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SUBURBAN ZONES IN THE LIGHT OF RESEARCH INTO URBAN AGGLOMERATIONS IN POLAND

After World War II processes of spatial concentration of population and socio-economic activity, developing in a few countries or regions, have been accompanied by processes of deconcentration of those phenomena on a local scale (towns and systems of settlement units) and of functional and spatial integration, occurring between neighbouring towns and villages. These processes have contributed to the formation and rapid growth of urban agglomerations. Large-scale research work on the processes of formation and development of urban agglomerations in Poland were started in the second half of the 1960s. Research was concerned with the genesis and tendencies of transformations which had been taking place, an analysis of the current state, prognoses of further development (1, 2, 5, 6, 10, 13, 20, 22, 23), and also with theoretical and methodological problems connected with the identification and delimitation of these current forms of settlement (6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 24).

Results obtained have made it possible for the authors of Poland's spatial economic development plan up to 1990¹⁾ to approach urban agglomerations as the highest forms in the hierarchy of settlement, which will be of dominant significance in Poland's settlement system at the turn of the 20th century (in the latest version of the plan the number of agglomerations is 18 and it is anticipated that by 1990 they will have been populated by some 50 % of the country's inhabitants).

Irrespective of a rapid and effective development of the studies on the Polish agglomerations it should be pointed out that their theoretical and methodological foundations are inadequate and cause that particular authors hold different views as regards the identification and its criteria, as well as on the criteria of delimitation of the Polish agglomerations (1, 2, 6, 7, 9, 10, 11, 13, 18, 20, 23, 24). This lack of theoretical and methodological foundations has made it impossible to apply uniform identification criteria and to carry out collective complex researches (19) on agglomerations, especially as this inadequacy is accompanied at the same time by:

- an insufficient knowledge of how to identify as a whole the complex processes associated with the formation and development of an agglomeration;

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- different objectives underlying the identification and delimitation of agglomerations for particular fragmentary investigations;
- lack of data in appropriate spatial aggregations, permitting the researcher to delimit an agglomeration on the basis of criteria of both the concentration as the functional-spatial links;
- arbitrary and subjective approach of individual authors who adopt aprioristic assumptions dictated by their own beliefs, and not based on scientific research.

However, it should be stated that the authors of both scientific work and planning documents apply usually internally coherent conceptions as well as measurable and correct (if respective data are available) criteria of identification and delimitation. Against this background the following examples illustrate best the cases when conceptions as well as the delimitation and zoning of urban agglomerations were inaccurate:

- the plan of Poland's spatial economic development up to 1990, in which the application of adopted criteria was ruled by excessive voluntarism and lack of consequence²⁾;
- work of the Research Institute of Environmental Development, which is characterized by a far-reaching arbitrariness and opinionated in carrying out the delineation of the so-called planning range of the agglomeration (2).

The existence of various conceptions and views regarding the identification and delimitation of urban agglomerations is not a specific feature of Polish research work only. Similar differences can be observed in research carried out, for example, in the German Democratic Republic³⁾, Federal Republic of Germany⁴⁾ and the USSR⁵⁾. It seems to me that this is a sign that so far no fully adequate research mechanism has been established for investigating urban agglomerations, which is a relatively new phenomenon, rapidly changing its essence and forms.

Terminology applied in Polish literature to define these new settlement forms is very varied: e.g. urban agglomerations, urban-industrial agglomerations, big urban agglomerations, conurbations, urban regions, metropolitan regions, metropolitan areas, urbanized space, urbanized areas, urban complexes. These terms are used as synonymes, or closely related notions, or as the names of various forms of spatial-functional systems of settlement units. Simultaneously with this variety of terms there is also a variety of definitions (6, 9, 13, 15, 19, 23, 24). The range of these definitions is very wide, from territorially vast areas of compact urban construction, or the territories of urban investments⁶⁾ to area of loosened systems which contain territories of urban investments (a town, or towns, which is/are the core of an agglomeration, together with lesser towns situated within the area of the agglomeration) and of the areas of non-urban forms of land use, functionally and spatially connected with the agglomeration.

