones implemented on higher-level roads. The complementary nature of investments conducted in major cities was also relatively high. The mutual complementarity and cohesion of investments at the national level can be assessed more critically, both in respect to each other and in reference to the subsequent programme perspective (2007-2013). Apart from a few investments that are strictly intermodal, the 2004-2006 period featured a low level of complementarity between the branches in the support of transport investments. The exceptions include the complementary nature of the road and sea port investments in Gdynia.
Table 2. The reduction in travel time in road transport between voivodeship centres as a result of implementing transport investments under NDP 2004-2006 (as % of travel time for 2004)

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<td>14.8</td>
<td>29.2</td>
<td>1.2</td>
<td>2.4</td>
<td>7.3</td>
<td>3.0</td>
<td>16.0</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
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<td>1.6</td>
<td>5.6</td>
<td>4.1</td>
<td>0.5</td>
<td>4.9</td>
<td>0.5</td>
<td>0.6</td>
<td>0.6</td>
<td>1.9</td>
<td>9.9</td>
<td>7.3</td>
<td>4.8</td>
<td>2.7</td>
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<tr>
<td>Szczecin</td>
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<td>0.3</td>
<td>0.0</td>
<td>0.0</td>
<td>5.1</td>
<td>5.8</td>
<td>4.6</td>
<td>9.4</td>
<td>13.5</td>
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<td>0.0</td>
<td>3.0</td>
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<tr>
<td>Warszawa</td>
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<td>0.0</td>
<td>3.9</td>
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<td>0.0</td>
<td>0.2</td>
<td>0.0</td>
<td>0.0</td>
<td>16.0</td>
<td>2.7</td>
<td>5.7</td>
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<tr>
<td>Wrocław</td>
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<td>0.0</td>
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</table>

The analyses conducted using the time-demand efficiency indicator shows that the largest benefits – meaning the man-hours potentially saved in travelling time to Warsaw (one resident travelling to and returning from Warsaw) – are achieved in the western part of Poland, in particular Poznań (674,000 man-hours), Szczecin (318,00), Gorzów Wielkopolski (150,000), Zielona Góra (138,000), cf. Map 4). The greatest potential savings in journeys between county and regional capital cities occurred in border areas of Wielkopolskie, Łódzkie and partially the Śląskie Voivodeship.

The calculations indicate that the global amount saved for connections with Warsaw amounted to PLN 94.5 million and with the closest voivodeship capital – PLN
15.5 million\textsuperscript{121}. Moreover, modernisation of roads in the worst condition results in reduced costs of vehicle use at a speed of 90 km/h by approximately 3\% (from PLN 1,227/km to PLN 1,190/km)\textsuperscript{122} and savings gained due to renovations and road maintenance\textsuperscript{123}. Apart from the obvious social effect, a reduction in the number of accidents also brings substantial financial savings, although deficiency in the data does not allow for an unambiguous calculation of the role played by transport investments implemented during the 2004-2006 perspective in the reduction in the number of accidents\textsuperscript{124}.

Socio-economic needs change over time, they differ in terms of their subject and in terms of their scale (local, regional, national). Long-term infrastructural negligence and dynamic economic development cause a high accumulation of needs and the absence of a basis on which to make conclusions whether investments implemented under the 2004-2006 NDP satisfied them. They were certainly important stages of the investment process orientated towards the systematic improvement of the communication system. In extreme cases, resigning from implementing certain investments could result in a traffic hold-up (e.g. in Gdynia), the weakening of key economic functions or a construction disaster (e.g. the flyover in Kutno). Therefore certain projects were of major importance, nonetheless the needs are still huge. Satisfying and supporting them by means of ERDF and CF in the subsequent EU financing perspectives must be continued. These are the expectations of local communities, whose representatives surveyed in selected counties have indicated a moderate level of satisfying communication needs. Only the combined effect of implementing investments for 2007-2013, or even the subsequent programming period, will allow for the determination of the degree of satisfying the socioeconomic needs on various spatial scales.

Investments in 2004-2006 were implemented solely in certain elements of transport infrastructure; obstruction of other system elements causes the effects of modernisation not to be fully utilised. Further extension of the infrastructure requires a network- and system-based approach, and it should be based on a solid specialist basis (increased involvement of experts in important decisions in this respect and studies of social preferences). An essential condition of the optimal satisfaction of socioeconomic needs is constituted by the minimisation of the influence exerted

\textsuperscript{121} These values refer to the single back and forth travel of each resident in 2004-2009.
\textsuperscript{122} “The manual for the evaluation of the economic efficiency of road and bridge projects for regional roads”, Road and Bridge Research Institute, Warsaw 2008.
\textsuperscript{123} Each class D regional road modernisation (adjustment thereof to the technical condition of class A) carried out under the 2004-2006 financing perspective provides within 15 years savings amounting to PLN 131 per 1m² of area whereas the modernisation of class C road results in savings amounting to PLN 76 per 1m² of area.
\textsuperscript{124} In 2004-2009 the number of accidents decreased by 6,712. Assuming the average cost of an accident amounts to PLN 400,000, the savings equalled PLN 2.7 billion.
by non-economic and non-development factors on the scope of sequence of implemented investments.

<table>
<thead>
<tr>
<th>Effects of support—facts and figures</th>
</tr>
</thead>
<tbody>
<tr>
<td>The construction and modernisation of expressways</td>
</tr>
<tr>
<td>Reduction of travelling time in road transport</td>
</tr>
<tr>
<td>Saved potential man-hours for a single journey of each resident to Warsaw and back (the total for the years 2004-2009)</td>
</tr>
</tbody>
</table>

**Conclusions and recommendations**

The ex post evaluation of the transport investments implemented under the NDP 2004-2006 allowed strategic conclusions and recommendations to be formulated that concerned the Cohesion Policy after 2013 – and also functional conclusions and recommendations among others aiming at improving the financing perspective 2007-2013 implementation process.

In accordance with the territorial and transport policy of the European Union, which is to an increasing extent orientated at the implementation of sustainable-development objectives and limitation of greenhouse-gas emissions, it is necessary to shift transport policy towards a more decisive investment in railway transport (intercity transport as well as connecting agglomerations with their bases) and intermodal solutions. Modal sequence would depend on concentrating on road undertakings in the 2007-2013 financial perspective. At the same time, the subsequent perspective (2014-2020) should be prepared as a period of incremental development of the modern railway infrastructure and railway transport within metropolitan areas. In both cases, what seems advisable is thematic and spatial concentration, i.e. on major investments (as the most efficient ones) and not only the local ones (which resolve specific problems of local communities, e.g. in the scope of safety).

Investments in public transport should have an appropriate scale and they should concern railway transport (with preference for autonomous solutions in relation to the road network) rather than bus transport. It is only them that give clear effects as far as travel time and intermodal shifts are concerned. It is also necessary to draw more attention to projects covering collective transport promotion and the limitation of car use, especially in city centres.

The plans for the subsequent financing period should be created as early as possible in order to avoid problems with complementary support. At the same time, the principle of complementarity should be implemented in hierarchical terms so that investments are connected with key undertakings on the national or regional scale. It is very important to refer the planned investments to the target-network system included in strategic documents (among others the draft Transport Development
Strategy until 2020, the draft Concept of National Spatial Development 2030) with simultaneous inclusion of stages for achieving this system. It should be taken into account that the emergence of particular system elements changes the distribution of traffic in the entire transport network. In subsequent financing periods, increased inter-branch complementarity is clearly necessary. It concerned in particular the road network and public transport, but for instance also the integration of railway and aviation.

In order to ensure an increase in the desired diffusion of development and internal spatial and functional integration of the most important strategic areas of the country, improved links in projects assuring the direction of traffic to agglomerations with investments undertaken inside the largest cities is necessary. Commuting, and in particular the spatial layout thereof, should become one of the criteria for the selection of projects supported within the regions of the largest agglomerations. Integration with facilities is an essential objective not only in the largest agglomerations. It is equally important to assure the possibility of accessing labour markets and public services located in the cities of a lower rank (sub-regional centres) and even in certain county centres. As indicated in the case study, certain investment measures may turn out to be more efficient in minor cities.

On the national scale, the completion of implementing a coherent road network (motorways and express roads) and railway network between the largest cities should have a high investment priority. Investments in these areas are, relatively speaking, the most efficient. It complies with the objectives included in draft CNSD 2030. The implementation of inter-agglomeration road investments can be conducted in stages since even short sections of motorways and express roads frequently reduce the travel time between the centres to a considerable degree. In consequence, it might be justified to construct numerous routes at the same time, concentrating on their most vulnerable sections (burdened by traffic and congestion). In the case of railway, it seems advisable to adopt another investment strategy. The centres should be concentrated on several of most important routes, assuming that they will be implemented immediately over the entire section. Otherwise, the effects of projects will not be noticeable, and the direction of modal shifts might turn out to be the opposite of those assumed. In the future, greater support should be provided for national air transport, in particular the development of existing ports which face problems with efficient handling of cargo and passenger flights. An increase in the role of inland water transport (in particular on Odra waterway) should also be considered.

Moreover it is necessary to strengthen the role of spatial planning in the implementation of infrastructural projects under the Cohesion Policy (including projects
implemented under other public policies) **mainly in the cities**\(^{125}\), where infrastructural projects implemented on areas covered by spatial development plans or in accordance with the main provisions of the land use plan should be promoted. This should mainly encourage communes to accelerate planning procedures, including the creation of local plans, as well as permit spatial concentration of projects (such as the creation of economic-activity zones with infrastructure and the support of the businesses operating in those areas).

\(^{125}\) EUROREG, "Evaluation of the influence of the cohesion policy on the development of Polish cities", study carried out at the request of the MRD, Warsaw 2010.
One of the key development objectives of the European Union, including Poland, is the permanent separation of increasing environmental pollution and economic growth. Economic growth should not be connected to an increasing in environmental stress. It applies especially to projects financed from public funds. This assumption applies to development programmes of all EU Member States, also under the National Development Plan 2004-2006.

Socio-economic conditions at the beginning of NDP implementation

The development and protection of natural resources, including water resources as well as reducing negative pressure on the environment has been the priority of environmental policy for years. The systematic improvement in the condition of the environment is due to: structural change in the industry, the implementation of Poland’s accession commitments, considerable investment (mainly by territorial self-government units) in the development and modernisation of infrastructure as well as measures for durable and sustainable social and economic growth.

Many years of failings in the construction of sewage systems and wastewater treatment plants resulted in the worsening condition of both surface-water and groundwater environments. In the beginning of 1990s as much as 33% of untreated urban wastewater and 35% of wastewater after mechanical treatment were directed to rivers and lakes. Only 32% of urban wastewater was biologically treated. In 2003 this situation changed considerably – 90.3% of industrial and urban wastewater was treated (in the Mazowieckie Voivodeship – only 68.4% due to the lack of a comprehensive wastewater treatment system in Warsaw) – cf. Figure 1. It was then estimated that the most urgent investments in terms of wastewater management require funds of PLN 100-150 billion within several dozen years (the implementation of principles of the National Programme for Municipal Waste Water Treatment (NPMWWT) defining steps to the complete implementation of the objectives of Directive 91/271/EEA by 2015). Since the duty of solving the problems connected to water supply and wastewater treatment was delegated to territorial local government, the implementation progress of water and sewage investments has been increasing.

