

## The impact of preferences of inhabitants of settlements for developers activities

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**Abstract.** Urban community contributes to the development of any city, but it is essential that its residents can live, work and relax in a friendly environment. The source of their well-being and positive aesthetic experience is a harmonious landscape, shaped by the functional spatial layout of streets, blocks of buildings and structures and the accompanying elements of nature and development, ensuring the rational development of urban space. The need to knowing of public expectations in relation to residence, is an important step in planning new investments by developers and construction companies. In order to carry out of research cooperation has been established with the construction company. Cooperation allowed to gain experience in the commercialization and implementation of research and carry out analysis and evaluation of spatial structures in terms of urban development and functional housing estates, with special emphasis on the needs of society. The observations focused in particular on ecological building and the necessity of the creation and development of green areas, sports and recreation to residential areas. We know that every square meter of land designated for housing carries a possible profit for the developer. The more will be built and sold apartments the more earn the investor. However, to the apartment were popular meet the demands of customers concerning not only the housing unit, but also the environment in which the building is situated. It is therefore important that the settlements were attractive and meet the social needs of society. Social needs are related to satisfying the expectations of the inhabitants of the settlements related to the comfort of the apartment, being, rest and recreation living within the zone of residence. As part of the research work carried study work and field research. They consisted gain knowledge about work organization in the enterprise and hearing the reasons and scope of the activities the developer, as well as get acquainted with trends in designing and developing residential areas. The studies included: observations of the work carried out on construction sites, carried out surveys among residents of the estate, assessments and analyzes social preferences in relation to settlements was made, the proposed model zoning settlements and their location was developed. These analyzes were performed using multi-parametric method, in which the accepted criteria describe the conditions to be met by location. Analysis of the criteria also may show that some of them are only partially fulfilled, and the degree of fulfilment also be laid down. The knowledge so gained can be transferred to real estate development enterprises in order to improve the quality of services provided by them.



## 1. Methodology and research

Accurate identification of the social needs related to the space surrounding a housing estate requires the participation of its dwellers in the process of its planning and design. Catering to people's expectations by accurately developing a piece of land increases its attractiveness. To achieve that objective it was necessary to define the residents' priorities with respect to the functions and the arrangement of the space around an estate [1].

The research involved studies and field work aimed at obtaining the knowledge about the current trends in the design and arrangement of residential estates. The researchers also observed and participated in some works carried out at construction sites. They also surveyed the residents of two housing estates. In addition, they analysed people's expectations and preferences related to housing estates.

People's participation in the shaping of a housing estate's space is aimed at developing solutions that will embrace commonly accepted results. This process involves the society at an early stage of the decision-making process and thus prevents potential conflicts. It also contributes to raising the level of people's acceptance for the activities of a developer and administrator of an estate.

Two housing estates typical for Poland were researched. They differ from each other in terms of their location within the city space, their size, the historical-spatial considerations and the intensity of development. Both estates feature 3-4 storey multiple-tenant buildings. The research was conducted: at estate "A," featuring multiple-tenant buildings with a underground car park, intended for app. 2000 residents.

- the estate is being developed on the premises of a former military barracks site, over an area of app. 1.3 hectares, in the vicinity of commercial and residential buildings erected in the 1930's and 1940's. The investment is located in the central part of the town and is under the charge of the architecture conservator,
- on the premises of estate "B", featuring multiple-tenant buildings with commercial functions on the ground floor, to be inhabited by app. 4500 people. The already completed buildings are currently inhabited by some 1700 people. The remaining buildings are to be erected and put to use gradually. The estate is located on the outskirts of the town on an undeveloped area of 3 hectares, in the vicinity of residential buildings from the turn of the 20th century.

## 2. Surveys

The field research involved a survey aimed at obtaining the opinion of the tenants of the already inhabited buildings about the way their surroundings have been arranged. The researchers applied the diagnostic survey method, where the survey served as one of the empirical data collection methods available. The researchers used a questionnaire containing a series of closed questions [2,3] with answers to choose from. An important advantage of such questions is that they facilitate providing answers and give unequivocal results. Their disadvantage, however, is that respondents are unable to give answers other than those included in the survey, as a result of which, they may not necessarily reflect their actual opinion. Closed question answers may statistically be interpreted with much precision, hence they are most suitable from the point of view of the quantitative research method [4, 5].

Statistical processing of the survey data in some cases required an examination of the relationship between the questions. The survey provided a set of quantitative data.

