

Article

The Interrelationship of Green Investments and Sustainable Development

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Abstract: This article reflects the relationship between green investments and sustainable development, the importance of green investments in sustainable development. The state of sustainable development and green investments in countries was analyzed through macroeconomic indicators in Uzbekistan and other foreign countries. According to the results, there is a positive relationship between green investments and sustainable development, green investments stimulate economic growth, increase the efficient use of resources, reduce environmental damage and carbon emissions; increase environmental efficiency, improve social infrastructure, enhance management quality; accelerate the development of renewable energy, energy efficiency and green technologies; are the main financial instrument in achieving the Sustainable Development Goals.

Keywords: Green Investment, Sustainable Development, Green Economy, Green Growth, Green Finance, ESG Criteria, Green Energy, Green Jobs

1. Introduction

The "green" economy is the latest way to achieve the Sustainable Development Goals, which is being implemented through new mechanisms and tools in the field of "green" finance. As noted in the United Nations Environment Programme, the purpose of this type of financing is to increase the level of financial flows (banking, microcredit, insurance, and investments) from the public, private, and non-commercial sectors to priority areas of sustainable development. The intention is to align financial systems — and in partnership with countries, financial regulators, and financial sectors — channel capital to sustainable development, which is ultimately the future of models of production and consumption. This equilibrium is facilitated by financial instruments such as the "green" bonds, which consolidate public-private partnerships on the way to sustainable development.

Green Investments along with Sustainable Development (SD) are two inter-related and mutually reinforcing pillars of needed investment at the core of the modern economy. Green financing and green investments are thus identified as one of the most effective means to get to sustainable development.

Green finance, a term with its theoretical foundation in sustainable finance, aims to align the financial market with the ESG dimension. The ESG criteria is used to create a benchmark for sustainability performance, allowing for alignment with global standards such as the United Nations Sustainable Development Goals (SDGs) and to communicate the responsible and sustainable practices to investors and stakeholders. Green finance specifically denotes funds for projects that affect sustainable environmental performance

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(such as renewable energy, energy efficiency, sustainable waste management and pollutant reduction) [1].

Green financing refers to financial investments that ensure environmental sustainability and minimize environmental risks. These investments are an important tool for directing capital towards sustainable development goals. Green financing mainly comprises green taxes — which aim to facilitate a reduction of environmental damage — and green investments — which contribute to raising economic efficiency. In this context, "green" financing is defined as a tool to transfer political capital from destructive practices to sustainable ones. By so doing, it creates a buffer against the impact of climate change and environmental degradation. Green finance is important for sustainable development as it facilitates with the transition towards low-carbon economy at the macroeconomic level.

2. Methodology

The importance of green investments in sustainable development has been analyzed by many researchers. Some studies suggest that green financing improves environmental management, directs capital flows, and supports sustainable economic growth[2]. Other studies have revealed the possibility of achieving sustainable growth with temporary taxes/subsidies that direct innovation towards clean resources[3], the link between renewable energy and economic growth[4].

Using methods such as literature review, statistical and comparative analysis, interpretation, analytical generalization, and inductive reasoning, this study analyzes the interrelationship between green investments and sustainable development, as well as their impact on national economies.

3. Results and Discussion

The 2019 UN Report on the Implementation of the Sustainable Development Goals explains how green investments impact sustainable development. The report calls for redirecting financial flows to tackle global issues around climate change, poverty, food security and health, to the conclusion that investments are the engine for delivering on the SDGs. In addition, it mentions the growing flow of funds to solve global climate change problems, of which a large share is used for investing in emissions reduction. A large part of this increase is attributable to measures undertaken under the Global Climate Action Agenda, specifically record-high levels of global climate finance during the period 2015-2016, which are up 17 percent from the 2013-2014 level. Upper-end estimates rose from \$584 billion in 2014 to \$680 billion in 2015 and \$681 billion in 2016. However, investments in climate action are still outpaced by investments in fossil fuels (\$781 billion in 2016).[5] The report acknowledges that the majority of investments were spent on renewable energy sources. Due to the sound policies of nations, the share of renewable energy increased between 2000 and 2019, and investments in green energy in developing countries grew nearly tenfold. Therefore, green investments stimulate the energy transition, which in turn serves to ensure sustainable development.

