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## From human ecology to social sozoecology : a sketch for discusion

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Tekst jest udostępniony do wykorzystania w ramach dozwolonego użytku.

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FROM HUMAN ECOLOGY TO SOCIAL SOZOEKOLOGY  
(A SKETCH FOR DISCUSSION)

I n t r o d u c t i o n

I use the terms "natural environment" and "landscape" interchangeably here to include basic elements of land structure: farmland, forests, meadows, hills, watercourses and riverbasins, and human settlements. These form combined types of ecosystems and biotopes.

Like Ashley, I assume that a link exists between the human organism and the natural environment that forces the organism to respond instantaneously to any change in the environment<sup>1</sup>. Organism and environment constitute one system, and the boundary between the two is theoretical.

We are emotionally attached to the landscape which is largely the result of human activity going on for thousands of years. Strict adherence to broad ecological principles when considering transformation of the landscape and the management of natural resources is very difficult and complicated by demographic pressures. On the other hand it is evident that, in contrast to historical times when man's activities against the laws of ecology could have gone unpunished, his present actions endanger the natural environment in and by which he lives. Dislodging the

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<sup>1</sup> W. R. Ashley, Design for a Brain, 1952, p. 152.

biocenotic (or ecological) equilibrium directly affects the culprit, that is man<sup>2</sup>.

Many facts today witness to the advanced degradation of the environment worldwide caused, among other things, by the rapidly growing "wear-and-tear" approach to nature through excessive consumption resulting from two causes: first, badly organized labor and production leading to great wastefulness; secondly, value systems and ways of life inadequate in relation to the current ecological reality<sup>3</sup>. Wastefulness is accompanied by chronic malnutrition of part of mankind, mostly due to ecological factors. Many of the values so far considered positive, such as a rise in population, to which nations owe their vitality, the ownership of summer houses, second cars, etc., are detrimental to the natural environment.

Under the circumstances it may be assumed that the more mature, developed and effective a socioeconomic system is, the less it is material-, energy-, transport-, and land-consuming<sup>4</sup>. And, let us add, such a society is less pathogenic and socio-degrading.

What has been said above is a kind of challenge to the social sciences. It requires them to re-evaluate many notions, abolish many stereotypes, re-profile some disciplines and propose new concepts and fields of science.

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<sup>2</sup> By ecological equilibrium we mean a condition of nature within a given ecosystem in which: 1<sup>o</sup> ecological processes (biological production, number of species in a population, etc.) enjoy stability as a result of numerous feedbacks; 2<sup>o</sup> these processes enable automatic purification of nature and a return, in case of disturbed functioning, to the previous condition regarded as normal.

<sup>3</sup> "Whoever denies the fact of environmental pollution (writes the author of Declaration of Nature's Laws, 1972), is a criminal, and only imbeciles continue to be happy". Quotation after "Preuves", 1974, No. 19, p. 31.

<sup>4</sup> J. Kolipiński, Człowiek, gospodarka, środowisko, przestrzeń (Man, Economy, Environment, Space) in "Studia Komitetu Przestrzennego Zagospodarowania Kraju" (Studies of the Committee for Physical Planning), vol. 63, Warsaw 1978, p. 134.

## General ecological situation and new trends in science

The literature on the subject usually presents many negative phenomena including:

a) increasing pollution of water (rivers, lakes, seas, groundwater, and not infrequently also subterranean water);

b) air pollution in excess of the accepted norms which, in turn, causes soil, water and forest pollution, as well as immense economic loss;

c) excessive forest clearing, which unsettles the biological equilibrium in forests and leads to even greater ecological damage, including damage to human health, rather than being damage caused by production in the strict sense of the term;

d) dangerous soil contamination and degradation of soil structure due to overfertilizing, mechanical cultivation, air and water erosion, unilateral dehydrating irrigation and increasing dry-soil areas<sup>5</sup>, as well as penetration of heavy metals (cadmium, mercury, lead, etc.) into the soil, much of it causing irreversible changes;

e) progressive extinction of animal and plant species<sup>6</sup>;

f) exhaustion of mineral and energy sources giving rise to the necessary search for substitute measures, new technologies and renewable resources;

g) another threat comes from growing morbidity in response to environmental pollution, including contamination of fodder, well water, and food, which was clearly manifest in Poland in the last decade<sup>7</sup>. It is justifiable today to speak of ever increasing ecological morbidity and mortality in the so-called civilized nations.

