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A Comprehensive Analysis Of Sdg Indicators In Uzbekistan

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Abstract

This article presents a statistical analysis of the dynamics of the 17 Sustainable Development Goals (SDGs) established by the United Nations in the Republic of Uzbekistan for the period 2017–2024. The research is based on official statistical data and covers economic, social, and environmental indicators. The study examines trends, growth rates, and their impact on the country's sustainable development strategy. The results assess the effectiveness of ongoing reforms and identify existing challenges in achieving sustainable development.

Keywords: Sustainable development, SDGs, statistical analysis, indicators, economic growth, social development, environmental sustainability, Uzbekistan, 2017–2024.

INTRODUCTION

In the 21st century, global development processes have highlighted the need to ensure not only economic growth but also social equality and environmental sustainability. For this purpose, in 2015, the United Nations adopted the Sustainable Development Goals (SDGs) framework for the period up to 2030. This program includes 17 main goals and 169 targets.

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Uzbekistan has also integrated the SDGs into its national development strategy and, in recent years, has accelerated economic and social reforms. In particular, since 2017, large-scale structural transformations have been implemented in the country, with strengthened measures aimed at improving living standards, reducing poverty, ensuring employment, and addressing environmental challenges. Therefore, the period of 2017–2024 is considered an important analytical timeframe for assessing the dynamics of SDG indicators. The purpose of this study is to conduct a comprehensive analysis of the trends in key statistical indicators within the framework of the 17 Sustainable Development Goals in Uzbekistan during 2017–2024. During the research process, the growth rates of economic, social, and environmental indicators, their interrelationships, and their impact on the sustainable development strategy are examined. The results of the study will have scientific and practical significance in evaluating the effectiveness of ongoing reforms in the country, identifying existing problems, and determining future strategic directions.

End poverty and strengthen the social protection system. A person is considered to be living below the poverty line if they live on less than approximately $2.15 per day.

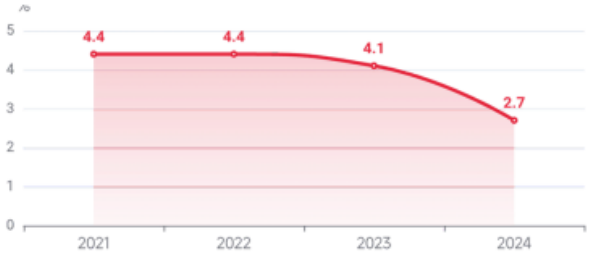

Figure 1. Trends in the Reduction of Poverty Rate

The analysis of the graph shows that in 2021–2022, the indicator remained stable at 4.4%. Starting from 2023, a downward trend was observed (4.1%). In 2024, significant positive changes occurred, and the poverty rate decreased to 2.7%. This represents a reduction of nearly 40% compared to 2021.

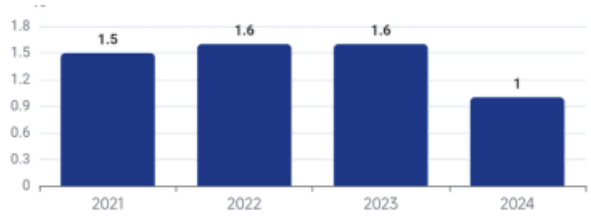

Figure 2. Poverty Gaps

This graph illustrates the **poverty gap index**. This indicator reflects how far (how deep) the poor population is below the poverty line. While the gap was at 1.6 in 2022–2023, it decreased to 1.0 in 2024.

Figure 3. GDP Growth and Poverty Dynamics

The economy grew steadily from 4.4% to 6.8%. Due to the pandemic or global crises, the growth rate dropped to its lowest point of 1.6%. After reaching a record high of 8% growth in 2021, the economy stabilized at around 6%–6.5%. The graph confirms the inverse relationship between economic growth and poverty reduction. Despite high GDP growth, the poverty rate remained unchanged at 4.4%. This indicates that it takes time (a lag) for the benefits of economic growth to reach the lowest-income segments of the population. Against the backdrop of sustained GDP growth above 6%, the poverty rate began to decline sharply, reaching 2.7%

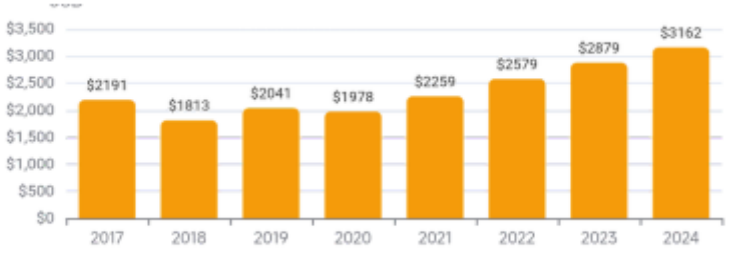

Figure 4. Income per Capita

The interconnection between these graphs lies in the fact that as **income per capita** (Figure 4) increases, the **poverty rate** in Figure 3 decreases. In other words, there is an inverse relationship between them: as one rises, the other falls. This leads to the conclusion that economic growth is contributing to poverty reduction. At the same time, social protection programs are being expanded, employment initiatives are being implemented, and strategic measures such as improving education and skills development, as well as housing conditions, are being undertaken.

