

# Slovenia and its Adapting to European Processes of Sustainable Development

Dušan Plut\*

Presented are basic characteristics and problems of adapting of Slovenia to contemporary trends of environmental-developmental policy of the European Union (EU). Slovenia is marked with a moderate degree of environmental pollution and exhausted natural resources. Even after the gained independence of 1990, the state of environment has not been significantly improved. A comparison of the indicators of environmental quality between Slovenia and the EU states shows that the quality of environment in Slovenia is generally below the average of the EU. A sustainably planned economic development is necessary for Slovenia also from the aspect of economy.

**Key words:** sustainable development, state of environment, environmental pollution, European Union, Slovenia.

## Slovenija i njezino prilagođavanje procesu održivog razvoja

U ovom su radu prikazana osnovna obilježja i problemi prilagođavanja Slovenije suvremenim trendovima u politici zaštite okoliša Europske unije (EU). Sloveniju obilježava umjerena stopa onečišćenja okoliša i iscrpljeni prirodni izvori. Ni nakon osamostaljenja 1990. stanje se okoliša nije bitno poboljšalo. Primjeri pokazatelja kvalitete okoliša Slovenije i država EU pokazuju da je kvaliteta okoliša u Sloveniji općenito ispod prosjeka EU. Gospodarski razvoj zasnovan na načelima održivog razvoja, dakle, nužan je za Sloveniju i sa ekonomskog stajališta.

**Ključne riječi:** održivi razvoj, stanje okoliša, onečišćenost okoliša, Europska unija, Slovenija

## INTRODUCTION

Most of European economic experts nowadays agree that the protection of environment and natural resources will be one of the key developmental factors in making decisions in the economy of the EU states in the forthcoming decades. This is also manifested in the 5<sup>th</sup> action environmental programme of the EU (1993-2000), which represents the new European strategy for environment and development (Commission of the European Communities, 1993). In contrast to the past action environmental programmes of the EU, the last one proceeds from the sustainable paradigm which emphasizes the dependence of economy on environmental quality and natural

\* Dr. sc., izv. prof., Oddelek za geografiju Filozofske fakultete, Aškerčeva 2, 1000 Ljubljana, Slovenija/Slovenia.

resources, and the responsibility towards the future generations (World Commission on Environment and Development, 1987). Thus, the EU became the first macro-region in the world which adopted a model of sustainable development as the basic, future model of economic development and the way of living. The EU environmental programme (1993-2000) is made as a complex developmental programme which, by means of legal, economic and other instruments of politics, gradually introduces the sustainable principles into the manufacturing industry, power production, transport, agriculture, tourism and households (Commission of the European Communities, 1993). The sustainable principles have been gradually introduced into the policy of endogenous regional development which proceeds from the premise that a more consistent and environmentally friendly development of all European regions form a basis for the human progress, which is in the interests of the states and Europe as a macroregion. The agricultural policy, too, has gradually changed; the support of the hitherto policy, for the highest possible yields, the intensive type of farming, and subsidizing prices of agricultural products, has been gradually substituted with the support for sustainable agriculture where yields of healthy food are smaller, soil fertility is permanently preserved, and the cultural landscape and the settling of rural areas is being maintained. The lowest level of sustainability in the EU is present in the still prevailing road transport (individual, motorized transport); although the transport emissions have reduced, the motorization and the transport use of space still increases. Thus, the principles of sustainability become effective in different ways in individual activities, but the process of improving the dwelling and working environment is present everywhere. Concurrently, the EU gradually introduces the principles of sustainability into the policy and practice of import, which means that also the exporting states will have to adhere to the principles of sustainability in the organization of their own production and sale on the common EU market.

Slovenia (20,256 sq km, 2 million population, GDP per head 9,378 USD in market prices in 1995) is economically, technologically and commercially closely connected with the EU. In 1995, the European Commission assessed Slovenia as a suitable candidate for becoming a full member of the EU; therefore, it will have to adapt its environmental policy, too, to the EU standards, and significantly improve the quality of its environment and the use of natural resources. Slovenia, a small European country from the aspects of territory, population and economy, is actually forced to follow the global and European processes carefully, and adequately and timely respond to them. As to the average of indicators of the demographic, economic, social-infrastructure and environmental development, i.e. the indicators of the quality of living, Slovenia ranked in the mid-90's, together with Greece and Portugal, into the bottom group of the EU states.

