MEASURING QUALITY OF LIFE IN UKRAINE

ANALYTICAL REPORT

MEASURING QUALITY OF LIFE IN UKRAINE

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ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CIS	Commonwealth of Independent States
EU	European Union
Eurostat	Directorate-General of the European Commission on statistics
GDP	Gross domestic product
GNI	Gross national income
GNP	Gross national product
HDI	Human Developed Index
HEI	Higher educational institution
HIV	Human immunodeficiency virus
MDGs	Millennium Development Goals
NAS	National Academy of Sciences
OECD	Organisation for Economic Co-operation and Development
OSCE	Organization for Security and Co-operation in Europe
PPP	Purchasing power parity
RAS	Russian Academy of Sciences
UN	United Nations
UNDP	United Nations Development Programme
USA	United States of America

INTRODUCTION

One of the strategic aims of Ukraine's modernization is to improve the quality of life of the population. Quality of life is a complex, multi-component phenomenon, dependent both on objective factors (in particular, the possibility of meeting human needs and interests within a given socio-economic context) and on various subjective factors (social, psychological, cultural and other).

A better quality of life is a criterion for and necessary condition of human development. The concept of human development stresses the priority of humans, stating that a person is the goal of economic growth, not a resource. The central objective of human development is to create an enabling environment for people to enjoy long, healthy and creative lives. The UNDP "Human Development Report" defined the key idea in one sentence: "People are the real wealth of a nation." The concept of human development was introduced into scientific use and public administration in 1990, and has evolved over time. In the 'Human Development Report 2010 – The real wealth of nations: Pathways to human development', there is an updated definition of human development:

"Human development is the expansion of people's freedoms to live long, healthy and creative lives; to advance other goals they have reason to value; and to engage actively in shaping development equitably and sustainably on a shared planet. People are both the beneficiaries and the drivers of human development, as individuals and in groups."

The relationship between human development and quality of life is that human development aims inter alia to improve the quality of life. The quality of life reflects basic prerequisites for and the degree of meeting the requirements of human development, the degree of priority of human development in the civilization process, as well as of human self-awareness, self-identity and the state of the environment.

Achieving a high level of human development is impossible without establishing a high quality of life. Restrictions in any of the spheres of social life greatly limit freedom of choice, which is the basis of human development. The main tasks of human development policies, which aim to improve the quality of life, are removing restrictions and barriers to participation, and enhancing social inclusion, as a means to ensure the widest opportunities and freedoms for people.

Studying quality of life requires the construction of a system for assessing quality of life, and development of methodological approaches to measure social progress. The essence of this approach is a detailed study of the mutual influence of all dimensions or components of the quality of life, and the definition of key principles and manifestations of, as well as changes in, the dynamics of quality of life. The results of the study can be used to develop strategies for managing the quality of life, which provides an opportunity to improve the effectiveness of budget allocation and of state policy in healthcare, education, employment, and security.

Quality of life is acknowledged by the international community as one of the main characteristics of the level of a country's social development. Targets that focus mainly on economic performance and implementation of science and technology advancements, without prioritizing human factors of development, are gradually fading. In a report measuring well-being and quality of life, the Director General of Eurostat, Walter Radermacher, stressed that a high quality of life is impossible without improving health, ensuring integration into society, creating a favourable environment and achieving a minimum level of material well-being. He noted the complexity of assessing the quality of life, mainly in terms of the system of indicators linked to objective and subjective assessment at international and national levels.

Radermacher also commented on the conclusions of the Stiglitz–Sen–Fitoussi Commission on measurement of economic performance and social progress. He emphasized the need to improve the knowledge base of quality of life assessment by including different sources of information and identifying the indicators that are most important for decision-making. An important task is to coordinate goals for achieving sustainable economic growth and environmental conservation; better educational quality, health, social infrastructure, employment generation

and poverty reduction; more social cohesion; and greater democratic freedom [1].

Market transformation depends to a large degree on the level of public trust in government institutions to initiate successful reforms that lead to a high quality of life. That is why it is becoming ever more relevant to develop a system of assessment of the quality of life. This involves creating indicators that comprehensively reflect the objective and subjective characteristics of the multicomponent nature of quality of life.

To date, the government has paid little attention to the assessment of quality of life in Ukraine. However, there have been recent signs of increased government interest in assessing both quality of life and the constitutional rights of citizens, with the inclusion of these topics in the agenda of the central authorities and the establishment of the Coordinating Council on the quality and safety of human life (under the Resolution of the Cabinet of Ministers of Ukraine of December 26, 2011 #1393). The indicators and methodological approaches for measuring quality of life make it possible to monitor the implementation of processes aimed at improving quality of life. This will help to determine the most problematic areas and enable effective management decision-making at the national level.

Analysing the values of relevant indicators in time (retrospective or forecast) or based on spatial aspects (inter-territorial) makes it possible to evaluate the effectiveness of public policies aimed at improving quality of life. Time-based indicators allow for the assessment of the impact of socio-economic reforms on the quality of life. This is done by tracking changes in relevant parameters during the course of implementation of national and regional programmes. Spatial indicators allow for the identification of interregional and cross-country differences in the quality of life, which then facilitates the identification of benchmarks of national and regional socio-economic policy.

A strategic management task for Ukraine is to improve the quality of life while creating adequate conditions for the implementation of an innovative model of economic growth. This would transform the high quality of life into a powerful component of global competitiveness. Identifying the key factors affecting the quality of life, and developing a strategy for managing these factors, will help to harmonize economic growth, human development and environmental conservation.

SECTION 1 THE THEORETICAL BASIS OF MEASURING THE QUALITY OF LIFE

Scientists distinguish three main types of definitions or interpretations of the quality of life: global, component and narrow [2]. The global definition is defined as a degree of satisfaction of material, cultural and spiritual human needs. The component definition emphasizes the multidimensional nature of this phenomenon, separating the different dimensions of the quality of life (both objective and subjective). According to the generally held opinion, quality of life characterizes not only the conditions of achievement and satisfaction with conditions (or achievements), but also takes into account the possibility of maintaining the achieved results. A third approach to defining the quality of life involves the selection and consideration of only one or two categories or areas.

Assessment of the quality of life can be described as a procedure of identifying the extent to which the basic parameters and conditions of human life meet both human needs and the personal vision of a decent life. It is based on the comparison of the characteristics of life of an individual or society with the relevant parameters and characteristics of life (taken as a basis of comparison). The procedure for assessing the quality of life consists of a series of steps and operations: selection of the quality-of-life indicators and their values; justification of the assessment criteria; and assessment of the quality-of-life indicators.

Quantitative, qualitative and integrated indicators are used to assess quality of life. Quantitative indicators, which are the most obvious, include gross national product (GNP) or the national income per capita, level of consumption of various goods and services by classes of goods, level of employment, and other measures. Qualitative indicators include those which measure working conditions, welfare and recreation, while integrated indicators combine quantitative and qualitative criteria. They can be presented in a variety of combinations of reporting statistical indicators, relevant expert assessment, and other forms [3].

Existing conceptual approaches to the assessment of quality of life can be divided into two main areas: objective approaches help to determine the quality of the social and physical (artificial and natural) environments in which people try to fulfil their needs; subjective approaches are focused on the examination of systems of values.

Structural elements of quality of life include health, life satisfaction and happiness (or a combination of these elements).

The objective approach, which is the most common, determines the quality of life based on parameters of objective conditions and processes of life, and aims to measure the quality of life of a society or a group of people based on various statistical data. Objective parameters are measured using methods that do not depend on the attitude of the assessor, and which are designed to produce values in standardized units. The objective assessment of economic factors of the quality of life includes, among other things, indicators of material wealth, per capita income, average monthly salary, subsistence level, number of people with income below the subsistence level, the structure of income and expenditure of the population (Gini index), and housing.

The subjective approach involves determining the quality of life on the basis of opinion polls. Subjective assessments reflect individual perceptions based on subjective feelings and personal assessments. The majority of researchers distinguish between the rational and emotional components of subjective assessments. The former consists of general life satisfaction and assessment of the degree of satisfaction with different aspects of life; the latter is a balance of positive and negative emotions [4].

Subjective parameters are assessed based on algorithms that depend on knowledge and accumulated personal experiences, individual criteria for the assessment of objects, subjects and phenomena, life values and mindset. It is therefore important to select the criteria by which the individual must assess the quality of his or her life, the methodological tools for generalizing statements and assessments, identification of factors that can affect the realization of corresponding states of the individual, and other elements.

The subjective perception of various components of the quality of life by individuals may be very different. Thus, some conditions of ensuring a decent life that are important for one individual may be unimportant or of little importance for another. That is why it is absolutely necessary to define, select and delineate the criteria for comparison.

The criteria for judging the quality of life can be general and specific. General criteria are based on value orientations regarding the content of the quality of life that have evolved in society over a long period of time. These criteria are usually specific to certain areas, countries, regions, and/or social groups, and are associated with widespread special traditions, mentality, forms of economic management, and other elements. Specific criteria are reference values of the defined indicators of the quality of life. These may be the results of, for example, statistical surveys, or consumption norms defined by regulatory or legislative bodies or processes [5].

Quality of life is interpreted as the main goal of socio-economic development and the most important criterion for the efficiency of management of economic processes and the social sphere. Increased attention to quality-of-life issues compels governments of developed countries to consider public opinion on development priorities in their formulation of socio-economic development strategies. It is important to determine the impact of society on the mindset and perceptions of individuals, whether they have an opportunity to enjoy work, whether they can develop through life, be healthy, and make a significant contribution to social development. This highlights the need to identify the interlinkages between components of quality of life and new approaches to creating and using methods to assess quality of life.

SECTION 2 MEASURING THE QUALITY OF LIFE: CURRENT APPROACHES

2.1. International experience of measuring the quality of life: Opportunities for cross-country comparisons

International organizations, especially the UN, governments and the expert community, have indicated the relevance of issues related to assessing the quality of life. The Commission on the Measurement of Economic Performance and Social Progress was established at the initiative of the President of France; the Commission's recommendations are taken into account in planning and monitoring.

The European Commission made certain commitments, including by setting development targets for 2020 in the European Union's strategy, 'Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth' [25]. New approaches to measuring social progress were declared in 2007 at the Beyond GDP Conference, organized with the participation of the European Parliament, the Club of Rome, the European Commission, the Organization for Economic Cooperation and Development (OECD) and the World Wide Fund for Nature,. In particular, the President of the European Commission Jose Manuel Barroso stated that, "GDP is certainly a very valuable instrument of economic policy, but it cannot completely reflect the diversity and severity of current challenges. The problems of the present and future cannot be solved with tools and approaches of the past. Therefore, it is time to go beyond GDP," [9].