meration core. I do not propose to present or evaluate those definitions (those interested in the subject are referred to the bibliography), and I will use the definition formulated by P. Ebergardt and S. Herman (19), as I believe it to most adequate for a description of the present-day urban agglomeration. The definition reads: "A system of settlement units is defined as an urban agglomeration when its demographic and economic potential, and functions fulfilled, point to quantitative and qualitative differences between this system and other elements of the country's settlement system. The system of settlement units includes the following components, which are functionally and spatially integrated:

- 1/a town, or towns, forming the core of the agglomeration;
- 2/smaller towns situated within the agglomeration;
- 3/villages with residential construction, communal infrastructure and professional structure of the population which justify their qualification as urbanized areas.

Moreover, an agglomeration contains also agricultural land (including the habitats) as well as forested and recreation areas, which are spatially integrated with it, and which fulfill the functions of services predominantly for the agglomeration population. The complexes of settlement units can be singled out within the agglomeration as spatially non-continuous patterns, while the whole area of the agglomeration forms a spatially continuous pattern."

In the procedure of delimiting urban agglomerations the following three consecutive stages can be differentiated, in which are determined:

- 1/the lower limit of the size of towns identified as the core of the agglomeration; moreover, towns commensurate with criteria used should be selected. In Poland, towns with over at least 100,000 people are usually identified as the agglomeration core, though certain scholars suggest that this limit should be raised. However, this assumption is hardly ever undermined.
- 2/the number of the agglomeration external zones, criteria used in their delimitation, and the delimitation procedure;
- 3/ - in analogy to stage 1 - criteria defining the lower limits of the agglomeration size and the results of work, carried out during the first two stages, was verified according to those criteria. In Poland, the usually adopted numbers of the aggregation of population are from 15,000 to 500,000, and only in a study by S. Leszczycki, P. Ederhardt and S. Herman (13) the indices of population and of industrial employment, expressed in relation to the national totals, were used. A positive side of using the relative values is that the degree of concentration can be presented at a given period, but its negative side is that it is impossible to make comparisons in time and space.

Problems of suburban zones in research on urban agglomerations are closely associated with the singling out of agglomeration external zones and therefore topics of the second stage of delimitation will be discussed in greater detail.

To start with it should be pointed out that conceptions and methods concerned with the differentiation of zones are the most debatable problem in Polish literature on the subject. Out of a rich collection of those conceptions I will present here the following four which show the range of differences in this respect. The plan of the country's spatial economic development up to 1990⁷⁾ is in principle based on the notion of a complex of towns as a spatially non-continuous system. It seems that in a planning document this is an essential error. Those are exactly the areas of the agglomeration external zones that developed most dynamically throughout the past twenty years and will continue to do so until the end of the current century. To overlook such a problem in a plan of spatial economic development gravely impairs its value.

In his interesting book R. Karłowicz (10) presents a widely developed conception of a zonal division of the agglomeration into: urban zones, zones of intensive urbanization, of moderate urbanization, of potential urbanization, and of urban impact. It is a pity, however, that the author described only those zones, primarily from the viewpoint of an urban planner and did not make any attempt to specify concrete, measurable criteria of their differentiation.

A. Stasiak (19) differentiated three zones, namely:

1. The core of the agglomeration, which is characterized by high indices of population density (over 1000 people per sq. km) and concentration of places of work (over 750 per sq. km), includes also recreation and green areas, integrally associated with urban construction, it also has reserves of building sites for the next five-year planning period. His opinion that the area of the core does not necessarily coincide with the town administrative boundaries, seems to be fundamental. I will come back to this subject later on.
2. The internal zone, i.e. a densely populated and built-up territory, endowed with convenient transport facilities connecting it with the core and - at least partial - communal infrastructure shared with the core. This zone contains also the areas of intensive market gardening.
3. The external zone, i.e. areas within the izochrone of 45-60 min. on which the core exerts its influence in the form of increased population growth, changes in the population professional structure, commuting to work, education facilities and services in the core, development of residential construction. Recreation areas also appear in this zone. As a whole the zone has an agricultural character.