### **BASIC CHARACTERISTICS OF ENVIRONMENTAL POLLUTION IN SLOVENIA**

Most of the indicators of emissions and environmental quality rank Slovenia among the moderately polluted European countries, where environmental degradation is higher than could be judged from the achieved degree of economic development

and the income per inhabitant. Geographical diversity of Slovenia, with a contact of four macrogeographical units of Europe (the Alps, Mediterranean, Pannonian lowlands and Dinaric Mountains), together with the quantities of emissions determine different levels of degradation of Slovenian regions (Gams, 1971:7; Plut-Špes, 1997:100). Since the intensive and environmentally unfriendly socialist industrialization ended as late as in the 80's, the landscape-ecological effects of the long-lasting industrial and energy-caused pollution in individual regions are very explicit and partly irreversible (Plut, 1995:164). Different emissions accumulate in the individual landscape-forming elements and landscape-vulnerable regions, while among the landscape-degradational processes, air pollution (pollution of air in towns, forest degradation), water pollution (particularly of the rivers) and unorganized dumping of wastes come to the front.

Most heavily polluted are the valley and the basin ecosystems (Zasavje region, Šaleška dolina valley, Ljubljanska kotlina basin, Celjska kotlina basin and Mežiška dolina valley) which are, due to the weaker self-purifying capacities and abundant emissions, the most landscape-vulnerable (Plut, 1995: Ministrarstvo za okolje in prostor, 1996).

On the basis of available data and the comparison of environmental degradation level with European states, it is assessed that the economic losses and other costs owing to environmental pollution in Slovenia cause the annual loss of 4-6% of GDP (Potočnik et al., 1995:99). Air pollution is still outstanding and surface waters are also heavily polluted. Typical is the increase of wastes' quantities, which are being dumped on the numerous, unsuitable illegal dumps. According to estimations, there are more than 50,000 minor illegal waste dumps in Slovenia (2-3 dumps/sq km, or, about 10 illegal dumps per settlement) (Šebenik, 1994:119). Although gradual improvements have been registered in classical air pollution (SO<sub>2</sub>, smoke), the emissions of SO<sub>2</sub> per inhabitant (108 kg in 1988; 60 kg in 1996) are still high above the average of the EU (Hidrometeorološki zavod RS, 1996).

The general state of environment in Slovenia has not improved after 1990, in spite of some cases of eliminating individual pollution focuses (Lah, 1996:176). Namely, additional emissions into environment, particularly owing to transport (the increase of motorization and transit transport), increase faster than the successful revitalization of environment.

Geographical environment and natural resources of Slovenia are, thus, moderately exhausted, while regionally in individual areas, they are heavily exhausted, but the irreversible landscape effects have not prevailed yet. Typical are great consumption of natural resources per inhabitant, slow reduction of traditional air emissions, stabilization of water resources' pollution on a high level, and the unsolved problems of all kinds of wastes. In contrast to the EU states, the environmental-protection investments in Slovenia began to decline again after 1995. Prevailing are the legislative instruments of environmental policy; however, there is a lag in this field, too, in adapting to the contemporary European environmental legislation. The improvement of dwelling, working, partly also transport conditions, and spending leisure (with the exception of the Mediterranean and partly the Alps) is significantly higher and faster in the EU than in Slovenia.

## COMPARISON OF EMISSIONS AND ENVIRONMENTAL QUALITY IN SLOVENIA WITH THE EU MEMBERS

Among the indicators of air emissions, the emissions of carbon dioxide (CO<sub>2</sub>) are the most crucial for the planet warming up. Although the quantitative contribution of Slovenia is insignificant (14 million mt of CO<sub>2</sub>/year), Slovenia with 7 mt of CO<sub>2</sub> per-head in 1994 substantially exceeded the world average (4.1 mt); nevertheless, it still remains below the average of the EU members (9 mt). From among the EU members, France Italy, Portugal, Spain and Sweden produced less emissions of CO<sub>2</sub> per head than Slovenia; France and Sweden particularly due to a greater percentage of nuclear energy (Table 1).

Table 1: Indicators of air emissions for the EU members and Slovenia  
(first half of the 90's)

Country	Total CO <sub>2</sub> emissions 1994 (million mt)	CO <sub>2</sub> per head emissions 1994 (mt)	CO <sub>2</sub> emiss. total growth 1990-94 (%)	Total SO <sub>2</sub> emissions 1990 (000 mt)	SO <sub>2</sub> per head emissions 1990 (kg)	Total NO <sub>x</sub> emissions 1990 (000 mt)	NO <sub>x</sub> per head emissions 1990 (kg)
Austria	57	7,0	-1,6	90	11	222	28
Belgium	117	11,6	5,9	420	42	300	30
Denmark	63	12,1	18,9	181	35	283	54
Finland	61	11,9	13,9	260	51	252	49
France	349	6,0	-5,0	1200	21	1487	26
Greece	78	7,5	6,7	500	49	150	15
Ireland	32	8,9	3,3	187	52	128	36
Italy	393	6,9	-2,3	2406	42	1996	35
Luxembourg	12	29,9	-2,8	10	25	15	38
Germany	897	11,0	-9,5	939	16	2605	44
				(FRG)		(FRG)	
Netherlands	164	10,7	4,9	208	40	552	36
Portugal	45	4,6	13,9	211	21	142	14
Spain	229	5,8	9,5	2190	56	849	22
						(1985)	
Sweden	56	6,4	7,5	128	15	396	46
Great Britain	550	9,4	-5,0	3780	65	2779	48
<b>SLOVENIA</b>	<b>14</b>	<b>7,0</b>	<b>5,1</b>	<b>195</b>	<b>98</b>	<b>48</b>	<b>24</b>

