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THE CULTURAL AND ECONOMIC CONDITIONS OF DECISION-MAKING FOR THE SUSTAINABLE CITY

preliminary report

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1. Introduction

For several years, the research group at the Institute of Geography, University in Ljubljana, has also been including the problems of environmental degradation into the investigation on Slovenian cities and urban landscapes, resultant from the past sustainable development and specific physical-geographic and socio-geographic features of Slovenian landscapes.

Besides the complex evaluation of causes for and effects of the environmental degradation in urban landscapes, we have also established indirect impacts of degraded environment on humans and individual groups of people that are supposed to be, on the one hand, the inducers of the majority of negative changes in the environment, and on the other hand, the receptors of these changes and negative effects. The theme of our interest is how various groups of people receive the degraded environment, what the causes are of the differences in the degree of their reception, and how this is reflected in their responses. Our prime attention is paid above all, to the study of spatial effects resultant from these responses. Since different groups of people show different reactions to polluted environment, their re-settling in variously degraded environment occurs and, consequently, differentiation of urban landscape.

A research of this type was also included into the original program of the project called "Transition in Central and Eastern Europe: A Challenge for Urban Environment"; an international group of geographers (Czech, Hungarian, and Slovenian ones) applied to the Commission at the European Union for financial support for this project.

On the basis of later motions made by the COROP (November 3, 1994) to focus the research on "the cultural and economic conditions of decision-making for the sustainable city", the Institute of Geography, University in Ljubljana, began at the end of 1994 such an investigation in our biggest city, Ljubljana. However, due to lack of time, the study has not come to the point of final presentation, yet.

The current report presents some basic findings of the geographic investigation into the environmental degradation as a factor of differentiation of urban landscape. By the middle of 1995, we plan to prepare for presentation the investigation results of the role of cultural and economic conditions in decision-making for the sustainable city in the case of Ljubljana, as to traffic, retail, and green spaces. The investigation is conducted upon the samples of the studies from the Italian and British reports.

2. Environmental degradation as a factor of internal differentiation of Slovenian cities and urban landscapes.

Although the study is a continuation of the previous geographic researches into the effects on landscape of environmental pollution in the most degraded areas of Slovenia, its orientation is different. Besides discussing the pollution of natural elements of environment, the study is also focused on the impacts of polluted environment on the behaviour of people living in it, and subsequently, on the changes and differences which have emerged, due to it, in the investigated urban landscapes. Some investigations, both, foreign and domestic ones, have already drawn attention to the issue that individual groups of people respond in different ways to negative impacts of degraded environment. In our study, special attention is paid to the question whether the responses have become so effective as to cause differentiation, either structural, functional or physiognomic, of the landscape itself. A working hypothesis exists that environmental degradation already ranks among the factors of landscape differentiation, not only in its direct form but also in its indirect and potential forms. Direct impacts of environmental degradation on landscape differentiation are particularly evident in the degradational structuring, or in other words, in differently polluted areas the quality of dwelling environment differs as well. Indirect impacts include those ones which effect the very structure of population in differently degraded areas. Namely, it is understood as a result of responses by individual groups of people to the quality of their environment. Potential impacts are related to indirect impacts; it is particularly the matter of those areas where people are planning to move away, due to the polluted environment. Namely, people try to escape from polluted environment to non-polluted or, at least, less poluted ones. However, different responses by the inhabitants to polluted environment, sooner or later bring about changes in dwelling environment. Therefore, our investigation is based on the premise that the reception of environment by the inhabitants, their opinions on its conditions, and their responses in general, should already be taken into account as a factor which (indirectly) influences the structuring of urban landscape.

The study of some most polluted urban areas in Slovenia has shown that they mostly lie in the Alpine and sub-Alpine regions of Slovenia; they are limited to basins, and narrow and deep mountain valleys. They are pronounced, yet smaller in scope, and local in fact, for we mainly cannot talk about the regional extent of over-pollution so far. These areas still remain disconnected, since the elevated landforms between them (mountains, hills) are relatively non-polluted or without permanent pollution.