The OECD is implementing the global project 'Measuring progress of societies', which aims to raise awareness and mobilize political support for the evaluation of the progress and development of key economic, social and environmental indicators. During the meeting of G-20 leaders in Pittsburgh in 2009, participants stressed the absolute necessity of development and the practical application of new methods of measuring social progress that take into account social and environmental aspects of sustainable growth.

Measuring social progress was the topic of the World Forum on Statistics, Knowledge and Policy, held in Istanbul in June 2007. It was attended by over 1200 representatives of governments and businesses, civil society leaders, and scientists, from 130 countries. The outcome of the Forum was the Istanbul Declaration, signed by representatives of the European Commission, the World Bank, the OECD, the United Nations and its many institutions and a number of other international expert groups. During the discussion, Declaration signatories considered it urgent to answer the following questions [6]:

What to measure? This question focuses on the need to determine what the object of measurement is, either the resources and conditions, or the products and results; on the need for a clear vision of development factors; and on the need to know what to strive for and that there is progress.

How to measure? This question focuses on the fact that there are serious methodological issues related to assessing the progress in areas such as security, human rights, public participation, participation in public life and some others.

Which criteria should be the basis of measurement? This considers what the priority should be: assessing progress or, alternatively, the impossibility of it (impossibility to satisfy needs), progress or regress, and how to take into account the missed profits and externalities.

At which level should the measurement be organized? This aims to determine which level of analysis should prevail: the individual level, the level of households, family, community, region, country, or another level.

Why measure? This highlights the need for determining a hierarchy of goals of assessment: of the impact of public policy, for management decision-making, for strategic planning, for international comparisons, etc.

Signatories of the Declaration encouraged experts to use existing national and international statistical data and sociological materials in developing approaches to measuring social progress, and to develop recommendations for making important management decisions. Indeed, assessment of

the quality of life is an important instrument of social and economic policy for any state, as it allows the state to: set long-term benchmarks for social and economic policy, analyse the current level of socio-economic development, measure poverty, determine the country's place in the spectrum of global progress, and carry out inter-regional comparisons of the level and quality of life [7].

Assessing the quality of life usually involves one of two approaches, which have different goals and purposes. The first approach is carried out to make international comparisons with different countries. The second involves measurement at the national level, to support government decision-making and planning in relation to the country's socio-economic development [8].

Public and private institutions have developed more than 150 composite welfare indicators to assess the effectiveness of the performance of governments of various countries in the economic, social and environmental fields. There are

Table 2.1. Overview of international systems of quality-of-life assessment

Title	Entity that performs the calculation	Principle of calculation	Indicators	Number of countries covered
1	2	3	4	5
General methodological concept of standards and quality of life	Scientific and academic community as a whole	Differentiation of macroeconomic and sociological indicators	GDP per capita, consumer price index, consumer basket, household expenditures, GFK basket, poverty, income inequality, life satisfaction and happiness, deprivation, optimism about the future, etc.	Depending on academic tasks
Economic Intelligence Unit (EIU) Quality of Life Index	Research organization (Economist Intelligence Unit)	Equivalent consideration of quantitative and subjective indicators	Health, family life, community life, material wellbeing, climate and geography, job security, political freedom, gender equality	111
Methodology of the EU European Statistical System Committee	European Statistical System Committee	Equivalent consideration of quantitative and subjective indicators	Material living conditions, productive or main activity, health, education, leisure (recreation) and social communication (interaction), economic and physical safety, governance and basic rights, natural and living environment, overall experience of life	
International Living Quality of Life Index	International Living Magazine	Equivalent consideration of quantitative and subjective indicators	Cost of living, culture, economy, environment, freedom, health, infrastructure, safety and risk, climate	190
Monitoring quality of life in Europe	European Foundation for the Improvement of Living and Working Conditions	Sociological survey of the quality of life	Health, employment, income deprivation, education, family, social participation, housing, environment, transport, safety, leisure, life satisfaction	34
Better Life Index	OECD	Integrated assessment of parameters	Housing, income, jobs, community, education, environment, health, safety, life satisfaction, work-life balance, civic engagement, community	34

over one hundred initiatives on the use of quality-of-life indicators in decision-making at the national and local levels.

International-level indicators of quality of life are either quantitative or qualitative. Quantitative indicators include GDP or national income per capita, level of income and its distribution in the society, level of consumption of different goods and services by classes of goods, level of employment, and other measures. Qualitative indicators include, for example, measures of working conditions, welfare and recreation.

It should be noted that quantitative indicators are needed to assess the objective aspects of the quality of life. However, it is impossible to assess achievement of social progress only by quantitative (economic) indicators, despite the relative ease of their collection and interpretation.

Currently there is no single approach to assessing quality of life. Table 2.1 summarizes some of the existing approaches.

The general methodological concept of standards of living and quality of life is used to measure social progress in different countries. The concept envisages differentiation and assessment of two separate elements of social progress: the standard of living and the quality of life. According to the concept, the standard of living component reflects the economic (mainly macroeconomic) and other objective indicators [7], while the quality of life component reflects mainly sociological indicators or indicators of purely social content (mostly subjective). The methodology does not include a clear list of indicators and is applied arbitrarily, while for international comparisons it can be used piecemeal and/or partially [10].

The economic indicators include GDP per capita, consumer price index, consumer basket, household expenditures, poverty, and income inequality, among others. Subjective indicators represent the degree of life satisfaction and happiness, subjective evaluation of own deprivation, optimism about the future, and other factors [11].

The Methodology of the Economist Intelligence Unit (EIU) (a division of The Economist Group) envisages calculation of its Quality of Life Index for 111 countries based on a regression model, which is mainly (80per cent) based on the results of public opinion polls. Along with subjective assessments of the quality of life derived from a survey of respondents of all ages, which rates satisfaction using different aspects of the quality of life according to a five-point scale, this methodology takes into account some objective determinants. Most attention was paid to the calculation of GDP per capita by purchasing power parity.

A country's quality-of-life rating is based on nine areas (health, family life, social life, material wellbeing, climate and geography, job security, political freedom, and gender equality), and mediated by relevant indicators (Appendix A). These indicators are included in the Index, and their significance is weighted based on multiple regression coefficients.

The new European development strategy for the next 10 years, 'Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth', which was adopted by the Council in 2010, focuses on reviewing the monitoring of quality of life in EU countries. According to the Strategy, the three major areas of growth are:

- ✓ smart growth – development of the economy based on knowledge and innovation;
- ✓ sustainable growth – development of the economy providing for sustainable resource use and a green economy; and
- ✓ inclusive growth – social inclusion, improving employment, and social and territorial coordination.

Developing a set of indicators for the analysis of quality of life in the EU Member States became gradually more relevant after the Beyond GDP Conference. In 2011, the European Statistical System Committee (ESSC) decided to develop a set of indicators for EU Member States. To date, there has been an initial attempt to merge data from multiple sources to measure the quality of life in the EU, specifically in the following areas: Material Living Conditions; Productive or Main Activity; Health; Education; Leisure (recreation) and Social Communication (interaction); Economic and Physical Safety; Governance and Basic Rights; Natural and Living Environment; and Overall Experience of Life (Appendix B).

The International Living Methodology (Ireland) is used to study progress related to quality of life in 190 countries. The indices are calculated according to nine areas: Cost of Living; Culture; Economy; Environment; Freedom; Health; Infrastructure;

Safety and Risk; and Climate (Appendix C). The maximum possible score for each criterion is 100. Its world rankings are published annually.

The EU methodology involves monitoring the quality of life in EU countries by the European Foundation for the Improvement of Living and Working Conditions, which was founded in 2000 in Dublin, Ireland. Every four years the Foundation collects, analyses, publishes and disseminates data on 27 EU member states and two candidate countries (Croatia and Turkey) based on 160 parameters that are divided into 12 groups: Health; Employment; Income Deprivation; Education; Family; Social Participation; Housing; Environment; Transport; Safety; Leisure; Life Satisfaction (Appendix D).

The EU monitoring is based on subjective assessments and is an alternative source of information, as it is complementary to objective assessment based on data from Eurostat. European Union Statistics on Income and Living Conditions (EU-SILC) are used to assess the quality and standard of life for cross-country comparisons, comparison of best practices and measuring social progress. Social inclusion is one of the priorities of EU policy as quality of life is affected by dissatisfaction with life among excluded population groups.

The methodology of the OECD is based on an innovative platform, Better Life Initiative, which presents the results of direct interactive quality-of-life assessment by citizens of 34 countries in 11 key areas: Income; Jobs; Work-Life Balance; Health; Education; Housing; Community; Civic Participation; Environment; Safety; and Life Satisfaction (Appendix E). This methodology envisages designing individual indices of quality of life by each respondent who agreed to participate in the interactive poll [12].

Indicators for the OECD methodology were selected based on a number of statistical criteria such as relevance and quality of data (accuracy of estimation, coverage, timeliness, comparability across countries), and in the course of consultations with OECD member countries. The most important achievement of the Better Life Initiative was the creation of an accessible and comparable database, which has improved the understanding of the factors influencing quality of life. Analysis of respondents' answers allows OECD experts to formulate substantiated and feasible recommendations for politicians and public managers that can help to improve quality of life.

2.2. Approaches to measuring the quality of life in individual countries

National systems of assessment of quality of life, which can also provide internationally comparable data, take into account country-specific factors related to both modern development and historical background. These systems also provide a more complete and detailed reflection of the actual needs of citizens, and determine the economic, social, environmental, and spiritual context of citizens' lives.

The variety of approaches of individual countries to the measurement of quality of life is summarized in Table 2.2.

New Zealand implemented its national project to assess quality of life starting in the late 1990s. Its aim is to provide government agencies and institutions with information and data on the quality of life. The project was initiated in response to growing pressure on urban communities, concern about the effects of urbanization and its impact on the welfare of residents [13].

As part of the project, a sociological survey of the quality of life has been conducted every two years since 2004, and there is continuous statistical monitoring of data provided by government institutions and the Bureau of Statistics. Overall, the system includes 68 key indicators (186 individual indicators), in eleven areas: Standard of Living; Economic Development; Population; Health; Knowledge and Skills; Environment; Safety; Housing; Urban Lifestyle; Civil and Political Rights; and Social Networks.

