

COGNITION OF ENVIRONMENT AS PART OF THE RELATIONSHIP "MAN - ENVIRONMENT"

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New Models of Man and Environment in Behavioural Research

In human geography, traditionally emphasis was on the model of economic man. Economic geographical theorists posed man as a totally rational being influenced in his decision-making as objective external factors of which he had perfect knowledge. Man was either a consumer seeking to maximize his utility or entrepreneur seeking to maximize his profit.

Latter, the behavioural approach in human geography developed the model of man as satisficer. Geographers searched for model that would be a viable alternative to the economically or spatially rational being incorporated into many explanatory models during quantitative revolution. Human characteristics as satisficing, bounding rationality, risky and uncertain behaviour, etc. were included in new explanatory schemes (V. Ira, 1989).

Parallely with the search for new model of man appeared an idea that there existed environments other than the observable external physical

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environment. "The increased interdisciplinary interaction clearly indicated to geographic researchers that there were other environments that were equally as real as the physical constraints imposed by the objective environment. Thus there developed in the perceptual, cognitive, ideological, philosophical, sociological and other environments that were all part of the dialectical relation between humanity and realities in which they lived"(R. G. Golledge, R. J. Stomson, 1990:4).

After A. Pred (1967), the main framework for research in behavioural geography is focused on environmental cognition. One conceptual framework that describes environmental cognition has been provided by J. R. Gold (1980). This framework proposes that the information from the environment is filtered as a result of cultural factors, personality characteristics and cognitive variables to sorts of cognitive representations: images and spatial schemata.

All experience with elements of environments external to the individual take place within a framework of space and time. Thus cognitive process (perceiving, learning, formation of attitudes, etc.) operate to produce in people an individual spatio-temporal awareness or knowing about the environments (D. Amadeo, R. G. Golledge, 1975).

Place of the cognition of environment as one of the dimensions of the relation man-environment in the scheme of the development of spatial behaviour of the man is then irreplaceable (R. E. Lloyd, 1976), as it represents from the point of view of the internal processes taking place in man an intermediate step of perception and imaginations on one side and evaluations, deciding, and the resulting behaviour on the other. It is possible to understand it in this context in two relations:

1. cognition as a result of cognitive spatial relation, where the space is understood as a mental eventually cognitive image of the spatial cognition and perception
2. cognition as an impulse for spatial behaviour of the man where the space is understood as an "activity area of the man".

From the point of view of understanding the relation man-environment both meanings are justified in relation to the research of environment of different quality as only in the mutual comparison of the states and manifestations of the man in different environment it is possible to enlighten such a complicated phenomenon as the question of environmental cognition and consciousness is.

Cognition of environment as a result of cognitive spatial relation is not based only on perception i.e. visual creation and coding. As R.E. Lloyd (1982) points out, also verbal imaginations formed from hidden abstract imagination on the basis of evoking the experience, perceived reality or on the basis of the proper observation play their role here. Perception of environment and creation of imaginations of the environment form an integral part of the process of environmental cognition, and consequently and finally form and create the man's knowledge of environment (D. Kollár, 1992).

Cognition of environment on the example of rural population of the surroundings of Bratislava

From among several alternatives of the choice of the place of the basic life function of the man (After J. Maier et al., 1977) we chose in our example the place of living as one of the starting points for the comprehension of the questions of cognition of environment. Place of living is a centre of life of the man and he forms a special relation to it. Relation of man to the places of his everyday life is varied. We can talk of topophilia event, topophobia (Y. F. Tuan, 1987). In the context of relation man-environment we are interested in the relation of rural population in the surroundings of Bratislava to their own commune as their place of living and first of all what knowledge event reason is significant for this relation. In relation of the man to his own commune as his place of living also question of the relation to other towns and communes where he satisfies his needs is in the foreground. Especially in the

question of the last mentioned relation, cognition of environment and analysis of imagination that characterize it, gains importance (D. Kollár, 1992).