The location of the polluted areas on the bottoms of deep valleys and basins even increases the need for space, and consequently also the physiognomic heterogeneity of individual town districts. Therefore, industrial functions, public services, and other functions in the town space are intensely intertwined.

The location in valleys and basins is also directly linked with lee conditions, which often prevent that emissions, harmful to the environment, be distributed and transmitted over longer distances. Particularly unfavourable as to the air pollution are the frequent occurrences of temperature inversions which cause that the polluted air thickens on a rather limited area, often covered with the "inversion cap", which intensely increases the vulnerability of environment. Since temperature inversions with poorer ventilation of the atmosphere are more frequent and more pronounced in the cooler half of a year when also, due to the heating of homes, the greatest quantities of emissions are generated, an explicit annual degradational regime is characteristic of the discussed settlements, with typical winter maximums.

At first sight, the pronounced character of degraded environment is surprising in the discussed areas, because smaller towns are in question, where municipal emissions are also of smaller quantity; yet, they are still too abundant for the natural capacities of the ecologically vulnerable basins and deep valleys in which these towns are located. Harmful emissions are additionally increased by the use of domestic coals of poorer quality.

In industrial environmental pollution, particularly of the atmosphere, emissions from a single industrial source are usually most problematic. After all, these sources are not very big, neither industrial nor the power producing ones. The greatest share of emissions comes from old, technologically outmoded and ecologically objectionable industrial plants. In the recent years, their impacts have been reduced, yet the quality of our environment in general has not been significantly improved. However, this reduction of impacts is due rather to the current economic conditions than environmental protection. Namely, it is more the result of reducing or even closing down industrial, economically non-profitable production, and less the result of positive effects of technological revitalization resulting in environmental improvement.

Data on the relatively small quantities of harmful industrial and municipal emissions on the one hand, and the still intense general environmental pollution (high immissions) on the other, call attention to the basic characteristic of our most degraded areas. It is the great disparity between emissions and immissions.

It is no coincidence that the most polluted Slovenian areas are our oldest industrial centers with over a century-long industrial tradition. Their origins which mostly reach back to the second half of the 19th century, were based on favourable location factors, favourable transport positions in particular, on cheap labour, on handicraft tradition, etc. — which was all especially typical of the bottoms of basins and valleys. Such conditions are the least favourable from the aspect of ecology, and, due to the post-War forced industrialization, they became even more critical. Unfavourable for environmental protection was also the fact that part of raw materials had to be imported already from the begginning, from the nearby or even very distant places. These materials were not always of the highest quality, unfortunately. The development of industry over a hundred years was uneven, of course, since it depended on general economic, political, and social conditions which underwent numerous changes during this period. Parallel to this and the increasing production, the level of pollution also increased, of course, and consequently, the extent nad variety of negative impacts on environment. It is not only the matter of degradational heritage related to the relatively early beginnings and development of industry, but also the result of later, very dynamic period of industrial development, typical for the second half of the 20th century. Being intensely industrialized, according to the post-War planning, the old and the new industrial settlements attracted numerous labour of lesser qualification from rural areas and even more so from other republics of the former Yugoslavia. These people inhabited, at the beginning at least, the housings of inferior quality in towns or in close vicinity of industrial plants, despite the heaviest pollution of such environments, because it was easier to obtain these housings and they were cheaper and close to their jobs. Because of poorer financial state of the immigrants, and very limited possibilities for the improvement of their housing conditions, the quality of dwelling environment of these inhabitants was getting worse and worse. As a contrast, better provided social groups of inhabitants began to move elsewhere from such places, above all into suburban districts. Thus, differentiation of towns began also due to the above mentioned changes, although this trend was not advocated by the socialist system; at the most, it was tolerated. In fact, the post-War social development was oriented towards a more even development of town districts. Therefore, prices of housings did not explicitly depend on the quality of closer or wider dwelling environment, and certainly less so than they would depend in market conditions.