Sources: Cole, 1996; Bundesministerium für Umwelt, 1995;  
Ministrstvo za okolje in prostor RS, 1996;  
World Resources 1994-95.

As to the emissions of sulphur or sulphur dioxide (SO<sub>2</sub>), Slovenia produced 98 kg of SO<sub>2</sub> per head in 1990, which was significantly more than in the EU members. The closest to Slovenia as to the emissions of SO<sub>2</sub> per head was Great Britain with 65 kg, and the lowest emissions of SO<sub>2</sub> per head, 11 kg, were registered in Austria. The emissions of SO<sub>2</sub> in Slovenia reduced by 1995, owing to the beginning of operation of desulphurizing filter at the fourth block of the thermal-power plant Šoštanj (the biggest TP in Slovenia), and smaller contents of sulphur in fossil fuels, but they still amounted to about 60 kg of SO<sub>2</sub> per head. In contrast to the emissions of SO<sub>2</sub>, the emissions of nitrate oxides (NO<sub>x</sub>) in Slovenia increase, yet, as to the quantity per head /24 kg in 1990) they are significantly below the average of the EU, but larger than in Greece, Portugal and Spain.

Table 2: Some environmental indicators for the EU members and Slovenia (first half of the 90's)

Country	Forest area percentage 1993 (%)	Protected area percentage (Cat. IIUCN) 1994 (%)	Number of operating power I-V generating nuclear reactors 1993	Nuclear reactors/ 100 000 sq km 1995	Percentage of energy generated in NP's 1995 (%)	Quantity of el. household waste per head 1991 (kg)	Household waste percentage - dumped on dumps 1990 (kg)	Household waste percentage - burnt 1990 (%)
Austria	46,4	23,9	0	0	0	316	67	12
Belgium	21,3	2,5	7	23,3	56	349	--	--
Denmark	10,3	32,2	0	0	0	466	30	54
Finland	68,6	8,1	4	1,2	30	504	77	2
France	27,1	10,3	56	10,1	76	303	47	37
Greece	19,8	1,7	0	0	0	314	--	--
Ireland	4,6	0,7	0	0	0	311	--	--
Italy	22,5	7,6	0	0	0	301	89	6
Luxembourg	--	13,9	0	0	0	466	--	--
Germany	30,0	25,8	20	5,6	29	375	--	--
Netherlands	9,4	9,4	2	4,9	5	465	43	33
Portugal	35,7	6,3	0	0	0	231	--	--
Spain	32,0	8,4	9	1,8	47	322	74	5
Sweden	62,2	6,8	12	2,7	40	317	44	40
Great Britain	10,0	20,9	35	14,3	38	357	70	12
SLO- VENIA	53,0	7,5	1	5,0	39	314 (430) (1995)	90	0

Sources: Cole, 1996; Bundesministerium für Umwelt, 1995;  
 Ministrstvo za okolje in prostor RS 1996;  
 Zavod za statistiko RS, 1993;  
 World Resources 1994-95;  
 Der Fischer Weltatmanach 1997; Winkler, 1997.

As to the forest area, Slovenia ranks among the European countries with the largest percentage, since 53% of its territory was covered with forests in 1993. Greater percentages of forest areas in the EU countries in 1993 were only in Finland (68.6%) and Sweden (62.2%) (Table 2). These areas further increase in Slovenia, and according to some estimates, forests already cover 54% of the territory. Notwithstanding the positive environmental role of forest, it should be emphasized that due to the overgrowing of cultural landscape, environmental pressures on other areas increase, while the overgrowing of rural areas is accompanied with the emigration of inhabitants. Environmental indicators show that Slovenia was, as to the percentage of protected areas (about 8% of the territory, and according to some stricter foreign estimates, only a little more than 5%), below the average of the EU (11% of territory) in 1994, and it definitely lagged behind the partly Alpine countries with a similar percentage of the higher, less inhabited world. It lagged most heavily behind Denmark, Austria, Germany and Great Britain.