The 2011 UNEP report, "Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication," asserts that investing in the environment yields positive macroeconomic outcomes in addition to environmental improvements[6]. According to the document, green investments stimulate the economy, enhance resource efficiency, reduce carbon emissions, and create new jobs. This, in turn, makes it possible to achieve economic stability and sustainable development.

Significantly increasing investment in renewable energy could be part of a comprehensive strategy to green the path of global economic development. Modeling studies conducted under the "Green Economy Report" project have shown that investing an average of US\$650 billion annually over the next 40 years in electricity generation from renewable sources and second-generation biofuels for transport could increase the share

of renewables in the total energy supply to 27% by 2050. This figure is expected to be less than 15% under a business-as-usual (BAU) scenario. The expansion of renewable energy use could account for more than one-third of the total reduction in greenhouse gas (GHG) emissions by 2050, compared to the business-as-usual scenario[6].

The OECD's 2019 Global Prospects for Sustainable Development Financing report states that the integration of diverse actors will open up opportunities for innovation to achieve interconnected goals such as gender equality and the transition to a low-carbon economy[7]. The average growth in issuance of green bonds between 2012-2017 is 80% per annum, which shows that green financing, turned into a real input of investments.

As the corporate strategy of ESG took off, so too did the transition to sustainable economic systems - and a growing dimension of that has been green employment - jobs that contribute with the preservation or restoration of the natural environment. Although overwhelming characterized by social and environmental benefits, the potential of the green economy in terms of economic contribution to society has remained unexamined. The significance of workers in green jobs, in terms of both financial and macroeconomic value, is vital to identify if policy and corporate strategies are effectively aligning sustainability and growth[8]. Green employment is being increasingly seen as an essential strategic component of sustainable development policy and practice. Eurostat & UNEP with data from September 2021 shows that "green" jobs in the EU have continued to grow with significant advances in waste management & sustainable agriculture, and marked growth in clean energy technologies. In recent years "green" employment has increasingly been viewed, not only as a measure of progress towards a more sustainable world, but also as a possible policy lever toward many of the sustainable development goals (SDGs), especially SDG 8 (Decent Work and Economic Growth), SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action) [8].

Green jobs have the capacity to foster social inclusion, as they can provide job opportunities for marginalized and disadvantaged groups, and as such contribute to equitable and inclusive economic growth. Green jobs are just part of environmental sustainability, they are also part of economic and social sustainability [8]. Green jobs elevate the employment rate, help in the reduction of poverty as well as in the realization of the Sustainable Development Goals through positive effects on household incomes.

Green investments in Denmark

Many countries are trying to accelerate the development of "green" industries in order to ensure sustainable development. In particular, in Denmark, which is one of the leaders in this area, target indicators for reducing emissions by 2030 have been set. After rapid progress in the decarbonization of the energy and construction industries, efforts to reduce emissions should now be focused on transport and agriculture. In 2023, almost two-thirds of total emissions were attributed to these two sectors, and they are expected to remain the main issuers in the future (Figure 1, Panel B). According to the European Union's Responsibility Sharing Regulation, Denmark is required to halve emissions in sectors not included in the ETS, i.e., mainly in these two sectors, by 2030. International transportation carried out by Danish companies is also a major issuer, however, according to the Paris Agreement, they are not included in the Danish emissions. If these transfers are also taken into account, greenhouse gas emissions in Denmark remained almost at 1990 levels (Figure 1, Panel A) [9].

