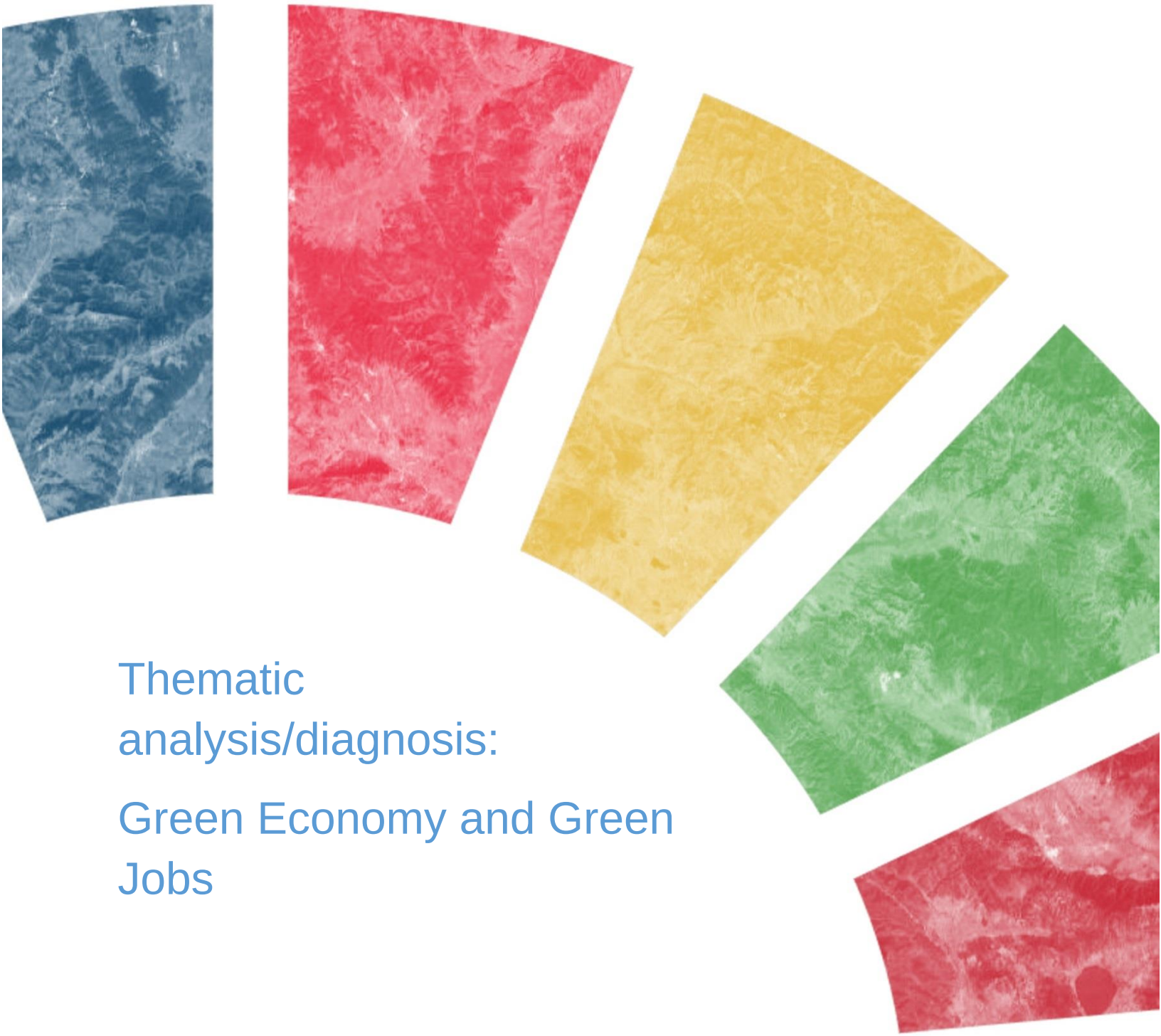
CREATING FUTURE TOGETHER
NATIONAL DEVELOPMENT STRATEGY



Thematic analysis/diagnosis:

Green Economy and Green Jobs

EXECUTIVE SUMMARY

Economic development is a complex, multidimensional process that integrates and interlinks economic growth into an organic whole (quantitative increase in gross domestic product - GDP from year to year), the social component (more balanced, equitable and socially sustainable income distribution), the environmental component (efficient and rational use of resources and minimizing environmental destruction) and the institutional component (building quality and efficient institutions).

The Republic of North Macedonia is a country with weak developmental performance. Since its independence, the Macedonian economy has achieved low rates of economic growth. The average economic growth rate in the period from 1990 to 2021 is around 2%, indicating that the economy operates far below its potential (the potential GDP growth rate of the Macedonian economy is estimated to be in the range of 4.5 to 5% annually on average). This shows why it took the country more than 30 years to double its GDP per capita. Today, North Macedonia, with a GDP per capita of around 5,300 US dollars in 2021, according to the World Bank classification, falls into the group of countries with high middle-income (ranging from 4,096 to 12,695 US dollars). The reasons for the low developmental performance of North Macedonia are numerous and are briefly summarized in this analysis. However, the focus of elaboration in this thematic area is on the contribution to the dynamics of growth of the so-called total factor productivity (technology in the broadest sense, i.e., technological innovations, education, knowledge and skills of employees, their entrepreneurial and managerial abilities, etc.) and the significance of green growth and green investments in increasing the relative contribution of total factor productivity to the economic growth and development of the Republic of North Macedonia.