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<sup>5</sup> In Poland, up to 50% farmland.

<sup>6</sup> In Poland, by 1990-2000, probably 20% of the existing plant species will have become extinct (after "Rezolucja w sprawie ochrony przyrody w Polsce" - "Resolution on Environmental Protection in Poland", seminar at Burzenin, October 2-5, 1980, compiled by M. Ławrynowicz, R. Olaczek, p. 3).

<sup>7</sup> According to the official statistical data, 11 to 39% food samples collected in 1979 were contaminated.

These and other facts that cloud the future of our civilization, or indeed our whole planet, are the source of two attitudes among ecologists. One, catastrophic, is expressed through the conviction that the degradation of nature, climatic changes, etc. have reached a point of no return, whereby there is no escape from ecological catastrophe, which is only a matter of time. The other attitude may be referred to as optimistic in the sense that without denying the threat to mankind, it sees a way out if countermeasures are taken immediately.

Harbingers of the new ideas and changes are making an appearance in philosophy, social policy, town planning and architecture, education and sociology and even economics.

New grass-root demands have been voiced: recreation and tourism in the uncontaminated environment, clean air and water, freedom from the nuclear threat and radioactive debris. Stereotypes harmful to environmental protection are slowly disappearing along with their social consequences such as the long-lived belief that any large-scale industrial investment is beneficial to a region, town or community. Even in some socialist countries (including Poland) we have witnessed organized protests of local communities against the location on their territory of centrally planned industrial projects if they might pollute the environment.

Of the new concepts, three are worth mentioning. First, deterioration of the natural environment is only partly due to obsolete technologies, accelerated industrialization, urbanization of the country and modernization of agriculture. It is caused in equal measure by social factors like ideological and doctrinal considerations, ecological ignorance, unsettling of the equilibrium of social forces, and the prevalent life-style.

Secondly, there have been attempts in social economics to change both the concept of economic growth and the economic calculus. So far many resources of nature have been free for their abundance. There are also changes in the concept of "welfare", which not only includes the level of income and living standards (housing, commuting, etc.) but also the quality of the natural environment<sup>8</sup>.

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<sup>8</sup> According to the well-known P. Saint Marc's formula:  $B=N+C+M$ , which means Bien-être = Niveau de vie + Conditions

Thirdly, the concept of landscaping has emerged in modern town and rural planning. "Greenery has become one of the important elements of the human habitat... Achievement of the optimum environmental conditions will be possible when balance has been restored between town planning and nature"<sup>9</sup>. It is more and more generally believed that "economic order" is connected with "spatial order", and the adequate development of structures primarily in rural areas, which, as we have seen in Poland, is helped neither by "democratic centralism" nor the "central system of management" with its sectorial division of responsibilities<sup>10</sup>.

New trends in the social sciences and social environment movements in many countries are an indication of current changes in the mentality of societies as regards ecology and environmental protection. This is also evident in the discussions going on among Polish economists and planners concerned with physical planning.

Of the various types of space, such as economic, political, urban, geographic, natural-geographic (depending on the criterion adopted), we are primarily interested in the last which may be defined as ecological, understood as an area of rational exploitation, reproduction and protection of the resources of the natural environment<sup>11</sup>.

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de vie + Milieu de vie, /in:/ Socialisation de la nature, Paris 1971, p. 13.

<sup>9</sup> P. Zaremba, Współczesne problemy osiedli ludzkich i planowania przestrzennego, Problemy Środowiska Człowieka (Contemporary Problems of Human Settlements and Physical Planning, Problems of the Human Environment), 1971, p. 68.