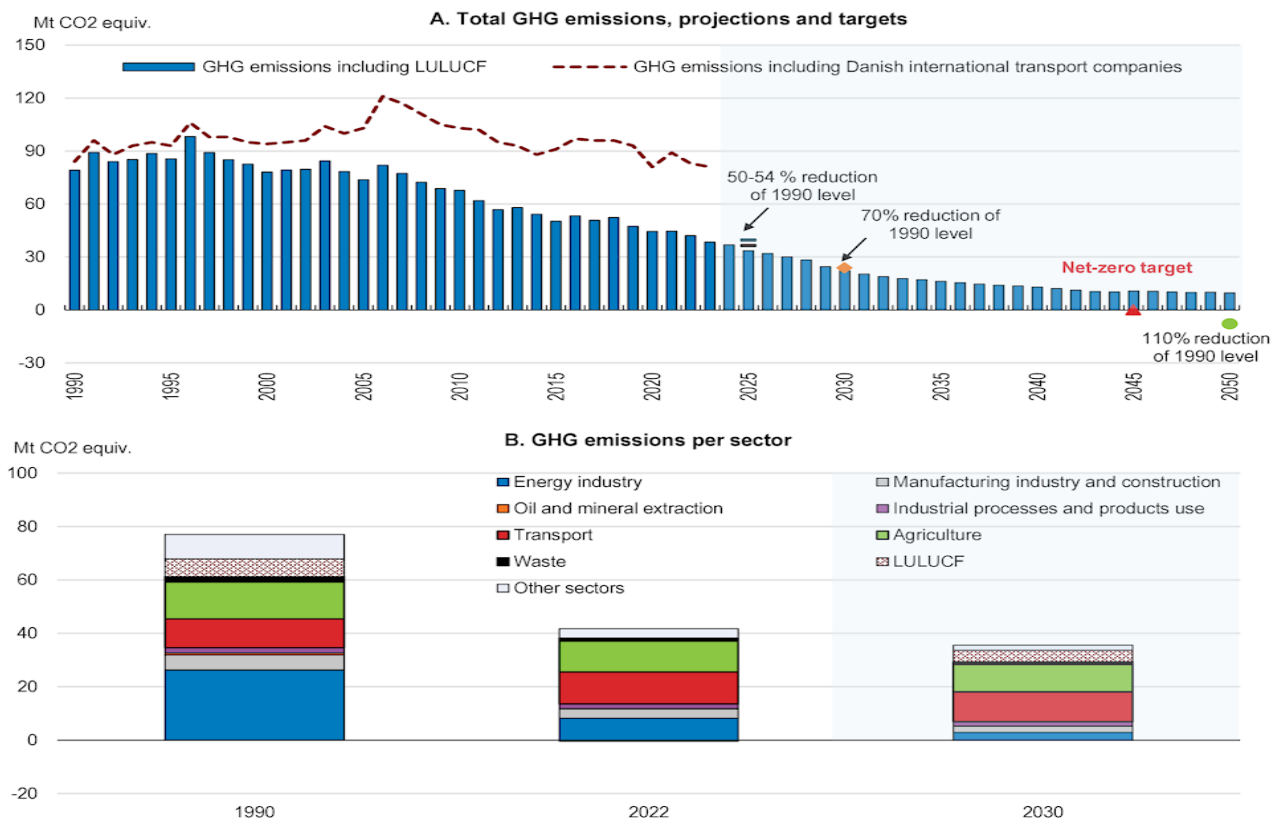


Figure 1. Denmark is on the way to achieving the emission reduction target by 2030, but more action is needed to achieve climate neutrality.[9]

Denmark uses a wide range of policy instruments to mitigate the consequences of climate change, including regulatory measures, market mechanisms, state support for the most affected firms, and the development of green technologies. The main focus is on taxing greenhouse gas emissions and directing private investment towards climate-friendly projects in order to effectively reduce low-cost emissions in all types of activities.

Climate investments in Sweden

Sweden is among the leading countries in the European Union by allocating a lot of financial incentives for climate change.

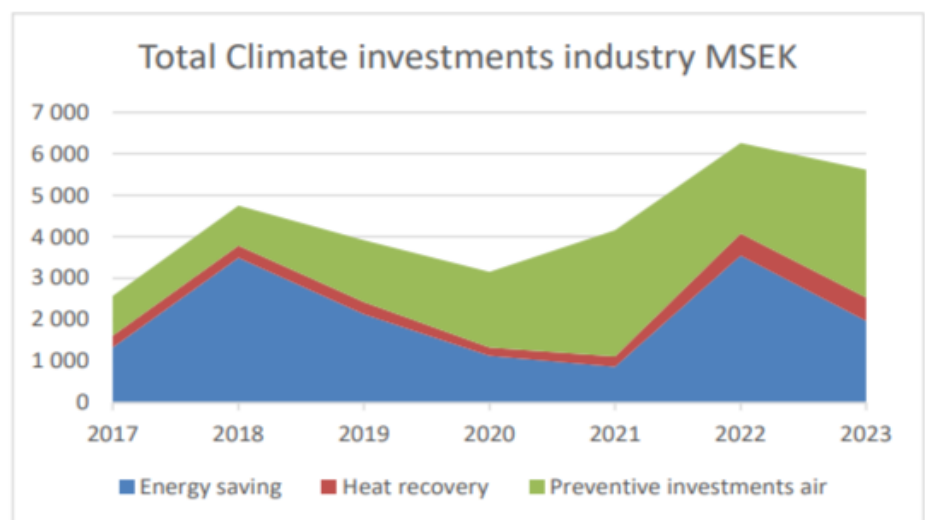


Figure 2. Environmental investments[10]

As the figure 2 shows, the volume of investments aimed at environmental protection nearly doubled during the given period, reaching a peak in 2022. However, a decline was observed by 2023.