126 The implementation of Directive 91/271/EEA imposes the obligation on Poland to equip agglomerations ≥ 2,000 population equivalents with collective sewerage systems and wastewater treatment plants by the end of 2015, as well as the 100% reduction of biodegradable pollutants and at least 75% reduction of nitrogen and phosphorus compound pollutants.
At the time of NDP implementation, the water and sewage infrastructure in Poland still differed considerably from the Western European level. In 2003 wastewater treatment plants provided services for only 58% of the country’s population (in EU 15 countries the average is ca. 80%)\(^\text{127}\), water supply development amounted to 85.1% (with smaller amounts in the Małopolskie Voivodeship (70.8%), the Podkarpackie Voivodeship (73.2%) and the Lubelskie Voivodeship (77.6%)), and the percentage of people using the sewage system amounted to only 57.4% (in the Świętokrzyskie, Lubelskie, Małopolskie and Podkarpackie Voivodeships to less than 50%) – cf. Figure 1.

### Figure 1. Water-supply development and wastewater-network coverage, broken down into voivodeships (% of network users)

![Graph showing water-supply development and wastewater-network coverage](image_url)

Source: Own work based on data by the Central Statistical Office

As regards waste management, one of the most important objectives is to cover 100% of residents with an organised system of urban-waste collection, and the development of separate waste collection. The percentage of separately collected waste in the total amount of waste in voivodeships is very diverse. In 2000, considered as a base year for the implementation of the National Waste Management Plan (NWMP), Poland far from achieving these objectives. 94% of residents in urban areas were involved in organised waste collection, in rural areas – ca. 74%. At that time, only 30% of the Polish communes ran separate waste collection of only 1.2% of the waste generated. Despite systematic progress made in waste management in Poland (a decline in the amount of waste deposited in landfill sites and an increase in the amount of waste collected selectively), systems for selective waste collection,

\(^\text{127}\) Acc. to Eurostat.
recycling and disposal were still in their infancy when the implementation of the NDP started. In 2003 only some 80% of waste, urban waste excluded, was recovered and this percentage stood at 40% or less in the Mazowieckie and Zachodniopomorskie voivodeships (cf. Figure 2).

**Figure 2.** The annual share of recovered waste in the total amount of waste produced (without urban waste) (%) broken down into voivodeships

Since 1990 a significant decrease in the emission of major pollutants in Poland has been observed due to restructuring processes, considerable investment, the implementation of restrictive regulations and their enforcement. Consequently, the quality of air has improved, especially in the industrial areas where in the beginning of 1990s norms of the concentration of certain pollutants in the atmosphere were continuously exceeded. The air quality assessment in zones for 2004, including the criterion of health protection\(^ {128}\), proved that 24 (ca. 6.6%) out of 362 zones (including 13 agglomerations) qualified for the development of air-protection programmes. Therefore, the improvement of air quality in these areas has been the key objective within the last few years.

Considering the fact that most air pollution is related to electricity and heat production, investments in **renewable energy sources** (RES) are significant in terms of improving air quality. Thanks to wind and hydroelectric power plants, as well as solar collectors, zero-emission energy production is possible. In 2003 the RES share in the structure of primary-energy consumption amounted to 5.2\(^ {129}\), and in total national energy production – only 2.3%.

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\(^ {128}\) The level of emissions of SO\(_2\), NO\(_2\), PM10 dust, Pb, C6H6, CO, O\(_3\) is the subject of the assessment.

\(^ {129}\) Renewable energy in 2009, Data and statistical reports by the Central Statistical Office, Warsaw 2010.
Objectives and the scope of NDP intervention

The implementation of one of the partial objectives of the National Development Plan for 2004-2006 (objective 5) defined as “Assistance in the participation of all regions and social groups in Poland in the development and modernization processes” was aimed at completing the underdeveloped environmental infrastructure and eliminating the most significant environmental threats.

The main tools for the implementation of the above-mentioned assumptions was represented at the national level by the Cohesion Fund under the Cohesion Fund Implementation Strategy (in the environmental part), at the regional and local levels by the European Regional Development Fund under the Sectoral Operational Programme Improvement of the Competitiveness of Enterprises, IROP and 7 Interreg III A programmes, as well as by the Financial Instrument for Fishery Guidance under SOP Fisheries and Fish Processing and the European Fund of Agricultural Orientation and Guarantee (orientation section) under SOP Restructuring and Modernising of the Food Sector and Rural Development.

The following action was planned in 2004-2006 under the above-mentioned instruments: the modernization and development of wastewater treatment plants and water and sewage systems in towns of over 100 thousand residents (pursuant to NPMWW); the construction and expansion of complex water-supply and drinking-water preparation process systems; the modernisation and expansion of flood protection infrastructure, especially under the long-term national programme Odra 2006, and supporting solutions in terms of the development of an integrated waste management system130.

In each operational programme environmental assumptions were represented at different levels, they inter alia applied to priorities or measures focused on financing environmental projects (Measure 1.2 IROP, Measure 2.4 SOP ICE, Measure 2.1 SOP AGRI, Measure 3.1 SOP FISH), detailed provisions potentially enabling the implementation of environmental projects (Measures 1.6, 3.1 and 3.2 IROP, Measures 1.5, 2.5 and 2.6 SOP AGRI and Measure 4.6 SOP FISH) and project selection criteria (e.g. Measure 2.2.1 SOP ICE: An Increase in Enterprises’ Product and Technological Competitiveness and Measure 2.3 SOP ICE: An Increase in the Competitiveness of Small and Medium Enterprises through Investments, with the application of solutions reducing environmental stress resulting in the collection additional points131).

131 12 additional points could have been granted under Measure 2.2.1 SOP ICE for considering environmental aspects (of 100 possible). In Measure 2.3 SOP ICE the direct and indirect impact on environmental protection was pointed by giving 1 out of 100 points. Evaluators identified 53 projects under Measure 2.2.1 and 72 under Measure 2.3 related to environmental protection. Therefore, granting additional points had influence on stimulating projects of this type.
The effects of intervention

Over 3,200 projects directly related to environmental protection (3.9% of all projects) valued at PLN 16.9 billion (ca. 30% of the total amount of support in 2004-2006) were implemented under NDP 2004-2006. The greatest number of projects implemented related to water-supply and wastewater management (2,116, which is nearly PLN 13.9 billion worth of investment). A group of projects concerning waste management and resource saving was also significant. PLN 0.7 billion (4.8% of total funds) were assigned for the implementation of 198 projects (6.1% of all the environmental projects). Very few projects directly related to environmental protection concerned flood protection, shoreline protection and water retention (3.6%) and air protection (1.9%). The smaller amount of funds was assigned for investments concerning renewable energy sources (0.6%), as well as monitoring and environment management (0.5%).

While analysing the number of projects implemented, it may be observed that projects implemented under SOP AGRI – 41.4%, IROP – 35.9% as well as SOP ICE – 14.8% constituted a considerable group. Considering the values, the Cohesion Fund leads – the total of PLN 12.7 billion, i.e. nearly 80% of EU funds for environmental protection were assigned to the implementation of 89 projects concerning water and sewage management, waste management, the improvement of energy efficiency and advising. The amounts provided under other programmes were significantly smaller (PLN 2.0 billion under IROP, and PLN 0.7 billion under SOP ICE).

There are major disparities as regards the amounts of funds transferred to individual voivodeships. The greatest amount of funds was transferred to the Śląskie Voivodeship and the Mazowieckie Voivodeship (over PLN 2.5 billion) – mostly for projects implemented in large agglomerations under the Cohesion Fund. The smallest amounts were transferred to the Podlaskie and Lubuskie Voivodeships – below PLN 300 million, with the majority of small projects implemented under SOP AGRI. Considering outlays per inhabitant, the Zachodniopomorskie Voivodeship is the leader since funds assigned for environmental protection amounted there to PLN 1,000 per capita. The smallest amounts were spent in the Podlaskie and Lubelskie Voivodeships – PLN 162 and 144 per capita respectively.

The main beneficiaries of the support for environmental protection were the territorial local-government units (including communes and municipal communal companies) that implemented 1,345 environmental projects in total (41% of all the projects), the majority of which pertained to water, waste-water and waste infrastructures. The EU funds granted for their implementation amounted to a total of PLN 162

In addition, 670 projects were identified under the NDP including actions related to environment stress reduction.
14.9 billion (over 93% of all funds for environmental protection) 5% of subsidies were granted to enterprises and 0.1% to farmers.

**Figure 3. The average level of expenditure for wastewater management, water protection, waste management, and air and climate protection from communes’ budgets**\(^{133}\) in 2002-2008 (in PLN)

![Figure 3. The average level of expenditure for wastewater management, water protection, waste management, and air and climate protection from communes’ budgets in 2002-2008 (in PLN)](image)

Source: Fundeko s.c, “An assessment of the effects of environmental projects carried out under the NDP 2004-2006”, evaluation study commissioned by the MRD, Warsaw 2010, p. 49.

At the time of NDP implementation an increasing trend could be observed in the general level of environmental protection expenditure. In 2004-2008 communes’ budget expenditure for municipal services management and environmental protection amounted to over PLN 13.5 billion\(^{134}\). In the same period over PLN 6.5 billion\(^{135}\) of EU funds were assigned for environmental projects implemented by the territorial local-government units, i.e. **ca. 48%** of all expenditures incurred by the units for actions related to municipal services management and environmental protection. According to the analysis of the detailed distribution of expenditure (cf. Figure 3), **EU funds caused an increase in the level of environmental protection expenditure incurred by the local-government units, and thereby intensified investment actions.**

Pursuant to CSO data, in 2008 **investment in environmental protection (i.e. tangible assets)** reached the level of 0.67% of GDP and 0.8% of the GDP in 2009 (cf. Table 1) whereas **investment in water management** represents 0.2 % of the GDP and has remained unchanged since 2005. While evaluating the extent to which the above indicators have been met, it is worthwhile considering the fact that at the time of Poland’s accession to the European Union there was a rapid increase in GDP. The

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\(^{133}\) The analysis covered all communes.

\(^{134}\) This amount is not inclusive of all the expenditure incurred by commune-owned companies.

\(^{135}\) See above.
growth rate in 2006-2007 was higher than assumed in the NDP and, therefore, it influenced the extent to which these indicators were achieved. It is also worth stating that at the time of NDP implementation the investment expenditure for environmental protection increased systematically from ca. PLN 5.5 billion in 2004 to PLN 8.5 billion (in 2008) and PLN 10.7 billion in 2009. It may be therefore stated that without the EU funds this indicator value would have been even lower.