The Standard of Living category includes analysis of income, work–life balance, cost of living, social exclusion, and net asset value (assets and liabilities). Economic Development includes indicators of economic growth, employment, development of research and scientific and technological developments, development of local enterprises, volume of retail sales, the use of residential and non-residential buildings, tourism development, and qualification of migrants.

Population indicators reflect the specifics of population growth, taking into account ethnic composition, age structure, family configuration

Table 2.2. Key areas and indicators for measuring quality of life in individual countries

Country	Areas of assessment	Number of assessment indicators
1	2	3
New Zealand	11 areas of assessment: Standard of Living; Economic Development; Population; Health; Knowledge and Skills; Environment; Safety; Housing; Urban Lifestyle; Civil and Political Rights; Social Networks	68 key indicators (186 individual indicators)
Great Britain	14 areas of assessment: Economic Efficiency of Investment; Employment; Poverty and Social Exclusion; Education; Health; Housing; Crime Rate; Climate Change; Air Quality; Road Safety; Quality of River Water; Wildlife; Land Use Options; Waste	✓ GDP and GNP per capita; ✓ Share of total and separate social investment in GDP; ✓ Share of the employed working-age population; ✓ Indicators of success in the fight against poverty and social exclusion; ✓ Qualification at age 19; ✓ Healthy life expectancy; ✓ Unaccommodated households; ✓ Crimes against life and health, vehicle theft, burglary, robbery; ✓ Emissions of greenhouse gases; ✓ Number of days per year when air pollution is medium or high; ✓ Volume and intensity of traffic; ✓ Chemical and biological properties of river and fresh water; ✓ Wild bird populations; ✓ Number of new houses built on land suitable for agriculture; ✓ Municipal waste, industrial waste, office waste, waste management system.
Canadian Index of Wellbeing	Calculated in 8 areas: Social Life; Democratic Participation; Education; Environment; Health; Leisure and Culture; Standard of Living; Use of Time	64 indicators
United States of America (USA)	13 areas of assessment: Standard of Living; Employment; Working Conditions; Demographics; Health Care; Education; Environment; Social Welfare; Housing; Culture; Leisure and Entertainment; Transportation; National Defense; Legal Protection	

Table continue 2.1.

1	2	3
Russian Federation (based on the methodology of academician of RAS S.A. Ayvazian)	The integrated index is calculated based on 5 areas: Quality of the Population; Welfare of the Population; Social Security (Quality of Social Services); Quality of the Environment; Climatic Conditions	300 indicators: ✓ Life Expectancy, Level of Education, Qualification, Birth and Mortality Rates, Marriage Rate, etc.; ✓ Real Income, Its Differentiation, Level of Consumption of Goods and Services, Availability of Infrastructure Facilities, etc.; ✓ Level of Working Conditions, Social Security, Physical and Property Safety of Members of Society, Criminogenic, Social and Political Health of the Society, etc.; ✓ Data on the Pollution of Air and Water, Soil Quality, Level of Biodiversity, etc.; ✓ Composition and Volume of Natural Raw Materials, Climate, Frequency and Specifics of Force Majeure
The Republic of Belarus (regional integrated index of the quality of life)	5 basic components of the quality of life: Quality of the Population; Living Standards; Quality of Social Services; Intellectual and Cultural Condition of the Society; and Quality of the Ecosystem	38 statistical indicators

and composition of households, the degree of disability among the population, and welfare of the indigenous population. The Health category explores life expectancy, cases of low birth weight of children, infant mortality, teenage parenthood, disease prevalence, access to services of general practitioners, mental and emotional well-being, self-assessment of health status, risk factors, cases of addiction (alcohol, drug), recreation and leisure. The Knowledge and Skills category includes analysis of indicators of participation in pre-school and school education, characterization of qualification levels, skills, study of job match, opportunities and vocational training.

The Environment category takes into account local environmental issues, waste management, biodiversity, energy use, air quality, water quality and quality of beach infrastructure, quality of drinking water, and protection of water resources. Safety includes analysis of perceptions of safety, child safety, risk of injury, road safety, workplace safety, and crime rate. The Housing category assesses tenure, accommodation expense, housing density, provision of social housing at public expense, and housing affordability (non-cost factors). The Urban Lifestyles category assesses a city's appearance, land use, traffic intensity and quality of transport, quality of public transport, access to services, and comfort with regard to population density.

The Civic and Political Rights category studies participation of the population in decision-making by local authorities, voter turnout, and representation of different categories and groups of the population in elected bodies. The Social Networks category includes indicators related to the overall assessment of quality of life, diversity and identity, the presence of 'community spirit' and the strength of the local community, the use of electronic means of communication, and enthusiasm for art and cultural development.

In Great Britain, the government's strategy for sustainable development included monitoring the quality of life using fifteen sets of indicators that have been agreed with representatives of the public, businesses and environmental communities. The government has published annual reports since 1999 entitled 'Quality of Life Counts (QoLC) – Indicators for a strategy for sustainable development for the United Kingdom', which include the following aspects of assessment: Economic Performance (GDP and GNP per capita); Investment (share of total and separate social investment in GDP); Employment (share of employed working-age population); Poverty and Social Exclusion (indicators of success in the fight against poverty and social exclusion); Education (qualification in the age of 19); Health (healthy life expectancy); Housing (unaccommodated

households); Crime Rate (crimes against life and health, vehicle theft, burglary, robbery); Climate Change (emissions of greenhouse gases); Air Quality (number of days in a year when air pollution is medium or high); Road Safety (volume and intensity of traffic); Quality of River Water (chemical and biological properties of river and fresh water); Wildlife (wild bird populations); Land Use Options (the number of new houses built on land suitable for agriculture); and Waste (municipal waste, industrial waste, office waste, waste management system) [14].

Among national initiatives for measuring and assessing the quality of life, the Canadian Index of Wellbeing, developed by experts in the Department of Applied Health Sciences of the University of Waterloo, stands out. It is currently supported by an independent, non-partisan group of national and international leaders, scientists, organizations and ordinary citizens. The main purpose of the Index is to improve the system of collection and processing of data for social, economic and environmental variables, tracing their dynamics, deepening the statistical knowledge of citizens and increasing the level of officials' knowledge of statistical information. Canada has monitored quality of life since 1994. This long time frame has provided a unique opportunity to gain substantial experience in applying quality-of-life indicators in public management [15].

The Index is calculated based on 64 indicators, in eight areas: Social Life; Democratic Participation; Education; Environment; Health; Leisure and Culture; Standard of Living; and Use of Time.

The Social Life category provides analysis of 23 indicators, but the Index includes 11 indicators reflecting the following aspects: participation in community activities; volunteering; number of close relatives; participation in charity activities; crimes against property; crimes against life and health; possibility of walking alone after dark; trust; experience of discrimination; concern for others; and belonging to the community.

The Democratic Participation category provides analysis of 74 relevant indicators, but the Index includes only eight: percentage of turnout at federal elections; percentage of those who are not interested in politics at all; percentage of those who absolutely agree that voting in federal elections is the responsibility of citizens; percentage of those who are completely or sufficiently satisfied with the way democracy works in Canada; percentage of those who express a high or fair amount of trust in the Federal Parliament; the ratio of registered voters and those who are entitled to vote; the percentage of women in Parliament; and net foreign aid as a percentage of gross national income.

The Education category measures the level of education and skills of the population, including the ability of children and adults to function in different social contexts. It takes into account the following aspects: pre-school education and care; development of health care in pre-school education facilities; availability of teachers in public schools in view of the number of students; social and emotional competence among school-age children; basic knowledge and skills of young people; equality in education; percentage of persons with completed school education; and higher education.

The Environment category assesses the status of and trends related to the environment in Canada in view of the stocks and flows of 'green' products and services. There are five sets of indicators for: air quality; generation of energy; quality of drinking water; consumption of non-renewable resources, including energy and metals and assessment of waste management; and use of biotic resources (territorial and water).

The Health category assesses the status of the physical, mental, social and psychological health of the population. It includes eight groups of indicators that characterize: subjective self-assessment of health status; life expectancy and mortality (life expectancy at birth; infant mortality; mortality due to accidental injury); physical health (prevalence of diabetes; prevalence of obesity; low birth weight; prevalence of asthma); life expectancy, adjusted for health status; lifestyle options and behaviours (smoking; physical activity); mental health (probable risk of depression; self-assessment of mental health); parameters of health care (patient satisfaction with the level of health services provision; share of the population that regularly uses the services of family doctors); and the risk of getting sick while visiting public places (level of vaccination against influenza).

The Leisure and Culture category covers four aspects: recreation, arts and cultural activities, subjective perception of leisure and culture, including the motives and needs; leisure and culture as a value and its reflection in the minds of

people; and opportunities provided for quality leisure and cultural development. The indicators include: percentage of time devoted earlier to leisure; percentage of time devoted earlier to the arts and cultural activities; average number of hours in the past year devoted to volunteer involvement in organizations of culture and leisure; physical activity lasting more than 15 minutes during the month; attendance of entertainment and cultural events in the past year; attendance of national parks and historic sites; average number of overnight stays away from home during holidays in the past year; and spending in the past year on all aspects of culture and leisure as a percentage of total household expenditure.

The Standard of Living category assesses the level and distribution of income and wealth in society, including trends in the incidence of poverty, the regularity of income, the degree of economic security, including security of jobs, provision of food, quality of housing and the level of social security. The indicators include: the ratio of the top and bottom quintile of households by income after tax deduction; median family income after payment of taxes; share of persons with a low income; economic security index (calculated by the Centre for the Study of Living Standards); share of long-term unemployed persons; percentage of employed workers; quality of employment index (calculated by the Canadian Imperial Bank of Commerce); and the housing affordability index (calculated by the Royal Bank of Canada).

The Use of Time category describes the ways time is used, factors that influence the selection by an individual of a certain way to use time, and the impact of these decisions on the well-being of the individual. The indicators are differentiated by social and age groups. For people of working age, the following aspects are calculated: the share of non-standard working hours (night, etc.); the duration of working time; work stress caused by the time factor; and time spent caring for an elderly person. For pensioners, the indicators focus on: time spent on active leisure; and time devoted to volunteer work. For children and adolescents, the indicators are: time spent in front of the TV or computer; participation in organized extracurricular activities; time spent with parents; and time spent sharing a meal with parents at home (joint home lunch or dinner) [16].