Though the described conception contains all the characteristics of the agglomeration components, no attempt was made at a delimitation of the Polish agglomerations. The author did not do it even in his book (23).

Starting from an assumption that the level of correlation of indices applied when delimiting the agglomeration is high, P. Eberhardt and S. Herman (19) used three basic criteria illustrating:

- 1/the level of concentration expressed as population density,
- 2/the professional structure of population expressed by the index of non-agricultural population,
- 3/functional linkages expressed by the index of commuting to work in the core.

On the basis of the above assumptions the authors suggest the following delimitation procedure:

- all towns with over 100,000 inhabitants should be adopted as likely cores of agglomerations,
- communes corresponding to the criteria listed below and all towns within the territorial range, delimited by them, should be included in urbanized areas.

The criteria are as follows:

- population density is over 100 people per sq. km,
- people earning their livelihood in non-agricultural professions account for over 75 % of the commune's total population,
- commuters to work in the core and towns account for over 30 % of the given commune's professionally active population.

The authors suggest that the territorial range of an urban agglomeration is the spatially continuous range of urbanized areas, surrounding the core.

On the basis of the above definition the authors delimited 18 urban agglomerations in Poland in 1977. Moreover, they also singled out, as the marginal zone (the hinterland), urbanizing areas which contain the communes that fulfill the following conditions:

- density of the population is over 75 people per sq. km,
- people earning their livelihood in non-agricultural professions account for 50 % of the commune's total population,
- commuters to work in the urban agglomeration account for over 10 % of professionally active inhabitants of the given commune,
- the increase of population in the past decade is over 10 % of the initial total.

The examples, listed above, illustrate the various conceptions of the agglomeration delimitation undertaken in Poland for the country as a whole. Those conceptions take into account a possibility to use data in appropriate spatial aggregations. A much richer set of criteria can be used for the delimitation of particular agglomerations. They can be grouped as follows:

- I. Criteria illustrating the level of spatial concentration:
- a/ absolute figures of population number and density,
 - b/ absolute figures of people employed in industry and the indices of this employment expressed per unit of the area (for places of work), or per 1000 inhabitants (for places of residence),
 - c/ absolute figures of employment in services and its indices, expressed as in point b/,
 - d/ the value of fixed assets (total and production),
 - e/ the value of the gross industrial production,
 - f/ the indices of the concentration of higher-rank services (universities, theatres, specialized hospitals, state administration, economic management).
- II. Criteria illustrating the functional structure:
- a/ professional and employment structures,
 - b/ percentage of urban population,
 - c/ indices of employment, distribution, the value of the gross industrial production (as in I),
 - d/ indices illustrating specialized agricultural production aimed at meeting the demands of the agglomeration population.
- III. Criteria illustrating the level of investment:
- a/ the character and compactness of construction,
 - b/ the number of rooms per sq. km,
 - c/ the number of rooms per building,
 - d/ vacation homes (country cottages, hotels, boarding houses),
 - e/ indices of the length of railway lines and roads per unit of the area,
 - f/ distribution of railway and bus stations together with their isochrones,
 - g/ indices of equipment with communal infrastructure.
- IV. Criteria illustrating functional-spatial linkages:
- a/ everyday commuting to work,
 - b/ commuting to school and services,
 - c/ production co-operation between industrial works and co-operation of agriculture with industry.

The first three groups of criteria can refer to both the core as to the agglomerations' external zones; the fourth group, however, makes it possible to present links between external zones and cores of agglomerations.