Slovenia belongs to the European countries with a nuclear power plant, temporary depositing of the used up nuclear fuel, and an abandoned uranium mine, which means a heavy spatial concentration of nuclear objects. Austria, Denmark, Greece, Ireland, Italy, Luxembourg and Portugal do not have an operating nuclear reactor; yet, as to the percentage of generated electrical energy in nuclear power plants, Belgium, France, Spain and Sweden have been before Slovenia (where 39% of total generated power or one quarter of consumed power is of nuclear origin). By the quantity of household waste per head/year at the beginning of the 90's, Slovenia was still slightly below the average of the EU members, while in the mid 90's, Slovenia was, with the produced quantity of household waste per head (430 kg), already above the average of the EU. In the first half of the 90's, the quantity of household waste increased in Slovenia by 7% per year; in Austria, for example, it was unchanged in that same period. At the beginning of the 90's, all the countries of the EU made good use of a greater part of the collected household waste (secondary raw materials, composting, power production) than Slovenia (10% only); Denmark, with more than two thirds of recycled household waste, was the most efficient. On the territory of the EU, the old environmental pollution focuses or illegal waste dumps are much less numerous, on average. In Slovenia, dumping wastes on waste dumps is still the prevailig way (90%) of handling household waste. While in Denmark, France, the Netherlands and Sweden, only about a mean half of wastes were dumped already at the beginning of the 90's, and the remaining wastes were used as secondary raw materials or source of energy (burning).

#### **ASSESSMENT OF THE EUROPEAN COMMISSION (AGENDA 2000) ON THE STATE OF ENVIRONMENT AND ENVIRONMENTAL POLICY OF SLOVENIA**

On July 15, 1997, the Commission of European Union published *Agenda 2000*, which comprises the guidelines of the EU functioning and the opinion about 10 candidates from Central and Eastern Europe that applied for full membership (Commission of European Union, 1997). By the readiness or the process of qualification (by political and economic standards) for a possible full member, the Commission made a positive judgement about the following countries: Czech Republic, Hungary, Poland, Estonia, Slovenia and Cyprus (a confirmation of the former positive opinion). Among

the positively judged countries, Hungary, Poland and Czech Republic have chosen, according to the Commission opinion, the most suitable national strategy to satisfy all the conditions for potential membership. The remaining two countries, Estonia and Slovenia, will have to put forth "considerable additional efforts" by the opinion of the European Commissioner for foreign affairs, van den Broek. Notwithstanding the positive assessments of the achieved level of economic transformation, the authors of *Agenda 2000* informed the governments of the 5 selected candidates from Central and Eastern Europe, that they would have to do a lot (negotiations and referendums) before their possible joining the EU, so that their economies could be successfully integrated into the operation of the common market. Also the other associated members could be, in case of very favourable developmental and other achievements, ranked into a group of the positively judged states.

In the mid-90's, GDP in Slovenia amounted to 20.1 billion ECU (expressed in purchasing power parity), which only represented 0.3% of GDP in the EU (6,441.5 billion ECU). In 1995, GDP per head in Slovenia amounted to 10,100 ECU, or, 59% of the EU average. In comparison with the other positively judged states from Central and Eastern Europe (with the exception of Hungary), the growth of GDP in Slovenia has been slower after 1993 (by slightly more than 1 percent) and yearly amounted to 3.8%, on average, in the 1993-96 period. The Commission established that market competitiveness of the other countries in transition increased in comparison with Slovenia, particularly due to the lower labour costs (Commission of European Union, 1997:23).

As to the state of environment, the Commission establishes that Slovenia has not some explicit or territorially extensive areas of polluted environment. However, it is emphasized that Slovenia has important and acute environmental problems which only further increase in certain cases. Slovenia has started introducing the EU standards, yet, it is already in considerable time lag. The problem lies also in the depositing of radioactive waste and, by the opinion of the Commission, Croatia which benefits the power production from the nuclear power plant Krško, should take over a part of this radioactive waste. The mode and location for permanent deposition of the used up nuclear fuel has not been chosen yet, since further analyses are still required. A special attention should be paid to nuclear safety, and supported is the independence of institutions for surveying the nuclear safety.