Table: 1. NDP indicators’ level achievement

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Baseline value in 2001</th>
<th>Target value in 2008</th>
<th>Value achieved in 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment in tangible assets to support environmental protection (% of GDP)</td>
<td>0.8</td>
<td>1.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Investment in tangible assets to support water management (% of GDP)</td>
<td>0.2</td>
<td>0.3</td>
<td>0.2</td>
</tr>
</tbody>
</table>


The implementation progress for the environmental protection objectives specified in individual operational programmes is quite diverse. In most programmes there were no difficulties in the implementation of the planned results as regards water supply and wastewater management (e.g. in the case of sewerage networks, the planned value of the IROP indicator was reached over 500%, and in the case of water supply network – over 680%). There were some problems, however, as regards the achievement of the level of indicators concerning urban waste management, using RES and flood protection – the achievement progress for most of the indicators was below 50%.

Since various types of projects were financed under NDP 2004-2006, the catalogue of indicators is large and diverse\(^{136}\). As regards water supply and wastewater management, almost **13 thousand km of sewage networks** and **5.7 thousand km of water-supply networks** were built and modernised under the NDP. There are **1.4 and 1.1 million network users** respectively. Moreover, **275 municipal wastewater treatment plants**, **101 industrial wastewater treatment and pre-treatment plants**\(^{137}\), **1729 household wastewater treatment facilities** and **313 water treatment plants** were built, developed and modernised (cf. Map 1).

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\(^{136}\) On the basis of the evaluation Fundeko s.c., “An assessment of the effects of environmental projects carried out under the NDP 2004-2006”, op. cit.

\(^{137}\) Acc to CSO data, in 2004-2008 the quantity of treated industrial wastewater increased annually by 117 hm\(^3\). As a result of NDP-project implementation, the share of treated wastewater amounted to at least 12% of the total.
Map 1. Water and wastewater management projects financed under 2004-2006 NDP against protected areas

Detailed analyses suggest that only 5% of investment pertaining to water management offered comprehensive solutions to issues of urban waste treatment (i.e. collective systems for waste discharge and treatment) and about 13% of projects concerned those two types of activities only. Typically, the development of a sewage system was combined with building and modernising a waste water treatment plant (cf. Map 1). The projects usually consisted in activities of one type which related to either the construction or modernisation of a system or a waste water treatment plant. The projects’ outcomes across regions were as follows:

- the greatest number of networks were built and modernised in the Mazowieckie, Zachodniopomorskie and Śląskie voivodeships, i.e. not in voivodeships in the greatest need concerning this matter (i.e. in the Małopolskie, Podkarpackie and Lubelskie voivodeships). The least (only 65km) were built in the Opolskie voivodeship which is the result of Poland’s highest indicator of population using the network (94.5%);

- in voivodeships with the greatest needs for sewage-system development, only 578km of waste-water system was constructed and 31.6 thousand users were connected in the Świętokrzyskie Voivodeship. In the Lubelskie Voivodeship 301km of wastewater system was built and 44.8 thousand peo-
ple were connected. In the group of voivodeships in the greatest need of investment, the Małopolskie Voivodeship had the best results – 1,163km of wastewater network constructed/modernised and an additional 104.9 thousand users connected. The largest number of projects implemented was in the Śląskie Voivodeship (2,547km of constructed and modernised sewage network and 292 thousand people connected) characterised by both a high percentage of people using the sewage system and wastewater treatment plants;

- the situation concerning the wastewater treatment plants construction and modernisation was much better both in the Świętokrzyskie Voivodeship and the Mazowieckie Voivodeship, where the percentage of people using wastewater-treatment plants was the lowest, and where 16 and 24 investments were implemented respectively. Leading were the Podkarpackie Voivodeship with 33 investments and the Małopolskie Voivodeship with 30 investments concerning wastewater treatment plants’ construction and modernisation.

As regards waste management and resource saving, only 29 projects were implemented under NDP – 12 waste management plants (WMP) were built or developed, the development of 8 individual municipal waste sorting systems in communes was supported, 43ha of waste disposal sites were established and 91ha of waste disposal sites were recultivated, and 73 installations for in-company waste-recycling systems were built.

The 2010 report on the national waste-management plan for the 1 January 2007 to 31 December 2008 period has shown that the total capacity of the WMP and the sorting plants in 2007 stood at 3,603 tonnes per year. 12% of the total capacity in 2007 represents the capacity of installations which were either built or modernised under the Integrated Regional Operational Programme and the Cohesion Fund.

As regards atmosphere and climate protection under the NDP, 89 installations reducing gas and dusts emissions were either built or modernised. They reduced the SO₂ emission by 47 thousand tonnes, NOₓ by 3.3 thousand tonnes and dust

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138 In three voivodeships (Śląskie, Dolnośląskie and Małopolskie), with 80% of waste in landfill sites the NDP helped recultivate: 19.4ha of landfills in the Dolnośląskie Voivodeship, 4.3ha in the Małopolskie Voivodeship and 2.5ha in the Łódzkie Voivodeship. According to data by the Central Statistical Office, the share of those voivodeships in waste production is decreasing progressively (from 71.2% in 2003 to 65.1% in 2009).

139 Pursuant to the NWMP implementation reports for 2002 – 2008, despite waste-management development, the results remain unsatisfactory as regards the objectives. However, certain changes have been observed. The quantity of waste deposited in landfills has decreased from 97% to 91% in 2000-2007. Moreover, the quantity of separately collected packaging waste, waste electrical and electronic equipment and biodegradable waste has increased.
pollution - by nearly 9 thousand tonnes annually\(^{140}\). **25km of heating network** were built and **173km** were modernised, **16 wind power plants**, **6 hydroelectric plants** were built, **14 systems for biomass combustion and co-firing in power plants** and combined heat and power plants were developed and **180 solar-collector systems** were installed (cf. Map 2).

**Map 2. Projects on reducing gas and dust emissions financed under NDP 2004-2006: exceeding gas and dust limits** (scale: 1:3 500 000)


With regards to **flood protection and water retention**, 185km of flood embankments and 20 water reservoirs were built or modernised, including small water-retention reservoirs, 32 damming-up systems and 55 facilities preventing water erosion.

The least significant support as regards **environment management** resulted in adapting 142 industrial plants to the requirements of the integrated permit (IPPPC), the implementation of environment-management systems in 103 enterprises and the realization of 18 research and development initiatives as well as 20 projects.

\(^{140}\) According to CSO data, in 2004-2008 the reduction of emissions from major pollutants was observed: \(\text{SO}_2\) – 263 thousand tonnes, \(\text{CO}\) – 24 thousand tonnes, \(\text{NOx}\) – 18 thousand tonnes annually. The level of reduction achieved under the projects co-financed from SOP ICE amounts to 18% of the total level of reduction in the case of \(\text{SO}_2\) and \(\text{NOx}\) and 14% in the case of \(\text{CO}\). The increased \(\text{CO}_2\) emissions of 2.9 million tonnes were observed in the same period – project implementation contributed to the reduction of this increase.
supporting the transfer of knowledge concerning innovations in environmental protection.

Analyses and assessments of the results of environmental infrastructure development under the Cohesion Policy 2004-2006 implementation have been carried out in the context of: a) the fulfilment of obligations specified in the Accession Treaty as regards “environmental protection”; b) the identification of the socio-economic results of environmental investments, and c) environmental investments’ influence on preventing climate change.\(^{141}\)

**The fulfilment of obligations specified in the Accession Treaty in the field of “environmental protection”**

Poland’s accession to the European Union hinged on the need to adapt the environmental infrastructure to Community standards. The most important obligations concerned: regulating wastewater management in agglomerations, municipal waste management, an increase in the share of energy produced with the use of RES, and reducing environmental stress caused by the most noxious industrial plants. Complete adaptation to EU requirements was a long process and it involved much bigger outlays than funds available in 2004-2006. Projects co-financed under the NDP did not solve the most significant problems but they made accession objectives much closer to achieve. The complete assessment of the fulfilment of accession obligations should be conducted after the key environmental investments of the 2007-2013 programming period are completed.

As regards wastewater management, 16% of the objectives concerning construction, development and modernisation of municipal wastewater treatment plants and 35% of the objectives concerning the construction and modernisation of wastewater networks specified in the National Programme for Municipal Waste Water Treatment (KPOŚK 2005) were implemented under the NDP. Measures concerning the organisation of sewage-sludge management are also of great importance. In this case the co-financed projects impact may also be considered significant due to fund concentration being on the biggest centres. 15% of people that, according to the NPMWWT, should be connected to the sewage network live in agglomerations where the needs of sewage-sludge management were met completely thanks to EU funds. This means that the **NDP influence on the NPMWWT** implementation, and thereby on the fulfilment of the accession obligations, is significant. However, only in the case of a very few agglomerations did project implementation make it possible to fully adjust to the requirements specified in the NPMWWT and Directive 91/271/EEA.

\(^{141}\) Assessment of the results of environmental infrastructure development under the 2004-2006 NDP have been carried out on the basis of the results of the evaluation Fundeko s.c., “An assessment of the effects of environmental projects carried out under NDP 2004-2006”, op. cit.
As regards waste management, municipal waste-management infrastructure developed under the NDP provides services for ca. 150 communes, i.e. 6% of all communes in Poland. However, in most cases, only some part of waste produced by the residents is directed to the installations. At the same time, thanks to the Cohesion Fund focusing on the infrastructure in large agglomerations, 3 of the 6 biggest cities (over 400 thousand inhabitants) and 4 of the 11 medium-sized towns (between 200 and 400 thousand inhabitants) producing considerable quantity of waste, were equipped with such infrastructure. This proves that the NDP’s influence on the implementation of the National Waste Management Plan, and thereby on the fulfilment of the accession objectives, is significant.

The share of renewable energy sources (RES) in the general energy balance in Poland should reach a level of 15% by 2020. Projects implemented under the NDP (SOP iCE and IROP) had a minor influence on the increased share of energy from renewable sources – a total of 14 projects concerning biomass combustion or co-firing in large facilities (power plants and combined heat and power plants) were implemented. Also 16 projects concerning the construction of wind power plants and 6 projects concerning hydroelectric-plant construction were co-financed. However, these projects had a relatively low value and capability for energy production. The installed capacity of the devices for producing energy from RES, built or modernised under the NDP, amounts to ca. 250 MW which is only 0.7% of the total installed capacity in Poland (the RES share in energy production in 2004-2009 increased from 5.5% to 8.7% in 2009).

As regards the reduction in the emission of pollutants in industrial plants causing major environmental stress, the complete implementation of Directive IPPC imposed an obligation to obtain the integrated permit on over 3 thousand installations. Thanks to the SOP iCE funds enterprises implemented action which led to obtaining the integrated permit (these were 5% of all enterprises obliged to acquire this permit). This group consists of power plants, combined heat and power plants and heat plants that before obtaining the permit were characterised by their high emission of pollutants (cf. Map 2).

