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Strengthening the Personnel Potential of Authorities in Ukraine As a Guarantee of Sustainable Development of Society

Yana Kachan [1]*, Mariia Masyk [2], Natalya Balashova [3], Denys Krasivskiy [1] and Andrii Ivanov [1,4]

[1] Department of Public Administration and Public Service, Academy of Labour, Social Relations and Tourism, 03187, 3-A Kiltseva Rd., Kyiv, Ukraine;
[2] V.I. Vernadsky Taurida National University, 01042, 33 John McCain Str., Kyiv, Ukraine;
[3] Center for Qualification Improvement and Education Development, Academy of Labour, Social Relations and Tourism, 03187, 3-A Kiltseva Rd., Kyiv, Ukraine;
[4] Bucha Branch of the Kyiv Regional Employment Center, 08131, 26 Kyivska Str., Sofiivska Borshchahivka Village, Ukraine;

Corresponding author: e-mail: yanakachan31@ukr.net.

ABSTRACT: State management of economic and social processes in the country plays a very important role in its future well-being, which directly depends on the quality of personnel training. Therefore, finding opportunities to improve its educational potential remains relevant for any state. The work was carried out within the framework of Ukraine, taking into account the realities of war. The purpose of the work was to justify the need to strengthen the personnel potential for the qualitative future development of Ukraine, as well as to propose ways to improve the opportunities for personnel training. The main research methods were analysis, deduction, forecasting and abstraction. The work assessed the state and prospects of achieving the goals of sustainable development; indicators characterizing its condition in terms of individual components were provided. It was shown that, due to the onset of a full-scale invasion and the consequences of the COVID-19 crisis, Ukraine has some difficulties in providing opportunities for economic, environmental and social development. As part of the research, an analysis of the causes of Ukraine's existing development problems in the field of sustainable development was carried out, their generalization was formed, and advice was offered to solve the existing problems. In addition, an assessment of the possibilities of strengthening the personnel potential of the authorities in the country was carried out and methods for achieving this goal were described. The situation of the provision of secondary and higher education in the country, as well as opportunities for improving the qualifications of the personnel potential of authorities, is described in sufficient detail. This work brings new knowledge for the development of the field of education and personnel training. In addition, it makes it possible to better understand the peculiarities of the current state of sustainable development in Ukraine.

Keywords: Public Service, Ecology; Development of Ukraine; Governance; Social Sphere.

I. INTRODUCTION

Sustainable development of society is one of the most important topics that have become relevant in the modern world [1]. In the conditions of worsening ecological problems, uneven development of countries, and socio-economic instability, ensuring sustainable development is a priority task of national and international policy [2]. In one way or another, it is adhered to by most of the world's countries, betting on it in order to avoid possible negative consequences (social, economic and ecological) that may arise before the world in the future. Its role in the modern world has become the subject of great attention and debate, an integral part of the political and economic dialogue. Achieving sustainable growth in Ukraine has been

extremely difficult as a result of the COVID-19 pandemic, the effects of the Russian invasion, and persistent problems like corruption and inadequate infrastructure. A significant impediment impeding Ukraine's advancement towards its objectives of environmental, economic, and social sustainability is the deficiency of skilled and knowledgeable staff in government agencies responsible for carrying out pertinent policies and programs. The following research questions were formulated:

- What is the current state of personnel training and capabilities within Ukrainian government authorities?
- How can strengthening the personnel potential of authorities help Ukraine make progress towards achieving the UN Sustainable Development Goals?
- What specific strategies and policies can Ukraine implement to improve the skills and competencies of civil servants to better support environmental, economic, and social sustainability initiatives?

Ensuring sustainable development involves establishing a harmonious relationship between economic development, social justice and environmental protection [3-4]. This is possible only under the condition of the introduction of innovative technologies, rational use of resources and energy, development of the "green" economy and environmental education. In addition, it is important to ensure access to social services, especially in the field of education, health care and housing and communal services. Therefore, it is not surprising that in all countries of the world, strategies for ensuring sustainable development are developed and implemented by joint efforts. This requires international cooperation and exchange of experience. An important element of such cooperation is the implementation of the Strategy of sustainable development of Ukraine until 2030 [5], which was adopted by the UN General Assembly. This strategy contains 17 sustainable development goals that reflect all aspects of sustainable development and ensure their comprehensiveness.

Personnel potential as such in general is one of the most important components of the development of any country [6]. This is a set of knowledge, skills, experience and other qualities of employees that constitute a resource for achieving the strategic goals of the state, especially when it comes to employees of government bodies [7]. It plays a very broad role, as it affects the economic, social and political components at once [8]. It can be said that it can generally ensure more sustainable development of the country. Nevertheless, it may not be easy to achieve that the country has high-quality personnel potential. For this, it is necessary to carry out an appropriate multifaceted policy on the part of the state, which would be aimed both at improving the qualifications of existing employees and improving the conditions of study among students (both technical and humanitarian specialities): a clear list of actions that can be performed by the state can be given in order to ensure better training of personnel (actually, similar recommendations were formed below as part of the study). Thus, human resource potential plays an important role in achieving the goals of sustainable development: providing more effective human resources training can help a country significantly increase the effectiveness of solving many complex issues in a wide variety of areas [9-10]. Within the framework of this study, it was decided to analyze what opportunities exist in Ukraine to improve its personnel potential, in particular for authorities, and to draw conclusions whether this will help in achieving the goals of sustainable development.

While prior research has looked at human capital development and sustainable development in Ukraine, there is still a dearth of studies that explicitly analyze how government authorities' personnel potential can be strengthened to help achieve sustainable development goals in the current context of Ukraine. The extant literature offers significant perspectives on Ukraine's advancements and obstacles concerning sustainable development, along with overarching guidelines for constructing competent public sector labor forces. Given the nation's particular circumstances following the COVID-19 pandemic and the Russian invasion, there is a need to provide customized strategies to improve the skills and competencies of Ukrainian civil servants in a way that directly supports environmental, economic, and social sustainability initiatives. This study aims to close that gap by examining the state of personnel training among Ukrainian authorities and looking into ways to strengthen their capabilities. It also offers practical recommendations for utilizing enhanced human resources to further Ukraine's pursuit of the sustainable development goals.

Problem Statement: While Ukraine has made efforts to pursue the UN Sustainable Development Goals, its progress has been hindered by several factors, including a lack of sufficiently trained and skilled personnel within government authorities tasked with implementing relevant policies and programs across the environmental, economic, and social domains. The deficiency in human capital and capabilities among

Ukrainian civil servants is impeding the nation's advancement towards its sustainability objectives following the setbacks of the COVID-19 pandemic and Russian invasion.