<sup>10</sup> W. Misiuna, Kształtowanie przestrzennego rozwoju obszarów wiejskich w Polsce (Spatial Development of Rural Areas in Poland), /in:/ Wieś i rolnictwo (Rural Areas and Agriculture), 1980, No. 2/27, p. 38.

<sup>11</sup> A. Kukliński, Koncepcje polskiej przestrzeni w latach osiemdziesiątych (Concepts of Polish Space in the 1980s), Biuletyn Komitetu Przestrzennego Zagospodarowania Kraju (Bulletin of the Committee for Physical Planning), Polish Academy of Sciences, No. 118, Problemy polskiej przestrzeni (Problems of Polish Space), Warsaw 1982, pp. 7-14.

Naturally, the concept of geographic space is a fundamental one and therefore comprises all other types of space<sup>12</sup>. Geographic space becomes ecological when it is regarded from the particular point of view of nature. At the same time, in Poland it is characterized by three social features: its largely public character, scarcity and peculiar value (in economic terms).

Geographic space is a public commodity, despite the various forms of ownership and mostly individual management. In the central planning system, with management by sectors and branches (ministries), and with a prevalence of relations based on subordination (administrative) over relations based on legal agreements (of economic nature), space inevitably becomes a public asset even when individually administered<sup>13</sup>. This fact may, in Pietraszewski's view, encourage a total formal nationalization of land which, in turn, would increase the "arbitrariness of the state owner, ... generally more dangerous than that of the individual or co-operative owner"<sup>14</sup>, posing a serious problem to both rational physical (spatial) planning and the protection of nature. The latter is further threatened by the rapid rise in population and the shrinkage of farming areas which are absorbed by industry or cities, which leads to other difficult problems connected with sustenance<sup>15</sup>.

The second feature, scarcity, leads to the third, namely, considerable difference in land prices depending on location and user. Since land has practically ceased to be a free commodity (even in its natural condition), every area has some economic value, which Polish physical planners are slow to un-

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<sup>12</sup> S. Leszczycki, *Geografia a planowanie przestrzenne i ochrona środowiska* (Geography, Physical Planning and Environmental Protection), Warsaw 1977.

<sup>13</sup> W. Pietraszewski, *Cechy polskiej przestrzeni* (Qualities of Polish Space), /in:/ A. Kukliński, ed: *Problemy polskiej przestrzeni*, *Biuletyn Komitetu Przestrzennego Zagospodarowania Kraju*, Polish Academy of Sciences, No. 118, Warsaw 1982, pp. 20-21.

<sup>14</sup> *Ibid.*

<sup>15</sup> Food problems may be solved to a degree by the intensification of work and agricultural production, but this involves degradation of the environment (soil and water) though on a smaller scale than with industrialization and urbanization.

derstand. Rational management of space and protection of the most important element of natural reality that surrounds us is possible only on the condition that the economic worth of land has been established in a sound way<sup>16</sup>. An absence of such prices, along with the administrative restrictions on private ownership and the resulting tendency to expropriate at a low price rather than purchasing land at "reasonable prices", has had negative consequences in a double sense. From the economic and ecological point of view, this precious asset has been wasted; from the social point of view, the administrators have often acted to suit their own convenience and private goals or have been guilty of idleness rather than adopting rational criteria for the benefit of the public<sup>17</sup>.

#### T r a d i t i o n a l   h u m a n   e c o l o g y

Burgess, Park and McKenzie, the founders and main representatives of the Chicago school of human ecology in the 1920s, (the term "social ecology" is sometimes used; in this paper they are treated as the same thing because the difference between the two is very small), emphasized in their analyses of social phenomena the regularity of their spatial distribution<sup>18</sup>.