In evaluating internal differentiation of variously polluted areas of our urban landscape we should not ignore the rather pronounced Slovenian spatial immobility. It

is related, on the one hand, to tradition, i.e. the negative attitude of the majority of the population to such changes in life; and, on the other hand, above all, to the social development so far which did not encourage such mobility because of the lack of housings together with their low prices. It is typical, however, that moving away is not always the response to the changed socio-economic status, so we still cannot talk about the direct connection between the vertical and horizontal mobility. Spatial mobility of the population and the formation of socio-economic homogenous town districts were further limited by the constant lack of housings, which significantly reduced the possibility of choice and consequently the choice of dwelling environment, including the choice of housings in less polluted environments.

In the post-War period, the spatial growth of the studied towns took account of environmental pollution only indirectly; therefore, the more recent building up of the relatively least polluted areas of the urban landscape has been more or less accidental and rather related to other limitations. Namely, at the beginning, the building up concentrated within the existing town districts which were, as a rule, located right within the most polluted environment. This only increased the quantities of municipal emissions there, especially in wintertime. But also newly built residential districts were located in polluted environment. Only when space ran short in towns, they began to spread outwards to a greater extent, i.e. to the areas which were, at first, often less attractive for living due to their marginal locations and transport remoteness; yet, they lay within less polluted environment although this was not the decisive factor when they were built up. It was confirmed in the case of each investigated town that this type of expansion reached out to the relatively least polluted environment, i.e. ecologically the most suitable for living. But only in the recent decade, the least polluted marginal rural settlements, which had stagnated or declined in the post-War period, have entered the consciousness of people as more attractive for living, and they have been increasing as to the number of inhabitants. Viewed as a whole, environmental degradation still cannot be considered a much observed restrictive factor of location in the process of expansion of urban residential districts although the more recent building up reached out to ecologically more favourable suburbia. As a matter of fact, other reasons were more decisive in this process than ecological ones, although the former coincided with the latter to a certain extent.

In the research work, we have established, above all, the indirect impacts of polluted environment on the inhabitants who are also the receptors of the negative effects of their own unsustainable activities. Responses to negative environmental changes depend, to a large extent, on general economic and social conditions, as well

as on technologic possibilities; nevertheless, these responses exert influence on the changes in the environment. Moving away because of degraded environment or passive attitude towards such environment where the matters are becoming worse, are only two extreme forms of reactions which lead to the differentiation of towns and wider urban landscape. Internal structural (socio-geographic) differences between variously polluted areas in the researched urban landscapes were evaluated by means of various demographic indicators and the analysis of economic structure of population; both were further complemented by the interview on the attitude of the inhabitants towards their own environment and their apprehension of ecological problems in general.

Although the structure of the population and their attitudes towards the polluted environment were analysed upon a pre-determined degradational structure of the investigated landscapes, i.e. upon the variously polluted urban parts, significant socio-economic differences were established among them. Thus, the basic hypothesis of the study was confirmed; namely, that the environmental degradation has already become a factor of socio-geographic differentiation in our urban landscapes. Differences are evident, irrespective of the method; however, the differences established from statistical data and measurements are greater than those established from the results of interviw conducted among the inhabitants. Namely, their answers also depend on other demographic indicators, especially on their subjective evaluation of the environment. Intense is also the influence of the general (specific) attitude of the inhabitants towards their environment, which is formed individually in each of the investigated landscapes. This attitude is, however, internally differentiated, but the differences are smaller within each selected area than between them.

Neither the former and even less the recent development have caused a more explicit differentiation in Slovenian towns so far, therefore, relatively homogeneous town districts have not been distinctly formed. Differences in the structure of variously degraded parts of urban landscape confirmed by the investigation are thus largely the result of spontaneous reactions of the inhabitants; however, they will undoubtedly only increase in future. It can be expected that areas will further be formed of relatively homogeneous socio-economic structure of inhabitants that will receive and apprehend the environment on more or less the same way and equally respond to negative phenomena caused by pollution of their dwelling environment. Since the quality of the dwelling environment will undoubtedly effect the price of housing, it should be expected that less polluted environment will attract, even more than so far, higher socio-economic classes of inhabitants. It has already been