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142 According to Polish Energy Policy until 2030, approved by the Council of Ministers in November 2009.
143 The given value applies mostly to biomass co-incineration installations – the RES value in the case of this type installation may be variable and estimated.
144 CSO data.
145 Directive no 96/61/EC Integrated pollution prevention and control. In Poland it was transposed by the Environmental Protection Act (Dz. U. of 2001 No 62, item 627).
146 With investments financed under NDP 2004-2006, annual dust emissions decreased by slightly more than 7,000 Mg, which is approximately a 70% reduction in annual emission acc. to the Central Statistical Office.
Socio-economic effects of environmental investments

Implementation of the NDP 2004-2006 enabled much intensification of activities undertaken for the environmental protection by local governments, public administration, entrepreneurs and farmers, and the much faster bridging of gaps in municipal infrastructure. The following areas can be listed among those of the most significant impact: the development of new investment areas and improving conditions for business activity, creating new jobs, increasing real estate value, creating new construction plots, increasing commune’s budget income and a positive influence on health and the quality of life.

At least 2,500 jobs related to servicing purchased or developed infrastructure were created as a result of environmental projects. The key role was played by undertakings concerning the construction of waste management plants, installations for waste recovery and biomass processing, and building wastewater treatment plants (cf. Table 2).

Investments in water and sewage infrastructure, while improving inhabitants’ living conditions and decreasing the negative impact on the environment, create a sound basis for the further socio-economic development of regions. Thanks to EU funds ca. 7,000 hectares of new investment areas in more than 200 communes were provided with water supply and sewage infrastructure. In mid-2010 the level of area development increased by 26%. Ca. 1.4-1.6 thousand new entities started their activity in the new areas, employing jointly 5-6 thousand people\(^{147}\). In the coming years the values will increase as the development of the areas progresses.

Construction of water and sewage networks contributes to the concentration of housing, thus preventing a disorganised “outflow” of housing into non-urbanised areas, which is detrimental due to both the environmental issues and local-government expenditure related to the servicing of inhabitants. This is particularly important in areas with no local spatial development plans – where the water and sewage network play a structuring role for investment and construction.

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\(^{147}\) Data concerning investment areas provided with water supply and wastewater infrastructure under project implementation were not monitored in detail or specified in reports. Therefore assessment of the surface area was made on the basis of CAWI analysis, which covered 12% of water and sewage projects implemented under IROP and 35% projects implemented under the Cohesion Fund.
**Table 2. The influence of particular types of environmental projects funded under the NDP 2004-2006 on creating new jobs**

<table>
<thead>
<tr>
<th>Type of project</th>
<th>Number of projects analysed in detail</th>
<th>Share of projects analysed</th>
<th>Number of new jobs in projects analysed</th>
<th>Average number of jobs per project</th>
<th>Total number of new jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NEW JOBS DIRECTLY RELATED TO THE IMPLEMENTATION OF PROJECTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building or modernising municipal wastewater treatment plants</td>
<td>42</td>
<td>20%</td>
<td>108</td>
<td>2.6</td>
<td>545*</td>
</tr>
<tr>
<td>Development of water-supply and sewage network</td>
<td>107</td>
<td>12%</td>
<td>23</td>
<td>0.2</td>
<td>192*</td>
</tr>
<tr>
<td>Construction and development of municipal waste management plants</td>
<td>12</td>
<td>100%</td>
<td>760</td>
<td>63.3</td>
<td>760</td>
</tr>
<tr>
<td>Construction and development of infrastructure for selective collection of municipal waste</td>
<td>8</td>
<td>100%</td>
<td>41</td>
<td>5.1</td>
<td>41</td>
</tr>
<tr>
<td>Construction or development of municipal waste landfills</td>
<td>10</td>
<td>100%</td>
<td>2</td>
<td>0.2</td>
<td>2</td>
</tr>
<tr>
<td>Development of infrastructure for recycling in enterprises</td>
<td>28</td>
<td>32%</td>
<td>147</td>
<td>5.3</td>
<td>457*</td>
</tr>
<tr>
<td>Development of infrastructure for biomass management in enterprises</td>
<td>10</td>
<td>63%</td>
<td>15</td>
<td>1.5</td>
<td>24*</td>
</tr>
<tr>
<td>Implementation of other investment activities related to environmental protection in private enterprises</td>
<td>142</td>
<td>36%</td>
<td>299</td>
<td>2.1</td>
<td>838*</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>359</td>
<td>22%</td>
<td>1395</td>
<td>-</td>
<td>2859*</td>
</tr>
<tr>
<td><strong>NEW JOBS INDIRECTLY RELATED TO THE IMPLEMENTATION OF PROJECTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jobs created in the investment areas which were provided under the projects with water and sewage infrastructure</td>
<td>30</td>
<td>15%</td>
<td>940</td>
<td>-</td>
<td>5000**</td>
</tr>
<tr>
<td>Jobs created due to the implementation of water and sewage projects in enterprises active beyond the investment areas</td>
<td>149</td>
<td>13%</td>
<td>20</td>
<td>0.1</td>
<td>148</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>149</td>
<td>13%</td>
<td>960</td>
<td>-</td>
<td>5148*</td>
</tr>
</tbody>
</table>

*estimates calculated on the basis of the average number of jobs for the type of activity per one project covered by the CATI, CAWI or IDI survey.

**estimates calculated on the basis of the average surface indicators specified separately for projects on different scales, covered by the CATI, CAWI or IDI survey.

In Książenice, where under a Cohesion Fund financed project on water supply and wastewater management, a sewage system was developed in prospective housing areas, developers and private investors are finalising construction of a housing estate. It transpires from the analysis of the aerial picture (above, right) that these are currently areas of the most intensive housing development in the Grodzisk Mazowiecki commune.

As a result of water and sewage projects implementation, **ca. 18 thousand hectares for housing estates were made accessible in 400 communes.** In mid-2010 the level of development of the areas achieved ca. 21%, and in big-city neighbourhoods it reached levels as high as 80-100%. In the case of almost 25%, half of the area provided with the water and sewage network was covered by construction.

Construction of a water and sewage network and limiting the environmental impact of urban infrastructure and industrial plants are related to the growing demand for construction plots situated within reach of infrastructure. The growth in value of real estate sold by the inhabitants is also observed.

The situation of new economic entities and the inflow of inhabitants to areas provided with water and sewage infrastructure result in the growth of income to commune budgets. The construction of waste-management plants also had a significant impact on generating additional revenue for the commune budgets. In particular,

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the influence was experienced in smaller rural communes, where some plants were situated\textsuperscript{149}.

An important issue is the usage level of the infrastructure purchased or created, which influences both the sustainability and utility of the undertakings implemented. The infrastructure purchased or developed under the projects implemented by enterprises is usually used at a level approaching 100%. Urban infrastructure, however, is used at a lower level. In most wastewater treatment plants the assumed level of reduction of pollution load was not achieved and a majority of plants did not achieve full capacity. In the case of such infrastructure this situation is usually justified – parameters of built or modernised plants are chosen in such a way, as to enable connection of all users in subsequent years. In most cases covered by the survey, the full load of treatment plants is planned to be achieved by 2015.

Due to the scale of the undertakings the state of network connections is also an important issue. In the case of 70% of projects covered by a detailed survey, 100% of the initially planned connections to the sewage network were achieved in the first half of 2010. In some cases the level was several percent higher than assumed. In the remaining cases the process is systematic and in most cases full network capacity will probably be achieved by 2011. Only ca. 6% of projects were characterised by a very low progress of connections (below 50%).

**The influence of environmental investment on preventing climate change**

Operational programmes implemented under NDP 2004-2006 did not include measures aimed at preventing climate change, however, they provided a large framework for financing diverse initiatives which would indirectly contribute to a reduction in greenhouse-gas emission or serve to adapt the economy and society to climate change\textsuperscript{150}.

\textsuperscript{149} “The best illustration of the impact of such projects is the example of the Ceków commune, where an urban waste-treatment plant was created under the Cohesion Fund. The “Orli Staw” plant, built in the village of Prażuchy Nowe constitutes an important source of income for the commune – PLN 500 thousand property tax and additionally PLN 700-800 thousand due to a marshal fee (annually). An amount of PLN 1.2-1.3 constitutes a significant share in the commune’s budget of PLN 9 million. The commune allocates the amount for investment in infrastructure” (quoted after: “An assessment of the effects of environmental projects carried out under the NDP 2004-2006”, op. cit., p. 129).

\textsuperscript{150} In order to determine the share of the initiatives which could have an impact on reducing greenhouse-gas emission, a quantitative and qualitative survey of climate protection projects was made as a part of the “An assessment of the effects of environmental projects carried out under the NDP 2004-2006”. Environmental projects were divided to this aim into five basic classes:

\textsuperscript{i} – projects directly concerning a reduction of greenhouse gas emission (no such projects were identified).

\textsuperscript{ii} – projects which indirectly contribute to the reduction of greenhouse-gas emission, e.g. through limiting energy consumption, emission sources or through the use of RES (628 projects);

\textsuperscript{iii} – projects relating to a reduction of other pollutants, which could indirectly influence emission of greenhouse gas, e.g. through limiting the amount of waste and raw material consumption (416 projects);
1,314 projects amounting to PLN 7.3 billion were identified among the environmental investments implemented under the NDP 2004-2006, which indirectly influenced a reduction in greenhouse-gas emission or served to adapt the economy, environment and society to the change in climate. These constituted 1.6% of the total number of initiatives implemented under the NDP, a value of 7.5% of the total co-financing (cf. Figure 4).

Figure 4. Projects influencing implementation of the objectives of climate policy

a) quantitative distribution under NDP 2004-2006

<table>
<thead>
<tr>
<th>Program</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOP AGRI</td>
<td>124</td>
</tr>
<tr>
<td>SOP ICE</td>
<td>277</td>
</tr>
<tr>
<td>IROP</td>
<td>16</td>
</tr>
<tr>
<td>INTERREG</td>
<td>14</td>
</tr>
<tr>
<td>SOP FISH</td>
<td>18</td>
</tr>
</tbody>
</table>

Legend:
- Class II – indirect contribution to the reduction of greenhouse-gas emission
- Class III – impact on the reduction of other pollutants, which could indirectly influence the reduction of greenhouse-gas emission
- Class IV – adaptation of the economy, the environment and society to climate change

b) value of co-financing under the NDP 2004-2006 (in PLN billion)

<table>
<thead>
<tr>
<th>Program</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOP ICE</td>
<td>13</td>
</tr>
<tr>
<td>IROP</td>
<td>1.9</td>
</tr>
<tr>
<td>CF/ISPA</td>
<td>0.09</td>
</tr>
<tr>
<td>SOP AGRI</td>
<td>0.1</td>
</tr>
<tr>
<td>INTERREG</td>
<td>0.1</td>
</tr>
<tr>
<td>SOP FISH</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Legend:
- Class II – indirect contribution to the reduction of greenhouse-gas emission
- Class III – the impact on the reduction of other pollutants, which could indirectly influence the reduction of greenhouse-gas emission
- Class IV – the adaptation of the economy, the environment and society to climate change


A detailed analysis of the investment-implementation results concerning renewable energy sources (RES), energy savings, increasing energy efficiency and limiting gas and dust pollutant emission to the air shows the slow but positive impact of the NDP on the achievement of national climate protection policy objectives. The majority of funds for environmental protection were allocated for the development of water and sewage infrastructure. Such initiatives were not among the key under-

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\[N\] – projects on the adaptation of economy, environment and society to unfavourable conditions resulting from climate change (270 projects);

\[V\] – projects in case of which the influence on the reduction of greenhouse-gas emission does not appear or cannot be determined (water and sewage projects belong to this group).
takings from the perspective of climate policy objectives (V class). A decisive role was played though by the relatively small scale of initiatives concerning a reduction of greenhouse-gas emission in comparison to defined needs. Information on the impact of the projects implemented on limiting CO$_2$ emission confirms the thesis. From the data published by the National Administrator of the Trading System for Emission Authorisations it transpires that the annual CO$_2$ emissions in Poland in 2008 amounted to 324 million Mg. A reduction in CO$_2$ emissions estimated for key initiatives implemented under the SOP ICE and IROP amounts to ca. 560 thousand Mg annually, and has a marginal effect on reducing overall annual CO$_2$ emissions.