The aim of the work is to draw conclusions about improving the personnel potential of the authorities in Ukraine to ensure the sustainable development of the country. This will make it possible to improve opportunities for the formation of future state policy in the field of education and retraining of personnel, as well as sustainable development. Several main objectives were formed:

- To study the current state of the personnel potential of authorities in Ukraine and identify the main key problems in this area;
- To assess the state of achieving the goals of sustainable development in the country as a whole (without dividing them into individual goals);
- To find opportunities to improve the situation in the country to strengthen its personnel potential.
- Hypotheses were formulated:
- Insufficient training and skills among Ukrainian civil servants are a critical barrier hindering the nation's progress on environmental, economic, and social aspects of sustainable development.
- Implementing initiatives to substantially upgrade the personnel potential of authorities through enhanced training, professional development, and human resource management practices will enable more effective pursuit of the UN Sustainable Development Goals in Ukraine.
- Improvements in human capital directly translate into greater institutional capabilities for policy formulation, implementation and enforcement related to key sustainability issues like environmental protection, economic productivity, access to social services, etc.

II. LITERATURE REVIEW

A significant number of scientists were engaged in the study of the current state of sustainable development in Ukraine. So Ye.V. Buriak et al. [11] showed that in modern conditions, ensuring sustainable development for the country becomes a very important strategic task. It will play an even greater role after the end of the war, when it will be important for the state to solve environmental problems (which will arise as a result of military actions), economic (to ensure the restoration of infrastructure and normal opportunities for the functioning of enterprises), as well as social (to provide a sufficiently high standard of living for the population). The possibilities of sustainable development for the formation of modern state policy were also assessed by S.O. Komnatnyi [12]. Noting that sustainable development is almost the main “ideology” of the third millennium, the scientist writes that the modern formation of state policy should become one of its main components.

In turn, the role of sustainable development for the city was studied in the work of K.O. Levchuk and R.Ya. Romaniuk [13]. Paying attention to the formation of the influence of the state on the stability of individual cities (regions) for the general well-being of the country, scientists highlighted the main trends that can be observed in Ukraine now, and also described what actions should be taken in terms of state policy to improve the general situation. A.O. Kovalenko [14] also conducted an assessment of the state and prospects for the implementation of sustainable development goals in Ukraine, paying attention to the need for the formation of an effective methodology for their achievement. P.V. Polovyi [15] studied the specifics of the formation of personnel potential among public authorities, paying attention to the role of forming a clear structure and principles of improving personnel potential in the country.

A. Nimani and D. Spahija [16] analyzed the effects of the ongoing Russian-Ukrainian war on various financial indicators, such as stock market performance, currency exchange rates, and commodity prices, particularly in energy and agricultural sectors. The researchers examined the impact of conflict-related supply chain interruptions, economic sanctions, and geopolitical concerns on market dynamics and inflationary pressures in European nations. They also looked at the measures and policy solutions that governments and central banks put in place to lessen the war's economic effects. V. Mishchenko et al. [17] investigate the range of operational hazards that customers and financial institutions encounter when implementing and using digital payment platforms, including fraud, system malfunctions, cyber threats, and problems with regulatory compliance. The authors examine risk management techniques that can be used to successfully reduce these operational hazards. In order to promote economic well-being, K. Canaj et al. [18] examine the significance of internationalization and efficient research strategy management in higher education institutions. Through active research programs and global partnerships, the authors investigate

how these institutions propel innovation, knowledge generation, and technical improvements. Additionally, they examine the tactics and ideal procedures for encouraging a university climate that is heavily focused on research.

The many facets of empathy, including perspective-taking, emotional intelligence, and active listening, are examined by T. Shcherban et al. [19] along with how they affect business negotiating procedures and results. The researchers analyze how mutually beneficial agreements and long-lasting commercial partnerships can be fostered through empathic communication and an awareness of the needs and viewpoints of other parties. They also look at the difficulties and obstacles that come with using empathy in negotiations, like cognitive biases, cultural differences, and power dynamics. E. Limaj et al. [20] compare the experiences of other Eastern European nations that saw warfare in the late 20th century with their investigation of the long-term psychological and social effects of war on future generations in Ukraine. The authors examine how trauma is passed down through generations, examining the effects that wartime exposure to violence, displacement, and loss can have on children's mental health and the development of their offspring. They also look at the social and environmental elements that either exacerbate or lessen the effects of war trauma on future generations.

While prior research has looked at sustainable development in Ukraine and human capital development separately, there is a lack of studies that explicitly analyze how strengthening the personnel potential and capabilities of government authorities can help drive progress towards achieving the United Nations' Sustainable Development Goals in Ukraine's current context following the COVID-19 pandemic and Russian invasion. The existing literature offers insights into Ukraine's advancements and challenges regarding sustainable development, as well as general guidance on building competent public sector workforces. However, there is a need for more customized strategies to enhance the skills and competencies of Ukrainian civil servants in a manner that directly supports environmental, economic, and social sustainability initiatives given the nation's particular circumstances. This study aims to fill that gap by examining the state of personnel training among Ukrainian authorities and investigating ways to bolster their capabilities to better pursue the Sustainable Development Goals. By linking deficiencies in human resources to inadequate progress on sustainability metrics, the paper highlights improving government personnel potential as a critical enabler for Ukraine's future policy objectives across the three pillars of sustainable development.

III. MATERIAL AND METHOD

1. DATA COLLECTION

A diverse range of authoritative data sources were utilized in this study, including official government reports and databases from Ukraine's State Statistics Service, enacted legislation and policy documents related to sustainable development and environmental protection, as well as publications and statistical compilations from reputable international organizations like the United Nations. In particular, information from the Strategy of sustainable development of Ukraine until 2030 [5] was used, which described all the main provisions, strategic priorities, tasks, and plans for the country's achievement of sustainable development goals. In addition, individual components of the country's legislative framework, namely the Law of Ukraine "On Environmental Protection" [21], Law of Ukraine "On Alternative Energy Sources" [22], Law of Ukraine "On Waste" [23], Law of Ukraine "On Energy Saving" [24], Law of Ukraine "On Protection of Atmospheric Air" [25], Law of Ukraine "On Land Protection" [26]. The researchers cast a wide net during the data collection phase to ensure comprehensiveness from multiple angles. In addition to national statistics and data published by Ukrainian government bodies, substantial efforts were made to acquire relevant data from international organizations, think tanks, non-governmental organizations, and academic institutions actively working on sustainable development issues pertaining to Ukraine. Separate documents of international importance, such as the Resolution, were also used and adopted by the General Assembly [27]. Statistical data from individual Internet resources were also used, in particular from the State Statistics Service of Ukraine [28]. These sources were carefully selected based on their recentness, reputability, and topical relevance to the research questions.

Data collection followed a rigorous process to ensure the reliability and comprehensiveness of the information gathered. In addition to published reports and statistics, the researchers also extracted relevant

quantitative data from legislative texts, strategic planning documents, and monitoring/evaluation frameworks used by Ukrainian authorities for tracking their sustainable development initiatives and performance indicators over time. These sources were chosen based on three criteria: recentness, authority, and relevancy to the subject. In order to achieve sustainable development goals, the authors carefully selected sources that directly related to bolstering authorities and personnel in Ukraine. To be able to provide factual evidence to support the analysis and recommendations, it was imperative to ensure that the sources were topically relevant. When compiling data, reliable and authoritative sources were given precedence. To make sure the data and material was up to date and accurately represented the most recent state of affairs in Ukraine with regard to authorities, personnel, and sustainable development initiatives, the researchers tried to use recent sources. Finding recent sources is helpful in understanding how quickly the situation in Ukraine is changing. Transcripts from parliamentary proceedings, policy debate records, press releases and announcements related to sustainability initiatives by Ukraine's ministries and agencies enriched the qualitative data pool. Particular care was taken to collect and corroborate data from the years immediately preceding and following the COVID-19 pandemic outbreak and the Russian invasion, as these pivotal events significantly impacted the economic, environmental and social conditions being studied.

