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BUILDING A SUSTAINABLE FUTURE BY IMPLEMENTING THE GREEN ECONOMY CONCEPT IN BULGARIA AND BULGARIAN AGRICULTURAL SECTOR

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Abstract
The concept of a green economy has gained significant traction as societies worldwide seek to balance economic growth with environmental preservation. Bulgaria, a country known for its rich cultural heritage and diverse natural landscapes, stands at a crucial juncture in its development journey. By capitalizing on the nation's strengths and addressing its challenges, Bulgaria can forge a path toward economic growth while preserving its natural heritage for generations to come. Through collective effort, informed policies, and innovative practices, Bulgaria can serve as a shining example of a country committed to harmonizing economic advancement with environmental stewardship. Embracing a green economy offers Bulgaria the opportunity to foster sustainable growth, reduce environmental degradation, and enhance overall well-being. The transition to a Green economy allows Bulgaria to transform its own economy – from a low-efficiency and resource-intensive one to an economy based on knowledge, digitalization and green growth, generating high added value and guaranteeing long-term sustainability. The green economy concept centers on the integration of economic development, environmental protection, and social well-being. It emphasizes resource efficiency, the minimization of waste, and the shift towards renewable energy sources. A green economy is characterized by sustainable and environmentally friendly practices that promote economic growth while minimizing negative impacts on the environment. A green economy is an economic system that aims to reduce environmental risks and ecological scarcities while promoting sustainable development. It focuses on creating a balance between economic growth, environmental protection, and social well-being. In the context of agriculture, a green economy involves implementing practices that minimize negative impacts on the environment, conserve natural resources, and promote sustainable food production. It encompasses sectors like energy, transportation, industry, and agriculture, among others. The concept revolves around the efficient use of resources, reduction of pollution, and conservation of biodiversity. This approach aims to decouple economic growth from environmental degradation, promoting sustainable practices that meet the needs of the present without compromising the ability of future generations to meet their own needs. The successful transition to a green economy requires collaboration among government, businesses, and civil society, along with strategic investments and supportive policies. This report delves into the theoretical basis of a green economy, explores its pros and cons, identifies obstacles to its implementation, discusses challenges in the agricultural sector, highlights promising sectors, provides examples of green initiatives in Bulgaria, and on this basis offers guidelines for a more efficient transition.
Keywords: green economy, good practices, sustainable development
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Introduction

The concept of a green economy has gained significant traction as societies worldwide seek to balance economic growth with environmental preservation. Bulgaria, a country known for its rich cultural heritage and diverse natural landscapes, stands at a crucial juncture in its development journey. Embracing a green economy offers Bulgaria the opportunity to foster sustainable growth, reduce environmental degradation, and enhance overall well-being. This report delves into the theoretical basis of a green economy, explores its pros and cons, identifies obstacles to its implementation, discusses challenges in the agricultural sector, highlights promising sectors, provides examples of green initiatives in Bulgaria, and on this basis offers guidelines for a more efficient transition.

General Considerations regarding Green Economy

The term „green economy" was introduced for the first time by D. Pearce in 1989 in his book „Blueprint for a Green economy", which formulated the characteristics and principles of the concept of sustainable development. A. Cameron (2012), E. Barbier (2009), K. Danaher (2007) contributed to the disclosure of the essential characteristics of the green economy. The global economic and financial crisis of 2008 helped to formulate the idea of the Global Green New Deal (GGND). The green economy is proposed as a policy approach to help solve the problems of slowing economic growth and job losses, as well as the continuing deterioration of the quality of the environment and the degradation of ecosystems. The green economy has become one of the pillars of major European and international strategies and can be seen as an approach leading to the achievement of a structural transformation of the economy. The EU has been a driving force behind the promotion of green economy concept. The European Green Deal sets ambitious targets for carbon neutrality, biodiversity preservation, and sustainable resource use. In Bulgaria, the legal framework aligns with EU directives and regulations to ensure a consistent approach. The Biodiversity Act, the Energy Efficiency Act, and the National Renewable Energy Action Plan are examples of Bulgaria's efforts to promote a green economy.