The first territory where we try to verify some hypotheses of cognitive spatial relation is formed by rural communes in the surroundings of Bratislava city. From the point of view of environment though, we can state that the surrounding of Bratislava and above all the rural communes in its setting represent relatively undisturbed space. Neither situation in smaller towns of the surrounding of Bratislava in relation to the polluted environment is negative, though Bratislava as one of the centres of chemical industry is highly polluted. Simultaneously, as the principal economical centre of the Slovak republic it possesses all negative environmental characteristics of a large city multiplied by its favourable transport position and the related high transit frequency. From this point of view it is interesting to observe whether the cognition of man reflects the cited objective reality eventually, what is the subjective interpretation of the objective reality by man. Research oriented to spatial behaviour of man in relation to subjective indices was carried out in the springtime of 1992 by means of questionnaires and answers of 578 respondents.

Relation of rural man to his own commune can be evaluated as a strikingly positive one (52,6% of respondents consider their own commune as the most ideal place for their living) and that is documented also by a very low percentage of the population (4,1% of respondents) with phobic relation to the own commune as a place of living. On the contrary, relation to Bratislava city is negative (39,1% of respondents would not like to live in Bratislava in any case) and out of that number even 82,9% of them negatively perceive and evaluate Bratislava city first of all from the environmental point of view (50,0% of respondents cite as a principal reason of their aversion to Bratislava the polluted environment, 32,9% respondents cite aesthetic reasons and noise). Category of the environment represents in topophobia a modal category and the knowledge of the impaired environment is typical above all for Bratislava. We can

state that the perception and cognition of the environment by man in this case reflects the state of objective reality.

In this relation it is interesting that the category of healthy environment appears together with the category of aesthetic reasons and tranquility only in a fifth part of the respondents as a main reason of their positive relation to the place of living (reason healthy environment is cited even only by 5,2% of respondents). The quoted fact is probably related to the emotional state of man that in some cases accentuates the phobic imaginations of certain problems, while in positive relation to the chosen place man does not quite realize the opposite pole of his feelings, reasons which he takes for granted.

All this indicates that in relatively undisturbed environment in the surroundings of Bratislava man does not realize sufficiently the value of healthy environment and prefers other reasons of his choice of an ideal place for living (native place, familiar reasons, infrastructure) Respondents who cite environmental reason as the principal one for the choice of the living place prefer rather aesthetic viewpoint and tranquility in comparison to the polluted environment. In this context comparisons of environmental cognition and preferences in undisturbed, eventually impaired environment and measurings of the significant differences in the cited types of the environment gain more importance.

Reasoning preference of the category of the environment in relation to topophobia is based above all in cognition of the environment and value orientation of the man, i.e. subjective indices. In chosen objective indices like distance, frequency of the movement, place of work in relation to the perception of environment as a main reason of phobic relation to the place of living, statistically significant dependencies were not confirmed.

On the other side though, the cited objective indices form part of cognitive spatial process and to a certain extent they also influence it. Especially distance and frequency of movement of the man to certain places causes a different level of cognition and differentiates the relation to the

given places. For instance phobia of Bratislava as a potential place of living loses intensity with growing distance from Bratislava, higher movement of population of some commune connected with better cognition of the environment is reflected also in a more positive relation to that commune as a place of one's potential living or working place.

Environmental cognition in the region with affected environment (The Horná Nitra Basin)

The pilot survey was done in the critical environmental zone of the Horná Nitra Basin, in a region with such a degradation of the environment as a result of human activities that the negative factors jeopardize population's health and the economy (V. Ira, 1992).

Horná Nitra is a typical Carpathian basin region in central Slovakia. Since the 19th century brown coal was extracted here and industry was developed. In 1930s the first large chemical factory was founded. After the Second World War the regional development of the Horn Nitra Basin accelerated. Small-scale production merged in to a large-scale one. The whole industrial economy was oriented to the chemical and energy production (Nováky, Zemianské Kostolany), mining and some middle-scale plants. The environmental pollution is considerable. In the core of the affected area the air, water and soil pollution is enormous. Three large deposits of toxic ashes jeopardize the environment. Consequences of this situation is reflected by the population's health and an increasing mortality rate.

Cognition of environment is conditioned by the degree of acknowledgement. Pilot study in the region of the Horn Nitra showed that not even one respondent evaluated his acknowledgement of the state of environment in the region as very good. Good acknowledgement was recognized by a tenth part of the respondents, the average acknowledgement was admitted by almost half of the respondents. Deficient acknowledgement was declared by more than 30% of them. It is interesting that high propor-

tion of "insufficiently informed" was found among the respondents living in the proximity of risk localities (42%) Almost 13% of respondents quoted that they have no information on the state of environment.