The second goal focuses on ensuring food security and proper nutrition, that is, eliminating hunger.

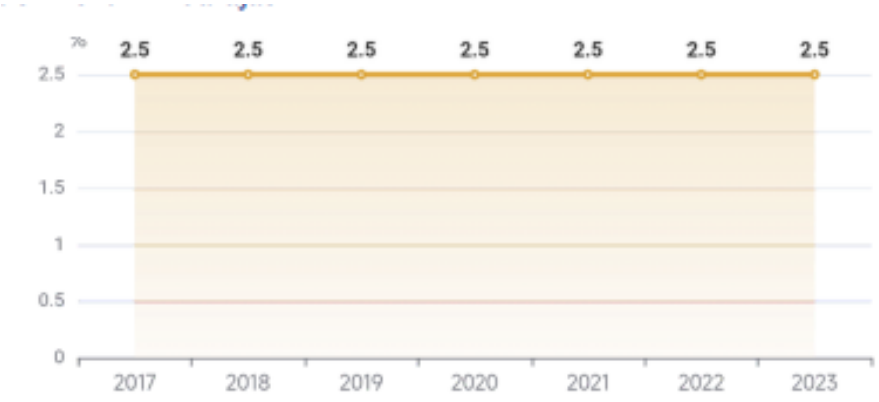

Figure 5. Deprivation Level

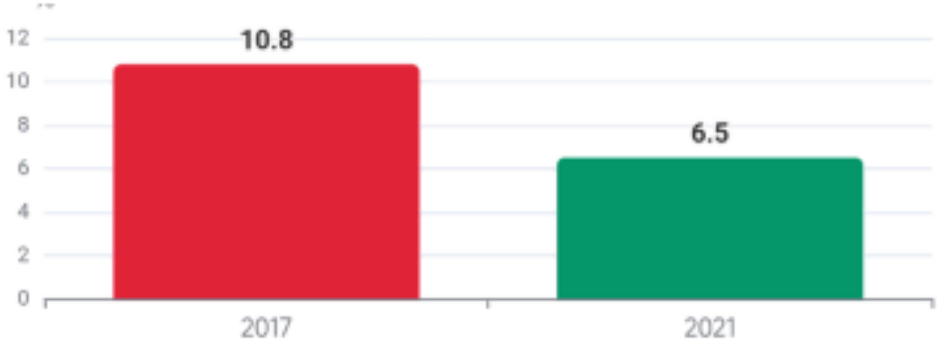

Figure 6. Trends in Stunting (Growth Failure) Among Children

Research shows that in Uzbekistan, undernourishment has remained at 2.5% since 2017. Although this indicates a relatively low and stable level, the fact that it has not decreased over seven years suggests that a certain segment of the population still faces food insecurity.

As a result, this contributes to stunting among children. The indicator of child stunting was 10.8% in 2017 and decreased to 6.5% by 2023. This improvement is largely associated with better access to healthcare services and improved nutrition for mothers and children. The conclusion and recommendation are that the government should implement measures such as agricultural diversification, modernization of irrigation systems, expansion of food reserves, provision of agricultural credit, and export diversification.

The third goal is focused on health and well-being. It includes measures aimed at increasing life expectancy and reducing maternal mortality.