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<sup>16</sup> W. Pietraszewski, op. cit., p. 24: "Economic calculations in Poland are faulty since the prices of land purchased by the state are so low that they play no role in the calculations... Only the costs of demolition and displacement are important". Cf. B. Prandecka, Wzrost gospodarczy Polski w układzie przestrzennym (Poland's Economic Growth in Spatial Configuration), /in:/ Gospodarka i Administracja Terenowa (GATT), 1970, No. 9 (quoted after M. Kaczorowski review); A. Odlanicki-Poczobut, Gospodarka terenami w miastach i osiedlach a planowanie przestrzenne (Land Management in Towns and Settlements, and Physical Planning), /in:/ Problemy planowania przestrzennego, Bulletin, No. 66, Warsaw 1971, pp. 121-122.

<sup>17</sup> W. Pietraszewski, op. cit., p. 24.

<sup>18</sup> Among others, R. E. Park, E. W. Burgess, *An Introduction to the Science of Sociology*, Chicago 1921; the same authors and R. D. McKenzie, *The City*, Chicago 1925; R. E. Park, *Human Ecology*, *American Journal of Sociology*, July 1936.



There were naturally certain differences between the first classical ecologists and their followers even at the point of departure. For Park, it was the decomposition of social life, or social pathology that disrupted "organic solidarity"; while the latter ecologists, E. Shevky, M. Williams, and W. Bell, payed more attention to social space and order, from the point of view of "mechanical solidarity"<sup>19</sup>. Further significant changes were introduced by ecologists in response to criticism from, among others, N. A. Alihan, W. Firey, P. Hatt, who thus modified their views so as to lead to the emergence of so-called neo-ecology, which will be discussed below.

Pioneers of human ecology distinguished between two levels of human activity and interaction, the biotic order<sup>20</sup> and the cultural order. The former, with the main process of economic competition (struggle for survival), corresponds to the basic unit of society, the community in which one lives and works. The latter, cultural or social, with communication based on symbols and co-ordination being the principal process, correspond to a higher degree to society proper and its sphere of action. Classical ecologists believed that the two orders were strictly interrelated and hierarchically and structurally dependent. They denied the biotic order a purely social character, calling the interactions on the biotic level sub-social or ecological. These relations are merely intermediary since they are realized by man's action upon the physical (natural) environment through production, migration to cities, public transport, etc. In the second order, Burgess, Park and McKenzie perceived interactions as being social in the strict sense of the term as ones running directly between individuals and being under-

<sup>19</sup> Z. Pióro, *Przestrzeń i społeczeństwo. Z badań ekologii społecznej* (Space and Society. From the Research of Social Ecology), Warsaw, 1982, p. 10 and ff.

<sup>20</sup> "Biotic" is a term from the natural science. In human ecology, it denotes spontaneous non-cultural processes or relations resulting from the mutual influence of people and the natural environment. According to Ziótkowski, subsocial relations in this sphere result mainly from unrealised competition on, let us add, the basic local level (of a community), J. Ziótkowski, *Urbanizacja, miasto, osiedle, Studia Socjologiczne*, (Urbanisation, Cities and Settlements Sociological Studies), Warsaw 1965, p. 76.

taken with an awareness that they may influence other people.<sup>21</sup> The enclosed histogram is an attempt to construct both a verbal and a graphical model of classical human ecology.

Spontaneous ecological processes, whose participants struggle to secure for themselves the optimum position and an ecological niche according to their biological nature, run in the basic sphere (biotic order) but are controlled by processes occurring in the superstructure (cultural order). Culture is an important element of human adaptation to the natural environment being with morality, a factor transforming economic competition (on the elementary level) into competitive co-operation. As a result, spontaneous interrelationships emerge and take on the shape of symbiotic relationships which helps maintain, or even restores the social equilibrium or leads to a new level of equilibrium. Thus unplanned phenomena arrange themselves into a certain system with distinct regularity.

The later ecologists, called neo-ecologists, A. H. Hawley and others, rejected the division into sub-social (ecological) and social relations as unclear and lacking confirmation in reality<sup>22</sup>. Neither the distinction between the biotic and cultural order nor the dichotomous classification of inter-personal relations survived criticism. Inter-personal relationships and arrangements are intertwined and overlap. We should therefore speak about the difference in degree rather than the kind of relations, and about similar interactions on two different levels, local (local community) and macro-social.