All delimitations of the urban agglomerations in Poland are, in principle, based, as regards the spatial aggregates of data, on the units of the country's territorial administrative division. Within the currently in force, two-rank administrative division, the 2nd rank units (towns and communes) are the basic ones. However, it should be mentioned that at a time when the former, three-rank administrative division was in force in Poland, an attempt was made to delimit agglomerations of the basis of the powiats (the then 2nd rank unit). I think this was an ill-timed effort because the areas of the powiats

were too large. Even now, when the delimitation of agglomerations is based on towns and communes, similar difficulties sometimes arise.

Many rural communes spread over large areas, and land use is specific there (e.g. big forested areas), which causes that the delimitation procedure may be incorrect. Even greater difficulties arise when the agglomeration core is a town occupying a relatively big area. For example, the delimitation of urban agglomerations in Poland, made by P. Eberhardt and S. Heřman in 1977, revealed that the city of Wrocław, spread over an area of 293 sq. km (within its administrative boundaries) and inhabited by 569 thous. people in 1975, had not evolved a surrounding urbanized zone, and therefore was not an urban agglomeration. The urbanized zone of the Szczecin agglomeration, spread over an area of 300 sq. km (within its administrative boundaries) and inhabited by 365 thous. people in 1975, accounts for only 11 % of the total area of the agglomeration. Both phenomena are a result of the fact that all systems of settlement units as well as a vast area of agricultural land, forests or inland waters are contained, besides the city-core, in the administrative boundaries of Wrocław and Szczecin.

The numerical data are as follows:

- the area of urban investment (including not only the city core, but also a number of units of urban settlement) accounts for one-third of the administrative area of Wrocław and Szczecin;
- agricultural land accounts in the city of Wrocław for 49 %, and in the city of Szczecin for 18 % of their administrative areas;
- the percentage under forests is respectively 5 and 14, moreover, the area under surface water amounts in Szczecin to 28 % of the city's administrative area (data for 1970)⁸.

It appears, thus, that the urbanized zone of the Wrocław agglomeration is contained within the administrative area of the city, whereas the urbanized zone of the Szczecin agglomeration should be in addition extended by some 200 sq. km which are contained within the administrative area of the city of Szczecin. Similar, though not so drastic phenomena, occur in the remaining 11 monocentric agglomerations in Poland. In the 6 agglomerations of a polycentric character such phenomena hardly ever occur.

It seems that these phenomena clearly indicate that it is high time to abandon the formal administrative division and to base the delimitation of the urbanized zones of urban agglomerations on other spatial aggregations of data. Under Polish conditions this postulate will probably not be realized very soon because there is lack of:

- agreement as regards other than administrative grids of the country's division (e.g. a grid of squares), and therefore data compiled for such units also lacking,

- certain necessary data for spatial units, smaller than the territorial units of the 2nd rank administrative division.

The above remarks on the identification and delimitation of urban agglomerations clearly indicate that functions ascribed to suburban zones coincide, to a great extent, with those ascribed to the urbanized areas of urban agglomerations and their urbanizing areas (definitions used by P. Eberhardt and S. Heřman, cf. 19). However, it should be emphasized that - though agriculture plays such an important role in the economic development of the suburban zone - agricultural problems are insufficiently taken into consideration when the agglomeration external zone is delimited. This may result from lack of sufficient interest in agglomeration problems, shown by agricultural geographers.

Nevertheless, the thesis may be formulated that there is an essential concurrence between the territorial ranges of suburban zones as well as those of the agglomeration urbanized and urbanizing areas which are under the influence of urban agglomerations. The extension of the territorial range of suburban zones over spaces containing both urbanized and urbanizing areas is determined by the following two premises. First of all, contrary to urbanized areas, in urbanizing areas agricultural problems constitute the main function, irrespective of urbanization processes occurring in these areas, and thus one of the basic functions of the suburban zone is emphasized.