The USA has also accumulated considerable experience in analysing and measuring various aspects of quality of life. At the federal level this is measured in 13 categories: Standard of Living; Employment; Working Conditions; Demographics; Health Care; Education; Environment; Social Welfare; Housing; Culture; Leasure and Entertainment; Transportation; National Defense; and Legal Protection.

Research over the past 20 years in the USA based on the data of the Bureau of Labour Statistics and subjective assessments revealed the factors related to quality of life, personal status and individual values that should be considered when assessing the quality of life. For example, the status indicators include: income that is associated with subjective and objective dimensions of the quality of life; employment; age; gender; marital status; ethnicity; place of residence (urban–rural); health; and appearance [13].

The Russian Federation has developed and implemented dozens of internal systems of indicators for assessing the quality of life at national and regional levels. One of the most widely used methodologies is the calculation of the Integrated Indicator of the Quality of Life (IIQoL), developed by experts at the Central Economics and Mathematics Institute of the Russian Academy of Sciences (CEMI RAS), under the supervision of S.A. Ayvazian. The advantage of the IIQoL approach is that it enables assessment on the basis of official data of the state statistics agencies [17]. It is based on special aggregation of individual (statistically registered) indicators of various aspects of the quality of life. All elements that form the environment and the system of livelihood were combined into five integrated groups:

- ✓ quality of the population, which integrates factors such as life expectancy, level of education, qualification, birth and mortality rates, marriage rate, etc.;
- ✓ welfare of the population, which integrates key indicators of the standard of living and reflects the degree of satisfaction of material and spiritual needs (real income, its differentiation, the level of consumption of goods and services, availability of infrastructure, facility, etc.);
- ✓ social security (quality of social services), which reflects the level of working conditions, social security, physical and property safety of members of society, criminogenic, social and political health of the society, etc.;
- ✓ environmental quality (quality of the ecological niche), which combines data on the pol-

lution of air and water, the quality of soil, the level of biodiversity, etc.;
- ✓ climatic conditions, characterized by the composition and volume of natural raw materials, climate, frequency and specifics of force majeure.

Each of the integrated properties reflects the conditions under which there are processes of satisfying both biological and social needs of members of the society. The sequential hierarchical decomposition of each of them allows for a 'drilling down' to a set of relevant characteristics that, in the vast majority of cases, can be represented by standard statistical indicators.

The Republic of Belarus developed a number of techniques for quantifying disparities in the development of regions and the capital. The Regional Integrated Index of the Quality of Life allows for regional (oblast) comparisons of the quality of life. The Index consists of 38 statistical indicators grouped into five basic components of the quality of life: Quality of the Population; Living Standards; Quality of Social Services; Intellectual and Cultural Conditions of the Society; and the Quality of the Ecosystem. For each component, an integrated indicator is calculated, and through additive convolution it is transformed into a single generalized indicator. To reflect the quality of life of Belarusians, developers do not use GDP as an indicator, having replaced it with indicators of real income and spending of the population, as well as provision of housing and other property. In developing the final Index, the environmental indicator is taken into account, which is characteristic only for the regions of Belarus with regard to radioactive contamination. The advantage of the methodology is that all of the indicators are adapted to the available statistical base in the country, and are comparable over time. It also takes into account the lack of equivalence among initial indicators and components.

The analysis of national approaches in different countries has shown that the methodologies are sufficiently flexible and adaptable to the peculiarities of national development. A number of techniques provide the possibility for measuring the quality of life at the regional level. However, areas by which the analysis is performed are to a greater or lesser extent universalized and approximated to the international systems of assessment. This allows for their inclusion in international assessments and, at least partially, cross-country comparisons.

2.3. Experience of measuring individual components of the quality of life in Ukraine

In addition to methodologies that assess the quality of life directly through the system of developed indicators, there are other indices that address the individual aspects of human and social life (Table 2.3).

The UNDP Human Development Index (HDI) is calculated annually for 187 countries. UN experts and a group of independent international researchers determining the HDI using analytical reports as well as statistical data from various international organizations. The index is published in a special series of United Nations Human Development Reports.

The HDI measures a country's achievements in terms of health status, education and the actual income of its citizens based on three main categories for which separate indices are calculated. The Index of Gross National Income is measured by the value of the gross national income per capita in US dollars based on purchasing power parity; the Index of Life Expectancy reflects health and longevity measured according to the average life expectancy at birth; and the Index of Education measures access to education according to average expectancy of education of children of school age and average duration of education of adults. These measurements are standardized in the form of numerical values from 0 to 1, the geometric average of which is the integrated index of HDI (also with values from 0 to 1).

On the basis of analysis of the progress achieved in human development in 2010, experts suggested new approaches to calculating human development, such as calculation of the human development index taking into account the extent of inequality, and calculation of an index of gender equality and a multidimensional poverty index. In the final ranking, all countries are ranked based on HDI and classified into four categories: 1) countries with very high HDI; 2) countries with high HDI; 3) countries with medium HDI; 4) countries with low HDI.

The UNDP Human Development Reports are prepared at the global, regional, national and subnational (local) levels. The final report includes all key indices of the 'standard of living' of the population of countries and regions represented

Table 2.3. Overview of the quality of life indices of individual countries

Title	Entity that performs the calculation	Principle of calculation	Indicators	Number of countries covered
1	2	3	4	5
Human Development Index	UNDP	Geometric average of three indices	Life Expectancy; Education; Gross national income	187
Prosperity Index [24]	Research organization Legatum Institute	Integrated assessment of parameters	Economy; Level of Development of Entrepreneurship and Business Opportunities; Public Administration; Education; Health Care; Safety; Personal Freedom; Social Capital	110
Index/ranking of cities with the best quality of life	Mercer Human Resource Consulting	Ranking scores	39 assessment criteria: Political and Social Environment; Economic Indicators; Existence of Limitations (e.g. censorship); Quality of Healthcare; Quality of Education; Availability and Cost of Housing; Cultural Life; Climate and the Likelihood of Natural Disasters	215 cities
Gallup-Healthways Wellbeing Index [37]	Gallup Institute	Sociological survey of the quality of life	Health; Education; Material Wealth; Social Activity; Political Freedom; Social Relations; Environment; Economic and Physical Safety	Varies from year to year
Human Development Index based on monitoring regional human development	M.V. Ptukha Institute for Demography and Social Studies		Six blocks, 33 indicators	

in the report. A wide range of factors are used to determine the rankings, including: conditions related to human rights and civil liberties; opportunities to participate in social life; social security; the degree of territorial and social mobility; indicators of the level of cultural development of the population; access to information; health; level of unemployment; crime rate; and environmental protection.

The HDI rankings make it possible to evaluate countries' progress in implementing development strategies and programmes. This helps to ensure the quality life of the population and improve the efficiency of measures of state influence on human development.

The international investment group Legatum, which is a well-known British research organization, calculates the Prosperity Index for 110 countries. The basis of the Index is an econometric analysis of 89 indicators that reflect the influence of different factors on welfare and revenue. The significance of the influence of each indicator is determined by regression analysis or expert assessment, which allows for the development of lower indices in the following eight categories: Economy; Level of Development of Entrepreneurship and Business Oppaortunities; Public Administration; Education; Health Care; Safety; Personal Freedom; and Social Capital [18].

The ranking of cities with the highest quality of life is produced annually by an international consulting company, Mercer Human Resource Consulting. The list is based on the results of an annual comparative study of 215 cities worldwide, and is very important for companies when deciding where to conduct their activities and how to pay their employees. The assessment is based on data from 39 criteria, including: Political and Social Environment; Economic Indicators; Existence of Limitations (e.g. censorship); Quality of Health Care; Quality of Education; Availability

and Cost of Housing; Cultural Life; and Climate and the Likelihood of Natural Disasters. New York was taken as a benchmark with 100 points in the ranking of the quality of life in cities [19].

The methodology for monitoring regional human development in Ukraine was developed by the M.V. Ptukha Institute for Demography and Social Studies, NAS of Ukraine, and the State Statistics Service of Ukraine. It was implemented in the state statistics agencies after its launch in 2012 [20], and is based on the ideas and principles formulated by UNDP [21].

Based on the capabilities of the existing information base, the national methodology envisages a more complete account of the multi-aspect concept of human development, covering social and natural environment, funding of the relevant areas of social and economic policy, direct reflection of the demographic situation and development of the labour market, and a more detailed description of the standard of living, living conditions, and health status and health care.

The methodology consists of six blocks and 33 indicators. Despite substantial innovation, the system of measuring regional human development is not entirely suitable for complex assessment of the quality of life in Ukraine. Its ultimate goal is not to measure the quality of life but to calculate block and integrated indices, as well as rank the regions by these indices. As the methodology is mostly focused on statistical and mathematical transformation of indicators, the actual values of indicators are somewhat sidelined and seen only as material for developing index aggregates.

The analysis of existing approaches to monitoring components of quality of life in Ukraine demonstrates the need to develop a specialized measurement system that covers the widest possible range of issues related to social development, and which is integrated and balanced in terms of mapping the contribution of each party involved in the quality of life: government, society and citizens.

The 'quality of life' concept is widely used but does not have a universally accepted, formal structure nor a standard set of indicators. Setting priorities for measuring quality of life depend on the needs of the people and are closely related to the level of socio-economic development of countries and regions as well as the opportunities and sources available for obtaining reliable information. Therefore, different criteria and methods of calculation are used in various international indices.

Overall, there appear to be three key issues that need to be addressed to ensure adequate monitoring of the quality of life in Ukraine. These are the need to:

- ✓ develop conceptual approaches for measuring the quality of life;
- ✓ form the system of indicators; and
- ✓ determine the order of calculation of general indicators.

SECTION 3 CONCEPTUAL APPROACHES TO MEASURING THE QUALITY OF LIFE IN UKRAINE

3.1. General approach

The purpose of developing a system for assessing the quality of life is to provide useful information about quality of life for making management decisions at the national level. The specific context determines the choice of conceptual frameworks and the development of the system of indicators. The key factors to consider are as follows:

- ✓ National adequacy takes precedence over international comparability. The system of monitoring and the suggested indicators should meet the needs of Ukraine. The international comparability of indicators is desirable, but not required.
- ✓ Maximum coverage of all aspects of human life is vital for assessment of the quality of life. For the purposes of monitoring, the principle of equal significance of the spheres of human life shall be applied.
- ✓ Structuring the system of indicators should be in the form of certain blocks or categories, each of which comprises a set of indicators that assess one of the areas of human life.
- ✓ The dynamic nature of the system should provide an opportunity to track changes in the quality of life.
- ✓ The system should be oriented to assess the quality of life in the medium term. Therefore, the system of indicators should include not only the existing calculation indicators, but also the targets.
- ✓ A feedback system is essential for citizens. This will enable data collection directly from individuals during the course of monitoring on a range of issues including, for example, determining which areas of quality of life are considered a priority by citizens.
- ✓ There should be an integrated index and a set of subindices based on the structure of the system of indicators, which takes into account the complexity of the quality-of-life phenomenon and structuring of the system of indicators.