Despite the evolution of the trend under discussion, its premises have not changed basically. According to them, the biological nature of man (he has to survive before the cultural forms of life have been developed) is the foundation of the entire con-

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<sup>21</sup> R. E. Park, op. cit., p. 14 and ff.

<sup>22</sup> A. H. Hawley, *Human Ecology. A Theory of Community Structure*, New York 1950. More in detail in: A. L. Bertrand, Z. T. Wierzbicki, *Socjologia Wsi w Stanach Zjednoczonych. Stan i tendencje rozwojowe (Rural Sociology in the United States. Condition and Developmental Trends)*, Wrocław 1970, p. 202 and ff.

cept of culture, which, along with social organisation, is an important element of man's adaptation to the natural environment. The latter assertion would call for a new definition of culture, which nowadays often becomes a factor in the transformation of the human environment, in a way which is frequently dangerous to man, rather than his adaptation to it. Therefore it is not clear how to avoid biological determinism in this concept without lapsing into a onesided sociological-cultural approach in explaining social phenomena<sup>23</sup>.

Yet without getting into analyses of this or other principal questions, for instance, to what degree human ecology is merely a peripheral (borderland) branch of knowledge (like for example social psychology) or a method of research into social phenomena, we may formulate basic assumptions and certain features of what we consider to be traditional human ecology or even of neo-ecology. We may formulate them in such a way as to give them a universal character, to make them adequate to reality and independent of the historical stages of the development of ecology and its various trends, to mention just a few, the strictly sociological trend (pertinent to urban areas), the geographic one and one related to it, known as "factoral ecology", or the regional-rural one<sup>24</sup>.

First, there are close links and relationships between individuals or groups within the population on the one hand, and the natural environment on the other, that result in certain definable spatial structures. Secondly, the basic factor in every group's structure is its spatial configuration and division of labour which, through processes of economic competition, allows the satisfaction of needs adequate to the conditions and position in space. Thirdly, within that space there are important elements such as: sculpture of earth's surface, natural resources, transportation routes (natural and man made), the economic value

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<sup>23</sup> cf. L. Reisman, *The Urban Process, Cities in Industrial Societies*, London 1964, pp. 118-120.

<sup>24</sup> Z. Pióro, *op. cit.*, p. 32 and ff.

of land (land rent), which is where ecologists get closer to social geographers. Fourthly, the basic concepts in human ecology are: population (groups) organization, environment and technology (abbreviated: P-O-E-T)<sup>25</sup>, and the basic social processes include: competition, turning either into conflicts or into symbiotic interdependence, accommodation, assimilation and succession, all of which have a particular application in class and ethnic relations. Fifthly, a remarkable contribution of Florian Znaniecki, space in human ecology is treated as an element of a non-spatial value system, and therefore with the necessary "human coefficient"<sup>26</sup>. This approach was proved correct when the term "human environment" was extended to include also historical and cultural accomplishments, thus departing from the original concept, which drew a line between the natural (biotic) and cultural environment. Sixthly, though the natural (biotic) order is no longer set against the cultural order, analyses of social phenomena continue to make use of the corresponding division into two levels, the local (of the community) and the macro-social (of society).

We can quote here one of the contemporary definitions of human ecology as striving to understand man and his problems examining, first, individuals and populations as certain biological entities though profoundly altered by culture; secondly, the effect of culture upon man; thirdly, man's influence upon the en-

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<sup>25</sup> Otis Dudley Duncan, Leo Schnore, Cultural, Behavioral and Ecological Perspectives, *American Journal of Sociology*, Sept. 1959, vol. 65. p. 136.