In 2024, the volume of subsidies for environmental purposes in the country decreased compared to 2023. These subsidies amounted to 20.9 billion Swedish kronor in 2024, an 18% drop from the previous year. The part of environmental subsidies in the GDP has also been reduced to 0.3 percent of GDP.

In 2024, environmental subsidies that help counteract climate changes and other external effects as well as leading to more efficient use of natural resources amounted to 20.9 billion Swedish kronor. This is a reduction of 4.7 billion Swedish kronor in relation to 2023. The subsidies are divided into four categories: waste, energy, environment and international'env.

Climate investments was the first 114 billion SEK of the total volume, and divided with Sweden's GDP in 2024 of 6380 billion SEK means climate investments made up 1.7 % of GDP [10].

Green investments in Uzbekistan

Uzbekistan is a country rich in renewable energy resources. The potential of solar and wind energy is estimated to be several times higher than the country's total primary energy supply. According to the World Bank, the level of solar radiation is the same as in countries such as Greece, Singapore, Portugal, or Spain, and even higher than in Italy and China. Also, in some regions of the Republic of Karakalpakstan, Uzbekistan will show high average wind speeds equal to offshore wind energy. There are large areas for the construction of solar power plants, especially in sparsely populated areas that are not currently used for agriculture. Large agricultural and livestock farms create great opportunities for bioenergy, for example, through the use of cotton stalks and other plant residues. There are also opportunities in hydropower, but the growing water scarcity due to the need for irrigation and climate change limits these opportunities[11].



Figure 3. Share of renewable energy sources in Uzbekistan[12]

The graph indicates that from 2019 to 2030, solar energy is projected to become the fastest-growing sector among renewable energy sources, achieving a dominant share after 2024. Wind energy is also demonstrating steady growth, while hydropower is expected to expand at a relatively slow yet consistent pace (Figure 3).

In 2019, Uzbekistan adopted the "Strategy for the Transition to a Green Economy for the period 2019-2030," which serves as the foundation for "green" growth.

The strategy is aimed at achieving long-term sustainable economic development and fulfilling Uzbekistan's commitments under the Paris Agreement. In 2024, Uzbekistan revised its strategic goal, increasing the target share of renewable energy sources in its installed power generation capacity from 25% to 40% by 2030 (up from 14% in 2022). As a result of government policy, investment in variable renewable energy has grown significantly [13]. With support from International Financial Institutions (IFIs), tenders have been held since 2022 for foreign investors to implement solar and wind energy projects on a public-private partnership (PPP) basis, accounting for approximately 55% of the installed generation capacity. Greenfield foreign direct investment in renewable energy surged from \$1.4 billion in 2014-2018 to \$11.7 billion in 2019-2023 (50.1% of the total), nearly three times the investment in fossil fuels. PPPs have enabled private investors to achieve impressive investment volumes by reducing risk premiums in Uzbekistan and, ultimately, lowering the cost of electricity.

Research findings indicate that there is not only a statistical but also an institutional and structural link between green investments and sustainable development [14]. Based on the data, an increase in green financing flows enables the energy transition, a reduction in CO₂ emissions, and the efficient use of resources. This shows that green Investments is a key element in quality and quantity transition of Economic Growth model.

Denmark and Sweden's experiences show that government policy and financial incentives will be a central point in increasing the effectiveness of green investments. All three of these countries have increased the pace of transitioning to a clean economy with lower emissions, increasing support for the environment, and bringing in private capital behind green projects. The shrinkage of environmental subsidies or slowing down of investment dynamism can have a fundamental impact on the political and economic determinants of the sustainable development process.

The case of Uzbekistan shows how big green investments matter for developing economies. A higher high ratio of capital activity in regenerative energy hotspots paves the way for energy sector diversification, energy security enhancement, and economic growth sustainable [15].

4. Conclusion

In conclusion, green investments are the most critical financial instrument for achieving sustainable development. They serve this purpose by forming an environmentally sustainable model of economic growth, accelerating the energy transition, reducing carbon emissions, and ensuring the efficient use of resources..

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