## 3. Analysis of the survey data

Each of the estates serves as a separate object of the research aimed at defining the expectations of its residents. The survey was conducted on 61 respondents at estate "A" and 105 respondents at estate "B." The first four questions were aimed at determining the profile of each respondent. According to the data obtained, most respondents approached at both estates were women (76% at estate "A" and 88% at estate "B"). At estate "A" 48% of respondents were people over 50 years of age, whereas at estate "B" the majority of respondents (73%) constituted people aged 26-50. This may result from the

fact that the first estate is situated in a district inhabited mostly by elderly people, although its modern buildings are becoming increasingly popular among young people, who constitute the majority of residents inhabiting estate "B."

The average user of the spaces around each of the estates uses the common areas every day or several times during the week, together with their children, family or friends.

The questionnaire contained questions that gave the researchers an insight into the preferences and expectations of the respondents regarding the arrangement of the spaces around the estates.

Their analysis has proven that people do not have exorbitant expectations in this respect. They simply want to live in a nice and comfortable environment. Hence 84% of respondents from estate "A" and 79% respondents from estate "B" expect the spaces around their buildings to be neat. At the same time they stressed the importance of access to public transportation and parking spaces (92% and 74%, respectively).

According to the survey results, the number of the parking spaces appears to be sufficient, although this sense of sufficiency may be elusive - both estates are new and not all of the apartments are inhabited. Only after all apartments have been populated will the residents be able to tell whether or not the number of the parking spaces is sufficient. According to the information at hand, the developers provide one parking space per apartment on both estates, available in underground car parks, a few individual garages and on ground-level parking lots. However, the number of the parking spaces may prove insufficient in the long run, given the increasing number of cars per household (two or sometimes three).

Over 90% of respondents take benches and garbage bins for granted. Most respondents would welcome them at their estates, not without certain reservations, though. For example, they believe garbage bins should be placed everywhere where there are people. Most of the respondents expressed certain doubts as to the situation of benches. The residents of both estates agreed that garbage bins and benches should be placed along sidewalks and passages. The residents of estate "A" believed garbage bins and benches should be placed not so much in recreational areas but primarily in front of the buildings, which would encourage the elderly people to get out of their apartments and socialize with their neighbours. In turn, the middle-aged people fear that benches will mostly be occupied by uncultured and noisy young people. This is particularly true about estate "B" where no benches have been placed so far. The respondents believed that benches would be more useful at playgrounds, so that parents could sit on them while their children are playing.

The respondents were also asked if they would welcome a barbecue or campfire site. These can already be found in some estates and are known to integrate neighbours. The survey showed that this solution appealed particularly to the residents of estate "B" as there are no such areas around it that would be conducive to interaction between neighbours. As many as 70% of the respondents from estate "B" would welcome a barbecue area within the limits of the estate yet from a certain distance from the buildings, whereas 26% would be more happy to have it outside the estate, yet in its vicinity. In contrast, 70% of the residents of estate "A" would gladly use a roofed barbecue place outside the estate, yet in its vicinity, while the remaining 30% would be happier to have it closer to their apartment buildings. These answers may have been influenced by the fact that this estate is located in the vicinity of the municipal forest being an attractive recreation and rest venue featuring barbecue and campfire sites popular among its visitors.

The benefit of having a barbecue site in a certain distance from a residential area is that the smoke, smell and noise (loud conversations and music) accompanying it are not a nuisance.

As healthy lifestyle becomes increasingly fashionable nowadays, the respondents - mostly the young ones - welcomed the idea of having an outdoor gym in their estate. Over 60% of respondents from both estates believe that sports areas should be located far from residential buildings and roads. This is dictated by the concern about the safety of the children and adults using the football pitches, as well as about the safety of property (e.g. a ball could smash windows etc.) Doing sports far from car fumes and in the vicinity of greenery would certainly be more conducive to health of those using the gym.

Almost all respondents approved of a playground on the premises of their estates as in their opinion this way potential devastation of the surrounding greenery could be prevented; if not provided with an area to play in, children usually run all over an estate, ruining the surrounding lawns and vegetation. As many as 80% of the respondents from estate "A" and 88 from estate "B" would welcome a playground located relatively close to the buildings, preferably in the central part of the estate, far from roads and parking lots. A playground situated close to roads and parking lots would require fencing. Children often go out on their own, hence a playground situated close to the building would allow their parents to keep an eye on them. Some of the respondents complained that children make a lot of noise while playing, which is a significant disadvantage if one has windows overlooking a playground, however this opinion was shared only by a small fraction of the residents and does not affect the overall result of the survey.