The second, important argument for the accuracy of the above thesis is that the spatial forms of agglomerations are so different, mainly because of the development of transport means and the saturation of suburban areas with the transport technical infrastructure. The agglomeration spatial form, the development of which is based on mass rail transport lines, is the amoeba-like pattern expanding from the agglomeration core along the transport lines, and forming between the urbanized areas large bays under agricultural use of forests, predominantly with urbanization at a low level. Often those bays almost touch the core. The discussed territories form the suburban zone of the town which is the agglomeration core, but during the delimitation they can be classified only as urbanizing areas.

Another spatial form of agglomeration urbanized areas is shaped by the bus mass transport system, which, as more flexible, makes penetration of the bays easier and the formation of new urbanized areas possible. In such cases either complexes of urbanized areas, more compact spatially, or nodal-belt patterns, begin to develop following the implementation of the spatial plans. Also in such cases urbanizing areas, with agricultural or forestry prevalent, may fill up the bays, still lying within the urbanized area, or the "net meshes", produced by the emerging and developing nodal-belt patterns.

Finally, with a domination of individual car transport, which makes a full penetration of the area possible, urbanized areas either form, mainly following the implementation of the spatial plans, nodal-belt patterns, or - this happens most often - they spread like "greasy stains" around the core of the

urban agglomeration. This last spatial form may also occur when a network of mass transport (railway and bus) is well developed.

I believe that above remarks explain the gist of the thesis proposed in the paper concerning the overlapping of the spatial ranges of the town's suburban zone, which is the agglomeration core, with the area of urbanized or urbanizing territories, on which the urban agglomeration exerts its influence.

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In my above remarks I have not covered all the rich variety of complex problems confronting suburban zones which have appeared in the investigations of the Polish urban agglomerations. The selection of topics was subjective, as they represented my own research interests. As it happens I have primarily been concerned with the system of Polish agglomerations, and not with any particular urban agglomerations. I fully realize that research problems of a concrete agglomeration could largely extend the field of research problems of suburban zones. However, as I confined myself to the global approaches, I had to put main emphasis on the identification and delimitation of the agglomeration, which problems - as I have already mentioned - raise many controversial discussions. A great variety of views is also held as regards the identification and delimitation of suburban zones, though possibly those controversies are less sharp.

In the final part of my paper I would like to present a few topics for discussion, and thus to make my paper even more polemical. Namely:

1. Concurrence in the identification and delimitation of urban agglomerations' external zones, as well as of suburban zones should in future bring about the use of the same research instruments and of a standardized, unequivocal nomenclature in the studies of agglomeration external zones and of suburban zones of towns which form the core of urban agglomerations. The notion of a suburban zone could be applied to the hinterland of towns in which the processes of urbanization, spatial deconcentration, as well as functional and spatial integration of settlements are still in their initial phase, during which it is not possible to develop an urban agglomeration.

Suburban zones can be investigated by means of the same research instruments that are used in research of urban agglomerations' external zones. The postulate, corroborated by the need for concentration and integration of research which may make it possible to solve all those complex problems, cannot be realized until results of research, carried out at present, provide foundations for the development of the research apparatus, fully adequate for the investigation of an agglomeration which is a relatively new phenomenon, rapidly changing its essence and form.

2. The application for delimitation purposes of the 2nd rank unit of the administrative division, as a spatial unit of the aggregation of data, is not commensurate with the needs of research work carried out on the national scale, or on some vast regions. This is a result of the occurrence of great surface and functional differences in these units, inadequate information of a necessary degree of accuracy and changes of administrative division occurring in time (the latter phenomenon has played a particularly impressive part in Poland after World War II). Therefore, I would like to refer to the project suggesting the preparation of grids of squares, for the entire area of the country (at least, two, mutually correlated grids with squares of various sizes). I believe that this postulate is worth discussing at an international forum because international cooperation in research concerned i.a. with problems of urbanization processes and urban agglomeration development is growing rapidly.

3. Finally, there is a problem of changes in the adequacy of criteria following the socio-economic progress in our countries. Among the criteria of the delimitation of urban agglomerations' external zone, which I have already quoted, an important role was played by the following:

- the index of the non-agricultural population,
- the level of equipment of building sites and dwellings with the communal infrastructure (electricity, tap water, canalization, gas).