Cognition of the environment includes numerous attitudes that do not result from a immediate response to certain stimuli, but they were formed during a longer period. Topical problems in environment of the Horná Nitra regions are estimated prevailing as pronounced (36%) to very striking (31%). Attitudes of respondents living near risk localities (industrial plants, mines, waste dumps) reflect more prominently their negative experience. Problems of environment are evaluated as very striking by 38% of respondents. Very low proportion of respondents considers the environmental problems mild to insignificant (total 6%).

Mixture of cognitive and naturally also affective attitude is reflected also in determination of the most serious environmental problems. In relation to the deteriorated state of environment, the most respondents classified the air pollution (91%), bad state of health of population (58%) and water pollution (50%) as the most serious questions. As less serious the questions related to the communal and industrial waste (26%), damage of forest growths (25%), degradation of soil, excessive noise and the occupation of agricultural soil by the mining were considered.

Cognition of environment represent certain way of processing of information that is stored and organized in the brain in order to be absorbed into the existing accumulated cognition of the given person and thus included into the value system of that person. Therefore in relation with the problems of environmental consciousness also the analysis of value orientation was interesting for us. Respondents were asked to arrange several groups of problems as they appear to them now, eventually as they appeared to them 5 year ago, in an order of importance. The following groups of problems were presented: wages, health, work, environment, property situation, family, politics. In evaluation of the contemporary situation the group of problems connected with environment appeared most frequently in the second place (25% of respondents), in

risk localities even 30%. Seriousness of the problems 5 year ago was evaluated by the studied population sample in a different way. The most respondents (19%) placed the environmental problems at the 4th position.

Conclusion

In relation to the comprehension of the cognition of environment as an impulse for the spatial behaviour of man various questions and hypotheses emerge. Is there a statistically significant relation between the perception and subsequent cognition of the environment as related to the choice of the living place, eventually working place? What importance is ascribed by the man to his cognition of the environment in real life? Are environmental imaginations and knowledge to certain extent also a motive of his spatial behaviour? The cited questions are only a part of a broad spectrum of problems that originate in the relation of subjective and objective indices of the spatial behaviour of man and in the enlightenment of the utilization of environmental knowledge in life of man. For instance in the surroundings of Bratislava with regard to the choice of new living place only 6,8% of respondents are thinking in the next few years of this possibility. Positive relation to the proper commune as well as the spectrum of reasons and knowledge characterizing this relation is reflected also in potential spatial behaviour in the question of the choice of the living place.

Analysis of the research results in the region of the Horn Nitra region also points at the mutual relation of cognition and potential spatial behaviour of man. Majority of respondents (92%) believe that they live in unhealthy environment (in the proximity of risk localities it is even 96%) but they stay in this environment especially for the reasons of the relatives and familiar bounds (59%), for favourable flat circumstances (29%), for the sake of the job (20%) and emotional bounds to the region (14%). Potential mobility expressed by the willingness to move to other, from the point of view of the environment, healthier regions was expressed by 45% of respondents. We can state that the state of objective

reality represented by deteriorated environment is in great extent reflected also in a potential mobility of the man.

Great amount of questions origin also in relation of the choice of working place that also plays an important role in the life of man. But here cognition of the disturbed environment is more interesting in relation to real or potential working place of the man.

Analysis of perception and cognition of the environment and the choice of the place of the two basic life functions of the man (dwelling and working) is especially at the contemporary moment highly justified as it facilitates better comprehension of the problem of the affected region from the point of view of environment and it enables the empathy and comprehension of the sense of the living and working place in the life of man (sense of place, after E. Relph, 1989).

LITERATURE

Amadeo D., Golledge R.G., 1975: *An Introduction to Scientific Reasoning in Geography*. Wiley, New York.

Gold J. R., 1980: *An Introduction to Behavioural Geography*, Oxford University Press, London.

Golledge R. G., Stimson R. J., 1990: *Analytical Behavioural Geography*, Routledge, London.

Ira V., 1989: *Niektoré otázky časovo-priestorových výskumov v sociálnej geografii*, In: Bezák, A. (ed.), *Nové trendy v geografii*, SGS pri SAV, Bratislava, pp.39-42.