established that apprehension of the latter of their own environment is very close to the actual situation; also their ecologic awareness is higher, and besides, they have better possibilities for ecologic improvements. In contrast to this, in more polluted areas, as it has already been happening, groups of people will concentrate who have neither the knowledge, nor the material basis, nor a true interest for the improvement of environment. Therefore, no spontaneous environmental improvements can be expected here, and no adequate investments into the ecologically inoffensive facilities. Thus, the differences in the quality of dwelling environment and the environment in general will only keep increasing. They can only be mitigated by external interventions (by the state or city), such as the construction of heating plants and the extension of heating networks, gasification, revitalization of residential buildings, etc.

The research furthermore exposed that, according to some socio-economic indicators, individual groups of inhabitants have already been formed who equally apprehend their dwelling environment and wider environment together with the ecologic problems to which they respond equally. Also, their spatial distribution coincides relatively well with the degradational structure. Besides, there are also demographic indicators which are not decisive for the distribution of the inhabitants in variously polluted areas (e.g. age). Also the specific geographic character of each investigated landscape contributes to the evaluation of the factors which have, due to socio-geographic features of the inhabitants, different impacts on the differentiation of degraded landscape; the same is also true of referential areas.

It has clearly been established, moreover, that education and the economic power of the inhabitants are among the most relevant indicators of socio-geographic population groups that act as an important factor of urban landscape differentiation. The difference between the two indicators is the fact that the impacts depending on the educational structure are potential and indirect (planned and proposed changes), while economic indicators are already concerned with direct impacts. In all investigated landscapes, the distribution of groups of inhabitants with different education coincides with the level of degradation of individual areas; namely, in less polluted areas, the number of inhabitants with a higher level of education is greater, and vice versa. The interview part of the research also confirms that, the higher the education, the greater ecologic awareness; also the apprehension of ecologic problems with these groups is the closest to the actual situation, and the motions for the improvement of environment are the most frequent. In these population groups, the reason of their potential moving is most frequently of ecological nature. The analysis of income data also confirmed that economically the weakest population groups are

more numerous in the most polluted environment; in the relatively less polluted town districts, the average buying potential of inhabitants gradually increases. In contrast, it is evident that the age structure of the population only exerts indirect impact on the formation of the attitude towards the environment; however, it has a more important role in combination with other socio-economic indicators. Typical of Slovenian circumstances, especially those relating to the ethnic structure, are the differences between the statistical data and the data obtained through interviewing the inhabitants. According to the latter, individuals from other ethnic groups responded to environmental pollution in the same or similar way as the natives, which means that they extensively assume the responses to the environment from their Slovenian neighbours. It is even more characteristic that the highest concentrations of the non-Slovenian population occur in the most polluted areas of urban landscapes. In this connection, the data on the ethnic structure of the population are a rather reliable indicator of town differentiation and a criterion of defining the areas of poorer dwelling environment. The investigation further pointed out that degraded environment is received in the most tolerant and passive way by the lowest socio-economic population groups. However, it means at the same time that, this situation indirectly conserves such polluted environment, or even makes it worse. But in general, ecologic awareness proved to be rather weak and subordinate to the solving of basic existential problems. In comparison with earlier investigations, it became evident that, due to poorer economic conditions, people are nowadays more tolerant to degraded environment than they were a decade ago. However, they have become ever more realistic in realizing what the main sources of emissions are; they do not only blame industry, but they are also aware of the negative effects of their own and municipal emissions which are produced especially in winter by the heating of homes, and are particularly due to burning poorer sorts of fossil fuels. The share of these emissions is the greatest in mining centers, and generally in the areas with poorer socio-economic structure of population in old industrial towns. It is rather inconvenient that it is exactly in the most polluted town districts, where the average socio-economic population structure is also the worst, that the awareness of the main sources of air pollution is the lowest. The sources are identified as being in industry or transport rather than in the heating of homes; thus the vicious circle is closed.