The significance of NDP-funded initiatives concerning climate protection should not, however, be marginalised. Many of them, particularly concerning RES had a demonstrative and promoting character. 7.7% of primary energy was obtained from renewable sources in 2008. The installed power of the devices that enabled obtaining RES energy built or modernised under NDP amounts to ca. 250 MW and constitutes 0.7% of the general power installed in Poland.

The experience gained by the Eco Fund several years ago concerning co-financing of thermal modernisation show that despite initial difficulties in convincing beneficiaries to invest in such solutions, the number of entities interested in thermal modernisation has been steadily growing. Currently it is common practice which they finance mostly from their own funds. Due to successful initial implementations, such initiatives are commonly regarded as efficient both from the perspective of the economy and ecology.

In the case of innovative solutions, such as RES technologies, the first successful implementations are crucial for their common use. **Initiatives implemented under the NDP, albeit small-scale, may significantly influence a reduction in greenhouse-gas emissions in the future.** A good example in this area is Measure 2.6 SOP AGRI: The development and improvement of agriculture-related technical infrastructure, under which **258 projects were implemented on solar collector assembly (which enable energy savings up to 30% of heating energy), heat pumps, biomass incinerators and wind power plants on farms.**

The role of projects (270 projects worth ca. PLN 790 million) funded mostly under INTERREG and SOP AGRI (Measure 2.1) related to adaptation of the economy, the environment and society to effects of climate change is also worth pointing out. **Particular significance is attached to the development of monitoring systems enabling inhabitants to be warned promptly of upcoming threats** (sudden increases in the water level, fires and other natural catastrophes) and coordination systems for the emergency services.

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151 The value concerns mostly installations for biomass co-incineration – the equivalent value for RES in the case of such installations may vary and has the character of an estimate.
Effects of support – facts and figures

13 thousand km of wastewater network were built/modernised along with 5.7 thousand km of water supply network (used by 1.4 and 1.1 million people respectively), 275 urban wastewater-treatment plants, 101 industrial wastewater-treatment plants and pretreatment plants, 1,729 onsite wastewater treatment plants, 12 waste-management plants as well as 89 installations to reduce gas and dust emissions. This was followed by the creation of 2,500 jobs related to maintenance of the waste-management infrastructure.

About 7 thousand ha of new land for investment and 18 thousand ha of land for housing developments were provided with water supply and wastewater infrastructure.

Roughly 1.4-1.6 thousand entities, employing a total of 5-6 thousand people started operating on the land developed.

Conclusions and recommendations

The initial analysis of the impact of the environmental investments under the NDP 2004-2006 helped draw conclusions and strategic recommendations concerning the Cohesion Policy after 2013 – and also functional conclusions and recommendations, amongst which were those aimed at improving the implementation process of the financing perspective 2007-2013.

Big investments in basic environmental protection infrastructure (wastewater treatment plants, sewage networks, waste management etc.) under the NDP (ca. 30% of co-financing) and in the present perspective 2007-2013 are in particular related to the necessity of remedying many years of neglect in this area and of fulfilling EU environmental criteria. Those projects to a lesser degree contribute to building development potential and to a greater extent, make contemporary civilisation standards closer. The Cohesion Policy after 2013 in the context of widely understood environmental protection should, above all, concentrate on measures aimed at comprehensive elimination of negative influence on the environment and taking advantage of opportunities which are created by Poland’s clean environment and natural assets. The measures undertaken should lead, to a larger extent to preventing negative impacts, and to a lesser extent – mitigating the identified problems.

Moreover, the environmental policy should be integrated and include environmental education and fostering ecological attitudes in society. Innovative initiatives should be promoted, which concern modern solutions for environmental protection, including:

1) implementing the objectives of the Integrated Product Policy, in particular eco-design,

2) introducing the green public procurement system in public and local-government administration sectors,
3) pilot projects on comprehensive provision of RES energy to small towns and communes,

4) financing R&D activities concerning environmental protection, and knowledge transfer on the most effective solutions.

In situations where the public funds for environmental protection are limited and, at the same time, the scale of demand is large, the model of spatially and thematically concentrated programming for particular environmental issues or the most susceptible areas is a more efficient solution. Moreover there should be a clear priority for the initiatives which attempt at providing complex solutions to the issues of water and wastewater management on a scale of several communes and agglomerations or other areas of functional and spatial use (collective systems for discharge and treatment of waste) within the border area which would increase their impact on the environment within the European Union.

In particular the most important initiatives for the achievement of the objectives as part of the National Plan for Waste Management, i.e. complex waste-management plants and waste-incineration plants, should be subject to funding under the waste-management policy. Moreover, promoting enterprises of high ecological and economic effectiveness, which are at the same time key from the perspective of providing solutions to significant environmental issues is recommended.

Thus, as part of a broad package of environmental investments, initiatives which require support are mainly those that concern: 1) in the case of RES energy production, the development of the most efficient and least dynamically developing areas, i.e. the construction of biogas plants and water-power plants, which are characterised by the greatest efficiency in terms of real energy production capacities per year (amounting to: 48% for biogas plants, ca. 30% for hydroelectric energy and biomass plants and only 16% for wind-power plants, currently the most popular); as well as investments within the border area which might benefit energy security in the EU 2) measures limiting low-level emissions from individual incineration sources, mostly through the development of heating networks in areas of dense housing; 3) initiatives concerning biomass processing (the production of fuel from biomass), which play a large part in creating potential in rural areas, and more intensive fostering of energy plantations.

In the case of activities concerning flood protection funded under the NDP, the lack of a cohesive flood protection plan in the catchment context and lack of a complex

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152 The quantity of biogas produced in installations for this aim in 11 wastewater treatment plants and 4 waste landfills, built under the NDP, enables heating throughout the year of ca. 12 thousand single households of average surface of 80 sq m.

153 Low emission – communication emission and dust and gas emission from local coal boilers and household heating facilities (from chimneys no higher than 40m).
approach to issues regarding flood protection and widely defined water protection, in accordance with the Water Framework and Flood Directives. At the same time, taking into account the scale of needs and extreme phenomena appearing in recent years, investments mostly in the modernisation of dykes do not constitute adequate protection against flood damage in the coming decades. That is why it is necessary to develop a complex and cohesive framework for counteracting flood effects on a national scale or for the basins of big rivers, and to develop flood-risk maps in order to reduce the impact of natural threats. Taking into account the mechanism and scale of floods in the last few years, it seems advisable to undertake integrated planning and investment activities in line with approaches under the Flood Directive.

It seems important that these activities should have a pro-development character to release the potential within different territories. The right direction to follow would be to modify infrastructural systems allowing us to undertake prompt and efficient emergency action as well as activities aimed at increasing the retention capacity of reservoirs.

The incentive effect is the desired intervention in environmental protection. In the case of the measures related to environmental protection, a reluctance to use innovative solutions is often a barrier for wide-scale use. Small contribution of public fund may constitute an impulse for wide-scale use in the future of the most desired environmental solutions, characterised by high environmental and economic efficiency. In the case of environmental projects it is recommended to extend the definition of information and promotion measures, which should not be limited solely to informing people about project funding from EU funds, but should also include active information about the environmental and economic effects achieved (in terms of the amount of energy or funds saved and also the number of jobs created).

In the case of key environmental initiatives that are difficult to carry out, such as those related to waste management, an integral part of intervention programming should be a strategy for implementing a priority or measure to be planned as early as possible. Such a strategy should involve comprehensive assessment of the socio-economic situation and market conditions. Also, a key document to be prepared at the earliest possible stage of infrastructural projects, would be one comprising of an analysis of environmental conditions and a strategy for social measures (including social consultations), as well as compensatory measures for local communities. Information measures focused on key areas for investment implementation may successfully limit the phenomenon of frequent social protests. Social organisations, including environmental ones, should be partners in these measures.

In the case of some projects on the development of sewage network, the unit costs of network construction calculated per single household connected were much higher
than the maximum cost of treatment-facility construction for the said household\textsuperscript{154}. It is caused mostly by situating the infrastructure in areas of dispersed housing. Encouraging such solutions is related to the higher costs of infrastructure maintenance per one user. That is why in the case of water and sewage undertakings, one should consider narrowing down the definition of protected areas where abstention from the indicator of 120 persons/km of network is allowed, to areas which are most significant from a perspective of nature preservation. Other, more cost-efficient solutions should be given preference in areas not fulfilling this criterion, e.g. household treatment facilities or local wastewater treatment facilities.

\textsuperscript{154} Costs relative to the operation of a household treatment facility amount to ca. PLN 300-400 per year. A four-person family household connected to sanitary sewage system incurs the cost of ca. PLN 600-800 for the same period, while the cost of a similar amount of wastewater removal may amount to as much as PLN 1,500-2,000.
A number of factors affecting the final success of public intervention can be specified. Without a doubt, these include, among others, the accurate definition of objectives, priorities and actions as well as the provision of the necessary resources. But one must bear in mind that these elements will lead us to success only in the case of an unexpected turn of events, if the appropriate implementation system capable of continuously responding to changing circumstances is not created for intervention purposes.

The „appropriate” system means a properly designed structure, both in the context of internal and external interactions, as well as being „filled with” qualified human resources, infrastructure and procedures in the appropriate way.

In this chapter, an attempt was undertaken to evaluate the system created for the implementation of the National Development Plan 2004–2006. The assessed system has been understood as a structure consisting of five elements: human resources, structures (understood as institutions and procedures) and a series of processes aimed at implementing the three basic functions (implementation-absorption, reflection and strategic). For the purposes of this study, the following definitions of the five above elements were adopted:

- **Human resources** – the human resources of institutions implementing the Cohesion Policy in Poland (their size and quality)
- **Structures** – institutions designated to implement the Cohesion Policy and the rules and procedures governing their operations
- **Strategic function** – the collection of processes that make up the relevant targeting of resources, from the point of view of the main needs and potentials of development
- **Absorption-implementation function** – the whole of processes of spending European funds on time and in accordance with established procedures and the law
- **Reflective function** – collecting processes regarding the skills of learning, where learning is the ability to collect data, draw conclusions based on them and take the corrective actions (changes to the current system) or improvements (strategic changes of the system).
This analysis was based mainly on the results of evaluations previously conducted, including the Cohesion Policy implementation system on the basis of ex-post evaluations\textsuperscript{155}.

