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**TOMASZ NAWROCKI, MAREK S. SZCZEPAŃSKI**

## **Environmental Bases of Ecological Consciousness<sup>1</sup>**

Detailed studies on the problems of ecological consciousness of the inhabitants of Upper Silesia need to be preceded by a few remarks of a more general nature, nevertheless illustrating the scale and scope of the problem matter undertaken. The Katowice Voivodship<sup>2</sup> — taken here rather imprecisely as being identical with the Upper Silesian region — occupies 6,650 km<sup>2</sup> which represents barely 2.1% of the total area of the country: yet living here are almost four million people, i.e. 10.5% of the Polish population. The lack of precision lies in the fact that the historically delineated Upper Silesia incorporated almost entirely within the Polish frontiers after World War II, actually includes a major part of the Katowice and Opole Voivodships plus a small segment of the Częstochowa Voivodship. Hence ultimately, in view of the divergences in delimiting this region and the necessary limitations imposed by the size of this paper, this text refers to that part of Upper Silesia which lies within the bounds of the Katowice Voivodship. This is the core area for the whole region, while its ecological, social,

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<sup>1</sup> This work is part of the report of which Wojciech Błasiak is a co-author. It was written within the first stage of the Programme "Eastern and Central Europe 2000". The Programme is financed by the DG XII of the Commission of the European Communities and managed by the Institute for Human Sciences in Vienna. The European Institute for Regional and Local Development, University of Warsaw coordinates the research conducted in four countries: Czech Republic, Slovak Republic, Hungary and Poland. W. Błasiak, T. Nawrocki, M. S. Szczepański, *Upper Silesia 2005. The Restructuring Scenario*, Katowice 1994.

<sup>2</sup> Voivodship is an administrative-territorial unit in Poland, corresponding to a Western European department or province. On June 1, 1975 after administrative reform 49 provinces were formed.

cultural, economic and political situation most fully illustrates the problem matter of Upper Silesia.

Within this modest sized region there are to be found about 4,400 industrial plants, i.e. about 15% of the total in the whole country, and among them are 239 classed as having a particularly determined impact on the natural environment. Here is extracted 97.6% of hard coal, 48.7% of all Polish private cars are manufactured, 56.6% of raw steel and 53.2% of rolled products come from here and 100% of zinc and lead production. This Voivodship is responsible for 17,8% (1991) of the gross national product and for 20% of all Polish goods later dispatched abroad [*Statistical Year-Book of the Katowice Voivodship 1991*].

This hyperconcentration of industry gives rise to dramatic consequences in the ecological sphere. Industrial plants of the Voivodship emit no less than 742 agents destroying the natural environment of man. It must also be noted in this context that systematic measurements made take into account barely 20 of these agents and thus the description of the region's ecological situation must be, by definition, incomplete and unsatisfactory. The Katowice Voivodship delivers to the atmosphere 25% of Polish dusts and 28% of gases emitted, and here again 25% of industrial effluents are delivered directly to the surface waters. This region is also responsible for 52% of all industrial waste and its absolute magnitude is already estimated at 1.5—1.7% milliard tones. This gigantic and radioactive rubbish dump grows every year by some tens of millions of tones (1989—86 million tones; 1990—72.4 million tones, 1992—62.4 million tones) and devours 300 hectares of land under new spoil tips and dumps. In the year 1990 in the territory of the Voivodship were 198 industrial plants, each producing annually more than 5 thousand tones of waste, principally mining waste, flotation slurries, washery waste, fly ash and cinders. If all the accumulated waste was spread uniformly over the area of the Voivodship, it would reach a height of more than 170 cm.