Many respondents found the question related to dog areas very interesting and justified. The society is hungry for new and innovative solutions which could improve not only their lives but also those of their pets. According to the questionnaire, over 60% of the respondent from estate "A" and nearly 80% of the respondents from estate "B" was for the creation of such areas. Almost all of the respondents agreed that these areas should either be located at a certain distance from the buildings or in their immediate vicinity. This could be explained by the fact that dogs need space to run and play, and by the fact that their faeces and the noise they make could be a problem to some of the residents.

Another issue that residents find of importance is the aesthetics and safety of an estate. The survey results indicate numerous factors that may cause negative feelings about the spaces around an estate. Based on the respondent's answers three specific types of negative factors and one general factor including noise, devastated greenery, fumes, quality of sidewalks (collapsed or broken) and many other factors mentioned by the respondents were identified. Many respondents expressed their concern about the possibility of maintaining the recreation facilities in a good state of repair. Most of them identified hooligans and unattended children as the main cause of damage in this respect. The solutions suggested by the respondents included fencing of these facilities and locking them to prevent them from being accessed by strangers. However, putting up a fence may result in disintegration of the estates and hostilities between the neighbours.

The respondents also explained which spaces around their estates could be developed and how. Their opinion was helpful in identifying the parts of their estates being most suitable for playing specific social functions. Many respondents pointed out that irrespective of the type of functions that a given part would perform, the estates should be covered with greenery, which would make them look nicer and, to a certain extent, would satisfy the residents' need to interact with nature. It would also improve the general atmosphere at the estates creating a friendly microclimate around them. It would prevent the surrounding air from heating up too much as the moisture evaporating from the leaves would cool it down. Moreover plants clean the air and oxygenate it. All of the above-mentioned factors make the residents want to live surrounded by flowers and trees [6]. This is also why 100% of the respondents agreed that their estates should be covered with greenery.

Another issue influencing the quality of living at the estates is access to goods and services. Over 80% of the residents said they would welcome a small grocery store selling basic groceries, and a service point, e.g. a hairdresser's saloon. This would save their time as they wouldn't have to travel outside the estates to e.g. buy bread) and would generally make their lives more convenient.

#### **4. Functional zones in residential estates**

The results of the survey have helped identify the preferences and expectations of the society with respect to housing estates, as well as allowed determining the functions that their residents would welcome, including their location within the estates. The following four functions can be identified:

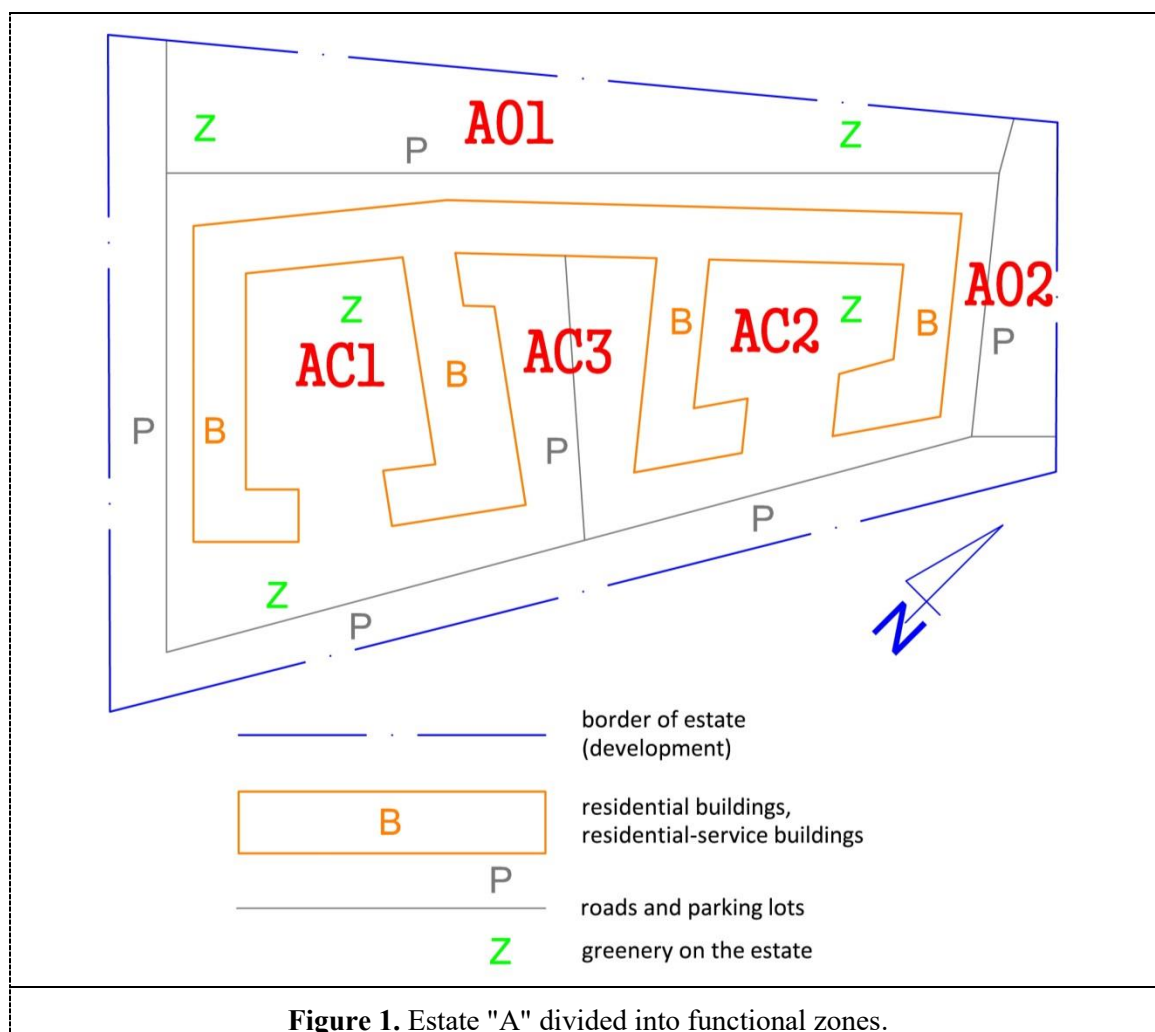
- play - this function is related mainly to children and includes playgrounds covered with a safe surface reducing the risk of injury, equipped with swings, seesaws, carousels, sand pits etc.;
- sport - areas in which the residents could do sports conducive to social integration e.g. team games, but also outdoor gyms etc.;

- rest - quieter areas equipped with roofs, benches, barbeque sites, arranged in such a way as to allow the residents to rest on their own or together with their families;
- technical infrastructure - utilities, garbage bins, roads, passages, parking spaces, as well as stores and services outlets.

The boundaries of these areas could be marked by the buildings, roads and passages around the estates. Following an analysis of the surveys it was possible to determine which parts of the estates, according to the residents, would be most suitable for particular functions.

#### Summary - estate "A"

The estate is in the initial stage of construction. So far only one segment of one building and a part of the second building have been completed. The third segment is under construction. Each segment forms a separate urban space featuring three central zones: AC1, AC2, AC3, surrounded by two outer zones: AO1, AO2 (Figure 1).



The central zones were formed in a natural way by locating them between the buildings. They play varied functions. The two outer-most zones play the play and rest functions: AC1, AC3, whereas the zone located in the central segment AC2 contains the technical infrastructure, including parking lots and an access road to an underground parking lot. This is where garbage bins should be placed in the future. These zones should be maintained and developed. Due to the fact that the estate is in the development phase, it has not yet been equipped with any of the facilities mentioned earlier in the text.