Slovenian environmental legislation is, by the Commission opinion, at the beginning only, of adapting to the EU legislation. Besides, greater investments will be required for solving the problems of waters, air and wastes. It will be necessary to increase the means of the state budget for environmental investments, to adopt the new environmental legislation faster, and to develop economic instruments of environmental policy. The Commission established that the financial means for the protection of environment and nature were very limited, quite significantly below the average of the EU, and below the investment demands for effectuating the national environmental action programme. The adapting of Slovenia to the EU guidelines in the field of environment is possible in the medium-term period, in case that the plan on executive environmental legislation (sub-laws) be carried out, the national action programme rapidly implemented, and the environmental strategy applied. An effective legislative adapting to the EU guidelines in all the individual environmental fields (e.g. as to the

treating of sewers, drinking water, the handling of waste, air pollution) will only be possible in long-term period and will require significant increase in environmental investments and administrative capacities.

Contrary to the opinion of numerous national experts, the opinion of the European Commission is that agriculture is not among the most critical fields in Slovenia in its adapting to the EU standards. However, the opinion of national experts is that Slovenian agriculture is one of the most sensitive and trying fields of adapting to the EU, owing to small farms (6 ha on average), fragmented lands, and limited natural conditions for agricultural production. Expected is also the increase in competitiveness due to the cheaper food, imported from the EU. By the opinion of the Commission, the environment, agriculture and power production are the central fields in Slovenia where numerous further measures and additional financial means will be required.

### EUROPEAN ENVIRONMENTAL-DEVELOPMENTAL CHALLENGES AND SLOVENIA

The improvement of dwelling and working conditions has become a common strategic developmental characteristic of European economy and the EU regional policy, and also a basic element of developmental plans in individual countries. In the first half of the 90's, following the Maastricht documents, the paradigm of sustainable development became a basic developmental-environmental doctrine of the EU. Adherence to environmental principles and their integration into the production and products is an ever more frequent condition of entering for the non-member countries which export to the environmentally ever more sensitive and aware European markets. The integration of environmental principles into production and consumption is assessed as an investment into the increased competitiveness. According to the OECD investigations, the environmental industry will become the most important market, and the ecoindustry will become one of the fastest growing industrial branches.

Slovenia has a precious and ecologically very sensitive nature which is the irreplaceable basis of existence and progress. Besides, Slovenia is in the period of transition, which demands well pondered but thorough changes, adapted to contemporary European developmental-environmental processes. Due to a multi-layer, and after the gained independence further strengthened economic, value-related, political, safety-related and cultural integration into European space, the adapting of Slovenia to contemporary environmental-developmental processes is important for its existence, and inevitable.

In relation to most of the EU countries, Slovenian economic, technological, social and environmental position, at the anticipated integration into tighter European connections is significantly worse in the mid-90's than the position of Austria, that is due to developmental and other lags resultant from the socialist period. Yet, taken as a whole (in spite of certain lags, especially in the economic growth), its position is still the most favourable if compared with the other European countries in transition. The closest to Slovenia in development is the Czech Republic, though it suffered a severe financial crisis in 1997. In the years following independence, Slovenian economy has



been determined with a double transformation: from socialist to capitalistic market economy, and from regional to national economy. The contemporary European developmental trends show that the following years should be determined with a planned transformation of industry from the raw-material and energy wasteful and emission abundant industry, into the material-energy effective production patterns with the planned recycling and smaller amounts of emissions.

Thus, Slovenia has to face the challenges of sustainability and European integration after the collapse of the socialist system and Yugoslavia, and several-years-long depression crisis due to transformation. Its GDP per head is about two-times lower than the EU average, the population is ageing, social and regional conditions are acute, and present are numerous old pollution focuses. These problems are further aggravated with the lasting negative human interventions into Slovenian landscape ecosystems (particularly into the river-basin ecosystems) and the explicit, several decades present material-energy pollution and emissions. The Ministry for Environment and Space (Ministrstvo za okolje in prostor, 1996) anticipates further intensification of the pressures on the environment with the restoration and growth of economic activities.

Besides the effects of information society development in the EU and contemporary regional policy and decentralization schemes, the Slovenian adapting will have to take into account also the adjustments in the fields of transport infrastructure, opening new jobs, improving the quality of living and environmental protection. A new European developmental model anticipates the development of structural connectedness between the problems of environmental protection and the solving of unemployment problems, which means to achieve better economic growth at the concurrent increase of employment and the reduced use of natural resources/GDP. Slovenia lacks an elaborate national environmental plan, as well as a national developmental strategy, a new spatial plan, and effective measures for the faster introduction of economic instruments of environmental policy into the economy and households. However, positive and Europe-oriented are certain measures for reducing air pollution (particularly SO<sub>2</sub>), sustainable plans for regulating river systems and certain orientations in the strategy of handling wastes. The state of environment is unsatisfactory from the aspects of health and economy, while the level of pollution of individual landscape-forming elements and also the unreasonable use of natural resources represent ever more a limiting factor of development. Concurrently, the situation in the field of waters and wastes is still worrying, and the percentage of protected nature is only modest in comparison with the European average.