In all parts of the Voivodship without exception all the allowable levels for concentrations and intensities of noxious substances are exceeded, in the air, the soil, the waters and in food. Quite frequently the degree of exceeding the norm is exceptionally high; basing on results of tests on the atmospheric air, conducted by the Provincial Hygiene and Epidemiology Station (1991), it may be taken that annual values of concentrations of the following substances exceed the allowable norms throughout the whole Voivodship:

— dust	exceeds the allowable	1.5	—	6	times
— phenol	„	1.6	—	12	„
— carbon monoxide	„	24	—	146	„
— benzo(a) pyrene	„	23	—	134	„

At some of the measurement points the following degrees of exceeding the allowable levels were noted:

— fluor	up to	1.5	times
— nitrogen dioxide	„	2.5	„
— sulphur dioxide	„	3.5	„
— cadmium	„	11.9	„
— lead	„	12.5	„

The highest pollution of the air with heavy metals — injuring the central nervous system and degrading genotypes — was noted in the vicinity of non-ferrous metals plants and processing plants, particularly in the area of Miasteczko Śląskie, Piekary Śląskie, Bukowno and finally Katowice. Fluor in harmful concentrations was found to occur principally in the neighbourhood of Katowice, Rybnik, Będzin and Dąbrowa Górnicza. Concentrations of suspended dusts exceeded the allowable norm ( $50 \mu\text{m}/\text{m}^3$ ) throughout the whole area of the Voivodship, but extreme values were recorded in Chorzów Stary, Świętochłowice, Bytom Town Centre, Siemianowice, Łaziska Górne, Tychy, Orzesze, Mikołów and Nędza. Over the area of the Katowice Voivodship in the year 1990 a global total of more than 700 thousand tones of dust was noted, but the allowable norm ( $200 \text{g}/\text{m}^2$ ) was more seriously exceeded in Bytom, Chorzów, Świętochłowice, Ruda Śląska, Siemianowice and Ogrodzieniec.

The surface waters, and particularly the rivers, are in a catastrophic state; to these rivers, in the year 1991, were delivered about 903 cubic hectometres of treated and untreated communal effluent (391.3 cubic hectometres) and industrial effluent (511.7 cubic hectometres). A specially intractable problem is represented in industrial effluents by underground waters from the mines, containing large quantities of salts, in the year 1991 on an average 6,979 tones per day, including 6,407 tones per day of chlorides and 572 tones per day of sulphates. Moreover there also occur in these underground mine waters radioactive elements, most notably  $^{226}\text{Ra}$  and the true consequences of their delivery to the rivers is not yet satisfactorily elucidated. It is absolutely certain, however, that pollution of the rivers is so serious that about 65% of their lengths within the boundaries of the Katowice Voivodship has appeared the biological barrier and hence there is now no biological life in them.

In over 72% of the area of the Voivodship the allowable level of industrial noise intensities are exceeded, and also communications noise levels (road and rail noise), and community noise levels (communal and housing). The corresponding index for other voivodships is lower and shows values: 58% (Łódź Voivodship), 47% (Warsaw Voivodship), 46% (Cracow Voivodship), 12% (Piła, Słupsk and Suwałki Voivodships). A serious state of

noise pollution has a detrimental effect on the human being's psychological and physical state, and hence clearly also on her health.

In this degraded and ruined environment people live and work, enduring the consequences of this dramatic situation. It is known that every day millions of people spend their time in particularly endangered sites where the highest ecological norms are exceeded many times over. Thus it is no cause for surprise that as a result of the catastrophic degradation of the natural environment the state of health of the population is very poor. The Upper Silesian region has an index of consumption incidence three times higher than for the rest of the country, there are more frequent deaths from malignant tumors (10% more), circulatory diseases (20% more), diabetes (50% more). Almost 45% of pregnant women suffer pathological complications and 10% of infants come into the world after a premature birth, 15% of all children here have posture defects and in later life four times more frequently suffer from inflammation of upper respiratory tract than their peers from other parts of the country. The horrifying figures for infant mortality also testify to the scale of degradation of civilisation here. Throughout the country as a whole infant deaths per 1000 births is 17, in this Voivodship it is 20, and in the most degraded parts even 30. There are also, unfortunately, towns and districts where the statistics are even more shocking. For example, in the mining-metallurgical district of Bytom (Rozbark) for every 1,000 births more than 50 deaths are recorded, and in certain other towns this figure is very little better (Zabrze, Ruda Śląska, Chorzów).