The authors employed several statistical research methods to analyze the quantitative data gathered. The data have been compiled and presented in tables and figures using descriptive statistics. The percentages and measures of central tendency (means) have been calculated to show the portion of the population or activity that satisfies the economic, social, and environmental goals of sustainable development. Furthermore, the researchers modelled the effects of various variables on sustainable development outcomes and looked at links using inferential statistics like regression analysis. Which trends or variations between comparable nations or regions were statistically significant as opposed to happening by accident was determined via statistical hypothesis testing. A thematic analysis was conducted to identify prominent patterns, topics, and themes related to sustainable development, personnel competencies, and the policies/strategies employed by Ukrainian authorities. Furthermore, content analysis techniques have been applied to quantify the qualitative data by calculating the frequency with which particular ideas, objectives, or terms were used in various sources.

All participants provided their informed consent prior to data collection, after being thoroughly briefed about the nature and purpose of the study, as well as their rights to withdraw at any point without consequence.

2. RESEARCH DESIGN

A multipronged strategy that makes use of techniques like induction, forecasting, historical approach, deduction, analysis, abstraction, and mixed qualitative/quantitative methodologies is in line with the goals of the study. With the use of these techniques, sustainable development in Ukraine could be rigorously and empirically examined from the perspective of human potential and competences. Narrow methodological approaches pose the risk of ignoring important contextual elements; qualitative research may find it difficult to generalize without empirical support, while quantitative methods may miss sociocultural narratives and power relations. Cross-sectional "snapshots" fail to reveal historical factors that are explained by longitudinal framing. When it comes to societal issues, experimental approaches have ethical limitations even when they isolate causal effects. New computational techniques need human-centered framings but offer systems-level insights. Several techniques were used in the research design to address potential biases or confounding variables related to the choice and analysis of empirical data. Through the counteraction of potential agendas or blind spots influencing any one dataset or document, source triangulation helped limit selection biases. By allowing the strengths of both data kinds to converge and offset each other's shortcomings, the mixed-methods strategy mitigated the inherent method biases. Contextualizing trends while reducing period-specific distortions was made possible by analyzing data over longitudinal timespans.

The main approach used during the research was a systematic one. It made it possible to form and describe all processes affecting the state of sustainable development in Ukraine in the form of separate processes that interact with each other and form a single system that is easier to analyze. The systematic approach allowed for laying out the connections between these processes. It was investigated how a lack of training for employees affects both economic output and the capacity of government agencies to properly

enforce environmental laws. Through systematic modelling of these connections and interdependencies, the researchers were able to identify the underlying causes in several disciplines. An overly isolated approach that might have overlooked significant relationships between processes was avoided by the systematic framework.

An important role was played by the analysis, which made it possible to review a significant amount of data and draw important conclusions based on it. Through the analysis of sources offering longitudinal data, the development of the nation's investments, policies, and practices could be followed. The historical method was also widely used, which made it possible to review data on the development of personnel potential in Ukraine. The historical approach specifically comprised looking through government records, policy documents, and statistical databases that tracked personnel potential-related indicators on a yearly or multi-year basis. Examining the manner in which personnel-related metrics have shifted, remained constant, or varied revealed trends in the long-term human capital development of Ukraine. In addition, the deduction was also used, which made it possible to draw conclusions about the factors affecting the current state of personnel potential in Ukraine. In particular, it was used to assess the current causes of existing problems in the field of sustainable development in the country based on general information about it. An important role was also played by induction, which made it possible to draw conclusions about the shortcomings of the education and professional development systems in Ukraine, taking into account the current state of personnel training and the realities of training in the relevant institutions.

Forecasting techniques like trend projection and scenario analysis were also used to form estimates of the likely future development of Ukraine and its individual components (economic, social and ecological) under current conditions of compliance with the concept of sustainable development. Researchers assessed future capacities and impacts as well as forecast expected increase or decline by extrapolating the multi-year trends for measures like the utilization of renewable energy. Through an analysis of historical trends in areas such as social policies and economic productivity, the researchers created models of several future possibilities, ranging from optimistic scenarios in which certain sustainability practices are implemented to pessimistic scenarios in which problems remain. By separating the important variables affecting sustainable development across domains, abstraction enhanced this process. It was also was used to reduce the number of potential factors that could have a certain effect on the personnel potential of Ukraine, and thus increase the accuracy and brevity of the conclusions formed within the framework of the study. The qualitative method was used to assess non-quantitative data and draw conclusions based on them. In addition, empirical quantitative data were evaluated, for which statistical research methods were used. Method design timeline can be seen in the Figure 1.

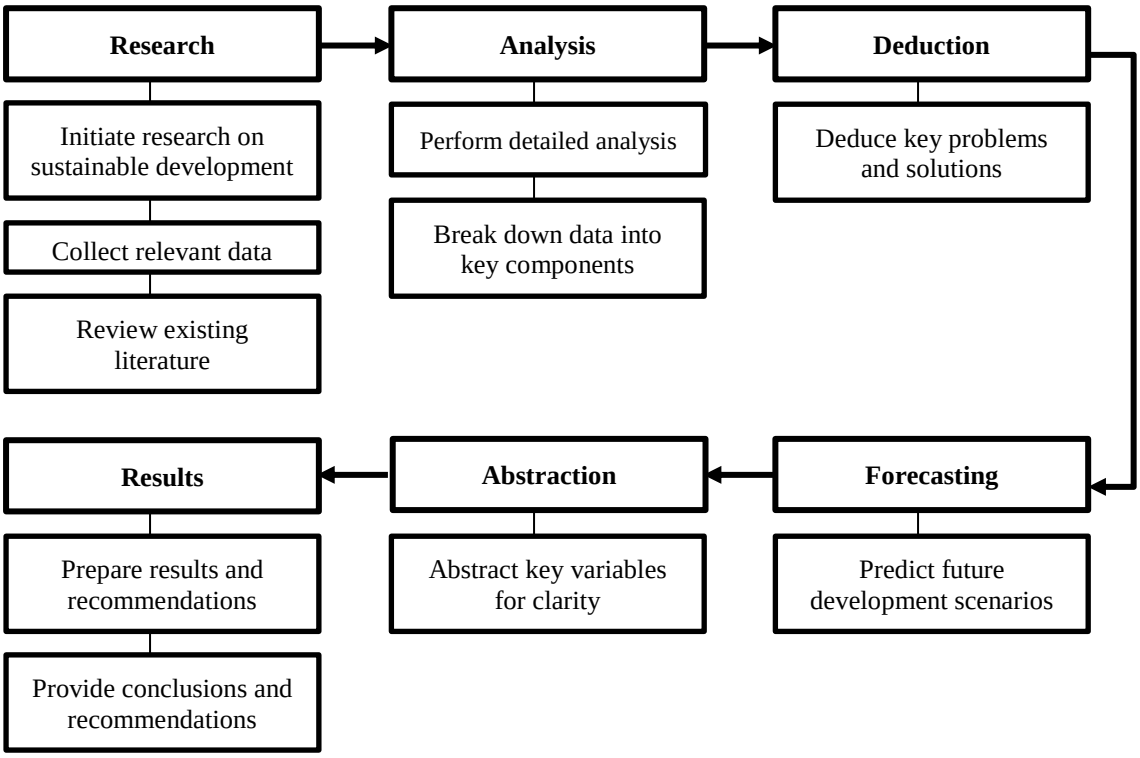

FIGURE 1. Method design timeline.