<sup>26</sup> F. Znaniecki, *Socjologiczne problemy ekologii ludzkiej* (Sociological Problems in Human Ecology), *in: / Ruch Prawniczy, Ekonomiczny i Socjologiczny*, No. 1, 1938, pp. 90-92 ff; Earlier still another Polish sociologist, S. Czarnowski, regarded space and geographical environment in a similar way, but unlike Znaniecki did not treat his approach as an ecological one (S. Czarnowski, *Le morcellement de l'étendue et sa limitation dans la religion et la magie*, *Actes du IV Congrès International d'Histoire des Religions*, Paris 1925, pp. 339-358, Published in the Polish Language in "Przegląd Socjologiczny" vol. 7, Nos. 1-2, pp. 6-24). Znaniecki's work published in Polish is little known.

vironment. The last includes both physical-biological and socio-economic components. Hence, as in Ashley's view, the organism and the environment are inseparable, but to go one step further is to put emphasis on the growing impact of man's extensive and intensive actions upon his environment. Man transforms natural ecosystems into human ecosystems, a fact more and more widely acknowledged as essential to human ecology<sup>27</sup>.

### New ideas

The 1950s witnessed new tendencies in urban social ecology. According to S. Ossowski, the study should not limit its interest to the distribution of population over a functionally diverse territory, but should also examine the influence of physico-spatial urban structures - via their functional evaluation - upon human behaviour<sup>28</sup>.

This marks the entry of the voluntaristic factor into human ecology, of the deliberate will to shape spatial structures in a direct way. This was initially restricted to cities which were considered important segments of society for their being concentrations of population, centers of science, culture, industry, and power. Here the goal is no longer merely architecture in the strict sense of the term but architecture of space and its management. This has led to the emergence of a common research and work forum for sociology, town planning and social ecology, which is an interesting phenomenon and a remarkable change in the social ecologist's approach which is, as Ossowski put it, "conscious anticipation of the future". In other words, an element of social and physical planning has been introduced into social ecology, until then never considered in this orientation. More-

<sup>27</sup> F. Sargent II, M. D. (ed.), *Human Ecology*, Huston 1974, pp. 1-2, 13.

<sup>28</sup> S. Ossowski, *Organizacja przestrzeni i życie społeczne w przyszłych osiedlach* (*Organisation of Space and Public Life in Future Settlements*), "Wiedza i Życie", 1946, pp. 105-106; Z. Pióro, op. cit., p. 20.

over, Ossowski refers in a sense to the ideas of Czarnowski and Znaniecki, perceiving space as the basis for group bonds because an area inhabited by a group of people becomes an "element of the social group's image" or that of a non-spatial value system - Ossowski regards deliberately "organized" space as a "cultural phenomenon understood functionally"<sup>29</sup>.

Ossowski's concepts have been picked up in Poland by Z. Pióro and A. Wallis<sup>30</sup>, who have deliberately dealt with physical planning in such a way as to include cultural life, trying to establish the rules of town planning socio-techniques and, following into the footsteps of B. Malinowski and F. Firey, have enriched ecology with functional analysis (the so-called functional method of social ecology)<sup>31</sup>. They have not gone beyond urban areas (ecosystems), however.

What should sozoecology be?

It seems necessary to revise the concept of human ecology both because of its deficiencies and because of the need to adjust it to the new markedly different reality. The main gap in human ecology, both in its classical version and the newer approach of neo-ecology (the two are treated here as traditional), is the omission of environmental protection problems on the biotic level (i.e. of local communities) and the cultural (macro-social) level. Indifference to the effects of the economic activity of man on the former level ("biotic", according to classical ecologists), on the natural environment and hence also to the quality of life in extreme cases brings into question the achievement of the goal of this activity, which is the survival of in-

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<sup>29</sup> S. Ossowski, *Urbanistyka i socjologia* (Town planning and Sociology), Problemy 1949, here quoted after Z. Pióro, op. cit., pp. 18-19.

<sup>30</sup> A. Wallis, author of many works on sociology, town planning and social ecology, among others: *Kultura i więź przestrzenna* (Culture and Spatial Bonds), Warsaw 1978.