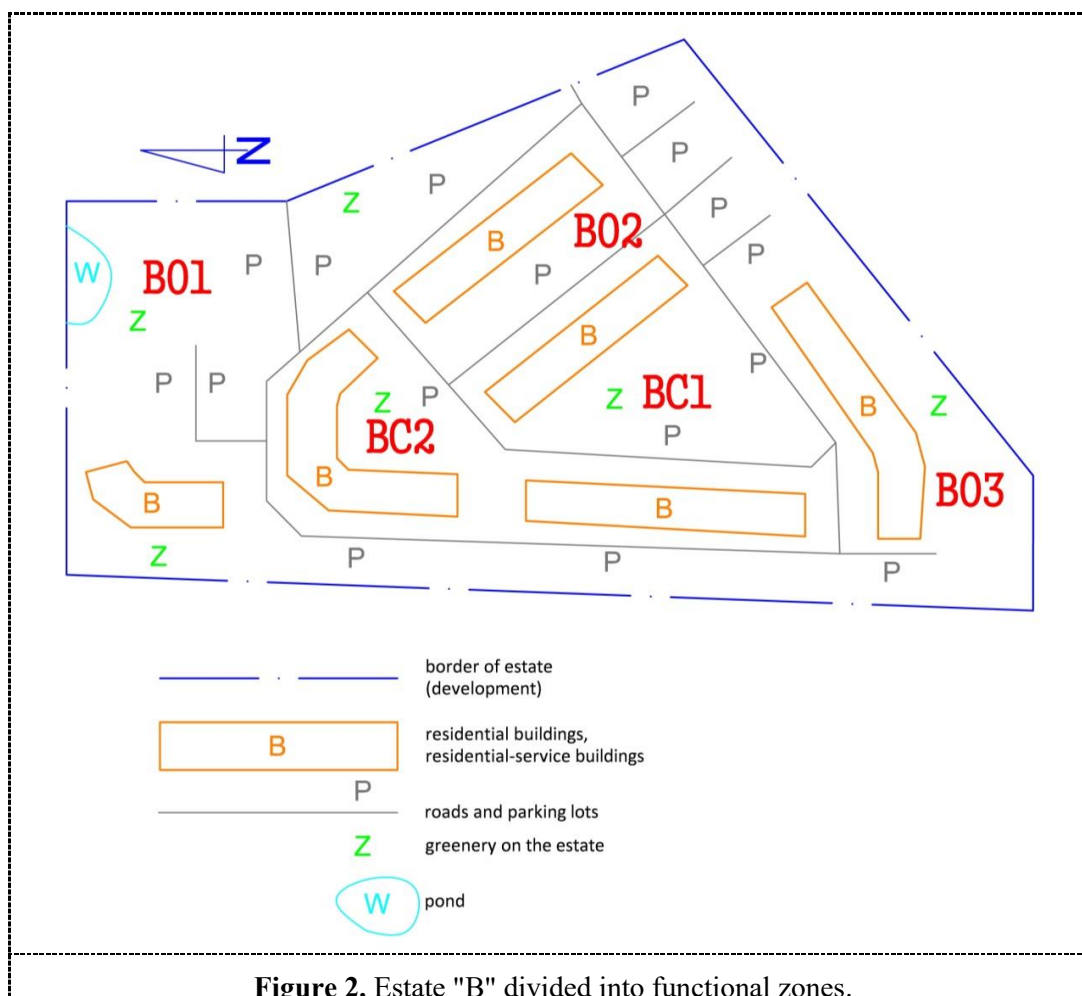
The surveyed residents expected them to be installed following the completion of the last building segment.

The outer zones surrounding the estate could play different functions. The first outer zone AO1 behind the buildings features naturally grown trees, but it is currently being used as part of the construction site. This area appears to be suitable for the rest and sport functions. According to the survey, the estate is currently inhabited mostly by elderly people, hence a good idea would be to create places in which they could rest and walk. These functions will certainly need verification after all of the tenants have moved in. This would require conducting surveys to meet the expectations of all of the residents. It may appear that the vicinity of the municipal forest may satisfy some of the recreation needs, yet this is not reflected in the results of the survey.

The outer-most zone AO2 has a completely different nature. It is located in the immediate vicinity of a supermarket. It is currently used as a parking lot, and, according to the zoning plan, it will play technical functions in the future, i.e. it is intended to be a parking lot and a place for garbage bins.

#### Summary - estate "B"

Most of the buildings have already been completed, however, the construction works continue. The survey helped identify the main zone in the central part of the estate BC1. It features a playground and a green area with benches, hence the zone plays both the play and the rest functions (Figure 2). According to the observations, this zone is readily visited not only by the residents of estate "B", but also by people living in the neighbouring estates. An additional zone for small children has been created there, featuring suitable equipment and a sand surface BC2. This function should be maintained and developed.



Estate "B" features also three distinct outer zones. One of them appears BO1 to be most attractive from the point of view of the potential functions it could play. It features a pond and naturally grown trees and bushes, which make it an ideal rest area. If equipped with a barbecue site, a roof and a few benches, it would certainly become very popular with the residents. Currently, this area is being used by the developer as part of the construction site.

The second outer zone BO2 plays mainly the technical function. It features parking lots, access roads to the buildings and individual garages, utilities-supply devices and garbage bins. On the ground floor of the building located in this zone there is a room suitable for commercial and service functions. The function of this zone should not be changed.