**Diagnosis**

Assuming for an illustration of the overall condition of public administration in Poland, the assessments in various international rankings of institutions evaluating the quality of public administration, we obtain a definitely negative image in the period preceding accession to the European Union.

**Figure 1. Ratios achieved by the 27 EU countries under the World Bank’s Governance Matters in 2003 - a comparison**

![Graph showing ratios achieved by 27 EU countries]


In the period immediately preceding Poland’s accession to the European Union, a huge difference in the level of the so-called administrative efficiency could be observed between the countries of Western Europe and the candidate countries. **Values of ratios** illustrating and evaluating the efforts of countries to implement the idea of the so-called efficient state achieved by Poland **differed significantly from the results achieved by the countries of the EU** and other countries that had just joined the Union. In conclusion - among the 27 EU countries in 2004, **only in Bulgaria and Romania were weaker results recorded**.

Table 1. Indicators of efficiency in public administration for Poland in the pre-accession period

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value (Position)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECB – Public Sector Performance (administration) 2000 and 2001/2003</td>
<td>0.92 (18)</td>
</tr>
<tr>
<td>ECB – Public Sector Efficiency (administration) 2000 and 2001/2003</td>
<td>0.89 (12)</td>
</tr>
<tr>
<td>WB – Government Effectiveness 2003 (27 EU countries)</td>
<td>0.54 (25)</td>
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<tr>
<td>Transparency International Corruption Perceptions Index (CPI) 2003</td>
<td>3.6 (25 ex aequo with Latvia)</td>
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<tr>
<td>Freedom House, Quality of Governance Indicator 2003</td>
<td>2.00</td>
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Referring to the next five aspects which were taken into account when evaluating the implementation of the NDP, it is also difficult to make a positive assessment of Polish public administration in the pre-accession period.

In assessing the availability of adequate human resources in the period immediately preceding Poland’s accession to the Union, it should be noted that in 2002-2003 a very small group of people dealt with the programming. In 2004, despite achieving the planned number of employees\(^\text{156}\), we can definitely observe an initial shortage of staff, for example, it is pointed out by the indicator which shows the percentage of employees very often working after working hours - 38% under the administration of structural funds, against only 6% in the entire public administration\(^\text{157}\). In conclusion - in the period immediately preceding accession, Poland has not had an adequate number of qualified and experienced staff ready to implement the Cohesion Policy under the NDP\(^\text{158}\).

In terms of the quality of structures, the evaluators conducting the ex post system evaluation of the NDP 2004-2006 recognised the lack of confidence as a major problem. The above-mentioned phenomenon observed in both external and internal relations within the administration, had a direct impact on multiplying the number of

\(^{156}\) Target employment in the fund administration was set at 3,096 jobs in the „Action Plan for increasing Polish administrative capacity for the efficient management of Structural Funds and the Cohesion Fund” adopted by PT EIC on 19 July 2002 According to Annex 1 to the annual report on the implementation of the CSF in 2004, employment in fund-administration institutions of a funding amounted to 3,381 employees.

\(^{157}\) B. Ledzion, K. Olejniczak (eds.), „Evaluation of the system for implementation of the Cohesion Policy in Poland as part of the 2004-2006 perspective”, study carried out at the request of the MRD, Warsaw 2010, p. 62.

\(^{158}\) Ibidem, p. 194.
various procedures leading to the overregulation of the system. This visible part of a Polish administrative culture was dangerous as the European Union itself is not free from a tendency to overregulate solutions for the implementation of policies\textsuperscript{159}.

The last aspect that should be analyzed to create an image of the preparation of the Polish administration for the implementation of the Cohesion Policy is its willingness to effectively implement the three basic functions of the system. It must be recognized that also in this area we could see a significant difference between the proposed management philosophy of the structural funds and the past practice of the Polish administration. In accordance with the rules set by the EU, structural funds were to be implemented through the task principle – objectives were set out and assigned means and definitive actions. The then national policies included few similar structural solutions\textsuperscript{160}.

In short, people creating a system of implementation of the NDP 2004-2006 did not have possibilities to base it on solid foundations. Poland in the pre-accession period did not have the relevant national administrative apparatus with experience in task management. Actions comprising the strategic and reflective functions of the system may also be considered inadequate.

Main problems and system changes during the implementation of the NDP 2004-2006

Above are the five basic elements affecting the quality of the NDP 2004–2006 implementation system, and their condition in the period immediately preceding Poland’s accession to the EU. This system was subject to highly dynamic changes in subsequent years. They will be presented while maintaining the previous division.

Human resources

As mentioned earlier, Poland at the time of accession to the European Union did not have sufficient personnel. This created a lot of risks and negative effects but also some advantages. People who formed part of the fund administration were mostly young people, that beginning their work in the administration. Their youth was both a limitation and an asset - such individuals were open, creative and willing to make sacrifices. It should also be noted that for this group to participate in an innovative and ambitious project, such as the NDP was in itself a very high motivation to work.

\textsuperscript{159} As rightly observed by the authors of the ex post evaluation of the implementation of the NDP 2004-2006 ,(...) in many cases, the EU proceduralisation and ritualization are incorporated in Polish bureaucratic and procedural administrative culture, resulting in the strengthening of its genetically dysfunctional negative traits” Ibid, p. 37.

Analyzing the changes taking place in employees implementing the Cohesion Policy in the considered period, we must also bear in mind that a lot of important factors affecting the quality and performance of staff was and still is defined by law, making it difficult to introduce changes or improvements in the administration of funds.

In respect of salaries, we could see a change in the role of this factor over time - from a demotivating factor, through to a motivating factor and to the neutral character of this element. Initially, the remuneration of persons employed in the administration of funds was not increased in any way in relation to other units, which due to the aforementioned low average age of staff dealing with EU funds led to a situation in which these workers earned less than the rest of the administration.

This situation changed in 2007 when the “Action plan to strengthen the administrative capacity of units involved in the implementation of Operational Programmes in Poland in 2007-2013” was adopted, which led to a significant increase in average wages in the administration of funds. It should be noted, however, that the document focused mainly on government administration. Currently, salaries remain at a satisfactory level, but is now no longer a factor which motivates in any particular way.

Staff training was also an important element in the context of quality of staff and its changes. Within the perspective of 2004–2006, such measures were supported mainly by funds from the Operational Programme Technical Assistance. 155 projects

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161 The figure presents the employment rate in institutions only committed to implementing the NDP 2004-2006.

162 For example, such elements would be the following, fundamental in their importance to the quality of personnel issues: the principle of recruitment, pay, evaluation and remuneration of employees, training needs analysis.

163 A similar phenomenon may be observed in the example of the amount of incentive bonuses. Initially, this was a factor positively influencing staff motivation. Due to the reduction of this type of remuneration element over time it ceased to be important in motivating.
were implemented within the OP TA worth approximately PLN 112 million\textsuperscript{164}. According to experts evaluating the implementation of this programme, it allowed for the **preparation of highly qualified staff**, which contributed significantly to the improvement of the units responsible for the Cohesion Policy\textsuperscript{165}.

The process of training and improving the quality of personnel is linked directly to one of the main problems of the system, particularly acute in the early period of the perspective, namely staff turnover. Many experts presented this phenomenon in a clearly negative manner, writing about draining the administration’s personnel by the private sector. Recent studies tend to verify or at least partially mitigate such assessments. **Persons who after “training” departed from the fund administration** or even completely out of the administration, did not disappear forever, but still participated in the execution of various projects under the NDP 2004-2006.

**Structures**

Assessment of changes in the structures is not clearly positive or negative. On the one hand there are strongly negative tendencies, the existing lack of trust in Poland as one of the basic features of the Polish administration, coupled with the negative elements of the European Union operation model, led to excessive centralization, multiplication of procedures and a restrictive control system. The above-mentioned conditions have also led to the adoption of a maximum formalized course of action. There were also jurisdictional disputes arising from decision makers’ vague visions on the role and tasks of the institution. On the other hand, the key system players saw the problems and in order to respond to them **attempted to introduce various types of recovery, simplifying programmes**

**Strategic function**

Strategic function is particularly important at the beginning of the programming period, when the main assumptions of the intervention are formed. In the case of the National Development Plan, a small group of people was responsible for the accomplishment of this task - as mentioned previously with little experience in such activities. The above mentioned situation only began to change in 2005, with the creation of the Ministry of Regional Development. The processes implemented as part of this function were also supported by foreign experts and this assistance, from

\begin{footnotesize}
\textsuperscript{164}PSDB Grupa WYG, “Ex post evaluation of the Technical Assistance Operational Programme”, study carried out at the request of the MRD, Warsaw 2009, p.17-18.

\end{footnotesize}
the perspective of time, is estimated positively by people involved in creating the assumptions of the NDP.

External evaluators, in formulating an assessment of processes and structures involved in the implementation of the strategic function, distinguish the following four main processes:

- Diagnosis
- Preparation of programme documents
- Consultation
- Making the final decisions and approval of documents.

The implementation of any of these elements is not explicitly evaluated as positive. There was a lot of negative phenomena, such as the relatively poor quality of the diagnosis, or distortion in preparation logic of programme documents. The quality of strategic planning was also negatively affected by the initial assumption of the creators of the system, which stated that this system is a trial and a temporary structure designed, first of all, to ensure the appropriate expenditure of funds and creating a solid base for the Cohesion Policy implementation system in the next perspective.

The implementation–absorption function

In the context of continued pressure, both external (from the European Commission) and internal (mainly from the press), on the disbursement of funds, the absorption-implementation function has grown to rank as one of the most important functions of the NDP 2004–2006. This implied taking various actions to speed up disbursement. A year after the start of the programming period, i.e. 6 December 2005, the Council of Ministers adopted the first recovery programme to accelerate the absorption of funds. A good illustration of the importance that was attached to the proper disbursement of funds is the analysis of the public debate. The vast majority of newspaper articles devoted to the question of EU funds concerned this issue.

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166 The first versions of operational programmes were ready at the end of 2002, the document for the NDP was developed later than the operational programmes, but should be designated for evaluation as first. More on this subject, B. Ledzion, K. Olejniczak (eds.), “Evaluation of the system for implementation of the Cohesion Policy in Poland as part of the 2004-2006 perspective”, op. cit., p. 97-98.
The peak application stage, associated with the process of project intake and selection occurred in the period of 2005-2007. **Problems were observed almost only in the initial period**, i.e. in 2004-2005, when a large number of applications, combined with an insufficient number of public employees and assessors led to a situation in which we saw unsatisfactory quality and timeliness of system operations. This was also probably affected initially by the lack of experience of those responsible for evaluating projects. This phenomenon was observed in virtually all operational programmes. With time, along with gaining experience, the situation has improved considerably.