With the socio-economic development and a progress in the semi-urbanization process (urbanization of rural areas) both indices have lost their significance as important factors in the delimitation of urban agglomerations' urbanized areas. The phenomena, analogical to those which can be observed in developed countries, i.e. the phenomena of the inadequacy of the index of urban population for the investigation of the processes of the development of towns, occur there. For example, the index of non-agricultural population in Poland (between 1950 and 1974 it decreased by 20 points for the country as a whole) amounted to 73 % in 1974; the highest index (96 %) characterized the voivodship of Katowice, whereas the lowest (38 %) was in the voivodship of Zamość. The national average for the rural area was 46 % in 1974. In retrospective studies this index can fulfill its task in the delimitation of the area at various levels of urbanization. However, it is useless in the investigations of the current situation in various voivodships. In 1980, it possibly will be useless on the national scale. As regards the indices characterizing the equipment of building sites and dwellings with the technical infrastructure they may still be used in Poland for quite a long time. However, they are already useless in the investigations of the vast areas of the GDR and ČSR. I am not suggesting any new indices, but I believe that this matter should become an essential topic in a discussion which could lead to the establishment of the correct research apparatus for the investigation of the problems of urban agglomerations' external zones and of suburban zones.

Bibliography: of selected publications in Polish, concerned with problems of urban agglomerations

The selection of publications listed in the bibliography has been made in such a way as to present predominantly those the authors of which paid particular attention to problems of urban agglomerations' external zones. Moreover, with the exception of the six items (of interest as regards the historical development of the views), the bibliography contains publications issued after 1970.

Two publications are of special interest (Nos 15 and 18), as they present the views of a group of Polish scholars and urban planners who deal with the problems of urban agglomerations. Those two publications present in a synthetic form different approaches and conceptions regarding the identification and delimitation of urban agglomerations' external zones.

A book by S. Liszewski (14) deals with problems of the differentiation of territories within the administrative boundaries of the town depending on their investment and utilization; significance of such differentiations in research of suburban zones and urban agglomeration does not call for any special comment. The book is the latest publication and contains an almost full bibliography of Polish publications concerned with that question.

1. Anders W., Gruszkowski W., Kołodziejski J.: *Rozwój wielkich aglomeracji miejskich w Polsce - II Aglomeracja Gdańska* (Growth of big urban agglomerations in Poland - II The agglomeration of Gdańsk), PWN, Warsaw 1975.
2. Bańkowska B., Grad-Kończyszka A., Gregorkiewicz K., Namysłowski J.: *Rozwój wielkich aglomeracji miejskich w Polsce - I Konurbacja bydgosko-toruńska*, PWN, Warsaw 1974.
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15. Liszewski S.: Tereny miejskie a struktura przestrzenna Łodzi (Urban territories and the spatial structure of Łódź), Acta Universitatis Lodzensis, Łódź 1977.
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Abbreviations:

GUS - Central Statistical Office

KPZK PAN - Committee for Space Economy and Regional Planning, Polish Academy of Sciences

PWN - Polish Scientific Publishers

WSP - Higher School of Education

Notes

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6) Territories of urban investments in Polish urbanistic terminology include: residential areas (settlements), industrial, all-urban services, urban green, recreation, sports, communication, and communal facilities territories, i. e. all those invested in order to make it possible for them to fulfill their urban functions. These territories are also known under other names, Liszewski, for example, (15) determines them as real urban territory.

7) The plan. . . . (op. cit.); Fiedorowicz K., Op. cit.; Eberhardt P., op. cit.