The difficulties of carrying out this investigation in light of the ongoing conflict in Ukraine were acknowledged by the researchers. Their research design proactively addressed potential issues with data availability and reliability in a few key ways. They started by using a wide variety of data sources, such as international publications, government reports, laws, statistical databases, and publications from other countries. The gaps and irregularities in any one data stream were lessened because to the triangulation of sources. Furthermore, the authors made it apparent when the COVID-19 epidemic and Russian invasion had an impact on the availability of more recent data. The researchers showed a conscious commitment to delivering the most trustworthy information accessible despite the challenging circumstances by being open and honest about these limitations.

The research results could be more broadly applicable to other countries facing similar challenges The way in which the interdependencies between economic, social, and environmental elements are analysed methodically is consistent with the widely accepted ideas of sustainable development. The results are applicable to more than simply the situation in Ukraine because the study is based on reliable sources such as publications from the United Nations. Additionally, a fundamental duty of public administration in any nation is the emphasis on developing leadership and human resources inside government agencies. Suggestions about the enhancement of professional training programmes, human resource management strategies, and education curricula may have universal applicability. Although unique country-specific implementation requirements would need to be taken into account, the general conclusions on the crucial role that human capital development plays in supporting sustainable development initiatives may be expanded upon. The conceptual insights and inquiry process employed in this study may prove valuable to other countries confronting escalating economic, social, and environmental challenges.

IV. DATA ANALYSIS

The state of achieving sustainable development goals in Ukraine is generally not satisfactory. There are several reasons for this. Firstly, the economic situation of the country is quite difficult due to various institutional factors, such as corruption, low level of infrastructure development and the lack of necessary reforms to ensure higher efficiency of the economy, as well as objective factors, in particular the beginning

of the war with Russia in 2014, and later and its full-scale invasion in 2022. Secondly, existing problems with the protection of the internal environment. Thirdly, the lack of effective policy in the social sphere, which leads to a low standard of living, significant external migration, and inaccessibility to education and health care.

Using both quantitative and qualitative methods, the researchers thoroughly examined the complex data about personnel capabilities and sustainable growth in Ukraine. Key indicators of longitudinally tracked economic, social, and environmental improvement over several years were compiled and visualized using descriptive statistical methods. Although percentages and proportional visualizations made it easier to evaluate target accomplishment levels, measures of central tendency and dispersion revealed patterns across time. Regression analysis and other inferential techniques made it possible to model the correlations between variables like employment rates, energy use, and educational expenses. In order to methodically find significant trends and themes in qualitative policy papers and other sources pertaining to workforce training efforts, the researchers also performed thematic analysis. This was further reinforced by content analysis, which quantified the frequency of terms pertaining to government strategies, human capital development requirements, and sustainability priorities. Through the process of triangulating results from various analytical techniques, the researchers were able to create a thorough knowledge that was supported by empirical evidence derived from both textual sources and numerical data.

If considering in more detail the economic problems that prevent Ukraine from effectively achieving the goals of sustainable development, then it is worth paying attention to some of their other components that were not mentioned above, since the very complexity of the Ukrainian situation (as in most developing countries) lies in because the number of such problems is significant and all of them must be solved at the same time, which is quite difficult to ensure in the absence of personnel with appropriate qualifications. Thus, due to the low level of technological development, relatively low labor productivity is present in the country, especially in the primary and secondary sectors of the economy. In addition, the lack of investment and sometimes the insufficient level of training of specialists is characteristic. The situation is a little different, particularly in the field of information technologies (IT), where Ukrainian specialists are quite competitive on the international market, but this is more the exception than the rule. There is also a rather low level of development of small and medium-sized enterprises, widespread monopolization of some industries, as well as the negative influence of oligarchs on the economy.

Diversification of the economy is also insufficient: the main specialization of the country on the international market is the production of the agrarian sector, which causes dependence on external prices for these products. This makes the country vulnerable in case of crises. Among social problems, one of the biggest in Ukraine is weak access to education and health: thus, the majority of the population cannot get quality medical care in case of urgent need, and the education system suffers greatly and needs urgent reforms and modernization. In addition, a significant part of the population is not socially protected, that is, they do not have secured housing, pensions and other forms of social support. The migration crisis, i.e. the mass departure of the country's citizens outside its borders (mainly to find a higher-paying job) remains relevant. After the start of the full-scale invasion, this phenomenon became even more relevant, but this time the reason for migration changed, as people were fleeing war in the first place. In the future, a demographic crisis remains possible due to the large number of women and children who have left the country.

As already mentioned, environmental problems remain very common in the country. Thus, one of the biggest among them is air pollution, especially in cities and industrial areas. Emissions from industry, transport, and energy are the main sources of air pollution, which leads to the deterioration of people's health, especially children and the elderly. Water pollution, which occurs as a result of downpours, polluted water from industrial enterprises, agricultural land, rubbish waste and other sources, also has a negative effect. A separate problem is the large amount of waste and the inefficient system of its collection and processing. Difficulties also exist in rehabilitating lands that have been polluted and damaged as a result of resource extraction and other activities, which is particularly relevant for Ukraine, given the role of agriculture in the country's economy. Here is the graph diagram illustrating the interdependencies and relationships among economic, social, and environmental factors affecting sustainable development in Ukraine (Figure 2).

In this context, improving the quality of personnel potential of public employees can help at once due to several reasons: first, more qualified employees in authorities can implement better strategies to protect the

environment and reduce the impact of harmful substances on the external environment. In addition, such employees often understand the role of new technologies in this component, due to which they may show a desire to cooperate with companies (national or foreign) to provide enterprises with equipment that has a minimal negative impact on nature. Also, such employees will be better able to show themselves in the context of negotiations with international organizations that can help in solving environmental problems both financially (due to loans or grants) and non-financially (for example, conducting training among staff).