<sup>31</sup> Z. Pióro, op. cit., p. 27, applied, among others, structural analysis to ecological processes described in the work by R. Pahl, *Urban Process and Social Structure*, presented at the Seminar in Sociology of Regional Development in West Berlin in 1972.

dividuals and groups in the economic struggle for existence. This activity may even bring a contrary effect if the ecological (biocenotic) equilibrium is upset at the basic level. Emphasis on the effect of the environment (mostly natural), which traditional ecology sees as the main factor shaping the activity of man and his adaptation processes, rather than bringing out the effect of his activity upon the environment is responsible for flaws in the concept. Not only does it lack an alternative to environmental degradation and its social effect on human life, but it does not take into account ordinary bioeconomic calculus, which could help establish such elementary facts as the anthropogenic strain on the given ecosystem, its ecological resistance, classification of ecosystems from the viewpoint of strains according to their causes and effects, and the function of natural resources in compliance with the balance of such strains. Some areas are characterized by a high degree of strain (e.g. urban, industrial areas) and require ecological services and inputs from other areas, while other areas are only subjected to a slight strain (e.g. ecological agricultural areas, protected landscape zones)<sup>32</sup>. Transfer of strains and natural resources, their balance and the "resistance threshold" of ecosystems are fundamental issues in social zoecology. In human ecology, however, these are not taken into account as a counter-measure against the degradation of the environment and a regulator of the processes of economic competition from this angle. This important point of view has not been considered in the proposal to introduce elements of physical and social planning into ecological orientation either (Ossowski, Pióro, Wallis).

Reformed human ecology, which I propose to call social zoecology (Gr. *sozo* - protect, preserve) because of the inclusion of environmental protection, differs from traditional ecology in the following five ways:

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<sup>32</sup> E. Kosmicki, *Miejskie wyspy* (Urban Islands), "Problemy", 1985, No. 4, pp. 36-37.

1) sozoecology assumes a strict dialectic relationship between the environment and the human organism, the environment being understood in a broad sense so as to include culture, which should help defy the argument that the role of one or the other factor has been predetermined;

2) sozoecology secures a due place for environmental protection, which is now a "sine qua non" condition for the survival and welfare of man. Therefore, from the sozoecological viewpoint, not only interactions between man and the biosphere by which man and nature benefit, but also ones that are neutral (i.e. harmless) to nature become acceptable.

Diagram. Interactions between man and the biosphere\*

		BIOSPHERE		
		effects	+	0
M A N	+	++	0+	-+
	0	+0	00	-0
	-	+-	0-	--

\* source: A. S. Kostrowicki, *Interakcje człowieka i biosfery oraz ich społeczno-gospodarcze konsekwencje* (Interactions between Man and the Biosphere and their Socio-economic Consequences) in: *Prawidłowa gospodarka zasobami przyrody poprzez plany przestrzenne* (Correct Management of Natural Resources through Physical Planning), Warsaw 1966, p. 21. Legend: positive effects are marked (+), negative (-), neutral (0).

3) sozoecology also considers the cultural order in terms of such factors and processes as ecological ideology, environmental protection, legal norms, social activity processes, ecological movements, etc.

4) sozoecology grants the space element a "continuous" value, which means that space always has a value whether it



is built up, woodland, or simple wasteland. Thus we have two kinds of spatial values in sozoecology: basic, based on the objective criteria (sozoecological and economic), and auxiliary, based on the subjective understanding of space as an element of a non-spatial value system. In the former, i.e. according to the objective understanding of space, we have urban and rural landscape including agrocenoses (agroecosystems) as well as wasteland and areas biologically important though beyond the interest of traditional ecology despite their being decisive to the biocenotic equilibrium of a region or country. This is why, in contrast to traditional human ecology, social sozoecology sometimes pays more attention to rural areas and areas as yet outside the economic activity of man than to urban areas (traditional ecology is interested in the former when they become areas of people's economic expansion);

5) sozoecology stresses that the "continuity of space" must be accompanied by as full an integration as possible of space into the current cultural system, including leisure and recreation. Naturally any increase of leisure time leads to an increase of needs within the same limited rural and partly also urban area. This, in turn, prompts the emergence of a rational space economy and a rational spatial order, which has been discussed above.