In the Katowice Environmental Protection Institute an attempt was made to develop an objective evaluation of the areas of ecological hazard in our country, and a special classification based on points allotted was prepared. The particular voivodships and regions were given one point for a single case of exceeding permissible ecological norms for emission of gases and dusts above the norm, for delivery of industrial and communal effluents to the rivers. A certain number of points was awarded also for damage to the tree cover, accumulation of industrial waste and the way it was dumped and also for degradation of the soil. For the Katowice Voivodship this synthesised indicator was 3,000 points (for Zabrze — 5,600 points), while the next in order came the Legnica Voivodship — 950 points, Kraków Voivodship — 790, Tarnobrzeg Voivodship — 530, Opole Voivodship — 430, Bydgoszcz Voivodship — 350, Szczecin Voivodship — 330, Gdańsk Voivodship — 250, and finally Łódź — 240. This classification best illustrates the scale of the health hazard and the degradation degree in the Katowice Voivodship.

We must stress, however, that the ecological situation of the Katowice Voivodship has not dramatically changed for the worse since the end of 1991. We can observe stabilization, and sometimes — as far as emission of

gases and dust is concerned — remarkable improvement. There are three different reasons for stopping the ecological degradation. Firstly, deep current recession in the Silesian heavy industry (this industry ruins the natural environment of the Voivodship). Secondly, the increase of pro-ecological investments. Thirdly, more severe penalties for degradation of natural environment and more effective rules of imposing them.<sup>3</sup>

In Tables 1—2 we present the initial results of current achievements in ecology.

Table 1

## Some data concerning a state of the natural environment in the Katowice Voivodship

	1980	1985	1990	1992
Waste water to be cleaned (in cubic hectometres)	960.9	932.6	829.6	694.6
Already cleaned	68.3%	57.6%	62.8%	71.1%
Plants harmful to purity of atmospheric air	192	227	240	242
Emission of pollutants (in thousands of tonnes)				
dust	637.5	453.9	227.1	127.1
gas	1776.2	1540.8	1002.8	738.1
Change in relation to the previous year — emission of				
dust pollutants	-45.1	-4.1	-79.1	-55.8
gas pollutants	137.1	-72.9	-302.9	-101.9
% of stopped pollutants				
dust pollutants	91.6%	93.6%	95.3%	97.0%
gas pollutants	3.6%	6.4%	14.6%	19.5%
Industrial wastes harmful to the environment accumulated in factories (millions of tonnes)	373.2	556.0	646.0	762.9

Source: *Rocznik statystyczny województwa katowickiego* [Statistical Year-Book of the Katowice Voivodship], Katowice 1989, 1992

<sup>3</sup> W. Błasiak, T. Nawrocki, M. S. Szczepański, *Upper Silesia 2005...*

Table 2

**Investment costs of the environment protection (in % of investment costs in socialized economy)**

Year	%
1980	0.7
1985	4.0
1988	5.4
1990	6.4
1991	8.4

Source: Own calculation according to data from Central Statistical Office Katowice

We want to point out that:

A. Statistical data included in tables show the effects of activities undertaken since the mid-1980s, which aimed at stopping the ecological catastrophe in Upper Silesia. Investment costs of the environment protection are getting higher (still not sufficiently), and the basic indicators characterizing the ecological situation of the Voivodship are gradually (but very slowly) getting better.

B. Authors of the realized ecological policy refer to the rule of ecodevelopment to which restructuring of the industry of the region must be submitted. According to the Director of the Ecological Department of the Voivodship Office, improving the state of the natural environment depends on modernization of:

- power generation industry, through “using condensate power plants for associated production of electric energy and heat”;
- iron and steel industry, through eliminating pig iron production (the “Kościuszko”, “Bankowa”, “Jedność” Steelworks and maintaining it in the “Katowice” and “Zawiercie” Steelworks) and converting steelworks into metal processing plants;
- non-ferrous metallurgy, through eliminating pig iron production and developing new processing technologies;
- mining, through implementing such restructuring projects which will minimize the damage, utilizing saline water, or coat cleaning;<sup>4</sup>

<sup>4</sup> W. Beblo, “Instrumenty polityki ekologicznej województwa katowickiego” [“Ecological Policy Instruments in Katowice Province”], *Aura*, No. 11, 1992.