The concept of green growth, with its fundamental pillars (climate action, decarbonization; energy and mobility; circular economy; biodiversity; reducing air, water, and soil pollution; and sustainable food production and rural areas), can significantly contribute to changing the growth model of the Macedonian economy in terms of increasing the contribution of total factor productivity in driving growth and development.

In this analysis, the state of affairs in the field of energy transformation in North Macedonia (with a focus on the transition from fossil to renewable energy sources and increasing the energy efficiency), are evaluated in detail. The analysis shows that significant progress has been achieved in these two areas in recent times. The progress of the country in the area of renewable energy sources and increasing energy efficiency can be argued as follows: *Firstly*, the use of coal for the production of electricity in the last 10 years has been drastically reduced, practically halved and the production of electricity from the combined heat and power plant TE-TO in the past five years has tripled and in 2019, it met 19% of the total electricity demand. *Secondly*, the production of electricity from renewable sources has increased by around 30% (with normalized production of hydroelectric power plants). This contributes to the share of renewable sources in the gross electricity consumption reaching up to 25%. Interest in investing in renewable energy sources has increased significantly after the emergence of the energy crisis and its intensification with the Russian aggression against Ukraine. In 2022 alone (as of October), licenses for the installation of around 80 MW of photovoltaic power plants have been issued in the country and licenses for another 14 MW of photovoltaic power plants are in the process of being issued, which means that the installed capacity of photovoltaic power plants will increase by about three times in 2022 compared to 2021, amounting to around 130 MW. Additionally, it is estimated that at least 10 MW of this type of power plants are installed on roofs and that 70,000 households have installed solar

hot water collectors with a capacity equivalent to 30 MW of photovoltaic power plants. Taking into account all renewable energy sources, their share in the overall installed capacity has increased from 35.7% in 2016 to 41% in 2022. *Thirdly*, good results, even better than expected, have been achieved in the area of energy efficiency. The targets set for increasing energy efficiency in the national action plans for energy efficiency are being reached at a faster rate than planned - energy savings in 2018 exceeded the set goal for 2017 by a staggering 70%. The greatest contribution to increasing energy efficiency has been achieved through the increased use of heat pumps (inverter air conditioners), as well as the application of ecological standards in renovating and constructing new buildings.

The results in the domain of implementing the concept of circular economy in the Republic of North Macedonia are far more modest. However, numerous indicators included in this analysis confirm that the process is underway. Currently, the energy and the water supply sector, the wastewater treatment and waste management sector are the two sectors with the greatest potential for implementing the concept of the green agenda. This is not only due to the nature of their production and technological processes but also because both sectors in the country exhibit above-average innovativeness. Approximately 66% of enterprises (business entities) in the energy sector and over 50% of enterprises (business entities) in the water supply, wastewater treatment and waste management sector are considered innovative.

The transition to green growth and the introduction of ecological innovations have a high potential for preserving some existing jobs and creating new green jobs in various economic sectors. According to the estimates of the State Statistical Office (SSO), in the Republic of North Macedonia, around 25,000 people were employed in the two key sectors for the transition to green growth in 2021. This includes 9,395 people in the energy sector and 15,590 people in the water supply, wastewater treatment and waste management sector. The number of employees in these sectors accounts for 3.2% of total employment in the country. Labeling these two sectors as key for creating green jobs does not mean that other economic sectors lack the potential to generate green jobs. On the contrary, such opportunities exist in agriculture, especially when considering organic farming areas, in construction, through building technologies while adhering to high technological standards, in transportation (electric vehicles) and in many other economic activities.

According to the UNDP analyses presented in the *Rapid Assessment Report of the Benefits of Circular Economy on Mitigation of GHGs Emission in the Waste Sector*, the waste management sector has the highest potential for implementing the concept of circular economy. The study conducted by UNDP assessed the environmental and economic benefits of introducing circular practices in waste management. Transitioning to a circular economy is of crucial importance for the country's shift towards a green economy. The estimates indicate that by applying circular practices in the analyzed six waste streams, by 2030, it would not only lead to environmental benefits (saving 951 Gg CO2 equivalent annually) but also generate economic gains by creating 2,740 new green jobs and producing 47.17 million euros in economic benefits. This implies that moving the Macedonian economy towards a green economy through circular activities will bring significant environmental, economic and social benefits.

Furthermore, according to certain studies and assessments made for North Macedonia, the implementation of measures to improve energy efficiency and the introduction of new technologies in the field of renewable energy sources to combat climate change will create 6,000 new green jobs by 2030 in the long run. The greatest number of new jobs is expected to be generated through the application of LED lighting, increased use of renewable sources for the production of electricity, particularly solar photovoltaics, wind, biomass and hydropower, and

increased use of renewable sources for heating, such as solar thermal pumps and biomass. Moreover, the creation of new green jobs may continue to increase at a higher rate in the future, driven by the fact that after the global energy crisis, even if the energy prices stabilize, they will never return to pre-crisis levels. This fact motivates economic entities (households and businesses) to invest in new technologies for production of energy from renewable sources, leading to the opening of new green jobs. However, in this analysis, we emphasize that estimating the creation of green jobs is not an easy task, since, on the one hand, green investments will generate new jobs, i.e., directly increase employment (for example, in the case of energy), in the new energy facilities, while on the other hand, they will have indirect, induced, i.e., multiplicative effects on employment, which are difficult to estimate.