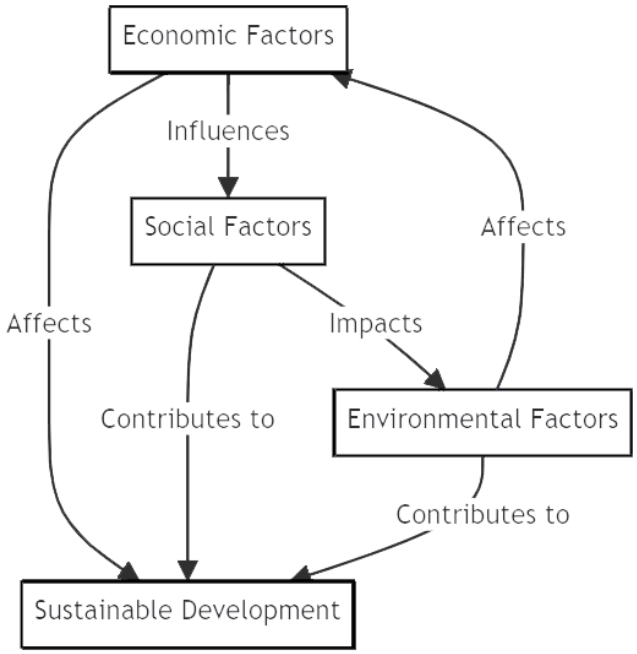

FIGURE 2. Economic, social, and environmental factors affecting sustainable development in Ukraine.

To confirm the above data, several tables were built with basic statistical data on the achievement of sustainable development goals by Ukraine according to the Sustainable Development Goals 2021 monitoring report (in connection with the start of a full-scale invasion in February 2022, a new similar monitoring report was not issued). These data are shown in Tables 1-3.

Table 1. Trends in achieving the main social goals of sustainable development

Year	2015	2016	2017	2018	2019	2020	Trend
The share of the population whose average per capita equivalent total expenditure is lower than the actual (estimated) subsistence minimum, %	58. 3	58.6	47.3	43.2	41.3	47.2	↑
Share of people whose daily consumption is lower than 5.05 US dollars per PCS, %	2.4	2	1.9	1.8	0.3	0.2	↑
The share of the poor who are covered by state social support in the total number of the poor population, %	63	70.3	73.6	72	57.4	55.5	↓
The share of food expenses in total household expenses, %	54.6	51.4	49.6	49.4	48.5	49.2	↑
Mortality of children under the age of 5, cases per 1000 live births	9.3	8.8	8.9	8.3	8.2	7.8	↓

Probability of dying in 20-64 years, men	0.3894	0.3836	0.3754	0.3868	0.3809	0.3913	↑
Probability of dying in 20-64 years, women	0.1551	0.1521	0.147	0.1501	0.1454	0.1588	↑
Index of coverage of children aged 5 years by preschool education institutions and structural divisions of legal entities under public and private law, %	70.6	69.8	69.5	69.1	70.5	74.8	↑

Source: compiled by the authors based on [29].

Both positive and negative trends may be seen in Ukraine's progress towards accomplishing the main social goals of sustainable development, according to the statistics shown in Table 1. Improvements in the reduction of poverty and the health of children are indicated by the falling percentage of the population living below the subsistence level and the dropping death rate for children under five. However, from the standpoint of public health, it is worrying that working-age adults are becoming more likely to die young. Reversing this trend may need policy initiatives that address the lifestyle variables, workplace dangers, and healthcare access that this population faces. The preschool enrollment rate's stagnation indicates that steps to improve the quality and accessibility of early childhood education are necessary.

Table 2. Trends in achieving the main environmental goals of sustainable development

Year	2015	2016	2017	2018	2019	2020	Trend
Water capacity of GDP, cubic m of used water per UAH 1,000 of GDP (in actual prices)	23.62	19.44	15.12	11.6	10.31	10.01	↑
Current water capacity of GDP, % to the level of 2015	100	82.3	64	49.1	46.63	42.36	↓
The share of energy produced from renewable sources in the total final energy consumption, %	5	5.9	6.7	7	8.1	9.2	↑
The volume of emissions into atmospheric air of pollutants by stationary sources of emissions, % to the level of 2015	100	107.7	90.5	87.8	86.1	78.3	↑

Source: compiled by the authors based on the [29].

The findings from Table 2 trends present a conflicting picture of Ukraine's attempts to be environmentally sustainable. Positive indicators of the move towards more effective resource use include the GDP's declining water intensity and the rising proportion of renewable energy sources in overall energy consumption. Concerning factors, however, are the present water capacity's decline from 2015 levels and the originally rising but subsequently falling emissions from fixed sources. These trends highlight the necessity of strict environmental laws, financial incentives for conserving water and reducing pollution, and a quicker uptake of renewable energy technologies. To effectively address these environmental concerns, strategic planning should prioritize investments in industrial emissions control, green infrastructure, and water resource management.

Table 3. Trends in achieving the main economic goals of sustainable development

Year	2015	2016	2017	2018	2019	2020	Trend
Employment rate of the population aged 20-64, %	64.4	64.2	64.2	65.6	66.9	65.2	↑
Labor productivity index, %	99.2	103.5	103.2	102.1	101.9	-	↑
The share of youth who do not work, do not study and do not acquire professional skills, in the total number of people aged 15-24, %	17.2	17.8	15.9	14.5	15.6	15.5	↑

The share of added value based on production costs of medium and small business entities, in % of the total amount of added value based on production costs	58.1	62.3	62.6	64.3	66.4	-	↑
The share of implemented innovative products in the volume of industrial production, %	1.4	…	0.7	0.8	1.3	1.9	↑

Source: compiled by the authors based on the [29].

Insights for policymaking and strategic planning targeted at promoting sustainable economic growth in Ukraine can be gained from the trends shown in Table 3. Policies that promote workforce development could further reinforce the favorable trends in job creation and economic output indicated by the rising employment rate and labor productivity index. Nonetheless, the consistently high percentage of young people without jobs, degrees, or training emphasizes the necessity of focused programs to engage and upskill this population segment. Although the increasing contribution of small and medium-sized firms to value addition is positive for resilience and economic diversity, these companies may need strategic support systems. While the growing percentage of innovative items being deployed is encouraging, accelerating this trend could promote sustainability and long-term economic competitiveness.

As can be seen from Tables 1-3, most of the trends in the country, at least until 2020, were positive. This suggests that the situation in terms of achieving the goals of sustainable development has gradually improved. Nevertheless, the level of these achievements often did not correspond to the target indicators formed by the state for certain constituent goals. This may serve as a confirmation that the process of achieving the goals of sustainable development is generally not efficient enough. The status of achievement of the Sustainable Development Goals can also be assessed by comparison with other countries, as shown in Table 4.