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Stanisław Heřman

OBMESTJA V LUČI RAZISKAV MESTNIH AGLOMERACIJ NA POLJSKEM

Velikopotezne raziskave o procesih oblikovanja in razvoja mestnih aglomeracij na Poljskem so se začele v drugi polovici šestdesetih let. Dobljeni rezultati so omogočili avtorjem prostorskega načrta za gospodarski razvoj Poljske do l. 1990, da so mestne aglomeracije upoštevali kot najvišjo obliko v hierarhiji naselij. Poudariti pa je treba, da so teoretični in metodološki temelji teh raziskav neustrezni in povzročajo, da posamezni avtorji različno gledajo na posamezne probleme, kot na primer na kriterije razmejitev aglomeracij na Poljskem.

V poljski literaturi uporabljena terminologija opredeljuje te nove naselbinske oblike na različne načine, in sicer kot: mestne aglomeracije, mestno-industrijske aglomeracije, velike mestne aglomeracije, konurbacije, mestne regije, metropolitanske regije, metropolitanska območja, urbaniziran prostor, urbanizirana območja, mestni kompleksi. Ti izrazi se uporabljajo kot sinonimi ali med seboj zelo podobni izrazi ali pa kot imena za različne oblike prostorsko funkcijskih sistemov naselbinskih enot.

Najbolj ustreznega opredelitev današnjih mestnih aglomeracij bi bila naslednja: sistem naselbinskih enot štejemo za mestno aglomeracijo, ko njegov demografski in gospodarski potencial ter obstoječe funkcije izkazujejo kvantitativne in kvalitativne razlike med tem sistemom in ostalimi elementi državnega naselbinskega sistema. Sistem naselbinskih enot vključuje naslednje sestavine, ki so funkcionalno in prostorsko integrirane:

1. mesto ali mesta, ki predstavljajo jedro aglomeracije;
2. manjša mesta znotraj aglomeracije;
3. vasi s stanovanjsko izgradnjo, komunalno infrastrukturo in poklicno sestavo prebivalstva, ki ustreza urbaniziranim območjem.

Pri opredeljevanju mestnih aglomeracij upoštevamo naslednje zaporedje uporabljenih kriterijev:

1. spodnja meja velikosti naselij, ki jih opredelimo kot jedro aglomeracije. Na Poljskem se mesta z več kot 100 000 prebivalci običajno smatrajo kot jedra aglomeracij, čeprav nekateri raziskovalci zagovarjajo potrebo po zvišanju meje.

2. število zunanjih con aglomeracije, kriteriji za njihovo razmejitev in postopek razmejitve.

3. Podobno kot v prvi fazi: kriteriji, ki opredeljujejo spodnjo velikostno mejo aglomeracij. Poleg tega je potrebno ugotovitve, dobljene v prvih dveh fazah, preveriti v skladu s temi kriteriji. Izhajajoč iz predpostavke, da je stopnja korelacije kazalcev, ki jih uporabimo pri razmejevanju aglomeracij, visoka, P. Ebehardt in S. Heřman uporabljata le tri osnovne kriterije:

1. stopnjo koncentracije, ki jo izraža gostota prebivalstva;

2. poklicno sestavo prebivalstva, izraženo z deležem nekmečkega prebivalstva;

3. funkcijske povezave, izražene z deležem dnevnih migrantov, ki odhajajo na delo v središče aglomeracije.

Na osnovi podanih kriterijev predlaga avtor naslednjo razmejitev:

- vsa mesta z več kot 100 000 prebivalci naj bi smatrali kot primerna za središča aglomeracij;

- občine, ki ustrezajo spodaj navedenim kriterijem in vsa mesta znotraj teh občin, se vključijo v urbanizirana območja.

Kriteriji pa so naslednji:

- gostota prebivalstva mora biti večja od 100 prebivalcev na km²;

- vsaj 75 % prebivalcev se mora preživljati z dohodki izven kmetijstva;

- vsaj 30 % aktivnega prebivalstva občine mora dnevno odhajati na delo v središče aglomeracije ali v ostala mesta.

Na osnovi gornjih opredelitev je za l. 1977 avtor razmejil na Poljskem 18 mestnih aglomeracij.