C. Specific activities which are to improve the state of the natural environment are dependent on the administrative decisions, specifying duties of 24 most harmful to the environment factories from the Ministry list and 60 factories from the Voivodship list. Such activities were undertaken by most factories from the Ministry list and 23 factories from the Voivodship list ("Stomil" in Wolbrom has already realized their tasks). They deal with, e.g., liquidation of: the "Gliwice" Coking Plant, the "Bobrek" Steelworks, or some departments of: the Zinc Smelter "Miasteczko Śląskie", Chemical Works "Hajduki" in Chorzów and "Organika—Azot" in Jaworzno. In other cases they modernize factories and, e.g., assemble electrofilters in the "Wiek" Cement Plant in Ogrodzieniec, reconstruct electrofilters in the "Przyjaźń" Coking Plant in Dąbrowa Górnicza, build a factory of groundwater desalination at the "Dębieńsko" and "Budryk" Coal-Mines.

D. According to data obtained from the Voivodship office in Katowice, the list of tasks completed in 1992 and planned to be realized in 1993 includes:

- 233 investments dealing with the air protection. For example, installations removing sulphur from waste gas in the "Jaworzno III" (till 1996) and "Łaziska" (1999) Electric Power Stations, and dust removal section in the furnace department of the "Łaziska" Steelworks (already realized);
- 203 investments dealing with waste disposal. For example, disposing after-coal waste in the "Jaworzno" (1995) and "Piast" (1994) Coal-Mines and constructing the plant utilizing after-coal waste in Gliwice (1993—1994);
- 184 investments dealing with the water protection. For example, building the plant of groundwater desalination at the "Śląsk" Coal-Mine (1997), constructing sewage-treatment plants in Katowice, Ruda Śląska and Racibórz;
- 21 investments dealing with the noise protection. For example, creating protection zones in the "Miasteczko Śląskie" Zinc Smelter (2000) and the "Sośnica" Coal-Mine (1995).

The catastrophic ecological situation together with the deplorable state of health of the population of the region naturally prompts questions as to what protection and preventive measures are undertaken by the local and regional ruling powers, by the inhabitants themselves, by the political and social organisations. There is no doubt that throughout the whole period of "real socialism"<sup>5</sup> the successive provincial authorities consistently encouraged the

<sup>5</sup> The term "real socialism" is used in Poland as a description of the political and economic formation in this country in the period 1944—1990. The synonymous terms "dependent socialism"



central powers to intensive investment in Upper Silesian heavy industry and successfully forwarded plans for successive site decisions. This approach, leading as a consequence to overconcentration of industry basing on anachronistic technologies, had a very specific motivation. For in this very simple manner the local and regional administrative and political élite strengthened their position in the central configuration of power. In those past years, in the period of fetish worship of industrial giants, having them situated in a region not only had a symbolic-prestige significance, but also raised the status of the regional élite in the central power set-up. Quite certainly this factor had a governing influence on industrial site location policies, so that in the territory of this modest-sized Voivodship were constructed the largest steelworks in Europe, the largest milk processing plant, the largest coking plant, etc. And not so very long ago the building of yet further gargantuan plants was being planned — the largest petrochemical plant in Poland and an enormous mine. These investment projects were implemented — or were planned to be implemented — most often against the wishes of the local community, powerless and marginalised. From study of the existing documents and the results of numerous investigations and observations, it is possible to formulate a general thesis of the overall state of the regional system. Ecologically it can only be classified as a disaster area (natural system), with its infrastructure woefully neglected (technical system), economically backward, with a deformed employment structure it is treated by the central political powers and the regional industrial lobby as a “raw materials enclave for the country” (production system), it is socially disintegrated while a considerable proportion of a regional community has been subjected to a process of cultural uprooting (socio-cultural system). Finally, it is characterised by a chaotically created architectural-town planning space (settlements system). This spatial chaos is seen not only in the irresponsible mixing of housing areas in the immediate vicinity of heavy industry, in the degradation of the older urban districts unrestored and unimproved over the years and now technically moribund, in the faulty transport and communications arrangements, but also in the

