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## The morphology of the waste and the quality of people's lives : the theoretical and empirical considerations

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## THE MORPHOLOGY OF THE WASTE AND THE QUALITY OF PEOPLE'S LIVES. THE THEORETICAL AND EMPIRICAL CONSIDERATIONS

### Abstract

The article concerns important subject of measuring quality of life of people. Since many years now the discussion on this topic, and each author has their concept. The study attempts to compare different concepts of measuring the quality of life in Poland and abroad. Has also been proposed their own concept balance of being, which organizes some controversial problems. Addition to this we present a quantitative method for measuring the balance being. In measurement method used morphology of waste carried out for Kuyavian-Pomeranian region. This is a preliminary proposal for measuring the quality of life, which it should be subject to discussion.

**Keywords:** quality of life, standard of living, the balance of being, morphology of municipal waste

### Introduction

All researchers carrying out socio-economic analyses, in particular dealing with topics connected with the conditions of human life, often wonder how to define and

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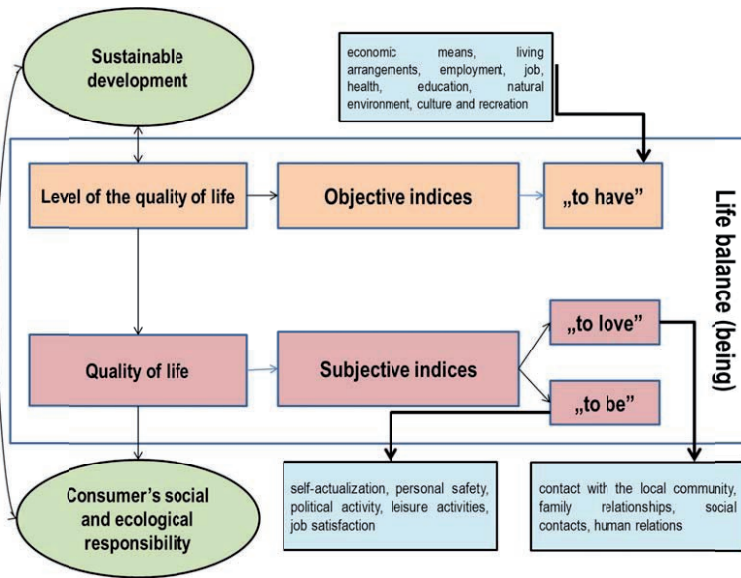
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measure certain categories. Many of these categories raise a number of problems for the researchers as they rarely agree whether a particular category should include all aspects or be divided into two categories. This is the case of research on the level and quality of human life. Whereas one group of researchers distinguishes the level and quality of life as two separate categories, the other one acknowledges only quality of life. Additionally, each group wonders how to measure the said categories, specifically their qualitative elements, to make them objective. My reflections will also pertain to these topics, i.e. definition and measurement problems. The first question will pertain to definition problems. Can we create a universal model that would show the links and correlations between objective and subjective indices of the conditions of life? The second question will concern the measurement of quality of life and it will present not standard method. It is a method involving the study of the morphology of the waste, which can complement or confirmation of interviews with the inhabitants. Is an original method, which requires a broader discussion.

## **1. Original model of life balance**

To this end, two categories defined by the author as the level of the quality of life and quality of life were combined into one category of life (existence) balance and were described as a certain correlation, but not necessarily a correspondence between objective and subjective assessment of human life (Figure 1). Consequently, the question arises why the common category was called life (existence) balance? It stems from the fact that an individual (pursuant to Maslow's hierarchy of needs) must satisfy lower level basic (physiological) needs before progressing on to higher level needs. It is then that an individual feels life satisfaction, i.e. the quality of life increases. There is balance between the material (what one owns) and non-material (what one feels) aspects.

Figure 1. Original model of life (existence) balance



Source: own work.

