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The Protection of Human Environment: Main Tasks of Geographers

Stanislaw Leszczycki

1. The protection of human environment has moved to the force within a whole body of complex problems which solution requires the collaboration of many sciences. These investigations may be carried out either for theoretical or practical purposes. The purpose of particular studies conditions the choice of adequate research methods opening the shortest and cheapest way to the intended objective. Among the many sciences involved in the study of protecting human environment there are obviously various branches of geography. Depending upon the specific problem to be solved the contribution of geographical sciences may be of different importance; in some cases they may be of crucial significance. The present paper, which, like all theoretical argumentations, is of tentative character, is intended to indicate the problems that may demand particularly important contributions from geographers.

2. The problems of protection of human environment are being extensively discussed; many concrete examples are cited to indicate that unless the intensity of pollution and destruction of environment is reduced the living conditions of societies, especially in the industrialized and urbanized regions, will deteriorate at an increasing rate. Unless efficient measures are taken to prevent the advancing disfunctions the conditions of life may eventually deteriorate to the point of seriously threatening mankind's ability to survive. In view of these facts, many institutions, both national and international, have been founded to work along the lines of observation, experience, and induction. At the same time, however, too little attention is being paid to theoretical and methodological research; we are still ignorant of the essential characteristics of the feedback relationship man-environment, nor do we have any systematic historical analysis of the transformations of environment effected by man throughout the history of mankind down to the present day. Very few are the prognoses of changes which are likely to occur in geographical environment in the next fifty years of the extensive applications of nuclear energy, mechanization, automation etc. But geographers have to say something as regards the theory of feedback relationships in the system man-environment, as this problem has been a subject of geographical researches from the very beginnings of geography, or at any rate from the second half of

the 19th century onwards when geography has developed as a modern science. Geographical investigations in this respect may yield particularly useful results if precise quantitative methods are employed.

3. Nowadays the need of protection of human environment is commonly accepted. A manifestation of this are the many national and international projects being undertaken. It is commonly agreed upon that some areas must be preserved for the generations to come. Primarily areas of exceptional natural qualities are at stake here. But very little has been done to furnish a systematic, quantitative – and thus precise – analysis of the geographical environment qualities. Consequently, geographers are faced with great tasks full of present interest. It is easier to make an evaluation of the particular components of the geographical environment (e. g., climate, soil, water resources) than of the whole environment as a natural complex. It is easier to evaluate the geographic environment for certain sectors of national economy, such as land use, agriculture, forestry, road construction or urban developments, than for the whole of the national economy, e. g., for the needs of regional planning.

4. It is the spatial distribution of phenomena that furnish the point of departure in geographical investigations. These phenomena may include either valuable qualities of the natural environment or disfunctions resulting from adverse effects of human activities on this environment. Accordingly, we may speak of maps. In the former case such maps represent the valuable qualities and resources of the geographical environment, both renewable and non-renewable, reversible and nonreversible, having adverse effects, directly or indirectly, on human life. The maps of disfunctions would have to represent the major disfunctions, primarily areas of air and water pollution, degradation of soils, changes in relief of the Earth's surface, devastation of vegetation and of wild animals and of the deterioration of the standards of living and sanitary conditions of human settlements. There could be detailed maps, scaled 1 : 50 000 for the purpose of urban planning, survey maps scaled 1 : 100 000 up to 1 : 300 000 and employed in regional planning, and comprehensive maps scaled more than 1 : 500 000 to be used for comparative purpose and for the imple-

mentation of international activities (e. g., in the European countries). In the solution of these problems the heading role may be played by geographers.

5. The disfunctions may be different. Each of them demands separate treatment. For organizational-practical reasons the following classification has been adopted:

- (1) air pollution,
- (2) surface water pollution,
- (3) ground water pollution,
- (4) pollution of seas and oceans,
- (5) deformation of the relief of the Earth's surface,
- (6) degradation of soils,
- (7) devastation of vegetation, including forests and utilized land,
- (8) devastation of the animal world,
- (9) noise disturbances and vibrations,
- (10) bad odours,
- (11) damages of ionizing radiation and nuclear substances,
- (12) burden of household rubbish and solid industrial wastes,
- (13) increment of post-production waste materials,
- (14) dangers involved in the low standard of dwellings, sanitary and other municipal facilities.