Contemporary European experiences have proven that a suitable environmental state policy can offer new jobs (stimulation of investments and co-financing of the state for "green jobs") by means of the economic environmental instruments and a tax reform with which labour taxes are lower, but taxes for energy consumption, polluters and waste producers are higher. Without an increase in percentage of the state budget for the protection of environmental and nature (from 0.5% of GDP in 1996, a yearly increase of 0.15-0.20%, at least, by the year 2000) and systematically organized financing of the established Ecological-Developmental Fund, Slovenian enterprises will lag even more behind the contemporary industrial processes of developed countries where dwelling and working conditions are being constantly improved and, thus, diminish their own medium-term and long-term competitive capacity.

It is assessed on the basis of experiences of developed countries that it will be necessary to invest in Slovenia for the beginning of proper protection of environment, at least 1.5% of GDP annually, two thirds of which, approximately, should be the means of the state budget (Potočnik et al., 1995:100). European experiences also confirm that a greater financial support of the state is necessary at the beginning of a planned environmental policy, and later on, its share diminishes at the cost of increased share of private means (enterprises and households). The investments into the protection of environment should reach about 1% of GDP already by the year 2000, which should reduce the energy consumption/GDP and pollution, and stimulate the growth of environmental industry and services. Investing means into the protection of environment has already become a locational factor and an economic activity. These are actually developmental investments; therefore, the greatest possible coordination is required, of developmental, social and environmental goals of Slovenia.

Because of the strained economic and social conditions, the pressures are ever more intense in Slovenia - contrary to the contemporary developmental aims of the EU - to chose the unsustainable way of restoring economy and the policy of developmental axes, which is not in favour of a balanced regional development of Slovenian regions. In the sensitive, first period of independence, Slovenia preventively decided for a higher degree of centralization, which is nowadays, in the changed safety-strategic and developmental moment, an ever greater obstacle to the sustainable, European model of regional development. This model is based on administrative decentralization and a greater role of endogenous regional sources. The negative effects of over-centralization and inconsistent regional policy in Slovenia are most negatively manifested in developmental and population-related impairing of the situation in Slovenian rural areas. Particularly the regions along the Slovenian-Croatian border lag behind, which is a developmental obstacle and not a developmental opportunity for the areas on both sides of the border, also due to the unsettled relations between the two states.

The building of the contemporary open economy will require in Slovenia, too, that a process of the business and political decentralization be taken into consideration, which has already begun in certain countries of the EU as an antipode to the Bruxelles bureaucracy. Polycentrism and regionalism are impeded by the centralization of Slovenia, since the latter excludes the possibility of cooperation on equal terms of the inhabitants of the so-called marginal regions. Although Slovenia has a long tradition of polycentric development, the regional and educational differences between the regions further increase, and they are accompanied with the processes of emigration and the shrinking of cultural landscape. People move from the mountainous areas to the already heavy polluted valleys and basins. Besides, to the classical areas of developmentally weak rural parts of Slovenia join the old industrial-mining areas (Zasavje, Maribor, Mežiška dolina valley, Jesenice, Celjska kotlina basin) which are problematic from the aspects of development and emissions.

With the transport agreement of 1993 between the EU and Slovenia, the possibility was missed for the negotiations with which Slovenia could environmentally properly limit the transit cargo road transport and make use in the negotiations of its favourable transport-geographical position. The determination for clean environment is a strategic advantage of Slovenia, and it shall not agree with an unlimited transit of trucks across its territory, which certainly does not mean a declaration of transport isolation

(Svetličič, 1995). Since Slovenia considerably lags in the field of economic infrastructure (road, railway, power, telecommunication and information connections), the coordinated, and regionally and environmentally well pondered improvements of infrastructural networks will be necessary. It is urgent to reorient cargo transport from the overfrequent roads to the railway, as well as to effectuate better the public transport (as a qualitative alternative to the still fast increasing car transport), railway transport within a certain radius of towns, and biking, together with a proper infrastructure (a network of bikeways).