Let us use a few examples to illustrate the above differences. The classical ecologist, for instance, attributes decisive significance to communication systems which are routes for the passage of social forces, where first sub-social and then social relationships originate. The sozoecologist, on the other hand, will analyse the same effect considering its impact on the natural environment (destruction of landscape, disturbance in the ecosystem, noise, air and water pollution, reduction or extinction of the fauna and flora within the given area), and consequently on human health and the development of public life. In agriculture the process of economic competition is important but it is not the only one deserving the sozoecologist's attention. The modern means of production are not only means towards struggle for survival but engender processes in the natural environ-

ment as well. This raises the social cost of competition, rendering it less profitable or even pointless.

Contrary to traditional human ecology, social sozoecology takes a considerable interest in forests, their function and their hierarchical importance so that the biological and health-giving significance of woodland in a given area (ecosystem) takes priority over its economic function.

It is also worth noting that sozoecology returns to the concept of sub-social relationships which was rejected by neo-ecology, though approaching it somewhat differently. This notion is applied to interactions between man and nature at the primary biotic level (within a local community). By social relations in the strict sense of the word, we understand all interactions between people, whether they are direct or indirect, conscious or not.

Therefore, sozoecology must contain in its cultural superstructure spatial and social management and planning directed to such optimalization of sub-social relations as to make them take into consideration the principles of protection of nature. Industrialization or urbanization of space carried out in opposition to these principles is bound to lead to environmental chaos and an impoverishment of landscape endangering the future of people on earth. This in turn calls for a stronger influence of the cultural superstructure upon the basic processes of economic competition than is the case in classical ecology.

Along with the optimalization factor in the formation of sub-social and social processes in the natural-cultural environment (according to biocenotic-cultural criteria), a functional approach emerges, intersecting with the sozoecological one, the latter approach being more spatial, especially in the case of rural areas. In social sozoecology, the sozoecological method is the basic approach, while the functional approach is only auxiliary within the limited (in this concept) influence of the superstructure upon the sub-social area.

By acknowledging that the relationship between the environment (mostly natural) and the human organism is mutual and the two areas treated as equals, we avoid being charged with

Histogram 1

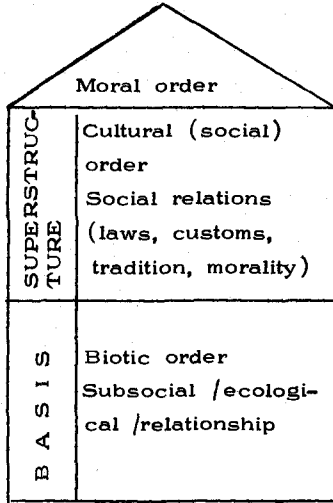
Model of Human Ecology

Processes and interactions

Range of phenomenon  
and research  
techniques

Main processes:  
communication  
(through symbols)  
and coordination

Main process:  
spontaneous economic and economic-spatial  
competition and ecological or subsocial interactions



Techniques:  
quantitative  
cartographic  
descriptive

Research unit:  
"community"  
(microscale)  
Techniques:  
quantitative  
cartographic  
statistical

both biological and natural-environmental determinism. At the same time, we do not treat culture as the decisive factor in the process of man's adaptation to the natural environment. Today culture has become a factor changing the environment, not always along a predictable course.

### C o n c l u s i o n

On the basis of what has been said so far, social zoecology may be described as follows: it is a branch of the social sciences concerned with the location and configuration of social phenomena in the landscape, i.e. in space and the natural environment, in which man struggles to exist, influenced by how people adapt to and alter their environment: he creates cultural systems (superstructure) which control the struggle with an aim of optimally and rationally shaping nature.