The third zone BO3 is overgrown with natural greenery. It is currently being used as storage site for construction materials and wastes. The estate is clearly in need of a football pitch. Currently, the children play football on lawns, parking lots or internal roads. Following the completion of the construction works, this area would be ideal for the sport functions. It could feature a football pitch and an outdoor gym. Many of the respondents found the idea of creating dog zones very appealing. They complained about the fact that frequently the plants around the estate dry out as a result of dogs urinating on them. Creating a dog zone would eliminate this issue. Building of a fenced dog zone not only would make the lives of the residents and their dogs easier, but would also be a symbol of social advancement.

## 5. Suggestions for further research

The above evaluation is rather quite general. However, a detailed analysis could be performed in the future by means of in-depth analytical methods. Currently, a research is being conducted into using the obtained data to evaluate the suitability of a selected function taking into account different criteria and using the Multi-Criteria Evaluation analysis – MCE [7]. It consists in looking for common areas that would also meet all of the criteria or would meet them to the greatest extent possible. In this method the criteria used for the purposes of an analysis describe the conditions that a particular location must meet. An analysis of these criteria may also show that some of them are met only partially. These criteria could serve as a basis to determine the functional type to which a given zone of the estate should be assigned. In order to tackle this issue it is necessary to scale up the values of these criteria. Therefore, when determining the value of a parameter one should define when the analyzed parameter is met in full and when it is not met at all [8].

Analyses of whether or not a given area meets the predefined criteria should be performed for each of the functional types separately, i.e. each research field should be evaluated in terms of suitability of each of the functional types.

It is also necessary to assign weights to the criteria. Hence, the next stage of the research will require development of specific weights and assigning them to each criterion. This necessity results from the obligation to assign priorities to each criterion. The weights will allow increasing or decreasing the importance of each criterion. This way the criteria which would be assigned bigger weights would be more important for the evaluation of suitability of each researched area and would also be more important than the criteria to which lower priorities were assigned. Determining of the weights requires an in-depth analysis of the researched area, reading the available literature related thereto, performing analyses and observations, and becoming familiar with the opinions of experts, as well as the designers and users of the spaces. The observations made during the research will also be used in order to develop and describe these criteria and to assign specific weights to them.

## 6. Conclusions

According to the above, the people feel the need to arrange the spaces around their place of residence. The preferences related to the methods of arranging these spaces differ depending on the age of the respondents, their families (young married couples and parents will have different preferences than single people), the amount of free time, likes and dislikes related to spatial forms. For example, elderly people expect quiet and green enclaves in which they could sit down and rest. In contrast, young

people with children would welcome areas friendly and safe to children, such as playgrounds. In turn, all residents expect comfortable, durable, nice-looking and functional solutions.

It is very important to properly identify the functions of urbanized areas from the practical and commercial point of view, as correct evaluation of residents' needs will be conducive to:

- optimal use by a developer of the funds allotted for the purposes of arranging the spaces around an estate, which could otherwise be wasted on investments made without taking into account the expectations of the local community.
- a well planned and arranged estate catering to the expectations of its tenants will serve as an advertisement of a developer's activity and will contribute to increasing their revenues in the future;
- the knowledge of the preferences of the future buyers of apartments gives a developer the possibility to develop a standard and arrange an estate in such a way as to optimize the design effort and minimize the quantity of labour and materials used;

A research into arranging estates according to people's needs is very complex and requires an interdisciplinary approach. However, the results of the analysis allow developing a method of identification of the social functions, which may be used by developers to evaluate people's needs and expectations, which may then translate into a bigger number of potential customers.

## 7. References

- [1] Pawłowicz J A and Szafranko E 2014 *Infrastructure and ecology of rural areas* **II/1** 279-291
- [2] Thomas J C 1995 *Public participation in public decisions: New skills and strategies for public managers*. Jossey-Bass
- [3] Rowe G and Frewer L J 2000 *Science, technology & human values* **25(1)** 3-29.
- [4] Pawłowska K 1999 *Democratisation of methods of landscape's protection and shaping*. Wydawnictwo Politechniki Krakowskiej, Kraków
- [5] Brown M A 2002 *Organization, Technology & Management in Construction: An international Journal* **4(2)** 457-460.
- [6] Pawłowicz J A 2010 *Technical Sciences* 113-119
- [7] Eastman J R 2001 *IDRISI 32 Release 2. Guide to GIS and Image Processing* Vol. 2 Clark Labs Clark University, USA
- [8] Szafranko E 2014 *Technical Transactions*, **2-B(6)** 41-48