Quality of life is a complex phenomenon which should take into account various aspects of human life. As such, in terms of assessment, quality of life is a multidimensional variable. To ensure adequate assessment, this variable should be based on the national indicators matrix, adapted as much as possible to state statistics. It may also include indicators that are not currently calculated but which could be used in future. If possible, the matrix should enable international comparisons, even if this is achievable for only selected variables.

Each indicator can be viewed from two perspectives: by source (objective versus subjective) or as a characteristic of a particular living environment. Efforts to ensure the quality of life of a population (or an individual) have two potential sources: first, activities of the state aimed at ensuring a decent standard of living; and second, the efforts of citizens. This division is relative. On the one hand, state activities are limited by capacity (especially financial), which is determined by the status of the economy and of the population. The latter is characterized by a sex–age structure (the ratio of the working age to non-working age population), labour-market behaviour (economic activity, illegal employment), and other factors. On the other hand, the socio-economic activity of the population is largely determined by the 'rules of the game' offered by the state. In any case, the quality of life is provided by these two components: the state and the people. The state's efforts, however, are often less effective than the efforts of citizens. For example, economic growth or increased funding for certain programmes are not always effective and do not always lead to improvements in the quality of life; but the growth of individual income among citizens almost always leads to an improved quality of life. In addition, each person has his or her own idea of what is important in terms of quality of life and well-being, and these factors determine human behaviour which can improve the quality of life. Therefore, three blocks (or categories) of indicators should be prioritized when developing a national matrix of indicators (system of indicators) for quality of life.

Indicators in the first block should quantitatively describe the environment, capturing the state of human life and the quality of life. Indicators in the second block should capture the current state of the quality of life, which encompasses the joint influences of the both the state and the people. The third block of indicators should reflect a

Table 3.1. Quality-of-life matrix

Subjective Assessment	Objective situation	
	Good	Bad
Good	**Prosperity**	**Adaptation** Adaptation to existing conditions ('happy poor people')
Bad	**Dissonance** Inconsistency in the what is expected and what is achieved in terms of quality of life	**Exclusion**

subjective assessment of the quality of life by the people. Subjective assessment captures the quality of life in certain spheres from the point of view of the individual, based on how she or he perceives the accessibility of different resources and the possibility for their use.

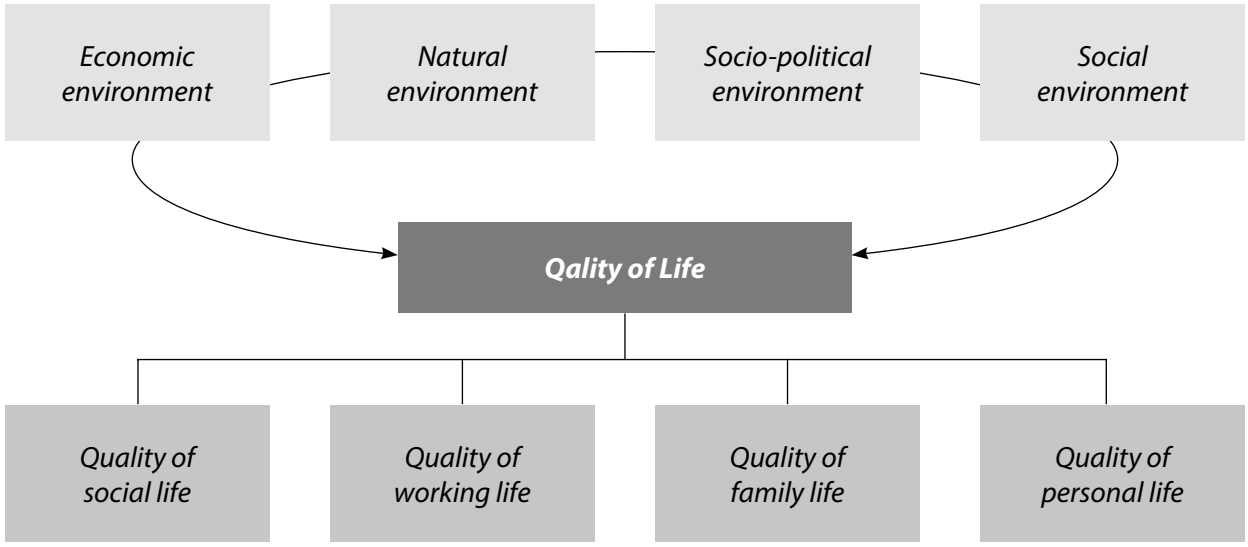
A high quality of life is only possible if there is an optimum balance of all components of the three blocks (state, current situation and self-assessment). This ensures that key aspects of people's lives and conditions can be transformed into higher status and higher quality of life. Imbalances in the three components could hinder improvements in the quality of life. The combination of objective and subjective assessments of quality-of-life factors can lead to four possible scenarios: prosperity, adaptation, dissonance or exclusion (Table 3.1).

Well-being occurs when there is a positive assessment of both the objective and subjective situation, whereas a negative assessment of both of these situations results in exclusion. Adaptation occurs when objectively bad conditions are perceived subjectively as good, that is, the individual adapts to conditions (e.g. in the case of 'happy poor people'). The opposite can also occur: when an objectively good situation is subjectively perceived as bad. This results in dissonance, when there is inconsistency in what is expected compared to what has been achieved with respect to quality of life. This can have political consequences.

An important component of the quality of life system is the configuration of the environment and conditions under which the individual can achieve his or her goals or self-realization and which leads to the formation of human and social capital. The environment in the context of quality of life is the foundation for opportunities that living conditions meet people's physiological and psychological needs and support their values. The range of opportunities includes, for example, those related to the social sphere, communication, education, culture, and recreation.

Characteristics of the living environment are differentiated depending on the areas of human activity to which they relate, either natural, social, economic or socio-political. Based on the influ-

Figure. 3.1 – Environment and subsystems of the quality of life



ence of each of these environments on the quality of life, a number of subsystems can also be identified, such as the quality of social, working, family and personal (individual – recreational) life (Figure 3.1).

The economic environment plays a particularly critical role in the formation of a high quality of life. It is impossible to ensure high quality of life without sustainable economic development and balanced state budget expenditures and revenues. The priorities for social development evolved naturally during major social, political, economic or other changes, which brought increased attention to issues of quality of life.

The European experience shows that even poor socio-economic conditions can support significant progress in terms of social standards in the short term. People have experienced significant improvements in their well-being in the space of a single generation, which has quite naturally led to an expansion of the range of needs. In particular, new labour requirements were introduced, including those linked to safety, interest, convenience of location, and free time; and the concept of 'life satisfaction' became more likely to include characteristics such as the availability and quality of social services (e.g. education and health care) [22].

However, the prerequisite for this was the population-wide improvement of living standards due to the development of the high-tech industrial base, stimulation of domestic consumer demand, and manufacturing of competitive products with high added value. In this context, the high-tech industrial base is the main lever for raising the quality of life.

Productive employment is another prerequisite for sustainable improvements in the quality of life. In contrast, rising unemployment has the opposite effect as it increases the segment of the population that experiences unstable employment. Therefore, the most important prerequisites for improving quality of life are: taking a comprehensive approach to addressing macroeconomic problems; providing the economically active population with effective jobs; and, through these measures, higher economic growth and material well-being for citizens.

The natural environment is equally important in ensuring the quality of life, as it combines environmental conditions with people's productive activity. Individuals interact with the natural environment by adjusting to it or by converting it for their use. Moreover, human activity, in the form of the application of technological innovations on the one hand and the irrational use of natural resources on the other, has significant effects on the environment. Environmental pollution is the major cause of deteriorations in people's health. While the environment has the potential to receive, process and decontaminate waste that results from both production and consumption, without negative environmental consequences, this potential has been decreasing each year at an alarming rate. This undoubtedly affects factors related to quality of life around the world.

Increasing levels of environmental pollution place new demands on the priorities for economic growth, forcing society to think about the future of human civilization and its place in it. Overall, the quality of the environment refers to its ability to function as a living environment for people as well as the source for the gene pool and biodiversity, over the long term. A prerequisite for environmental preservation and harmonization is an effective environmental policy, which is also crucial for improving the quality of life.

Civil society plays an important role in the development and implementation of priorities related to both economic growth and environmental management. Civil society is a harmonious part of the socio-political environment, as it represents the interests of different population groups. In analysing the impact of the socio-political environment on the quality of life, it is worth noting that a strong social policy, with high levels of spending on education and health care, can create the preconditions necessary for social stability. The possibility for free expression of individual political preferences and positions is also extremely important in ensuring the quality of life.

The factors that influence the quality of life are largely determined by interactions between individuals and the surrounding social environment. Therefore, in the course of developing measures aimed at improving the quality of life, it is important to define the essence of the social environment as well as regularities and factors related to its formation. The notion of the 'social environment' refers mainly to the social infrastructure: the system of education and vocational training, the health care system, public transport, culture, safety of residence, and conditions of residence.

Table 3.2. National matrix of quality-of-life indicators for Ukraine

Quality of Life			
Environments (sub-environments)	Blocks		
	Objective assessment		Subjective assessment
	State	Current situation	
Natural environment			
Ecology	Natural environment	Ecological situation	Environmental assessment
Social environment			
Health	Health care system	Public health	Assessment of health care system and own health
Education	System of education	Education of the population	Assessment of the system of education and own education
Safety	Criminogenic environment	Criminogenic situation	Assessment of own safety
Culture, arts and leisure	Culture, arts, tourism	Activity of the population in culture, arts, tourism	Attitude towards culture, arts, tourism
Housing	Housing market	Housing conditions	Assessment of improvement and living conditions
Transport	Transport infrastructure	Transport safety	Assessment of transport operation
Economic environment			
Economy	Economic situation	Well-being	Assessment of material situation
Employment	Labour market	Employment and working conditions	Assessment of the employment situation
Socio-political environment			
Public activity	Development of civil society	Socio-political situation	Assessment of socio-political situation
Social environment	State of social environment	Social impession	Social feeling

In the course of developing a national matrix of quality-of-life indicators, it is possible to identify:

- ✓ three blocks (state, current situation and subjective assessment);
- ✓ four environments (natural, social, economic, and socio-political);
- ✓ sub-environments related to the social, economic and socio-political spheres; and
- ✓ 33 structural elements, each of which has a set of indicators.