Under the “financing” area, problems also occurred in the initial stage of the NDP implementation. **The payment system was assessed as being too vague, and the procedure as too complicated** and in fact hindering the proper preparation and settlement of applications. The payment system of the NDP 2004–2006 was completely subordinated to the existing system of public finance and the law on public finance, unsuited to the needs associated with the implementation of the Cohesion Policy in Poland. It was only the adoption of the aforementioned recovery programme in 2005, introducing a number of simplifications such as the verification of applications for payments, and changes in national legislation and administration employees’ increased experience that led to improvements. **It should be noted that the implementation of the Cohesion Policy has proved an extremely effective instrument for changes in the national legislation.**

As for the quality of the monitoring process, the last element in the implementation-absorption function, researchers involved in the analysis of the implementation of the NDP 2004-2006 report many objections. This includes the basic tools in this area which was the SiMIK system and the whole monitoring process (in particular the weakness of substantive monitoring). With time, this area also saw many reorganization and simplification activities.
In conclusion, despite all the flaws and shortcomings, the system has fulfilled its main role, which was to issue available resources on time. Already in the second quarter of 2009, 100% of the projected payments in the NDP were exceeded and eventually 104.30% of the planned allocation was disbursed\textsuperscript{167}.

**Reflective Function**

Reflective function, to an even greater extent than the strategic function, was built under the NDP from scratch. In addition, during the initial period there was no need for this type of operation. Issues related to programming (strategic function) attracted much more attention, followed by disbursement (absorption–implementation function). 2004 should be considered as the beginning of the process of capacity building of the public administration in this area, when the National Evaluation Unit was established. Initially it was a very small unit with inexperienced staff. Over time, with external support (various foreign examples of twinning) and due to the high stability of the system in this aspect, the situation began to change and the evaluation, which is one of the main instruments of the reflective function, began to gain importance. The potential increased on the side of public administration, but also on the side of performers. 2004-2009 was a period of strong increase in the evaluation culture in Poland. These changes led to a situation in which the solutions adopted in Poland are currently placed by the European Commission as an example of good practice\textsuperscript{168}.

Another issue is the use of the evaluation results which is an equally important element of the reflective function. While we can talk about the considerable improvement made in the implementation system of the NDP 2004-2006 in the field of construction, commissioning and performance of evaluation, the process of using its results needs improvement. Within the previous perspective of Cohesion Policy implementation in Poland, we cannot talk about an organized and standardized use of information acquired through the above research. Knowledge was passed and used on all kinds of meetings, conferences and seminars, but not in a well thought-out and standardized manner. It should be noted, however, that various measures to improve the situation were undertaken later, for example, in 2010 the Integrated Management System for Applications and Recommendations from Evaluations was launched. This instrument should contribute significantly to increasing the degree of utilization of knowledge generated in the evaluation.

\textsuperscript{167} Ibidem, p. 151. The fact that the amount of allocation was higher than the planned can be linked to fluctuations of the euro and the so-called over-contracting mechanism.
\textsuperscript{168}V. Gaffey, “Assessment based on the capacity, quality and extent of activities in cohesion policy evaluation” presentation delivered at the international conference in Budapest “The evaluations of EU development programmes by the European Commission and the Visegrad Countries”, Budapest, May, 2010.
In summary, the magnitude of work done in implementing the measures included in the reflective function as well as the progress in this area should be positively assessed. Naturally there are still mechanisms that can be improved. These types of elements may include such issues as: the quality of the process of identifying evaluation topics, the provision of basic monitoring and statistical data of appropriate quality, better alignment of the activities of an operational and strategic nature (considering the subject area of evaluations and formulation of results and their subsequent use).

The effects of the Cohesion Policy - benefits from the creation and functioning of the NDP 2004-2006 implementation system

When presenting and evaluating the changes introduced by the implementation of the National Development Plan 2004-2006, or formulating the benefits to the quality of public administration brought by the implementation of the Cohesion Policy in the past perspective, we should focus on two aspects:

1) making use of the experience gained during the implementation of the NDP 2004-2006 under the programming and implementation system of the NSRF 2007-2013;

2) the scale and form of the spill-over effect in terms of the so-called good practices in the area of administration of a funding for the administration not directly involved in the implementation of structural funds.

It does not seem fully justified to analyze the changes that the implementation of the Cohesion Policy would directly cause in the whole of the Polish public administration. This seems to be inadequate if one takes into account how small a proportion of the whole administration is the so-called fund administration. Personnel carrying out programmes under the NDP in 2008 accounted for approximately 1% of the total employed in public administration.  

Human resources

In the context of human resources, a positive matter is the observable stability of the human-resource structure constructed. Human resources adequately prepared for strategic planning and management of public interventions in terms of functions and tasks, were created in many units, both at central and regional levels.

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169 At this point we also draw attention to the fact that the program dedicated to improving the quality of the entire public administration in Poland was not implemented under the NDP. In the context of reflections on the changes that had occurred in the first period of Polish membership in the EU, it should be considered whether not establishing such programme, covering the entire administration in Poland was a mistake.
Currently, the staff turnover has been stopped or controlled sufficiently so as not to pose a problem, which is important for the implementation of the NSRF 2007-2013. The existence of an element of turnover can be assessed even positively, seeing it as an opportunity to transfer good practices through employees leaving the funds administration to non-fund administration. However, it is difficult to find a source of rapid and fundamental change in the funds administration in this aspect of public administration. This follows firstly from the above reported disparities in the numbers of both groups and from the fact that the funds administration was formed and operates on the basis of the same solutions and legal framework as the non-fund administration.

Structures

Also, the formation of structures for the NSRF 2007-2013 did not have to be started from the very beginning. Many of the solutions from the previous perspective were adopted and this process should be assessed positively. Drawing conclusions from these elements of the NDP 2004-2006 which were not successful also deserves merit and attention. This type of operation may be demonstrated by the new IT systems for the 2007-2013 perspective (NIS – National IT System) and the new PEFS system, which differ considerably from their predecessors, and do not duplicate their mistakes.

Unfortunately, the new perspective did not succeed in creating solutions that build future social capital, which would liquidate the barrier of distrust existing in the system of implementation of the NDP 2004-2006 and the whole Polish public administration. These, if not neutralized by appropriate actions of reorganization, may pose a threat of repeated overregulation of the system and excessive proceduralisation. Equally, as in the previous system, managing authorities engage excessively in operational activities at the expense of the quality of strategic actions that should be a fundamental domain of the MA.

Strategic function

Raising the quality of the processes that make up the implementation of the strategic function is undoubtedly a great success of the Cohesion Policy in Poland. Despite the fact that many factors with a major impact on the implementation of the above function remained outside the system\textsuperscript{170}, it was possible, thanks to the implementation of the NDP 2004-2006, to make significant progress in this area.

It is estimated that in this area, the system of implementing European funds, due to the shortage of strategic approach, dominated the actions throughout public admin-

\textsuperscript{170} Such factors can be considered, for example: the involvement of politicians, the activity of academic circles, the participation culture of national socio-economic stakeholders.
Implementation in Poland. However, by issuing this positive assessment for the potential of strategic function built under the NDP 2004-2006, it should be clearly indicated that this is an area that requires further efforts.

In the context of building capacity for strategic management, the decision to implement regional programmes through one integrated programme managed centrally cannot be fully assessed positively. This led to a much less than desirable building of the potential of strategic function at the regional level. But it is hard to blame the architects of the system for making such a decision, taking into account the strength of external factors which do not favour entrusting responsibility for implementation of projects financed from EU funds to regional institutions.

Implementation–absorption function

When narrowly assessing the implementation of the implementation-absorption function, i.e. only referring it to a satisfactory level of disbursement – we should formulate a clearly positive assessment. The efficiency of disbursement should be appreciated and in this respect the system of implementation of the NDP is a source of good practices and provides the basis for the NSRF system. However, the specificities of the first period of implementation of the Cohesion Policy in Poland must be taken into account for a full assessment of the implementation of the implementation-absorption function and its usefulness in the future. The solutions adopted in the new and any subsequent perspective should strive to increase the attention paid to quality and the effects of ongoing intervention.

Also, the analysis of evaluations formulated by the key players in the system of implementation of the Cohesion Policy in Poland in 2004-2006, illustrates the high final grade of all components of the reflective function, or the implementation-absorption function of the system.
Reflective Function

In perhaps the most obvious way, the positive effect of implementing the Cohesion Policy in Poland is the potential created under the NDP 2004-2006 in the area of the reflective function of the system.

Staff and structures established to implement this function under the implementation system of the previous perspective with a few exceptions virtually seamlessly were passed on to the service of the NSRF 2007-2013. Also, in terms of penetration, or inspiring of non-fund administration, one can observe a significant spill-over effect in this area. Key units under the NDP 2004-2006 also play a major role in the national arena in activities pertinent to the reflective function of the system. The approach and operations of the fund administration in the scope of evaluation became the evaluation core of the whole Polish public-administration sector.
Fund administration vs. non-fund administration

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Draw with a slight indication towards “funds”

Advantage to “funds”

Advantage of “funds”

Source: Own work.

Conclusions and recommendations

Conclusions and recommendations, which are possible to formulate on the basis of studies regarding the implementation of the system should be applied in the future perspectives of implementation of the Cohesion Policy, and more broadly speaking, contribute to the discussion on the desired model of the entire public administration in Poland. Recommended changes can be attributed to five elements of the system, adopted at the beginning, but a large proportion of recommendations will be horizontal in nature.

In the area of human resources, the key seems to be ensuring stability, i.e. keeping experienced people in the public administration. Turnover - as already mentioned in the previous section - has been significantly reduced, but it can again become a threat. A sense of participation in an innovative and extremely ambitious project, namely the implementation of the NDP 2004-2006 gave a strong incentive in the past perspective. Unfortunately, over time, this source of motivation will become weaker. These types of recommendations are also raised in studies by independent research and discipline-specific institutions. According to the author of the most
recent report from the Business Centre Club regarding the state of European funds - keeping administrative-staff salaries, at least at the same level, is one of the key recommendations to be implemented to ensure the smooth implementation of the NSRF 2007-2013.

The target attitude of modern public administration should be constantly striving to focus its activities on the implementation of the overarching strategic goals. This thesis is based on research and analyses indicating too much concentration on the process of implementation as one of the major barriers to effective implementation of national policies. This approach results in a loss of strategic perspective and leads to the proliferation of unnecessary procedures, regulations, and inefficient operations. Combining the assumptions of this concept with the need to reform the system of motivation of administration employees, supporting the interim evaluation of officials on the criteria of efficiency and effectiveness of achieving the objectives set for individual employees is recommended, while directly contributing to the achievement of goals by the units. In this context it is important that the objectives were clearly defined and quantified using appropriate indicators of achievement at all levels of the organizational unit (starting at the level of the whole office, through the departments and divisions and ending with the employees). This would contribute significantly to a better knowledge and understanding by staff of the institution’s objectives, which in turn will increase their level of motivation. The above recommendation is also directly linked to the demand to introduce the principle of personal responsibility for the objectives and the principle of granting a bonus for achieving objectives - a “success fee”.