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and “communism” are also sometimes used. The preceding adjective “real” indicated clearly the distance separating the socialism variant from the ideal socialism, set out in the writings of 19th and 20th-century thinkers (Karl Marx, Frederick Engels, Rosa Luxemburg, Nikolaj Bucharin). It also shows up the spectacular differences between East European socialism and the democratic socialism practiced in certain Western hemisphere countries, in particular in Scandinavia. The period of “real socialism” in Poland began with the seizing of power by a small group of communists with the backing of the Red Army which liberated our country from the Nazi occupation. Thus Poland became one of the victims of the export of the Soviet socialist revolution. This experimental period in the history of our country was closed by first free presidential election which took place in November and December of 1990 and the election of Lech Wałęsa to this office.

existence of large housing complexes of an acultural and asocial nature, deprived of elementary services. Chaos in the spatial layout of this region is also associated with the unprincipled exploitation of the coal seams, occurring in the central part of the Upper Silesian Industrial Area. As an example, during the period 1977—1983 in the Bytom extraction area 53,989 tremors were noted and in this same period 36 rock bursts took place while the results of 9 of these were catastrophic. Between September 1976 and June 1980, 1,739 buildings in this area were damaged, while from 1945—1980 it is estimated that the whole town had to write off 650 buildings with 3,600 apartments, ruined due to the effects of underground mining. The tragic effects of the rock burst of June 4, 1982 caused serious damage to 565 residential houses. Here it might be worth recalling for comparison that wartime damage destroyed only 478 residential houses.

The Silesian syndrome, i.e. serious degradation of the regional natural environment system, technical, socio-cultural and also political systems is frequently said to be the consequence of internal colonisation processes. This expression was formulated on the foundations of the development theory popular in sociology and economy, the theory of dependent development (*teoría de la dependencia*). Without delving into the subtleties and complexities of this theory, it may be said that it refers to asymmetric economic, political and cultural relations between the dominating region, personified by the central political establishment, and the peripheral region, represented by the regional and local ruling élites. At the same time it is assumed that the product created in the peripheral parts of the country, instead of being very largely reinvested in these regions, are arbitrarily, and in ethical categories unjustly, appropriated and allocated by the country's decision-making, political and economic central authorities. This system of disposal is best illustrated by the financial allotments of 1990. The state budget envisaged income derived from the Katowice Voivodship at a total of 29.5 billion, 75% of this sum (22 billion) was taken into the central budget as taxes from enterprises, of which the founding body was a minister. Of the remaining sum (6.7 billion) — 3.1 represented the share of the central budget in the Voivodship's own incomes, the remainder then at the disposition of the provincial authorities was a mere 3.6 billion zlotys. Certainly a part of the sums paid into the central budget funds returned to the Voivodship in the form of grants and allocations, but these sums are disproportionately low relative to those transferred earlier to the centre.

The concept of *internal colonisation* refers in essence to four basic aspects of the relation between the centre and the periphery. In the economic sphere this involves a non-equivalent economic exchange and a disproportionately high transfer of wealth created in the periphery to the centre: in the political sphere, this is seen as the asymmetry of political pressures that is a constant

pressure on the regional élite while the reverse action is weaker; in the cultural sphere this is manifested as *symbolic violence*<sup>6</sup> accelerating the process of cultural uprooting; in the ecological sphere, this means keeping the dirty and high-waste technologies in the peripheral parts thanks to sector preferences and suitable financial dispositions.