Research on disfunctions and the problems of prevention and rehabilitation of geographical environment require the participation of many branches of science and technics. Geography must also take part in these studies. Geographers may deal with problems of the air, water, sea pollutions, the deformations of relief, the degradation of soil, the devastation of vegetation and the animal world, and especially with urban planning and regional planning intended to protect the human environment. Thus geography has to fulfill a great many tasks (applied geography).

6. Disfunctions occur at different intensities, but in some areas they occur in concentration due to superimposing of some disfunctions onto others. Consequently, each country has areas polluted to a higher or lower degree. From this point of view, the following classification of areas may be adopted:

- (1) urban-industrial agglomerations, especially centres, cores of urban-industrial agglomerations,
- (2) urbanized areas, suburban zones,
- (3) urbanizing areas in which traditional patterns of rural life are being superseded by nonagricultural activities and the urban style of living of the resident population,

- (4) medium and small towns and individual industrial establishments and centres,
- (5) ribbon-node networks of technical infrastructure, mainly transportation facilities,
- (6) agricultural areas,
- (7) forest areas,
- (8) areas of surface waters (including coastal waters and seas),
- (9) recreation and tourism areas.

The areas mentioned in items 1 to 4 make up the settlements network which constitutes a certain system through mutual exchange, contacts and transportation links. The framework of the settlements network is filled by the areas mentioned under items 6 to 9.

The above elements constitute the spatial structure of the national economy. Although it exhibits many traits of permanence, which it has acquired in the course of its historical development, it nevertheless requires further changes to adjust it to the needs of contemporary socio-economic life. This latter is the task of regional planning on both the national and the regional scales. What it has to do is to consider more extensively the problems of the protection of human environment. Geographers can make considerable contributions to these works, especially if they master the methods of prognosticating the regional development. One composite manifestation of these works is the execution of perspective balances of land use.

7. The problems of protection of environment cannot be solved in practice without expenditures from the state's budget. Therefore, the principles of expending budgetary assets on the protection and recultivation of the human environment have to be worked out. Poland expended on this purpose about 2,3 per cent of its total budgetary expenditures in 1969. Some effects may be obtained by voluntary work in planting trees, shrubs, cleaning greeneries and sport facilities etc.

Of paramount importance is the investigation of the effects on human life of living in a big city, of the adverse effects of the urban style of living and the all-embracing stress of the big city. These effects may be counterbalanced by tourism and recreation in open air. The areas in which the natural environment (landscape) is still not destroyed deserve comprehensive protection. Also in these works the participation of geographers may prove significant.

Der Schutz der vom Menschen gestalteten Umwelt – eine Hauptaufgabe der Geographen

Unter den verschiedenen Disziplinen, denen der Schutz der vom Menschen gestalteten Umwelt ein

besonderes Anliegen bedeutet, steht die Geographie mit an vorderster Stelle. Ihr Beitrag an die Lösung der sich stellenden Probleme kann in bestimmten Fällen ausschlaggebend sein. Die vorliegende Studie versucht, die für den Geographen vordringlichen Fragen in systematischer Ordnung vorzutragen. Deren Zahl ist nicht gering. Theoretischen und methodologischen Untersuchungen des beträchtlichen Aufgabenbereichs ist bisher zu wenig Aufmerksamkeit geschenkt worden; es fehlt am Wissen um die

wesentlichen Charakteristika der Beziehungen des Menschen zur Umwelt; auch gibt es keine systematische historische Analyse der in der Umwelt vollzogenen Veränderungen. Indem er die sich zur Bearbeitung aufdrängenden Probleme klar hervorkehrt und im Detail gründlich beleuchtet, vermittelt der Verfasser eine Übersicht über den Weg und die Methoden, derer sich die Geographen bedienen sollten, wenn sie, was nur zu wünschen ist, sich diesen aktuellen Anliegen zuwenden.