Table 4. Status and trends of achieving the goals of sustainable development of individual countries as of 2022

No.	The goal of sustainable development	Ukraine		USA		Poland		Kazakhstan	
		WITH	T	WITH	T	WITH	T	WITH	T
1	Overcoming poverty	a	↑	c	↗	a	↑	a	↑
2	Overcoming hunger, development of agriculture	c	↗	d	→	c	↗	d	→
3	Strong health and well-being	c	↗	c	↗	c	↗	c	↗
4	Quality education	c	x	b	↗	b	↑	c	→
5	Gender equality	c	↗	c	↗	b	↗	b	→
6	Clean water and proper sanitary conditions	c	↗	b	↑	b	↑	c	↗
7	Affordable and clean energy	c	↗	c	↗	d	→	d	→
8	Decent work and economic growth	c	↗	c	↗	b	↗	c	↗
9	Industry, innovation, and infrastructure	c	↗	b	↑	c	↑	c	↗
10	Reducing inequality	a	↑	d	↓	b	↗	a	↑
11	Sustainable development of cities and communities	c	→	b	↗	c	→	c	→
12	Responsible consumption and production	b	↑	d	↓	c	↑	c	↑
13	Mitigation of the consequences of climate change	b	↗	d	→	d	→	d	↗
14	Conservation of marine resources	d	↗	c	→	d	→	x	x
15	Protection and restoration of terrestrial ecosystems	d	↗	d	→	a	↑	d	→
16	Peace, justice and strong institutions	d	↗	d	↗	b	↗	d	↗
17	Partnership for sustainable development	c	↗	d	↗	d	↗	d	→
	Rank	37		41		12		65	

Index	75.7	64.4	80.5	71.1

Source: compiled by the authors based on [30].
Note: C – state; T – trend; a – the goal of sustainable development has been achieved; b – problems are present; c – significant problems are present; d – the main problems are present; x – information is not available.

As can be seen from Table 4, Ukraine has quite good indicators of achieving the goals of sustainable development, taking 37th place out of 163 in the overall rating with a score of 75.7. It is worth noting that it is higher than some highly developed countries, in particular the USA. Nevertheless, the Table also shows that Ukraine has some sustainable development goals, which have significant problems, in particular, the goals "Conservation of marine resources" and "Protection and restoration of terrestrial ecosystems"; it is worth noting that there are certain difficulties in ensuring a sufficient level of quality of education.

In general, to solve the problems described above, the state takes various initiatives aimed at improving the state of sustainable development in the country. One of the most important among them is the Strategy of sustainable development of Ukraine until 2030 [5]. It consists of seven main strategic goals and a description of the principles of their achievement (through operational goals and tasks for them). However, it is quite difficult to assess how effective the solution of sustainable development issues was within its framework: firstly, its implementation really took place in a rather short period of time, on the basis of which it is not necessary to draw conclusions; secondly, in connection with the beginning of a full-scale invasion by Russia in 2022, there is no need to talk about any progress in achieving the goals of sustainable development. Nevertheless, some initiatives were introduced within its framework, such as "green" lending; the country has also made progress in solving issues with renewable energy sources and waste disposal.

Strengthening the personnel potential of government bodies as a whole is an important prerequisite for the sustainable development of society. Authorities are responsible for making decisions that affect the lives of the entire population of the country. The quality of these decisions depends on the level of qualification and experience of the staff who make them. Thus, it has a positive effect on the effectiveness of management in most areas, as highly qualified personnel can better assess the situation in the country and make more effective decisions. They have greater knowledge and experience in their field, which allows them to more accurately predict the consequences of their decisions and prevent possible negative consequences. They are often highly motivated to work and have a desire to improve their skills. In addition, highly qualified personnel have a positive effect on increasing trust among the population. This happens due to the improvement of services (such personnel are able to provide better and faster services to the population, which can help reduce dissatisfaction among the population and increase trust in public authorities), develop more effective procedures and policies that contribute to ensuring the rights of citizens (which can reduce the risk of corruption and abuses by public officials and promote trust in public authorities), ensure communication with the public and make the work of the authorities more transparent, which also positively affects the attitude of the population. Personnel training also has a positive effect on the country's political structure. Thus, the aforementioned reduction of corruption (due to the introduction of better policies in this area) makes it possible to improve the political situation in the country. The provision of human rights and the spread of democratic institutions also have a positive effect on this. This influence will also be felt by the economic development, since the more effective performance of their powers by the authorities enables the country's enterprises to achieve better results and raise the standard of living of the population.

Personnel training is one of the main tasks of the country. Firstly, it concerns the provision of quality education, both secondary and higher. In the provision of secondary education in the country, the situation is gradually improving, but there are some problems related, firstly, to insufficient funding and a decrease in the quality of teachers (which, in turn, is caused by low salaries and the low "prestige" of such a profession). The main step in this direction was the introduction of the "New Ukrainian school" [31], which had its successes due to the refurbishing of individual schools (including in small towns), which significantly improved the quality of providing secondary education.

Work is also underway in the field of higher education. In particular, the government of Ukraine introduced a reform aimed at improving the quality of education and ensuring its compliance with the requirements of the labor market. The reform includes such measures as the modernization of educational programs, raising requirements for the quality of education and ensuring its availability [32]. In addition, there is a development of e-education, which allows students to study materials and complete tasks online.

This allows for access to education for those with limited opportunities for traditional education, and increases the quality and efficiency of education, which was especially effective during the height of the COVID-19 pandemic and at the beginning of the full-scale Russian invasion.

An effective tool for encouraging students to study is the scholarship program, which, although it is implemented in the country, is not strong enough to motivate students to study: students of humanitarian specialities will receive about one fourth of the minimum wage, and technical students – one third. And although students have the opportunity to receive an increased stipend for special academic success, this does not change the situation: for students, such sums are not sufficient motivation to study, due to which, in many cases, they go to work prematurely (often not in their speciality), without receiving the necessary qualifications skills and abilities for effective work in the future. Thus, one of the most important components for the state in encouraging students to study should be the increase of scholarships to at least the level of the minimum wage. In addition, the government tried to ensure the development of its own scientific base in the country, which also effectively failed due to a lack of both funding and motivation on the part of education workers and civil servants. The trends in secondary and higher education in Ukraine can be partially assessed using the data analysis in Figure 3.

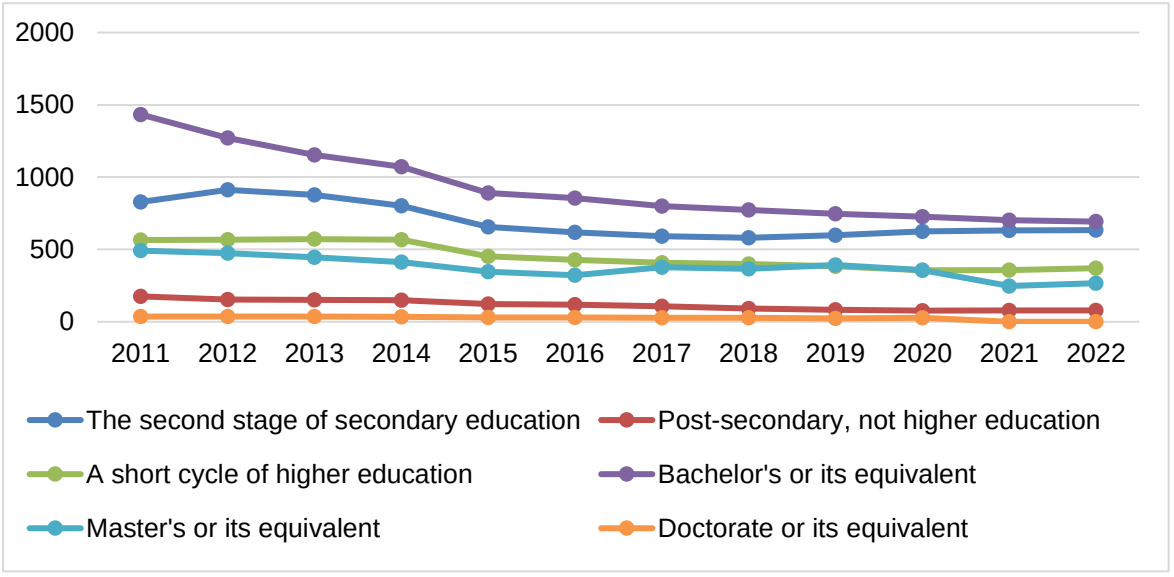

FIGURE 3. Identification Number of students at various stages of training in Ukraine in the period from 2011 to 2022, thousands of people [28].