These are presented in Table 3.2.

3.2. System of indicators of the quality of life

A system of indicators has been developed for each structural element of the national matrix of the quality-of-life assessment. Structural elements are presented in the following order: the first classification element is the environment (sub-environment), and the second are the blocks (state, current situation and subjective assessment). This order allows for a comparison of the lists of indicators within the same environment (sub-environment).

Environment	Sub-environment	State
Natural	*Ecology*	*Natural environment*

Indicators:

Index of environmental condition of land resources
Index of environmental condition of water resources
Index of environmental condition of ambient air
Share of funding of target environmental programmes, %

Environment	Sub-environment	Current situation
Natural	*Ecology*	*Ecological situation*

Indicators:

Share of recovered waste of hazard classes 1–3, %
Share of contaminated water in the total volume of waste-water discharges into bodies of water, %
Emissions of hazardous pollutants into the air from stationary and mobile sources, tons per 1 square kilometre

Environment	Sub-environment	Subjective assessment
Natural	*Ecology*	*Environmental assessment*

Indicators:

Share of the population that considers the environmental situation in the city/village relatively or quite good, %
Share of the population that believes that in the past year the environmental situation worsened or improved, %
Share of the population that is rather pleased with the landscaping and sanitary conditions of streets, parks, environment, %
Share of the population that considers the water suitable for drinking and cooking without pre-treatment, %
Index of satisfaction with environmental situation

Environment	Sub-environment	State
Social	*Health*	*Health care system*

Indicators:

Budget expenditure on health care (% of GDP)
Ratio of total (aggregate) expenditure of budgets of all levels on health care and defined by social standards, %
Share of provision of hospitals with doctors of all specialties, %
Share of provision of hospitals with medical staff, %
The number of doctors of all specialties per 10,000 population
The number of medical staff per 10,000 population
The number of registered patients with HIV per 100,000 population
The number of registered AIDS patients per 100,000 population
The number of registered tuberculosis patients per 100,000 population

Environment	Sub-environment	Current situation
Social	*Health*	*Public health*

Indicators:

Life expectancy at birth, both sexes, years
Incidence of HIV per 100,000 population
Deaths from AIDS per 100,000 population
Deaths from AIDS per 100,000 population (according to the European standard of age structure)
Deaths from tuberculosis per 100,000 population

Deaths from tuberculosis per 100,000 population (according to the European standard of age structure)
Preventable mortality rate (controlled mortality rate) by a certain minimum set of causes, per 100,000 population
The level of premature mortality (0–64 years), per 100,000 population
Probability of death among people aged 15–60 years
Share of persons aged 18 years and older engaged in physical activity for at least 30 minutes, 5 times per week, %
Share of persons aged 15 years and over who smoke daily, %
Mortality rate of children aged 0–4 years
Share of the population with a balanced diet (by nutrients and micro- and macro elements), %
Number of patients with newly diagnosed alcoholism and alcoholic psychosis, or mental and behavioural disorders caused by the use of drugs and other psychoactive substances, per 100,000 population
Share of households that, when necessary, could not visit the doctor
Share of health care costs in the total household budget, %
Number of suicides per 100,000 population

Environment	Sub-environment	Subjective assessment
Social	***Health***	***Assessment of health care system and own health***

Indicators:

Share of the population that assesses own health status as 'good' and 'excellent', %
Share of the population that finds the level of necessary medical care sufficient, %
Assessment of satisfaction with the current state of health care system
Share of the population not experiencing difficulties or limitations in daily life due to chronic illnesses, disability, physical weakness or mental health problems, %
The average healthy life expectancy, years

Environment	Sub-environment	State
Social	***Education***	***System of education***

Indicators:

Budget expenditure on education, % of GDP
Ratio of total (aggregate) expenditure of budgets of all levels on education and defined by social standards, %
Provision of students of daytime general educational establishments with computers, units per 10,000 students
Provision of students of daytime higher educational establishments with computers, units per 10,000 students
Share of daytime general educational establishments with Internet access, %

Environment	Sub-environment	Current situation
Social	***Education***	***Education of the population***

Indicators:

Net pre-school enrolment rate of children aged 3–5 years, %
Enrolment of school children in secondary education, %
Share of persons with higher education among the population aged 25 years and older, %
Average years of schooling of persons aged 25 years and older, years
Share of education costs in total budget of households, %

Environment	Sub-environment	Subjective assessment
Social	***Education***	***Assessment of the system of education and own education***

Indicators:

Share of the population that is rather or completely satisfied with its education, %

Share of the population that lacks the opportunity to provide children with complete (preferred) education, %
Assessment of the current state of the system of education

Environment	Sub-environment	State
Social	***Safety***	***Criminogenic environment***

Indicators:

Number of prisoners serving sentences per 100,000 population
Number of prisoners that served sentences (released) in the previous 25 years, per 100,000 people
Number of organized criminal groups, units

Environment	Sub-environment	Current situation
Social	***Safety***	***Criminogenic situation***

Indicators:

Crime rate, reported crimes per 100,000 population
Murder rate, reported murders per 100,000 population
Share of young people aged under 30 years, sentenced to prison, %
Share of recurrent (repeated) offenses, %

Environment	Sub-environment	Subjective assessment
Social	***Safety***	***Own safety***

Indicators:

Share of the population that believes that near their house/in the neighbourhood there are almost no cases of hooliganism and robbery, %
Share of the population that feels safe in its district of residence at nightfall, %
Share of the population that believes that over the past 12 months own safety significantly deteriorated (in the street, in public places), %
Share of the population that became victims of robbery or physical violence in the past 5 years, %
Share of the population not satisfied with the work of the police, %

Environment	Sub-environment	State
Social	***Culture, arts, leisure***	***Culture, arts, tourism***

Indicators:

Budget expenditure on culture, art, physical education, tourism, % of GDP
Ratio of total (aggregate) expenditure of budgets of all levels on culture, art, physical education and of defined by social standards, %
Number of cultural, art institutions by type (theatres, museums, libraries, stadiums, sports palaces, clubs, etc.) per 100,000 population
Share of cultural institutions in need of overhaul, %

Environment	Sub-environment	Current situation
Social	***Culture, arts, leisure***	***Activity of the population in culture, arts, tourism***

Indicators:

Number of domestic tourists and sightseers, per 100,000 population
Share of the population that has been abroad for tourism at least once, %
Attendance by the population (as spectators) of cultural, art institutions by type (theatres, museums, libraries, stadiums, sports palaces, clubs, etc.) per 100,000 population
Attendance by the population (as members of clubs, groups, etc.) of cultural, art institutions by type, per 100,000 population

Share of the population that visited another region of Ukraine for tourism at least once, %
Share of the population using the Internet (at home, at work or elsewhere), %
Ratio of time spent on work and leisure

Environment	Sub-environment	Subjective assessment
Social	***Culture, arts, leisure***	***Attitude towards culture, arts, tourism***

Indicators:

Share of the population lacking full-scale leisure, %
Share of the population lacking the opportunity to have a full-scale holiday, %
Share of the population that improved the opportunity to take part in cultural life (theatres, museums, libraries, stadiums, sports palaces, clubs, etc.) over the past year, %
Share of the population that does not need to attend institutions of culture, art, physical education, %

Environment	Sub-environment	State
Social	***Housing***	***Housing market***

Indicators:

Average cost of the total area of commissioned new residential buildings, thous. UAH/1 m^2
Average cost of rent of housing in the capital, UAH/1m^2 per month
Number of families and individuals who live in buildings that do not meet sanitary standards, per 100,000 population
Number of families and individuals in need of social housing, per 100,000 population

Environment	Sub-environment	Current situation
Social	***Housing***	***Housing conditions***

Indicators:

Size of living space, m^2 per 1 person
Share of households living in buildings equipped with basic amenities, %
Share of the population living in buildings that meet modern standards, %
Share of households that consume drinking water from the water supply system, %

Environment	Sub-environment	Subjective assessment
Social	***Housing***	***Assessment of improvement and living conditions***

Indicators:

Share of the population that is fully (most likely) satisfied with living in its locality, %
Share of the population satisfied with landscaping and sanitary conditions of streets, parks and environment (by place of residence), %
Share of the population that is fully satisfied with quantitative and qualitative characteristics of its dwellings, %

Environment	Sub-environment	State
Social	***Transport***	***Transport infrastructure***

Indicators:

Branching of the transport infrastructure (intensity of transport communication between villages and district centres and district centres with oblast centres)
Share of roads in need of overhaul (by category of roads), %
Share of public transport fleet in need of replacement (by mode of transport), %

Environment	Sub-environment	Current situation
Social	***Transport***	***Transport safety***

Indicators:

Number of deaths in accidents per 100,000 population
Number of deaths in accidents per 100,000 kilometres of roads
Number injured in accidents per 100,000 population
Number of accidents per 100,000 population

Environment	Sub-environment	Subjective assessment:
Social	***Transport***	***Assessment of transport operation***

Indicator:

Share of the population satisfied with the public transport operation, %

Environment	Sub-environment	State
Economic	***Economy***	***Economic situation***

Indicators:

GDP per capita by PPP in international $
Consumer Price Index
Index of Economic Freedom
Ratio of external debt to GDP, %
Deficit of the Pension Fund, %
Ratio of subsidies and benefits and payroll, %
Level of shadow economy, %
Cost of human life, thous. UAH

Environment	Sub-environment	Current situation
Economic	***Economy***	***Well-being***

Indicators:

Share of the population with total equivalent costs less than 75% of the median level (relative poverty), %
Share of food costs in the total household expenditures, %
Share of individuals the nutrition of which meets sanitary standards, %
Share of individuals that could not afford in the past 12 months a vacation away from home, %
Share of individuals that could not afford in the past 12 months to buy books, tickets to the theatre, cinema, %
Ratio of income of 20% most and 20% least well-off population, times
Ratio of time spent on housework and rest, times
Share of informal income in the total income of citizens, %

Environment	Sub-environment	Subjective assessment
Economic	***Economy***	***Assessment of material situation***

Indicators:

Share of the population that considers itself poor, %
Share of the population that determines its income as such that provide in addition to food, the satisfaction of other needs, %
Share of the population that positively perceives changes in its material situation in the past 12 months, %
Share of the population living comfortably and able to live on earnings