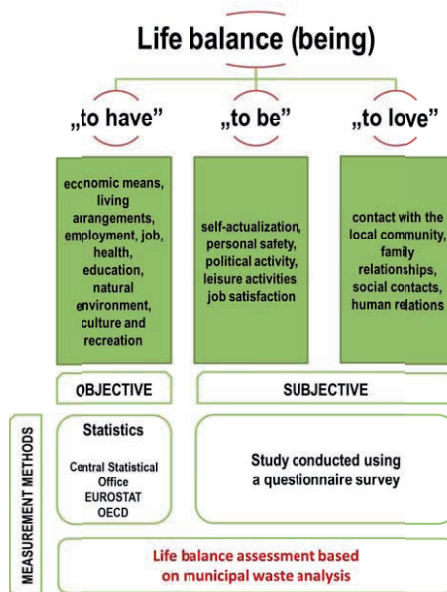
The original model of existence balance distinguishes the level of life quality, i.e.: ‘the extent to which individuals’ needs stemming from material goods, services and the use of environmental and social resources are satisfied’ (Bywalec, Rudnicki, 2002, s. 39). This definition was found to be appropriate and described as determining objective quantitative indicators (Berbeka, 2006). Easily measurable indicators have an indirect influence on individuals’ quality of life and their feeling of happiness. As the second research category the author specified the quality of life and assumed that it is ‘a subjective perception of one’s own life within a given value system and specific social, economic and political conditions (Rogala, 2009, s. 7)’ and ‘the level of an individual’s (society’s) satisfaction from life as a whole (Bywalec, 2010, s. 42)’. The quality of life is measured with the use of subjective indicators which are often hard-to-measure and directly reflect individuals’ feeling concerning their lives and the feeling of happiness. This concept refers to E. Allardt’s concept of the level of needs satisfaction which defines 3 dimensions of needs satisfaction:

- having, i.e. economic means, living arrangements, work conditions, health, education;

- loving, i.e. contact with the local community, family relations, social contacts, human relations;
- being, i.e. self-actualization, personal safety, political activity, leisure activities, job satisfaction (Allardt, 1993, s. 88–94).

According to the above concept, one can assume that the group of ‘to have’ indicators refers to having some means and services. It can be defined in an objective way. The remaining two groups (‘to love’ and ‘to be’), on the other hand, refer to individuals’ subjective feelings concerning their life and the feeling of happiness.

Figure 2. New life balance measurement method



Source: own work.

Other definitions of QoL suggest that it is a global personal assessment of a single dimension which may be causally responsive to a variety of other distinct dimensions: it is a unidimensional concept with multiple causes (Cella, Nowiński, 2002, p. 7–10). Therefore, it encompasses the entire range of human experience, states, perceptions and spheres of thought concerning the life of an individual or a community. Both objective and subjective QoL can include cultural, physical, psychological,

interpersonal, spiritual, financial, political, temporal and philosophical dimensions. QoL implies a judgment of value placed on the experience of communities, groups such as families or individuals (Patrick, Ericson, 1993).

The presented concept refers to the concept presented in Stiglitz's popular report which defines only the quality of life, but analysed in two dimensions: objective well-being and subjective well-being described in Polish as *well-being*. According to the author, as far as objective conditions are concerned, one should take into account: material conditions of life, health, education, economic activity, leisure time and social relations, personal safety, quality of a country and its ability to provide individuals with basic rights, way of exercising the said rights, quality of infrastructure and quality of the natural environment in the place of residence. Measurement of subjective well-being should include the perceived quality of life, i.e. individuals' satisfaction derived from various aspects of life and life as a whole, including elements connected with mental well-being and emotional states. When considering the objective and subjective dimension of the quality of life, one can point out and emphasize indications which define the subjective aspect as particularly significant<sup>1</sup>.

Firstly, the purpose of socio-economic development is satisfaction derived by individuals from changes. Assessments made directly by the interested parties are the most adequate measures of the level of satisfaction.

Secondly, it is often difficult, if not impossible, to carry out the so called objective measurement of numerous elements comprising the quality of life. This pertains, for instance, to evaluation of the level of higher level needs satisfaction connected with human relations or a lifestyle.

Thirdly, knowledge of social perception of conditions of life, mental states and social satisfaction can have practical importance when planning specific actions within the scope of socio-economic politics. The frequently experienced – relativized with regard to other persons or referring to the past – level of life which is not objective, decides about individuals' attitudes and behaviour in personal and public life. The feeling of too much dissonance between the experienced level of needs satisfaction and aspirations can generate various adaptation actions.

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<sup>1</sup> Zob. m.in.: *Report by the Commission on the Measurement of Economic Performance and Social Progress* (2009), <http://www.stiglitz-sen-fitoussi.fr/en/index.htm>; *Measurement of the Quality of Life*: TF3 Contribution to the summary report of the Sponsorship Group [http://epp.eurostat.ec.europa.eu/portal/page/portal/quality\\_life/publications](http://epp.eurostat.ec.europa.eu/portal/page/portal/quality_life/publications).