Ira V., 1992: *Percepcia prostredia a environmentálne vedomie obyvateľstva oblasti s narušeným životným prostredím. (Perception of the Environment and the Population's Awareness in the Region with Affected Environment)*. In: Dragoňa V. (ed.): *Regionálne systémy životného prostredia*, Nitrianska univerzita, Nitra pp.87-89.

Kollár D., 1992: *Niekoľko poznámok k použitiu humanistického prístupu pri analýzach priestorovej štruktúry zázemia Bratislavy. (Einige Bemerkungen zur Anwendung des humanistisches Ansatzes bei den Raumstrukturanalysen im*

Hinterland von Bratislava), In: Drgoša, V. (ed.): *Regionálne systémy životného prostredia*, Nitrianska univerzita, Nitra, pp.90-95.

Kollár D., 1992: *Sociálna geografia a problematika vyskumu priestorového správania človeka*. (Social geography and the research of human spatial behaviour), *Geograficky časopis*, č.2, pp.149-161.

Lloyd R. E., 1976: *Cognition, preference and behaviour in space: An examination of the structural linkages*, In: *Economic geography*, Vol.52, č.3, pp. 241-253.

Lloyd R. E., 1982: *A look at Images*, In: *Annals of AAG*, Vol. 72, pp. 532-548.

Maier J., Paesler R., Ruppert K., Schaffer, F., 1977: *Sozialgeographie*, Westermann, Braunschweig.

Pred A., 1967: *Behaviour and Location: foundations for a geographic dynamic location theory. Part 1*, *Lund Studies in Geography, Series B, No.27*.

Relph E., 1989: *Doznania geograficzne a bycie-w-swiecie. Fenomenologiczne pochodzenie geografii*, *Geografia percepcji*, PZLG, 2, Warszawa, pp.51-80.

Tuan Y. F., 1987: *Przestrzeń i miejsce*, (Space and place), PIW, Warszawa.

POMEN OKOLJA V ODNOSU "ČLOVEK - OKOLJE"

POVZETEK

Novi modeli součinkovanja človeka in okolja v socialnogeografskem raziskovanju

V družbeni geografiji je v preteklosti prevladovala predstava človeka - delavca (homo economicus). Pred kratkim se je, predvsem pod vplivom bihejvarističnega pristopa, uveljavil model človeka kot porabnika. Geografi so v iskanju modela, ki bi uspel razložiti ekonomsko in porabniško sfero človekovega delovanja, izdelali nekaj prostorskih modelov, ki jih je moč podpreti s kvantitativnimi metodami.

Vzporedno z željo opredeliti človeka v prostoru na novo, so se porajala spoznanja o tem, da obstaja poleg vidnega, realnega okolja s konkretnimi učinki tudi očem nevidno okolje percepcije, ideologije, mišljenja, filozofskega prepričanja, sociološ-

kega položaja i.t.d. ... Spoznanje, percepcija o prostoru je ena pomembnih dimenzij na relaciji človek - okolje, saj neposredno vpliva na obnašanje človeka v okolju (R.E. Lloyd, 1976), ko le-ta na osnovi individualnega spoznanja stori konkretne korake, ki so se poprej, korak za korakom, od začetne oblike zaznave in dojemanja, preko vrednotenja in sprejemanja odločitve udejanile v odnosu do konkretnega prostora. Ta odnos lahko razumemo v okviru dveh temeljnih razmerij:

1. razsojanje na osnovi vedenja o prostorskih odnosih, v okviru katerega je prostor razumljen kot mentalna podoba prostorskih razmerij,
2. razsojanje na osnovi impulzivne subjektivne reakcije, ko je prostor razumljen kot "aktivnostno polje človeka".

Znanstveniku morata biti oba pristopa znana. Oba pristopa sta realnost in upravičeno ju lahko raziskujemo kot različni kvalitetni vsebini razmerja človek - okolje. V interakturnih raziskavah oziroma komparacijah aktivnosti človeka v različnih okoljih spoznavamo širino tega kompliciranega fenomena, katerega bistvo predstavlja subjektivno zaznavanje okolja in zavedanje človeka - znanstvenika, da tako pač je.