Figure 7. Life Expectancy at Birth

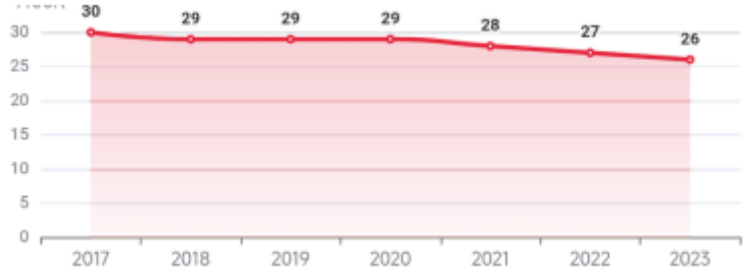

Figure 8. Maternal Mortality Indicators

As shown in Figure 7, life expectancy at birth was 71.7 years in 2017. This indicator slightly declined to 71.5 years in 2020 due to the COVID-19 pandemic, and then increased again, reaching 72.4 years in 2023. The maternal mortality rate (Figure 8) was 30 deaths per 100,000 live births in 2017, and it has decreased to 26 deaths per 100,000 births. Health expenditure as a share of GDP was 4.3% in 2017 and increased to 6.7% in 2023. Per capita health spending reached $78, with an overall growth of 55%. In this regard, programs such as “Healthy Mother and Child” and “Healthy Lifestyle” have been implemented. The increase in healthcare spending is aimed at modernizing the healthcare system, including equipping hospitals with modern medical devices, improving primary healthcare through family polyclinics, strengthening emergency medical services, and developing pharmacy networks to ensure better access to medicines and medical supplies.

The fourth goal is focused on quality education.

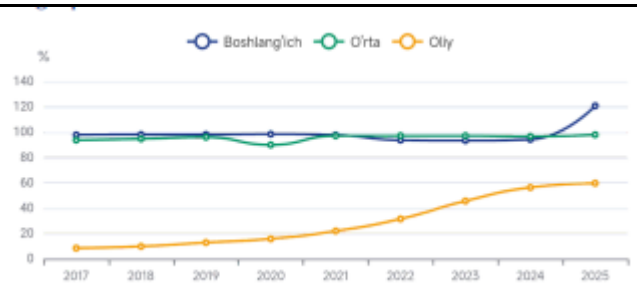

Figure 9. Education Enrollment Indicators

The graph shows that from 2017 to 2023, enrollment in primary, secondary, and higher education has increased.Primary education reached 120.9%, which represents a 98% positive change compared to 2017. The value exceeding 100% indicates that some students are enrolled either earlier or later than the standard school age.Secondary education increased by 93.9% compared to 2017 and reached 98.1% in 2023. Higher education accounts for 59.8%, meaning that approximately 60 out of every 100 individuals are enrolled in higher education. Over the seven-year period, this indicator increased by 8.6%.

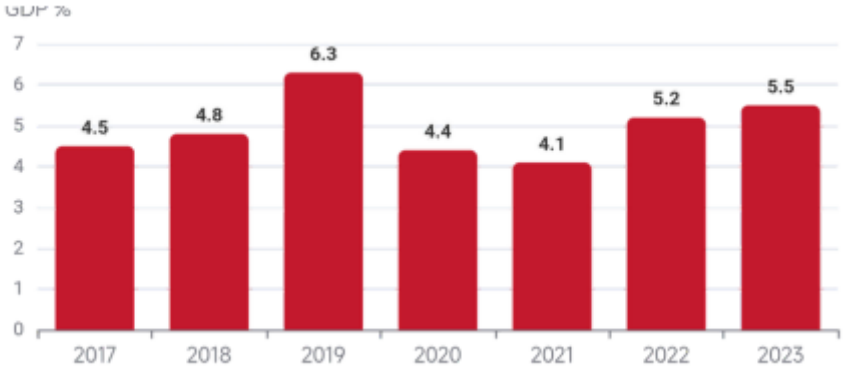

Figure 10. Government Expenditure on Education

The analysis of the graph shows that education expenditure accounts for 5.5% of GDP and reflects a 22% positive growth over the past seven years. Alongside this, reforms such as “Education Reform” and “Teacher Qualification Improvement” have also been implemented.

The fifth goal is focused on gender equality.

Figure 11. Gender Equality in Education (Gender Parity Index Dynamics)

In the education sector, the gap between men and women has almost disappeared. The literacy rate is measured at 1.0, meaning that men and women have equal levels of reading and writing skills. In secondary education, the indicator improved from 0.987 in 2017 to 0.994 in 2021. In primary education, the indicator slightly decreased to 0.980 in 2021; however, overall it is still considered stable. Gender equality dynamics show a steady improvement, with the overall index increasing from 0.987 in 2017 to 0.994 in 2021, indicating consistent progress.