## CONCLUSION

Slovenia, which nowadays ranks among the medium polluted European countries, built its economic development in the socialist period on using up the natural resources and polluting the landscape forming elements, especially the air, water and forest. After the gained independence of 1990, the environmental bases of economic development have been further neglected, though in the slightly mitigated form. As in the other post-socialist European countries in transition, the threat of too narrowly comprehended market at the cost of environment exists in Slovenia, which is due to the problematic economic-social position. Therefore, the task of enforcing the principles of sustainable development is even more important, and the search for coordination between development and environmental protection is very difficult. Different regions of Slovenia differ a lot as to the landscape vulnerability and the level of pollution, therefore, it is necessary to take into account their typical landscape features for their environmental and developmental revitalization. From the spatial-environmental and the regional aspects, the matter of priority in approaching and adapting Slovenia to European developmental concepts is to introduce the principles of sustainability into the economic, regional, agricultural and transport policies. Irrespective of the decision of Slovenia as to its (non)membership in the EU, Slovenia is, due to its integration into European economy (two-third share in goods exchange) and the level of cooperation with the EU countries, actually forced to adapt its economic, developmental, infrastructural and environmental (partly also the population) policies to the basic strategic and developmental (economic, technological, infrastructural, sustainable, etc.) orientations of the EU.

## REFERENCES

- Bundesministerium fuer Umwelt. 1996. Umweltsituation in Oesterreich, Wien.
- Cole, J., 1996: Geography of the World's Major Regions, London-New York.
- Commision of the European Communities. 1993. Towards Sustainability. Luxemburg.
- Commission of European Union. 1997. Agenda 2000 - Commission Opinion on Slovenia's Application for Membership of the European Union. DOC 97/19, Brussels.
- Der Fischer Weltatmanach '97. 1997. Fiscer Taschenbuch Verlag, Frankfurt.
- Gams, I. 1991: Nekateri geografske stalnice Slovenije, Geografski vestnik, 63, 7-24.
- Hidrometeorološki zavod RS. 1996. Onesnaženost zraka v Sloveniji v letu 1995. Ljubljana.
- Lah, A. 1996: Pogled v prostor in čas - Slovenija na pragu informacijske družbe, Geographica Slovenica 28, Ljubljana.

- Ministrstvo za okolje in prostor RS. 1996. Predlog poročila o stanju okolja 1995. Poročevalec DZ RS XXIII/41. Ljubljana.
- Plut, D. 1987: Slovenija - zelena dežela ali pustinja? Krt, Ljubljana.
- Plut, D. 1995: Brez izhoda? Svetovni okoljski procesi, DZS, Ljubljana.
- Plut, D. Špes, M. 1997: Slovenian Rural Areas in the Light of Landscape Vulnerability, Geokonfin 1997, Valtice, 100-104.
- Potočnik, J. i drugi. 1995: Približevanje Evropi - rast, konkurenčnost in integriranje, Strategija gospodarskega razvoja Slovenije, Zavod za makroekonomske analize in razvoj, Ljubljana.
- Svetličič, I. 1995: Multinacionalna podjetja in razvojna strategija Slovenije, Strategija gospodarskega razvoja Slovenije, Zavod za makroekonomske analize in razvoj, Ljubljana.
- Šebenik, I. 1994: Pokrajinske značilnosti manjših neurejenih odlagališč v Sloveniji, Geographica Slovenica 26/1, Ljubljana.
- Winkler, I. 1997: Javni gozdovi in denacionalizacija, Pomen javnih gozdov - zbornik referatov, Ekološki forum LDS, Ljubljana, 49-64.
- World Commission on Environment and Development. 1987. Our Common Future. Oxford University Press, Oxford-New York.
- World Resources 1994-95. 1994. Oxford University Press, Oxford-New York.
- Zavod RS za statistiko. 1993. Okolje in statistika, Ljubljana.

## SAŽETAK

## Slovenija i njezino prilagođavanje procesu održivog razvoja

Dušan Plut

Europska se unija (EU) početkom 90-ih godina, zbog iscrpljivanja prirodnih izvora, njihove prekomjerne uporabe po stanovniku, zbog opsega i stupnja onečišćenja okoliša, odlučila za temeljite promjene u gospodarskoj politici. Tijekom 1993. godine Europska unija je prihvatila 5. provedbeni program zaštite okoliša (1993-2000.), koji ima svoje ishodište u načelima održivog razvoja i naglašava ovisnost gospodarstva o kakvoći okoliša i prirodnih izvora. Novi je program mjera EU zamišljen kao gospodarski plan koji pomoću zakonodavnih, ekonomskih i drugih instrumenata politike postupno uvodi principe održivog razvoja u industriju, poljoprivredu, energetiku, promet, turizam i druge gospodarske sektore te i u domaćinstva. Načela održivog razvoja se uvažavaju i u politici regionalnog razvoja EU, koja se sve više usmjerava na svrhovitu uporabu endogenih regionalnih izvora. EU, također, sve više uvodi načela održivog razvoja u uveznu politiku. To znači da će i države koje izvoze proizvode i usluge na tržište EU morati ugraditi principe održivog razvoja u vlastitu proizvodnju.