The two processes described above - i.e. measures to improve understanding of strategic objectives for institutions and measures to increase personnel’s accountability, should contribute to increasing the extent to which employees identify themselves with the tasks being implemented and their aims (increasing the level of so-called “ownership”).

Moreover, it is also desirable to analyze the current training policy. Currently, training needs are examined de facto in the context of the employee, but they should be identified more closely based on the needs of the job and institutions.

Given the low level of institutional performance in Poland and the conclusions made in this area under the ex post evaluation of the NDP 2004-2006, it seems appropriate to increase the amount of resources and the spectrum of intervention dedicated to institutional improvement of the Polish public administration. Thus the priority here is to ensure support for public administration implementing those processes which are key to the country’s development. In this context, we should also consider whether the support should be provided in the manner currently adopted i.e. broken down into particular sectoral programmes or whether it might be sensible to create
a separate programme entirely dedicated to improving the quality of public administration. In order to increase the efficiency of the disbursement of public funds in this area, the allocation of European funding should also be conditionally linked to specific structural reforms whose implementation depends on the effectiveness of development policy.

Improvement in the poor institutional performance in Poland mentioned above may happen by means of measures to increase the spill-over effect for best practices. It is a condition of overcoming segmentation within the Polish administration. The Polish civil service is characterised by the considerable fragmentation of human resources management and progression within the career ladder is limited to one ministry only. Segmentation within the Polish civil service is also caused by strategic planning and policy making which are not always consistent across all institutions. According to evaluations by the OECD, the Polish system does not foster a sense of unity between civil servants, as it is divided into ministries to an extent which is too large, thus making the holistic management of higher-ranking servants impossible. In this context, it would be useful to increase horizontal mobility between government offices in order to develop an outlook which would take account of the interest of the country as a whole rather than that of specific government offices. As the most modern, fund administrations are the best suited to initiate the process.

In terms of structures - the main theme which should guide activities in this area should be to simplify structures and the related confidence building process. Especially the latter issue seems to be extremely important. Without clear progress in creating social capital, it will be impossible to overcome the lack of confidence inherent in Polish public administration, resulting in excessive centralization and the proliferation of procedures and control mechanisms.

The potential of the Polish administration requires substantial strengthening in the scope of strategic management of the state development policy. The positive evaluation of the action undertaken in the implementation of the strategic function of the NDP 2004-2006 was largely due to the current deficit of such activities throughout the public administration in Poland. It can also be put down to specific assumptions made by the creators of the Cohesion Policy implementation system in the first period of Poland’s membership of the Union. The primacy of the implementation-absorption function deliberately adopted was acceptable in the first trial period of implementation of the Cohesion Policy and should not be strengthened in subsequent years. Reorientation is necessary to lead the system to its intended logical operation, which constitute a key role of the strategic function in the system. Strategies must be real

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The current Operational Programme Technical Assistance is limited in its scope to fund administration. Under the 2004-2006 perspective, support for public administration was also provided as part of other strands within other Operational Programmes. It would, however, seem that the claim whereby assistance should be mainly targeted at funds administration is also justified in this context.
signposts for directing intervention. One should also consider improving the strategic function of the system through a better balance of employment size within each group of employees responsible for carrying out the functions of the system. In this context, it seems necessary to increase the percentage of employees responsible for carrying out strategic and reflective functions.

With regards to the reflective function, it necessary to make two kinds of action: on the one hand, efforts should be made to intensify the effect of the spill-over of solutions in this area from fund administration to non-fund administration, on the other hand, actions must be taken to improve the use of knowledge throughout public administration. The existence of a coherent and efficient system of knowledge management seems to be a prerequisite in the identification process and efficient and effective implementation of strategic vision. At present Polish public authorities do not have a coherent system of analysis that could provide substantive support in the decision-making processes at all levels of management. Therefore, it is desirable to build a system whose task would be to collect, compile and analyze data in order to generate and provide diagnostic and evaluative information. Establishing such a system will allow for placing the strategies implemented and policies in the context of objective facts, data, and economic and social theories (evidence-based policy). One of the main tasks of the analytical system should be to identify specific and varying needs and potentials, both in a social and territorial scope.

In conclusion we emphasize once again the uniqueness of the NDP 2004-2006. This was an initiative unprecedented in the history of Poland - both as to the scale of financial resources, the quality of the strategic document and the manner of its implementation. NDP 2004-2006 was the most structured public intervention, implemented consistently by successive coalitions of parliamentary government and more importantly - effectively implemented. It allowed the gaining experience necessary for effective and efficient use of the much greater resources within the National Strategic Reference Framework 2007-2013.

\[1^{72} \text{Ibidem, p. 6.}\]
Horizontal conclusions

The process of ex post evaluation of the Cohesion Policy implemented in Poland in 2004-2009 unequivocally indicates that the EU funds played a positive role in the socio-economic development of the country. Positive effects of interventions applied within the framework of the Cohesion Policy in Poland may be observed both at the macro-economic level (particularly in the form of the considerable impact on Gross Domestic Product growth dynamics and the level of employment, as well as unemployment rate) and at the microeconomic level under respective strategic areas of support. Projects co-financed from structural funds of the European Union contributed to the increase in competitiveness and innovativeness of Polish enterprises, institutional development, the business environment system, the modernisation and development of the transport and environmental infrastructure, human capital development, regional socio-economic development, as well as serving as catalysts for positive systemic changes at all levels of governance.

The process of ex post evaluation allowed for the assessment of the Cohesion Policy through indicating the most effective and efficient forms of support, but also through the identification of areas characterised by a relatively lower level of the effectiveness of interventions taken under the Cohesion Policy. The implementation of recommendations formulated in the process of evaluation will allow for the concentration of activities and resources bringing the best effects from the point of view of implementing the strategic objectives and liquidation of barriers making it impossible to make full use of the Cohesion Policy's potential. Complete analysis of the process of evaluation allows also for the formulation of conclusions and recommendations of a horizontal nature - useful for all areas of support at different levels of Cohesion Policy management (including the EU level).

In order to increase the level of effectiveness and efficiency of the Cohesion Policy, it is necessary to concentrate the activities and resources on the areas which are most important from the point of view of strategic objectives. Results of evaluation studies implemented in respective areas indicate that thematic concentration allows, on one hand, an increase in the effectiveness of public intervention through the limitation or removal of instruments which do not bring the desired effects or which generate effects which would occur regardless of State aid. On the other hand, the funds released should be directed at priority areas where public intervention is necessary and concentration allows for the achievement of critical mass leading to an effective influence on the socio-economic situation of the country and of respective regions.
Success of the Cohesion Policy depends on the **application of instruments which are adequate for the problems and challenges** occurring in respective areas of support. The process of ex post evaluation identified the most effective and efficient instruments of implementation, as well as showing instruments which are ineffective, whose application should be limited or largely modified. The common element for all analysed areas is the conclusion concerning the **necessity to direct structural funds to projects with large long-term developmental potential while limiting ad hoc and consumer intervention**.

Results of ex post evaluation indicate that only the implementation of a wide catalogue of intervention taking the form of **complementary and closely directed packages** provides the guarantee that the required level of effectiveness and efficiency of the implementation of the Cohesion Policy is achieved. The analytic process provides, thus, unambiguous arguments for the **need to apply an integrated approach to socio-economic development**. Implementation of this concept should be connected with the abandonment of the sectoral approach to problems and socio-economic challenges in favour of thematic and problem-orientated approach. Ex post evaluation shows that in the case of the Cohesion Policy, integration should take place first of all at the level of the instruments of implementation (including the possibility of implementing integrated projects and ensuring complementarity with other policies, including Common Agricultural Policy). Results of the analyses within the area of the competitiveness of enterprises, human capital or infrastructure clearly show that interventions only bring the required effects if they form an **integrated, comprehensive and place-based response to the diverse character of the needs and socio-economic problems**.

Effectiveness and efficiency of the implementation of the Cohesion Policy is **closely related to the quality of the remaining public policies** implemented within the areas of EU funds support. The systematic process of the evaluation of the Cohesion Policy allows for the identification of structural barriers which weaken the impact of development policy, including public intervention co-financed under EU structural funds. **Continuation of structural reforms in areas which are strategic from the point of view of the socio-economic development of the country may be a prerequisite for the success of the Cohesion Policy’s implementation**. The **conditionality mechanism** (combining Cohesion Policy with remedial measures) should prove an effective instrument in the implementation of this recommendation, which would motivate the Member States in a positive manner to introduce the reforms necessary from the point of view of developmental objectives. In light of the experience gained in the course of the evaluation process and the distribution of the National Performance Reserve, it would seem that an optimal solution would be to implement the conditionality principle at the national level (i.e., national authorities would, upon consultation with EU authorities, continue to make decisions with respect to the identification of areas requiring remedial measures and implementing the
conditionality principle by e.g. allocating the funds from the reserve). This conclusion also applies to the EU level – the achievement of optimal effects of the European Cohesion Policy requires coordination and systematic improvement of the remaining socio-economic policies of the European Union. Thus, the Cohesion Policy, in view of its wide and comprehensive nature, as well as the systematic manner of implementation (strategic approach, programming, monitoring, evaluation etc.) should play the catalyst’s role of developmental processes in particular in the context of the objectives of the new European strategy Europe 2020.

The process of ex post evaluation allowed the identification of barriers in the system of Cohesion Policy implementation and formulation of recommendations used to improve EU funds implementation. The most important recommendations include the postulate concerning the necessity to abandon the implementation priority in the Cohesion Policy implementation in favour of a strategic approach and closer correlation of the process of implementation with the processes of monitoring and evaluation, i.e. putting evidence-based policy into life. The Cohesion Policy should thus be much more orientated towards objectives and results. Currently, both in Poland and at the level of the European Commission, there is an effective system of Cohesion Policy evaluation. The most important tasks in this regard are the inclusion of evaluation into the decision-making process at all levels of governance (e.g. through creation of systems aimed at the implementation of conclusions and recommendations and strategic fora used to discuss the results of the evaluation process) and – in a wider perspective – the creation of a system of knowledge management in the whole public administration responsible for the implementation of national public policies. It needs to be stressed, however, that despite systemic barriers identified in the evaluation process, it is the Cohesion Policy which may constitute (and does constitute) a model for other national policies as regards the strategic management and implementation of the evidence-based policy concept.

In the context of the ongoing debate on the European strategic concept, it also needs to be clearly pointed out that the Cohesion Policy should constitute one of the more important instruments the Europe 2020 strategy implementation. Results of evaluation studies indicate that the Cohesion Policy is not an instrument of redistribution of income, but constitutes an effective and efficient instrument of development policy. Benefits following on from the positive developmental effects are felt not only by the beneficiaries of support, but also by other EU States, including the largest net payers (see: the results of the study concerning the benefits of the implementation of Cohesion Policy in Poland for EU-15 States). Positive features of the Cohesion Policy include its high adaptation capacity (resulting from the relatively effective system of analysis and evaluation) and its diagnostic potential (resulting from its comprehensive character) allowing for the introduction of changes in the areas which are most important from the point of view of strategic objectives.
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