Environment	Sub-environment	State
Economic	*Employment*	*Labour market*

Indicators:

Unemployment rate among people aged 20–65 years by International Labour Organization (ILO) methodology, %
Share of employed individuals in the total number of employed population, %
Level of long-term unemployment (over 12 months) by ILO methodology, %
Share of individuals employed abroad through formal intermediaries in the total number of population aged 18–65 years, %
Share of foreigners working in Ukraine in the total number of employed population, %
Share of professionals and specialists among the employed population, %

Environment	Sub-environment	Current situation
Economic	*Employment*	*Employment and working conditions*

Indicators:

Employment rate among population (percentage of employed population aged 20–65 years), %
Economically active population aged 20–65 years, %
Share of employees working in conditions that do not meet health and safety standards, %
Level of social insurance coverage (share of insured individuals among the employed population), %
Time spent daily on home-to-work travel, hours

Environment	Sub-environment	Subjective assessment
Economic	*Employment*	*Assessment of the employment situation*

Indicators:

Share of the population that believes it is easy to find a job in the locality with satisfactory wages and relevant qualification, %
Share of the population that believes it is easy to find a job in the locality with satisfactory wages but without relevant qualification, %
Share of the population not satisfied with their job, %
Share of the employed respondents that believe they will work on the job for at least one more year, %

Environment	Sub-environment	State
Socio-political	*Public activity*	*Development of the civil society*

Indicators:

Index of sustainable development of civil society organizations
Index of freedom
Index of democracy
Number of political, religious and social organizations (trade unions, creative associations, condominium associations, interest clubs, etc.) per 100,000 population

Environment	Sub-environment	Current situation
Socio-political	*Public activity*	*Socio-political situation*

Indicators:

Number of citizens participating in the work of political, religious and social organizations (trade unions, creative associations, condominium associations, interest clubs, etc.) per 100,000 population aged 16 years and older
Number of volunteers per 100,000 population aged 16 years and older
Share of individuals subject to administrative liability per 100,000 population aged 16 years and older

Environment	Sub-environment	Subjective assessment
Socio-political	***Public activity***	***Assessment of socio-political situation***

Indicators:

Share of the population that is satisfied with the development of democracy, %
Share of the population that is satisfied with the work of the government, %
Share of the population that believes that in today's Ukraine people can freely express their political views, %
Share of the population that mainly and fully trusts certain government institutions (President, Parliament, government, etc.), %
Share of the population that estimates the general political situation in Ukraine as peaceful and good, %
Share of the population that believes that it can do something against the decision of the state government, which suppresses legitimate rights and interests of citizens, %
Index of trust in authorities
Index of trust in religious organizations
Index of trust in the media
Share of the population that unsuccessfully addressed the local administrations over the past 12 months, %
Share of the population that is rather satisfied with the work of local governments, %

Environment	Sub-environment	State
Socio-political	***Social environment***	***State of social environment***

Indicators:

Number of orphans and children deprived of parental care per 100,000 population
Level of corruption
Level of domestic bribery, %

Environment	Sub-environment	Current situation
Socio-political	***Social environment***	***Social impession***

Indicators:

Overall birth rate, %
Overall divorce rate, %
Share of households consisting of one individual, %
Number of adopted orphans and children deprived of parental care per 100,000 of their number
Share of children born to unmarried women, %

Environment	Sub-environment	Subjective assessment
Socio-political	***Social environment***	***Social feeling***

Indicators:

Share of population that is fully or most probably satisfied with own life, %
Integrated index of social feeling
Share of the population that feels protected from abuse of power by government, officials, %
Share of the population satisfied with their position in society, %
Share of the population that feels lonely, %
Share of the population that has no one to turn to in case of emergency, equivalent of EUR500, %
Index of trust in fellow countrymen
Share of the population that does not trust anyone, %
Integrated index of national distancing
Share of the population that does not participate in the work of any political or social organization, %

3.3. Calculation of general indicators

As outlined in the previous sections, measuring the quality of life should consist of an integrated index and a set of subindices based on the structure of the system of indicators. Thus, the general assessment is the integration of partial assessments. That raises questions about the creation of an elementary index – an index that would be calculated on the basis of a certain set of indicators, but would also serve as part of the calculation of subindices and the integrated index.

This issue can be solved quite simply, with the elementary index being the index of the structural elements of the national matrix of quality-of-life indicators (Table 3.2). While taking into account the equal significance of blocks and environments, it is necessary to observe the following two provisions.

- ✓ All blocks (state, current situation and subjective assessment) are equal.
- ✓ All environments and sub-environments are equal.

The general procedure of calculation is divided into two parts:

- ✓ calculation of indices of structural elements of the matrix; and
- ✓ calculation of subindices and the integrated index.

Calculating the index of structural elements of the matrix

This involves three stages:

- ✓ the valuation of the indicators;
- ✓ the determination of the weight of the indicators; and
- ✓ the calculation of the index.

The valuation of the indicators can be carried out using different approaches [23], which can be broadly categorized as: taking into account the variability of the characteristic; not taking into account the variability of the characteristic; or using mathematical functions. The first approach includes procedures of valuation using the mean-square deviation or range of variation of characteristic. The second approach involves using the standard value of the characteristic, which may be the mean value of the characteristic, maximum, minimum, median or any other that can be used as a standard (reference) value. The third approach consists of valuation methods using various mathematical functions, such as logarithmic or hyperbolic tangent.

The use of different valuation methods leads to different results; some methods of valuation change the shape of the distribution of characteristic, which, in turn, alters certain ratios between characteristics.

Thus, the method of valuation affects the subsequent processing of data, including, in this case, the value of the elementary index, subindices and integrated index. At this stage, in-depth research is still needed to identify the most appropriate method of valuation.

The weights given to indicators also affect the value of the index and their definition is problematic. In our opinion, the weights should be determined by experts. One of the methods that can be used and that has been tested in the development of methodologies for measuring regional human development is pairwise comparisons.

To ensure the comparability of the results of calculations for different years, the method of valuation and weights of indicators should be constant over a long period of time. Their change will require recalculation of all the previous data.

The index I of structural element of the matrix is calculated using the following Formula:

$$I = \sum_{i=1}^{k} w_i z_i$$

z_i – valuated value of *i* indicator;
w_i – weight of *i* indicator.

Calculating subindices and the integrated index

The integrated index is calculated based on the indices of the structural elements of the matrix, which generally includes 33 indices; different subindices are also calculated, as needed. Subindices can be calculated by blocks, environments (sub-environments), or source (objective or subjective).

The integrated index and subindices can be calculated either as consolidated or average indicators. Consolidated indicators allow for the determination of the contribution of each index of the structural element of the matrix to the general index. Average indicators should be used when the number of components being compared is different (e.g. environments have a different number of sub-environments).

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ANNEXES

ANNEX A INDICATORS OF MEASURING THE QUALITY OF LIFE USING THE METHODOLOGY OF THE ECONOMIST INTELLIGENCE UNIT

Table A.1 – Methodology of the Economist Intelligence Unit: key areas and indicators of measuring the quality of life

Areas of the quality of life	Indicators of the quality of life
Health	Life expectancy at birth, years
Family life	Divorce rate (per 1,000 population), converted into index of 1 to 5
Community life	Rate of church attendance or trade-union membership (taking value 1 if country has either high rate of church attendance or trade-union membership; zero otherwise)
Material wellbeing	GDP per person, at PPP in USD
Political freedom	Political stability and security ratings
Climate and geography	Latitude, to distinguish between warmer and colder climes
Job security	Unemployment rate, %
Political freedom	Average of indices of political and civil liberties. Scale of 1 (completely free) to 7 (unfree))
Gender equality	Ratio of average male and female earnings

Source: Economist Intelligence Unit [Electronic resource]. – Mode of access: http://www.eiu.com/Default.aspx
http://www.economist.com/media/pdf/QUALITY_OF_LIFE.pdf

ANNEX B INDICATORS OF MEASURING THE QUALITY OF LIFE USING THE METHODOLOGY OF EUROSTAT (EUROPEAN STATISTICAL SYSTEM COMMITTEE)

Table B.1 – Methodology of the European Statistical System Committee: key areas and indicators

Area		Indicators
Material living conditions		
Income		Mean and median income by age and sex
		At-risk-of-poverty rate by poverty threshold, age and sex
		At-risk-of-poverty rate anchored at a fixed moment in time (2008) by age and sex
		S80/S20 income quintile share ratio by sex and selected age group
		Satisfaction with financial situation of the household *(under development in* SILC 2013
Consumption	Constrained consumption	Basic expenses to total household budget ratio higher than 75% (to be developed)
	Non-market consumption and government provided services	Consumption of government services (to be developed)
		Non-market services (to be developed)
Material conditions	Material deprivation	Severely materially deprived people
		Inability to make ends meet

	Housing conditions	Share of total population living in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames of floor
		Satisfaction with accommodation (under development in SILC 2013)
	Productive or main activity	
Quantity of employment	Unemployment	Unemployment rate, by sex
		Long-term unemployment rate, by sex
	Underemployment, quantity	People living in households with very low work intensity: 1) by age and sex and 2) by income quintile and household type
		Involuntary part-time employment as percentage of the total part-time employment, by sex and age (%)
	Underemployment, quality	(under developing)
Quality of employment	Income and benefits from employment	Low wage earners as a proportion of all employees (excluding apprentices) by age and sex and by educational attainment
	Health and safety at work	Persons reporting an accident at work in the past 12 months by sex, age and education); Persons reporting one or more work-related health problems in the past 12 months, by sex, age and education); Persons reporting exposure to factors that can adversely affect physical well-being, by sex, age and education); Persons reporting exposure to factors that can adversely affect mental well-being, by sex, age and education
		Accidents at work: standardised incidence rate
	Work/life balance	Average number of usual weekly hours of work in main job by economic activity (NACE Rev. 2)
		People working more than the ILO/OECD treshold of 49 hours (to be developed)
		Population in employment working during unsocial hours: Shifts – Saturdays – Sundays – Evenings - Nights
		Satisfaction with commuting time (under development in SILC 2013)
	Temporary work	(Temporary contracts (To be developed))
	Assessment of quality of employment	Job satisfaction (under development in SILC 2013)
		Satisfaction with current work
		Possibility to influence content and order of tasks
		Good relationship with colleagues
		Good relationship with direct supervisor
Other main activity		To be developed
	Health	
Results	Life expectancy	Number of remaining years expected to live
	Morbidity & health status	Healthy Life Years
		Self-perceived health: by sex, age and educational level, income quintile