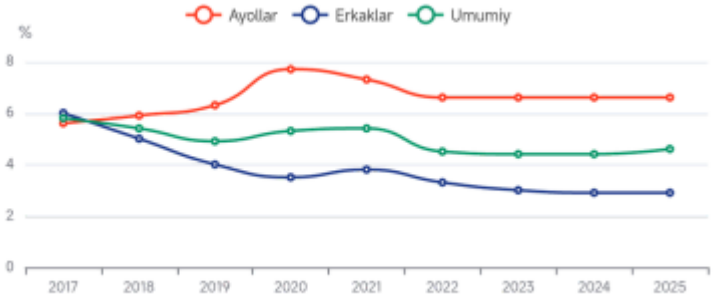

Figure 12. Unemployment Dynamics

The labor market situation is not as ideal as in the education sector, and certain disparities still remain. Female unemployment stands at 6.6%, while overall unemployment is 4.6%, having decreased from 5.8% in 2017.The unemployment rate among men is significantly lower than that of women. Female unemployment reached its peak in 2020 and then gradually stabilized.

The government has introduced several mechanisms to increase women's socio-political participation:

- **Political participation:** Efforts have been made to increase the proportion of women in parliament.
- **"Women's Register" system:** An active support system has been implemented to provide social and economic assistance to women.
- **Legal protection:** Legal guarantees ensuring equal rights in family and labor relations have been strengthened.

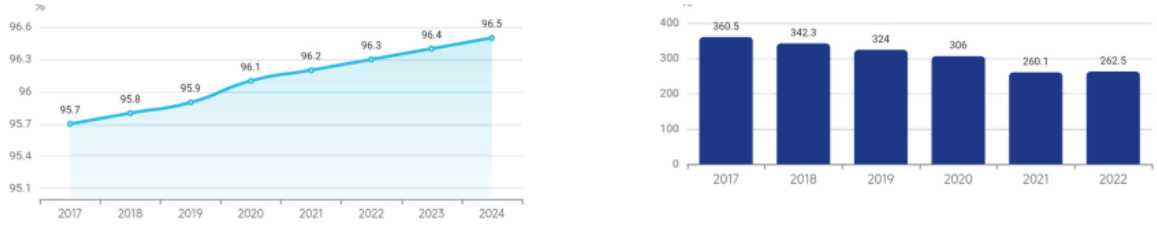

Figure 13. Access to Basic Sanitation Services and Water Resources

In the sanitation sector, a stable and positive growth trend can be observed:

- **Indicator:** As of 2024, access to basic sanitation services has reached 96.5%.
- **Dynamics:** This represents an increase of +0.9% compared to 95.7% in 2017.
- **Regional disparity:** The quality of drinking water is higher in urban areas (98%) compared to rural areas (95%), which highlights the need for further infrastructure development in rural regions.

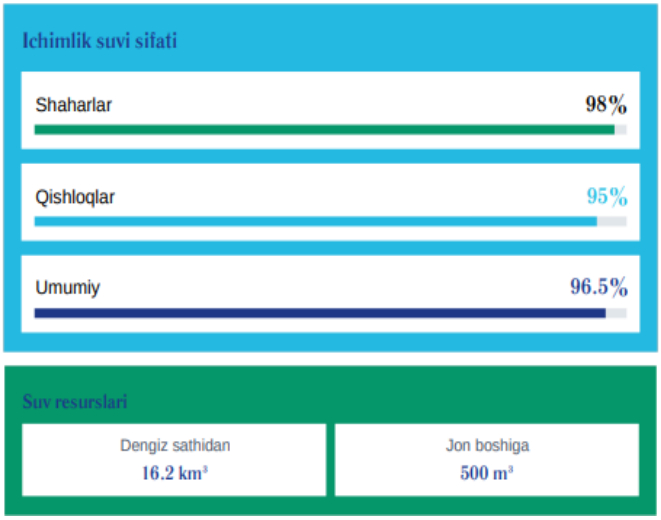

Figure 14. Drinking Water Quality

In this section, the situation is quite serious and complex:

- **Water abstraction indicator:** In 2022, this indicator reached 262.5%. If the indicator is above 100%, it means the country is using more water than its naturally renewable water resources. This reflects an ecological deficit.
- **Positive trend:** Water abstraction has decreased from 360.5% in 2017 to 262.5% in 2022. This indicates that more efficient water use has begun, although the level is still critically high.
- **Water scarcity:** The level of "water stress" in Uzbekistan is classified as high, and this is the highest indicator in Central Asia.

Water resource distribution and management:

- **Agriculture and livestock:** The majority of water resources (90%) are used in agriculture and livestock sectors.
- **Per capita availability:** Each person has approximately 500 m³ of water available.
- **Strategic measures:** To address the issue, the following directions have been defined:
  - **Water efficiency:** Introduction of modern irrigation systems such as drip irrigation.
  - **Quality control:** Strengthening laboratory monitoring and testing.
  - **International cooperation:** Joint management of transboundary water resources.