## 2. QoL – examples

The above mentioned definitions of the quality of life demonstrate that it is impossible to provide one, universal definition. This causes some problems when developing a model of life quality assessment, one of which is the need to establish numerous components of the potential model which are characterised by a different character (objective and subjective) and are highly diversified as far as measurement and comparability are concerned. Regardless of the above, a number of organisations and authors try to develop their own life quality assessment models. In August 2014 the said attempt was undertaken by the Central Statistical Office in its publication entitled ‘The Quality of Life in Poland’. The life quality assessment model developed by the Central Statistical Office (Jakość życia w Polsce, 2014, p. 5) refers to international recommendations and extensive Polish research within the matter concerned. The assessment comprises not only all objective conditions in which individuals live, but also subjective quality of life, also described as subjective well-being, experienced by some individuals. Let’s take a look at several life quality assessment models suggested in Polish and international research (Table 1).

Table 1. Chosen examples of life quality assessment models

Evaluation factors	IIASA (1991)	International Living	The Economist	Czapiński, Panek (2007)	Gotowska (2013)	Central Statistical Office (2015)	Total
1	2	3	4	5	6	7	8
Economic	x			x			2
Education	x			x	x	x	4
Ecology	x				x	x	3
Health	x	x	x	x	x	x	6
Climate and geography	x	x	x				3
Political stability and safety		x	x		x	x	4
Employment security	x		x		x	x	4
Community life			x	x		x	3
Family life			x	x			2
Social capital				x			1
Mental well-being				x			1
Physical well-being				x			1
Social well-being				x			1
Political well-being				x			1
Political freedom			x				1
Gender equality			x				1
Culture and leisure time		x			x	x	3
Infrastructure (road network)		x			x		2

1	2	3	4	5	6	7	8
Civilization level				x			1
Material wealth	x	x	x	x		x	5
Life stress				x			1
Pathologies		x		x			2
Welfare services					x		1
Availability of services					x		1
Pro-social attitudes					x	x	2
Subjective wealth						x	1

Source: own work based on: P. Sienkiewicz, H. Świeboda, Life Quality Assessment Models in System Research. in: J.W. Owiński, Z. Nahorski, T. Szapiro, *Operational and System Research: Decisions, Economy, Human Capital and Quality. System Research*, 64, IBS PAN, Warsaw 2008 and M. Gotowska, *Contemporary Conditions of the Level and Quality of Life in Poland*. Wydawnictwo UTP, Bydgoszcz 2013 and *The Quality of Life in Poland*, GUS, Warsaw 2015.

According to the presented analysis, all suggested models have common elements, but each of them has a different methodological approach. It is evident that many groups of indicators are similar and can be strongly correlated. Some suggested models comprise values measured in an objective and simple way through subjective and hard-to-measure mental well-being. Whereas some have a very narrow range of meaning, other models have a broad one. Let's try to analyse this based on an example of a model suggested by the Central Statistical Office. The said model clearly defines components of particular aggregate groups. My only concern is the availability of some data which is not published on an annual basis and the character of indicators. Some of them can be defined as typical subjective feelings of the respondents, and others are typical objective indicators. Can they be compared and aggregated in one thematic group?

### 3. Author's method of measuring quality of life

Consequently, my colleagues (Gotowska, Jakubczak, Kufel, 2013) and I have presented our own proposal of life quality assessment on a mezzo-economic basis, i.e. at the level of chosen groups of individuals. In our assessment the quality of life was connected with consumption. The above described way of life quality perception implies that communities diversified with regard to consumption potential differ when it comes to life quality assessment. The consumption potential, regardless of its meaning, can be measured in an objective way, through an analysis of



the amount and morphology of packaging waste. The reason is simple – packaging materials, their amount and quality are a material evidence of previous consumption processes.

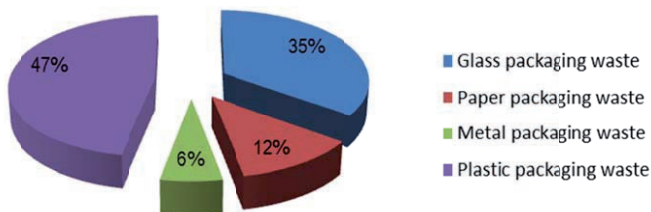
The research comprised collection as well as qualitative and quantitative measurement and analysis of packaging waste produced by individuals residing in various urban and rural areas in the Kuyavian-Pomeranian Province. It should be remembered, that this method is a new proposal for measuring the quality of life and it can be complement or confirmation of interviews with the inhabitants. Is an original method, which requires a broader discussion.

Waste was collected in three specific residence areas:

- blocks or flats located in a city,
- detached houses located in a city,
- detached houses located in rural areas.