Slovenija je gospodarski i trgovinski snažno povezana s EU, a 1997. godine Europsko povjerenstvo je Sloveniju ocijenilo kao podobnog kandidata za punopravno članstvo, zbog čega će morati svoju politiku zaštite okoliša prilagoditi smjernicama EU te bitno poboljšati kvalitetu okoliša i ekologizirati proizvodnju.

Prema opsegu i stupnju onečišćenja okoliša Slovenija se svrstava u europske države umjerenog onečišćenja koje imaju prilično visok stupanj iskorištenosti prirodnih izvora. Najviše su onečišćene gusto naseljene i industrijalizirane riječne doline i kotline s ograničenim mogućnostima samoprocčišćavanja (Zasavje, Šaleška dolina, Celjska kotlina, Mežiška dolina, Ljubljanska kotlina). Usprkos određenom poboljšanju još je uvijek goruće pitanje onečišćenja zraka poglavito sumpornim dioksidom (SO<sub>2</sub>). Onečišćavanje voda miruje na visokom stupnju onečišćenja poglavito rijeka, a gomilaju se i posljedice porasta i neprimjerenog zbrinjavanja različitih vrsta otpadaka. Procjenjuje se da godišnje u Sloveniji 4-6% bruto domaćeg proizvoda (BDP) otpada na gospodarske gubitke i druge troškove onečišćenja, a za zaštitu okoliša ukupno se izdvaja (državna i privatna sredstva) ispod 1% BDP.

Prema većini pokazatelja kvaliteta je okoliša u Sloveniji sredinom 90-ih godina bila bitno slabija nego li u većini od 15 država EU. To ne vrijedi za emisiju ugljičnog dioksida (CO<sub>2</sub>) po stanovniku koje je u Sloveniji 1994. godine iznosila 7 tona CO<sub>2</sub> po stanovniku nasuprot 9 tona po st. u EU. U Sloveniji 1990. g. emisija SO<sub>2</sub> po stanovniku iznosila 98 kg dok je među državama EU ta emisija bila najveća u Velikoj Britaniji (65 kg). Emisija se SO<sub>2</sub> u Sloveniji do 1995. godine smanjila, ali je iznosila još uvijek više od 60 kg SO<sub>2</sub> po stanovniku. Nasuprot smanjivanju emisije SO<sub>2</sub> emisija dušikovih oksida (NO<sub>x</sub>) raste zbog cestovnog prometa, ali je ispod emisije NO<sub>x</sub> po stanovniku u EU.

Zbog velikog udjela šumskih površina (53%) Sloveniju obilježava veća sposobnost (mogućnost) samo-pročišćavanja okoliša, dok je među europskim državama taj udjel veći samo u Finskoj (68,6%) i Švedskoj (62,2%). Prema udjelu zaštićenih površina (8%) Slovenija je 1994. g. bila ispod prosjeka EU (11%). Slovenija se zbog NE Krško ubraja među europske države s velikim rizikom i neriješenim pitanjem krajnjeg odlaganja svih vrsta radioaktivnog otpada. Po količini komunalnog otpada po stanovniku Slovenija je početkom 90-ih godina nešto malo zaostajala za prosjekom EU dok je već 1995. godine bila s 430 kg otpada po stanovniku iznad prosjeka EU. U nekim se europskim državama (Danska, Finska, Švedska, Nizozemska) siroviniski (reciklaža) i energetski (spaljivanje) koristi više od polovice odvojeno skupljenih komunalnih otpadaka, a u Sloveniji 90% otpadaka završava na komunalnim odlagalištima.

Slovenija je dobila pozitivnu ocjenu Europskog povjerenstva (Agenda 2000) o podobnosti 10 država Srednje i Istočne Europe za punopravno članstvo u EU, iako je mišljenje Povjerenstva glede njezine politike zaštite okoliša bilo vrlo kritično. Povjerenstvo je upozorilo na povećanje određenih problema zaštite okoliša (voda, otpatci), neriješeno pitanje odlaganja radioaktivnog otpada, zaostajanje u prilagodavanju zakonske regulative zaštite okoliša, skromnu potporu države ekologizaciji gospodarstva itd.

Slovenija se sredinom 90-ih godina kao neovisna država nalazi pred izazovom europskih integracija i problemom zaštite okoliša. U europske integracije i sve prisutnije uvođenje održivog razvoja Slovenija ulazi s velikim bremenom starih problema zaštite okoliša te s zakašnjenjem slijedi trend ekologizacije gospodarstva. Slovenija mora, ukoliko želi ostati na europskom tržištu i prilagoditi se suvremenoj politici zaštite okoliša, bitno odlučnije i cjelovito uvažavati načela održivog razvoja na gospodarskim i drugim područjima.

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