Spoznanja o okolju na primeru ruralnega prebivalstva v okolici Bratislave

Za prvo območje, na katerem smo skušali preveriti našo hipotezo o kognitivnih prostorskih odnosih, smo izbrali ruralne občine, ki obkrožajo slovaško glavno mesto Bratislavo. Razmere v mestu in okolici so si diametralno nasprotni. Ruralne komune so načeloma neokrnjen kmetijski prostor, Bratislava pa je center naftno-predelovalne industrije in kemijskih obratov, zaradi česar je okolje tod dokaj onesnaženo. Obenem je Bratislava glavno mesto Slovaške republike in kot mesto poseduje vse negativne ekološke karakteristike večjega mesta.

Odnos prebivalstva do občine, v kateri živijo, je bil nadpovprečno pozitiven (52,6% respondentov je menilo, da je domača občina idealno mesto bivanja). Nasprotno pa je prebivalstvo ocenilo sosednje mesto Bratislavo dokaj negativno (39,1% respondentov je menilo, da za nobeno ceno niso pripravljeni živeti v Brati-

slavi), pri čemer je kar 82,9% ljudi menilo, da je Bratislava z vidika zdravega okolja med najbolj onesnaženimi mesti (50% respondentov je navedlo, da je glavni razlog negativnega odnosa do bivanja v mestu prav onesnaženo okolje, 32,9% povprašanih navaja estetske razloge in hrup kot glavna razloga za odklonilno stališče).

Odnos prebivalcev do okolja se kaže v tem, da želijo uskladiti bivalno in zdravo okolje, temelji pa na percepciji okolja in subjektivnem vrednotenju.

Tudi objektivni dejavniki vplivajo na prostorske odločitve in nenazadnje v veliki meri oblikujejo dokončno odločitev. Posebno oddaljenost in pogostost migracij izboljšujata ali slabšata vtise o določenem kraju in spreminjata vrednostno percepcijo o njem.

Dojemanje okolja v regiji, kjer je okolje zaradi delovanja človeka prizadeto

Drugo raziskavo smo opravili v okolju, kjer je stanje že dokaj kritično. Gre za kotlino Horna - Nitra, kjer je degradacija naravnega okolja rezultat intenzivnega človekovega delovanja (kemična industrija, proizvodnja energije, rudarstvo), to pa obenem že ogroža zdravje prebivalstva in nadaljnji gospodarski razvoj.

Sodba o okolju je pogojena s stopnjo poznavanja razmer. Testna študija v regiji Horna - Nitra je pokazala, da se vsaj polovica respondentov zaveda nevarnosti. Nezadostno razumevanje problema je nakazalo okrog 30% respondentov.

Mešanico realne sodbe in naravnega reagiranja na obstoječe razmere smo zasledili pri obravnavanju skoraj vseh resnejših problemov v okolju. Glede na splošno katastrofalno stanje okolja v tej regiji večina ljudi (91%) spoznava probleme, ki bi jih lahko uvrstili v območje z onesnaženim zrakom. Nekateri stanje v okolju povezujejo tudi s slabim zdravstvenim stanjem prebivalstva (58%) in onesnaženimi vodami (50%). V navezanosti na probleme v okolju se je zdela raziskovalcem zanimiva tudi analiza vrednotenja nekaterih vzporednih problemov, ki jih občutijo in jih teže. Anketirance smo zaprosili, da ovrednotijo skupine problemov, ki se jim zdijo trenutno najbolj aktualne (plače, zdravje, delo, okolje, lastnina, socialni položaj, družina, politika). Pri tem vrednotenju se je izkazalo, da se je vprašanje okolja najbolj pogosto znašlo na drugem mestu (25% respondentov).

Zaključki

Pozitivne relacije med okoljem bivanja in potrjevanjem odločitve o bivanju na izbranem mestu se pogosto navezujejo na stanje okolja. Objektivna realnost, ki se izraža v degradiranem okolju je pogosto povezana s potencialno mobilnostjo prebivalstva (odselitve).

Analize percepcije in spoznanja - sodbe o okolju v navezanosti na obe bazični prvini človekovega funkcioniranja - bivanje in delo, so pokazale, da je treba razmere v okolju jemati resno, saj zdravo ali onesnaženo okolje ne prizadeva le ožje območje in tamkajšnje prebivalstvo, temveč vpliva na odločitve o migracijski dejavnosti v širši regiji oziroma preselitvi bivalnega ali delovnega okolja iz ali v neko območje. Obenem spoznanja o slabem stanju v okolju sprožajo apatije, ki se kažejo v različnih reakcijah človeka.