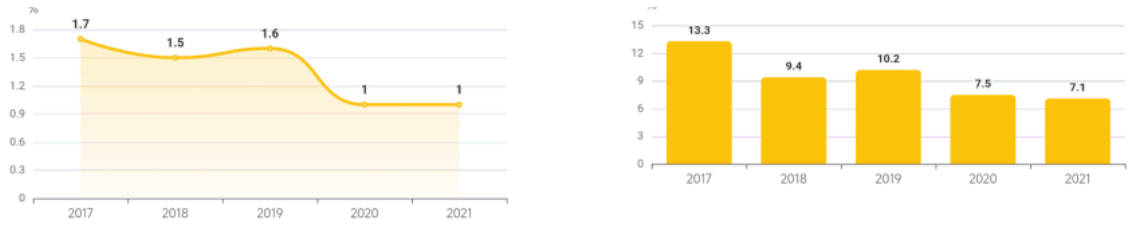

Figure 16. Renewable Energy Consumption

Renewable energy consumption has shown a declining trend since 2017. In terms of renewable electricity, it has almost halved over the past five years. In the electricity sector, the role of renewable energy sources has weakened, while dependence on conventional sources (gas and coal) may have increased. To date, electricity production has reached 65 TWh, of which 58 TWh is used for consumption. The population has achieved 100% coverage

of electricity supply. From this, it can be concluded that energy access is high, while renewable energy is still in a developing stage.

The next goal focuses on decent work and economic growth, including the creation of decent jobs and the development of full employment. Currently, GDP has grown by 6.5%, and the unemployment rate has been reduced to 4.6%.

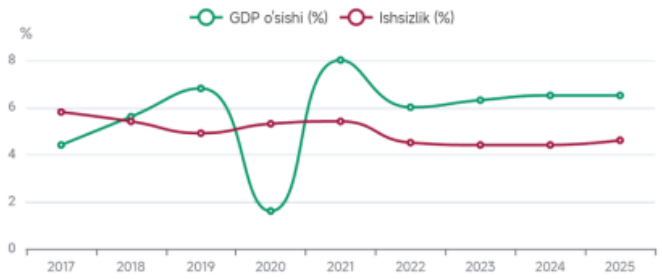

Figure 17. GDP Growth and Unemployment Rate

This graph illustrates the relationship between GDP growth and unemployment rate in Uzbekistan over the period 2017–2025. The most significant turning point is in 2020, when GDP growth sharply declined to around 1.5–2%. This drop is explained by the COVID-19 pandemic, global lockdowns, and restrictions on economic activity. Despite the sharp decline in GDP, the unemployment rate did not increase dramatically as expected; instead, it remained at a moderate level of around 5–5.5%. This may indicate the effectiveness of government measures aimed at preserving jobs during the crisis.In 2021, a V-shaped economic recovery was observed, with GDP growth reaching its peak at 8%. This represents a strong rebound effect following the low base of 2020. During this period, unemployment remained at its relatively high level (around 5.5%), as the labor market typically reacts to GDP changes with some delay. From 2022 onwards, the economy entered a stabilization phase. GDP growth has been fluctuating in a stable range of 6% to 6.5%, while unemployment has gradually decreased and stabilized around 4.5%. According to Okun's Law, GDP growth should lead to a reduction in unemployment. The data confirms this general relationship, as sustained economic growth has helped keep unemployment below 5%. The overall dynamics suggest that the economy has recovered from external shocks (2020) and is currently operating near an "optimal balance" point. The decline in unemployment can also be linked to increased employment in the industrial sector, which accounts for 24.6% of total employment.

CONCLUSION

The analysis of Sustainable Development Goal (SDG) indicators in Uzbekistan for the period 2017–2024 demonstrates significant progress in the country's economic, social, and environmental development. The results show a clear relationship between sustained economic growth and improvements in social well-being. In particular, the steady increase in GDP has contributed to a noticeable reduction in poverty, growth in household incomes, and improvements in employment conditions. During this period, the poverty rate declined significantly, while access to education and healthcare services expanded. Life expectancy increased, and overall human development indicators showed positive dynamics. Gender equality in education has reached a stable level, indicating progress toward equal opportunities. However, certain challenges remain, particularly in the areas of water resource management and renewable energy development. The study also confirms the presence of a time-lag effect, meaning that the positive impact of economic growth on social indicators does not occur immediately but gradually over time. This highlights the importance of long-term policy planning and consistent implementation of reforms. In conclusion, Uzbekistan has achieved substantial progress toward the SDGs between 2017 and 2024. Nevertheless, further efforts are required to ensure environmental sustainability, improve water resource efficiency, expand renewable energy use, and reduce regional disparities in development.

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