As can be seen from Figure 1, the number of students at certain stages of training in the country is gradually decreasing. Such rapid trends can be caused by demographic processes, namely, population decline and "brain drain". Nevertheless, the state should do everything in its power to slow them down, primarily by improving the quality of education. This will make it possible to "keep" more highly qualified personnel in the country and, in the future, significantly improve the efficiency of the functioning of both state bodies and private companies.

In Ukraine, various kinds of events related to improving the qualifications of employees at workplaces are held. One such activity is on-the-job training or appropriate on-the-job training that allows employees to acquire new knowledge and skills without having to attend classes outside the workplace. In addition, the formation of various programs and projects is practiced, which specialize in improving the qualifications of working personnel. For example, these can be professional retraining schools, business schools, higher education institutions that conduct training courses for various categories of employees. In addition, in Ukraine, there is a system of certification of workers, which ensures the recognition of the qualifications of workers in various fields of activity and increases their mobility in the labor market. And although these educational activities are indeed carried out, most often it happens once every 15 years, while abroad this

practice is much more common (once every 3-5 years, or even every year). This suggests that the training of specialists is too rare, due to which employees are not able to work effectively enough in constantly changing working conditions. Another issue is the quality of teaching at such pieces of training: their conduct is often formal and does not aim to actually teach workers anything (especially in public institutions). Thus, the state authorities should strengthen control over the quality of conducted pieces of training and ensure that they are conducted much more often than is currently the case in the country.

The results of the data analysis provide fresh insight into the interrelated difficulties Ukraine confronts in implementing the environmental, social, and economic facets of sustainable development. While earlier studies have highlighted Ukraine's challenges in areas such as social services, economic productivity, and environmental protection, this study's comprehensive analysis of personnel competencies within government authorities reveals a fundamental barrier that obstructs advancement in all three pillars. Through the quantification of gaps in the training and skill sets of civil servants assigned to lead sustainability projects, the analysis reveals a hitherto unexplored core reason of Ukraine's deficiencies in sustainable development. If Ukraine is to address issues like resource depletion, mitigating the effects of climate change, creating jobs, and ensuring access to high-quality education and healthcare, it is imperative that investments in human capital be made. This is evident from the insights provided about the current state of professional development opportunities for authorities. Establishing a link between these human resource limitations and inadequate progress indicators closes a significant information gap and emphasizes the need to prioritize employee potential as a critical strategy for accomplishing the nation's future social, environmental, and economic policy goals.

The information provided in the research can be used in practice in many ways. It makes it possible to look at the existing problems in the social, economic and environmental spheres of Ukraine differently. Therefore, government organizations can use it to determine some components of their policy within the framework of achieving the goals of sustainable development, its individual components. In addition, it provides clear advice for improving the human resources potential in the country through the formation of some changes in the field of education and policy changes in terms of employee training at enterprises. However, in order to implement such changes, state authorities must first assess the existing international experience in this area and find out how it can help the country in implementing such a policy.

The investigators remained aware of limitations that affected the reliability and applicability of the results. One key challenge was the availability and consistency of recent data following the COVID-19 pandemic and Russian invasion of Ukraine. There were lags or breakdowns in certain national statistical databases and reporting processes. The researchers supplemented using alternate data sources if gaps in the data were found. The researchers endeavored to detect and openly recognize discrepancies between earlier sources and the present-day setting. The study's mixed-methods design, triangulation of sources, and selective use of reliable international datasets attempted to minimize the impact of potential bias while realistically accounting for the inherent data-related limitations imposed by the difficulties Ukraine currently faces, despite the limitations posed by the turbulent climate.

V. DISCUSSION

S. Zhivkova [33] evaluated the role of sustainable development in the modern conditions of the development of countries. The scientist writes that the concept of sustainable development, which is being actively implemented by almost all countries of the world, has caused drastic changes in various sectors of the economy. This includes the emergence of new environmental sectors, the development of quality and environmental protection standards, the introduction of environmental taxes, green products and services, and green supply chain practices. Public authorities in countries have already begun to introduce practices that contribute to the improvement of the external environment, and also try to cooperate with the private sector on the basis of various forms of interaction (such as public procurement and public-private partnerships). These changes show that sustainable development is not just an idea, but a concept that is already being implemented. However, in order to achieve the main goal of preserving resources and nature for future generations, there are still many obstacles that need to be overcome.

The impact of sustainable development on the country and society was also studied by P.K. Ozili [1]. In the article, the author concludes that the achievement of sustainable development and stability requires

compliance with the appropriate policy of the country, and therefore the readiness of both society and state authorities to implement it is important. It should include the solution of structural problems in the environmental, social and economic spheres, as well as the emergence of initiatives by various representatives of the public and state authorities. Policies aimed at achieving sustainable development must give priority to meeting the most pressing local needs, especially those that can be met with resources considered harmful to sustainable development [34].

The impact of upskilling white-collar workers was studied on the basis of data from South Africa by Y. Rykleif and R.K. Tengeh [35]. The study showed that training on the awareness of requirements in terms of providing services to the population by civil servants can have a positive effect on the efficiency of the work of government officials. Moreover, the improvement in their work was caused both by the improvement of their qualifications and by the awareness of the need and role in the more effective provision of such services, which caused an increase in the motivation of employees during the conduct of activities. Therefore, national governments must create a workforce that serves the entire society equally through a citizen-centric approach to service delivery [36]. This can be achieved quite effectively due to the latest digital technologies. In addition, it is possible to introduce reporting by departments that could describe in detail the level of efficiency of their service delivery, describe the problems they face and make requests in case they lack something in order to continue to carry out their duties effectively ties [16; 17; 20].

The conclusion that the training and development of employees in general effectively affect their work productivity is also reached by N.A. Mohammed et al. [37]. Based on the obtained results, scientists write that training and development have a positive effect on employee productivity. Therefore, in order to obtain these benefits, organizations (both private and public) must introduce within their organizations opportunities for employees to improve their own qualifications [38]. In addition, it is worth establishing a relationship with the workers to find out what skills they lack to perform their work, and what are the reasons for the decrease in labor productivity. This will make it possible to more effectively shape future decisions and actions in the context of skill formation among the organization's workers [18; 19].