General ecologic awareness is the lowest in the areas where the inhabitants have been directly dependent on the work in industry or mining for several decades; however, it is better in rural environments, not only due to greater connection with and dependence on the nature but also due to lesser dependence on industry as regards

employment. Since ecologic awareness increases also with the level of education, the importance of ecologic education in particular is thus manifest, but also the importance of general education which enables wider apprehension of the causes of environmental pollution and its results.

3. Conclusions

The research highlights the results of the landscape degradation in the specific (natural and social) Slovenian geographic conditions. We have established, in fact, a surprising degradational structuring which has been formed in the relatively small Slovenian urban centers, hardly comparable to bigger industrial and urban landscapes elsewhere in the world. Notwithstanding the small size of the investigated settlements (minor towns), degradation is well pronounced in them, and explicit inner degradational division has already come into effect. It is not only direct and physical, and the result of actual pollution of the air and other natural elements of the environment, but also of socio-geographic character and as such related as well to the physiognomic, structural and functional differentiation of the environment and to the population structure itself. Natural-geographic features undoubtedly not only condition the typical vertical and horizontal asymmetry of immission areas, the explicit annual degradation regime, etc., but also the considerable disparity between emissions and immissions, which is due to spatial limits of the narrow and deep valleys and basins, and particularly due to temperature inversions occurring in these landforms. All these facts, of course, condition the physiognomic and functional heterogeneity of individual town districts.

The more explicit differentiation of the investigated urban landscapes has also been fostered by their socio-geographic features, although it cannot be ascribed to the characteristics of socio-political development of the past few decades; rather the opposite. This hindered rather than fostered, or tolerated at the most, social and other differentiations of our towns, including the degradational differentiation. One just has to remember that there was no difference in the prices of housings based on the difference in the quality or pollution level of dwelling environment. Nevertheless, besides the actual degradational differentiation, also the socio-economic differentiation has started to develop. Yet, this differentiation is less strict than it would have been had the investigated towns developed in the past decades in the conditions of market economy.

Since population structuring of variously polluted areas is considered to be a response by the population to the negative phenomena in the polluted environment, we have tried to highlight, in the first place, the attitude of different socio-economic groups of population towards their environment and ecologic problems in general, and their responses. It has turned out that the inhabitants of equally polluted town districts do not perceive equally the degree and structure of pollution of their environment. Namely, actual degradation of the environment does not always correspond to the degradation as it is perceived by different groups of inhabitants (they differ as to education, age, provenance, economic power, etc.). It is not just the matter of disparities between the actual (measured) and the perceived degradation; it is more important that the attitude of the inhabitants towards the environment is a factor in itself which is not only relevant for the apprehension of the environment but also for its (re)structuring. The inhabitants either become reconciled to the polluted environment and persist in it, or assume critical attitude and, consequently, they either move away or at least develop various modes of pressures and form groups which initiate changes. The comparison of actual degradational structure of the environment with its population structure shows, however, very characteristic differences. The population structure is conditioned by the actual degradation which, in turn, is only intensified or restored, and consequently, the differentiation of urban environment further increases. Thus, the investigation has especially confirmed the importance of the population being ecologically well-informed and having the environmental protection awarness. The importance of ecologic education and general education has also been confirmed, because both have been exposed as an indirect factor of differentiation of our towns and urban areas in general.

Taken as a whole, degradation or environmental protection problems which were investigated in towns (urban landscapes) that are, no doubt, typical of Slovenian circumstances, are characteristic in many aspects. They are not only typical from the natural-geographic aspect which shows the great natural vulnerability of our environment (due to the landforms, climate, etc.), but also, and even more, from the socio-geographic aspect, which has not been mentioned sufficiently so far, or it has been mentioned but one-sidedly. Particularly relevant here are the effects that economic and general social development has had on environment, especially the effects resulting from the planned industrialization in the second half of this century, and all that was related to it, including also the polycentric development of Slovenia and the growth of numerous, but therefore smaller industrial towns, typical not only for their urbanization but also suburbanization processes. All this reflects typically, and rather specifically as to our circumstances, also in the degradational structure of our urban environment, including the socio-geographic structure.