Drivers: healthy and unhealthy behaviours		People having a long-standing illness or health problem: by sex, age and educational level, income quintile
		Self-reported limitation in activities because of health problems: by sex, age and educational level, income quintile
		Self-reported mental health
		Psychological distress during the past 4 weeks
		Body Mass Index: by sex, age and educational level, income quintile
		Regular smokers: - Daily smokers of cigarettes: by sex, age and educational level, income quintile
		Hazardous alcohol consumption)
		Practice of physical activity
Access to healthcare		Self-reported unmet needs for medical examination: - for reasons of barriers of access, by sex, age and educational level, income quintile
Education		
Competences and skills	Educational attainment	Education attainment: Lower primary, Upper secondary , Tertiary
		Early leavers from education and training by sex
	Self-reported skills	To be developed
	Assessed skills	Programme for the International Assesssment of Adult Competencies
Life-long learning		People that participated in education or training in the four preceding weeks
Opportunities for education		To be developed
Leisure and social interactions		
Leisure	Quantity of leisure: availability and time use, including personal care: satisfaction with time to do the things that people like)	Satisfaction with time use
	Quality of leisure	To be developed
	Access to leisure	Self-reported access to activities that people are interested in
		Access to cinema, theatre or cultural centre
Social Communi-cation	Activities with people (including feelings of loneliness)	Frequency of contacting or meeting socially with friends, relatives or work colleagues
		Satisfaction with personal relationships
	Activities for people	Involvement in voluntary and charitable activities out of paid work
	Supportive relation-ships	Proportion of people indicating they have someone to rely upon for help
		Ability to get help
		Ability to discuss on personal matters
	Social cohesion (interpersonal trust, perceived tensions, inequalities)	Trust in others

Economic and physical safety		
Economic security and vulnerability	Wealth (assets)	Population unable to face unexpected financial expenses
	Debt	Population in arrears
	Income insecurity (including job)	Likelihood of loosing the job
Physical and personal security	Crime	Age-standardized homicide rate / 100 000 people
		Crime, violence or vandalism in the area
	Perception of physical safety	Population feeling safe when walking alone in their area after dark
Natural and living environment		
Pollution (including noise)		Pollution, grime or other environmental problems
		Noise from neighbours or from the street
		Outdoor particulate matter
Access to green and recreational spaces		Satisfaction with recreational and green areas
Landscape and built environment		Satisfaction with living environment
Governance and basic rights		
Institutions and public services	Trust and/or satisfaction in institutions	Trust in institutions
	Trust and/or satisfaction in public services	Satisfaction with public services
Discrimination and equal opportunities		Experienced discrimination)
		Gender pay gap in unadjusted form in %
Active citizenship		Voice and accountability
Overall experience of life		
Life satisfaction		Overall life satisfaction
Affects		Negative affects
		Positive affects
Meaning and purpose		Assessing whether life is worthwile

The information on the data of 8+1 areas comes from several sources within the European Statistical System, particularly from SILC (Statistics of Income and Living Conditions), LFS (Labour Force Survey), EHIS (European Health Interview Survey) and administrative resources. Also some indicators were derived from sources that are not part of the European Statistical System. Firstly, it refers to data of the European Quality of Life Survey (EQLS). The research group plans to introduce special modules to the statistics of income and living conditions of the population that would provide more detail about some aspects of the quality of life. Also, one of the objectives is to develop comprehensive indicators for each of the 8+1 areas, which would greatly simplify the analysis and measuring of the quality of life
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ANNEX C INDICATORS OF MEASURING THE QUALITY OF LIFE USING THE METHODOLOGY OF INTERNATIONAL LIVING MAGAZINE

Table C.1 – Areas and indicators of measuring the quality of life by methodology of International Living

Areas of measurement	Indicators
Cost of living	Cost of living (primary source is the U.S. State Department's Index of Overseas Living Costs)
Culture and Leisure	Literacy rates, (subjective rating of the variety of cultural and recreational offerings)
Economy	Interest rates), GDP), GDP growth rate, the rate of inflation), GDP per capita
Environment	The Environmental Performance Index (EPI) from Yale University
Freedom	Freedom House's survey
Health	the number of hospital beds per 1,000 people, number of people per doctor, the percentage of the population with access to safe water, the infant mortality rate, life expectancy, public health expenditure as a percentage of a country's GDP
Infrastructure	the length of railways, paved highways, and navigable waterways), the number of airports, motor vehicles, telephones, Internet service providers, and cell phones per capita
Safety and Risk	Payment for dangerous conditions for work
Climate	average annual rainfall, average temperature, risk for natural disasters

Source: http://internationalliving.com/2010/12/quality-of-life-index-2011-where-the-numbers-come-from/

ANNEX D INDICATORS OF MEASURING THE QUALITY OF LIFE USING THE EU METHODOLOGY (EUROPEAN FOUNDATION FOR THE IMPROVEMENT OF LIVING AND WORKING CONDITIONS)

Table D.1 – Methodology of European Foundation for the Improvement of Living and Working Conditions: areas and indicators of measuring the quality of life

Area 1 – Health	
Life expectancy at birth	Life expectancy at the age of 65
Healthy life expectancy	Infant mortality
Poor state of health	Chronic Illness
Smoking	Overweight
Underweight	Distance from a general practitioner
Distance from a general hospital	Medical practitioners
Satisfaction with the national health care system	Quality of national health service
Health care expenditure as a share of GDP	Expenses within the health sector
Area 2 – Employment	
Employment rate	Unemployment rate
Long-term unemployment	Youth unemployment rate
Find work stressful	Control over work tasks
Work is boring	Work to tight deadlines
Work in dangerous or unhealthy conditions	Job prevents giving time to the family
Partner/family gets fed up with job pressure	Too tired after work
Job satisfaction	Importance of work

Likelihood of losing the job	Expected personal job situation
Hours of work per week	
Area 3 - Income deprivation	
Inequality of income distribution	Gini index
Deprivation index	Difficulties in making ends meet
Unable to pay scheduled bills	Inability to pay for food
Satisfaction with standard of living	Dissatisfaction with financial situation
Expected financial situation of household	Persistent at risk of poverty rate
At risk of poverty rate	
Area 4 – Education	
Reading skills	Skills in mathematics
Skills in science	Secondary school education20-24 age group
Higher education enrolment	Female participation in tertiary education
At least upper secondary education25-64 age group	Attended a training or education course
Public expenditure on education	Quality of education system
Satisfaction with education	
Area 5 –Family	
Divorce rate	Single parent households
Single person households	Age of woman at first birth
Non-marital births	Caring for ill, disabled or elderly in the home
Satisfaction with family life	Importance of family
Feel left out of family	More than fair share of family responsibilities
Support from family members	Crude marriage rate
Mean age at first marriage	
Area 6 – Social participation	
Contact with neighbours	Meeting friends or relatives
Membership in an organisation	Religious service attendance
Activity in a religious organisation	Activity in a political or charitable organisation
Activity in an organisation for personal reasons	Use of the Internet
Internet access of households	Trust in democratic representatives
Trust in people	Satisfaction with social life
Voted in last election	
Area 7 – Housing	
Persons per room	No place to sit outside
No indoor flushing toilet	Problems with the accommodation
Renting the dwelling	Owning the dwelling outright
Owning the dwelling with a mortgage	Average housing costs
Housing costs a heavy burden	Receiving housing allowance
Satisfaction with the home	
Area 8 – Environment	
Distance from a cash dispenser	Distance from a cinema

Distance from a shop or supermarket	Distance to the nearest nursery
Distance to the nearest primary school	Experience pollution from traffic or industry in the local area
Complain about the quality of drinking water	Complain about noise
Complain about waste disposal	Complain about the lack of green spaces
Complain about damage to the landscape	Buildings in a bad state of repair
Area has not got a good reputation	Satisfaction with the area you live in
Area 9 – Transport	
General mobility	Railway density
Car ownership	Road safetyaccidents
Road safetyfatalities	Commuting time
Time to get to the next public transport stop	Complains about traffic problems
Quality of public transport	Households which cannot afford a car
Area 10 – Safety	
Robbery and thefts	Burglaries in the past year
Burglaries in the past five years	Sexual offences
Assaults and threats	Corruption
Consumer fraud	Crime and vandalism
Vandalism and theft in the area	Concern about burglary
Unsafe to walk around at night	Distance to the nearest police station
Trust in the police	Trust in the judicial system
Satisfaction with the work of the police	
Area 11 – Leisure	
Time spent for family activities	Time spent on sports
Time spent on social activities	Time spent on cultural activities
Time spent relaxing	Time spent on voluntary work or political activities
Watching TV	Young people's involvement in sport
Young people's use of multimedia	Young people's involvement in outdoor activities
Young people's involvement in artistic activities	Young people's involvement in support and subsidiary activities
Young people's reading habits	Satisfaction with the amount of leisure time
Importance of leisure	Too little time for hobbies and interests
Area 12 – Life satisfaction	
Corruption Perceptions IndexCPI	Rating of the political system
Quality of social services	Tensions between rich and poor people
Tensions between young and old people	Tensions between workers and management
Tensions between different ethnic groups	People try to take advantage
People try to be helpful	Member of a discriminated group
Life satisfaction	Optimism
Happiness	

Source: European Foundation for the Improvement of Living and Working Conditions // http://www.eurofound.europa.eu/areas/qualityoflife/eurlife/index.php

ANNEX E INDICATORS OF MEASURING THE QUALITY OF LIFE USING THE OECD METHODOLOGY (BETTER LIFE INDEX)

Table E.1 – OECD: Better Life Index

Area of the quality of life	Indicators
Housing	Rooms per person Dwellings without basic facilities Housing expenditure
Income	Household net adjusted disposable income Household net adjusted disposable income
Jobs	Employment rate Long-term unemployment rate Personal earnings Job security
Community	Gallup World Poll Quality of support network
Education	Educational attainment Student skills Years in education
Environment	Air pollution Water quality
Civic engagement	Voter turnout Consultation on rule-making
Health	Life expectancy Self-reported health
Life Satisfaction	Life satisfaction
Safety	Assault rate Homicide rate
Work-Life Balance	Employees working very long hours Time devoted to leisure and personal care

Source: http://www.oecdbetterlifeindex.org/

MEASURING QUALITY OF LIFE IN UKRAINE ANALYTICAL REPORT