The thesis of internal colonisation of Upper Silesia, however, has given rise to justifiable controversies. Antoni Kukliński writes that “while talking with the inhabitants of Silesia, they express their regret that for many years this region has been a colony of Poland because it has been exploited. Such a statement can be proved in a sense. However, we can also prove quite the opposite statement that Poland has been a colony of Upper Silesia because for a long time this region has accumulated excessive investments which could have been better used in other regions of Poland... For 40 years Silesia followed the suicidal policy, adding industries which made people’s living conditions worse”.<sup>7</sup>

Without diminishing the importance of the role of internal colonisation in the responsibility for infrastructural and economic neglect, socio-cultural marginalisation, cultural disorientation, ecological and urban-architectural degradation, it is useful to call to mind the consequences of the so-called long duration. For a region is a territorial and socio-cultural unit in which are manifested long-lasting historical processes and secular trends. Within the bounds of this region there exist until today the effects, having their own dynamic power, of the chaotic 19th and 20th-century urbanisation and industrialisation that spread across this land. Even today, at any rate to a certain degree, and especially among the autochthonic population, are upheld standardised models of social mobility and professional advance and also elements of a crystallising regional and local cultural ethos. Through many more years Upper Silesia will suffer the consequences of the rapacious exploitation of its raw materials, which was certainly not started in the communist People’s Poland but has lasted for nearly two centuries.

What is more, the European economy has a deeply grounded market economy character while Poland aspiring to join it is hindered by all the negative characteristics inherent in the “latecomer’s syndrome”. The last one to be accepted into an already functioning institution or structure can normally — though not always — exercise only a very limited influence on the shape of this institution, and must accept a great number of unfavourable

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<sup>6</sup> P. Bourdieu, J.-C. Passeron, *La reproduction. Elements pour une theorie du systeme d’enseignement*, Paris 1970.

<sup>7</sup> A. Kukliński, “Przeegrany Śląsk?” [“Lost Silesia?”], *Dziennik Zachodni*, No. 90, 1994.

rules of the game. Two of these appear to be particularly significant. This refers above all to the continually renewed and grossly unequal — on the world-wide scale — accumulation of wealth and reproduction of indigence together with the determinedly pursued principle of profit maximalisation, which are not compensated by generous gestures (cancelling of debts, disinterested help from the rich countries, educational actions undertaken by them in the peripheral and semi-peripheral countries, etc.). The established rules and principles with which the “outsiders” are confronted, create a situation where only a modernisation project based on imported capital and technologies can offer a chance — though no guarantee — of any genuine advance in the unfavourable circumstances the long grounded peripheral position of a country and a region and the mimetic development — as with certain exaggeration it may be termed — serves to worsen the unfavourable economic, political, social and cultural effects and tendencies. In the case of the Katowice Voivodship this is a very real danger; this region is undoubtedly a peripheral part of a peripheral European country, and thus we have here to deal with a “second generation latecomer syndrome”.

Tomasz Nawrocki  
Marek S. Szczepański

### Środowiskowe podstawy świadomości ekologicznej

#### Streszczenie

Artykuł przygotowany przez T. Nawrockiego i M. S. Szczepańskiego składa się z dwóch komplementarnych części. W pierwszej z nich zostały pokazane, w perspektywie *dlugiego trwania*, podstawowe uwarunkowania sytuacji ekologicznej województwa katowickiego. Autorzy, odwołując się do dokonań teorii rozwoju zależnego (*teoria de la dependencia*), zwracają między innymi uwagę na znaczenie funkcjonowania kolonizacji wewnętrznej dla postępującej degradacji regionu. W części drugiej przedstawiono (w postaci danych statystycznych) ogólną sytuację ekologiczną województwa oraz stan prowadzonych inwestycji proekologicznych.

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### Umweltliche Grundsätze des ökologischen Bewußtseins

#### Zusammenfassung

Der von T. Nawrocki und M.S. Szczepański vorbereitete Artikel besteht aus zwei komplimentierten Teilen. Im ersten von ihnen wurden die in der Perspektive der Langdauer, grundsätzliche Bedingungen der ökologischen Situation der Wojewodschaft Katowice vorgezeigt. Die Autoren haben sich auf die Durchführung der Abhängigkeitentwicklungstheorie (*teoria de la dependencia*) berufen und die Aufmerksamkeit auf die Bedeutung des Funktionieren der Inenkolonisation für die fortschreitende Degradation dieser Region, gerichtet. In zwiten Teil stellte man (in Gestalt von statistischen Daten) die allgemeine ökologische Situation der Wojewodschaft, wie auch den Zustand der geführten proökologischen Investitionen vor.