The above groups of individuals were chosen due to material and practical reasons. They differ with regard to the level of life which is reflected in their place of residence. The level of life is not unambiguously identified, but it demonstrates which material and non-material needs can be satisfied by inhabitants of a particular area. Consequently, the level of life is a multicriteria phenomenon which is measured via objective indicators. The level of life was not the subject of this assessment, but the results of other research demonstrate differences in the level of life between, for instance, inhabitants of cities and villages or inhabitants of smaller and bigger towns.

Figure 3. Groups of packaging waste



Source: own work based on conducted research: M. Gotowska, A. Jakubczak, M. Kufel, The assessing the quality of life and the standard of living. The proposal of a quantitative measure. Lambert, Berlin 2013.

As mentioned above, packaging waste was divided into specific material fractions, i.e. depending on the material they were made of. There were four groups of packaging materials:

- glass packaging materials,
- paper packaging materials,
- metal packaging materials,
- plastic packaging materials.

Out of all the groups mentioned above, the biggest one was plastic waste (47%, i.e. 221,3 kg) which includes plastic bags and bottles. This proves that the consumption lifestyle is continuously increasing. Individuals value convenience, comfort and, due to the lack of time, easiness and speed of acquiring products which can usually be bought in plastic packaging.

Samples for the research were collected in three different areas. This allowed for a comparison of the type and amount of waste produced in a given area by individuals who differ with regard to the level and quality of life. The acquired results made it possible to determine what lifestyle is led by communities residing in a given area, what attitude they have towards the problem of waste, how they comply with requirements imposed by acts and legal regulations on individuals and whether their actions connected with waste disposal have a negative or positive influence on the natural environment and the life of other individuals. Individuals' mentality and habits are not only shaped by themselves, but also by the society they live in and the place they reside in. Therefore, it was of great importance to collect waste samples from different areas.

Figure 4. Glass packaging waste from urban areas (detached houses)



Source: own work based on conducted research.

The conducted qualitative and quantitative study of packaging waste collected from different parts of the city and rural areas demonstrated that social groups residing in the chosen areas produce morphologically and quantitatively different waste. Bearing in mind the structure of raw material contents used during production of packaging, the biggest group of packaging waste was plastic waste (47%). Due to their complex structure comprising links between various polymers and other raw materials, plastic is a material which cannot be easily processed. Glass packaging waste is also a big group (35%). The smallest fraction of waste is paper (12%) and metal (6%) waste (Gotowska, Jakubczak, Kufel, 2013, p. 119).

Figure 5. Tetra Pak (multi-material) paper packaging waste from urban areas (detached houses)



Source: own work based on conducted research.

## Conclusion

A yet another purpose of the conducted research was to characterise individual social groups as regards waste produced by them. It was demonstrated that the biggest amount of packaging waste was produced by inhabitants of cities. This shows that they lead a consumption lifestyle and their quality of life is higher. Inhabitants of rural areas, on the other hand, produce significantly less packaging waste than inhabitants of urban areas which proves that they use natural consumption to a bigger extent and being owners of farms, they 'produce' such goods as milk and eggs which

are later consumed by them. Consequently, distribution channels are shorter and the need for packaging is smaller.

Morphological and quantitative studies let us use waste, including packaging waste, in a better way. This has a significant impact on individuals' quality of life and the natural environment now and in the future. Improper and ill-considered collection and, later on, processing of waste can contribute to environmental degradation and worse living conditions. The way waste is handled plays a significant part for the future 'life' of Earth. It is of paramount importance to choose a waste processing technology which has a positive influence on the environment and the quality of individuals' life (Hoppe 2012).

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## MORFOLOGIA ODPADÓW A JAKOŚĆ ŻYCIA LUDZI. ROZWAŻANIA TEORETYCZNE I EMPIRYCZNE

### Streszczenie

Artykuł dotyczy ważnego zagadnienia pomiaru jakości życia ludzi. Od wielu lat trwają dyskusje na ten temat, a każdy autor ma swoją koncepcję. W opracowaniu podjęto próbę porównania różnych koncepcji pomiaru jakości życia w Polsce i za granicą. Zaproponowano również własną autorską koncepcję równowagi bytu, która porządkuje niektóre kontrowersyjne zagadnienia. Oprócz tego przedstawiono ilościową metodę pomiaru równowagi bytu. W metodzie pomiaru wykorzystano badania morfologii odpadów komunalnych przeprowadzonych dla regionu kujawsko-pomorskiego. Jest to wstępna propozycja metody pomiaru jakości życia, która powinna być tematem szerszej dyskusji.

**Słowa kluczowe:** jakość życia, poziom życia, równowaga bytu, morfologia odpadów komunalnych

**Kod JEL:** I30