The study by Boselie et al. [39] is interesting. Scholars come to completely different conclusions than those that are generally common in the economic literature: in their opinion, the management of representatives of the public sector as a whole is too regulated, which endangers the individualism of civil servants. In general, they note that to draw final conclusions about the extent to which the regulation of the activities of public employees affects the effectiveness of their work, and therefore the excessive fixation of government representatives on this component can generally have a negative effect on both the workers themselves and their ability to provide services.

I. Scott and T. Gong [40] studied the problem of horizontal coordination in administrative systems on the example of Hong Kong. Scholars note that informal coordination, better monitoring of policy directives, and learning from experience can improve horizontal coordination within bureaucratic systems. Thus, it is important to strengthen the coordination mechanisms within the various organizations by appointing impartial coordinators to the positions of managers to ensure direct channels of communication with the center and to overcome the present negative tendencies at work [41; 42]. In other words, scientists confirm the importance of hiring efficient and independent employees to work positions, which would improve the efficiency of the functioning of state institutions.

The importance of human resource management in the light of the Fourth Industrial Revolution and the spread of sustainable development ideas is described in the work of K. Piwowar-Sulej [43]. Scientists note that the development of human potential is a very important component of human resource management. Based on the example of Polish companies, scientists have shown that entrepreneurs often underestimate the long-term prospects for the development of human potential, which is why they pay attention only to short-term opportunities for its improvement. They also often neglect cooperation with other educational institutions, which does not contribute to the development of science and education in the country and there is no actual positive impact on the companies themselves. In other words, the state government should provide conditions under which it would be beneficial for representatives of companies and universities to cooperate so that both types of institutions could benefit from this type of functioning [44]. Entrepreneurs, on the other hand, should pay more attention to such opportunities for cooperation and join them more willingly.

The role of sustainable development of personnel potential is also explored in the work of Z. Stofkova and V. Sukalova [45]. The researchers show that, for the companies they evaluate, the training and development needs of employees are often either ignored or given insufficient attention. This suggests that company managers should both create similar conditions for their own employees and make them aware that they are available and can greatly help them in the future in the workplace [46]. In addition, incentives (both financial and other) for employees to increase their own potential can be effective.

Thus, as part of the study, an assessment of the state of achieving sustainable development in Ukraine was carried out, and it was also shown how the strengthening of personnel potential can help improve the situation in this area. Nevertheless, the representatives of the Ukrainian state authorities must provide such conditions for increasing the personnel potential, under which this process will take place most advantageously. Therefore, representatives of the authorities should form a state policy in the field of education that could ensure a high-quality level of education (secondary and higher) for the population. In addition, measures should be regularly held to improve the qualifications of employees at state-owned enterprises in order to form the best possible skills in them to improve the efficiency of their activities within the framework of sustainable development.

VI. CONCLUSION

During the work, a general assessment of various components of sustainable development in Ukraine was carried out. It was shown that the country has significant problems in this area, which must be solved in the near future. Thus, the progress towards achieving these goals can be considered unsatisfactory: the study cites several reasons for this, in particular, the fact that the goals of sustainable development are implemented only in part of the strategic documents, which reduces their coherence and effectiveness. In addition, the economic situation in the country is difficult due to corruption, low level of infrastructure development and lack of necessary reforms. The article highlights other economic problems that prevent Ukraine from achieving the goals of sustainable development, such as low labor productivity, lack of investment, insufficient training of specialists, monopolization of certain industries, and the negative influence of oligarchs on the economy. Social problems are also mentioned, such as poor access to education and health care, mass migration of the population, and lack of social protection for many citizens. Environmental problems such as air and water pollution, waste management, and remediation of contaminated land are also described. The text concludes that while some positive trends have been observed up to 2020, progress towards the Sustainable Development Goals is insufficiently effective.

The article proposes several measures that can be taken to solve these problems, including implementing better environmental protection strategies, reducing the impact of harmful substances on the environment, and cooperating with equipment manufacturers. In particular, it is possible to highlight the importance of initiatives aimed at improving the state of sustainable development in Ukraine, such as the “Sustainable Development Strategy of Ukraine until 2030” and other state initiatives. A lot of attention was paid to the component of improving the quality of personnel training to solve these problems. It was shown that it is an extremely important element for ensuring the sustainable development of society in Ukraine. The reason for this is that highly qualified personnel are able to perform their duties at workplaces much more efficiently; if it concerns authorities, it directly affects the improvement of social and economic processes in the country, as well as the improvement of the environmental situation. In order to ensure the sustainability of development, it is necessary to have highly qualified specialists in every sphere of activity, including the authorities. The application of modern methods and approaches to personnel policy, such as raising the level of education and professional training, searching for talented candidates, assessing the risks of personnel decision-making, etc., can ensure a high level of professional competence and efficiency of the work of authorities. This can affect the level of trust of citizens in state bodies, which in turn can contribute to increasing the efficiency of public administration and supporting sustainable development in the country.

Finding methods for increasing the efficiency of the functioning of state bodies in Ukraine is relevant for future research. In addition, it is also worth finding new opportunities for improving the conditions of sustainable development of the country. It is also important to assess foreign experience in the field of personnel training and find opportunities for its further use in the realities of Ukraine.

This study has certain limitations that should be acknowledged. One major challenge was the availability and reliability of recent data following the COVID-19 pandemic and Russian invasion of Ukraine. There were gaps, lags or disruptions in some national statistical databases and reporting processes during this turbulent period. While the researchers made efforts to supplement missing data from alternate sources, when possible, there may be some inconsistencies or discrepancies between earlier data sources and the current ground reality in Ukraine that are difficult to fully account for. Additionally, the ongoing war posed obstacles to comprehensive data collection efforts within Ukraine itself. Safety concerns and access restrictions in some regions could have resulted in incomplete or uneven coverage of the entire country's conditions related to personnel training and sustainable development progress. The representativeness of the data may have been impacted.

Furthermore, the research had to primarily rely on published documents, reports and statistical databases due to the real-world circumstances. Being unable to conduct extensive field studies, surveys or interviews with government personnel and other stakeholders limited the depth of qualitative insights that could incorporate on-the-ground perspectives. Despite the researchers' efforts to triangulate sources and employ robust analytical techniques, the volatile situation in Ukraine imposed certain limitations on fully capturing the dynamic reality through this study alone. Continued monitoring and additional research will be needed as conditions evolve to comprehensively understand the links between personnel potential and sustainable development in Ukraine.

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Author Contributions

Ya.K.: Conceptualization, Data Curation, Project administration. M.M.: Methodology, Formal analysis, Supervision, Writing - Original Draft. N.B. Formal analysis, Visualization, Writing - Original Draft. D.K.: Investigation, Validation Resources, Writing - Original Draft. A.I.: Investigation, Visualization, Writing - Original Draft.

Conflict of Interests

The authors declare no conflict of interest.

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