The green economy concept centers on the integration of economic development, environmental protection, and social well-being. It emphasizes resource efficiency, the minimization of waste, and the shift towards renewable energy sources. A green economy is characterized by sustainable and environmentally friendly practices that promote economic growth while minimizing negative impacts on the environment. A green economy is an economic system that aims to reduce environmental risks and ecological scarcities while promoting sustainable development. It focuses on creating a balance between economic growth, environmental protection, and social well-being. In the context of agriculture, a green economy involves implementing practices that minimize negative impacts on the environment, conserve natural re-

sources, and promote sustainable food production. It encompasses sectors like energy, transportation, industry, and agriculture, among others. The concept revolves around the efficient use of resources, reduction of pollution, and conservation of biodiversity. This approach aims to decouple economic growth from environmental degradation, promoting sustainable practices that meet the needs of the present without compromising the ability of future generations to meet their own needs. The successful transition to a green economy requires collaboration among government, businesses, and civil society, along with strategic investments and supportive policies.

Some authors (Danaher (2007), Allan (2021), Bowen (2010), Hardi (1997) consider that the green economy is ecologically sustainable, as it takes into account the limitation of resources and their limited possibilities for self-recovery, as well as the dependence of economic development on natural capital is recognized. The green economy is also socially just, as it aims to create access to resources for all people, improve human well-being at all levels of society and provide opportunities for personal and social development. It is also deeply connected to local conditions, traditions and communities, since a good knowledge of them and consideration of their particularities is a prerequisite for sustainability and justice. The green economy is seen as a global collection of individual communities that meet the needs of their citizens through responsible, local production and exchange of goods and services.

In our opinion, part of the international organizations (UN through the Global Panel on Sustainability (2012), UN Environment Program(2011, 2012)) best reveal the essence of the green economy, defining it as a potential engine for sustainable development and a stimulator of economic growth, necessary to eliminate poverty. It provides a comprehensive approach to sustainable development by taking into account the needs and characteristics of each community by ensuring social protection and stable development. It can be taken as a model for long-term development that allows crises to be overcome. It requires the application of measures of progress other than gross domestic product, as it sends accurate price signals for the social and environmental costs incurred and imposes strict accountability allowing accurate reporting of financial results, promotes employment, green business and the creation of green jobs. Its essential feature is the presence of innovations in all spheres, cooperation between institutions and all interested parties, the use of energy from low-carbon and renewable sources and the achievement of high efficiency in the use of resources. The goals are to improve the quality of ecosystems and natural resources, to protect biodiversity by improving environmental management methods.

The green economy model strives for a more balanced portfolio of investments in social, human, natural and financial capital, which also meets the objectives of the concept of sustainable development. This logically leads to the recognition of the importance of market mechanisms, but they are not seen as the only or the best

solution to all problems. The productive power of natural capital is taken into account and used, especially in the development of solutions for that segment of the population whose livelihoods are largely dependent on the access and quality of natural capital and who are often the poorest strata of society. As the poor are most dependent on the access and quality of natural resources for their livelihoods, the green economy is seen as a means of achieving equitable and inclusive growth.

The pros and cons of this concept can be summarized as follows:

Pros:

- ✓ Sustainability: A green economy ensures the long-term viability of economic activities by minimizing their ecological footprint.
- ✓ Job Creation: Investments in renewable energy, sustainable agriculture, and green technologies can create new employment opportunities.
- ✓ Innovation: Green economy practices encourage innovation and the development of eco-friendly technologies.
- ✓ Resilience: By reducing reliance on finite resources, economies become more resilient to supply shocks and price fluctuations.
- ✓ Environmental Benefits: Reduced pollution, improved air and water quality, and conservation of biodiversity contribute to healthier ecosystems.

Cons:

- ✓ Transition Costs: Transitioning to a green economy requires initial investments and changes in established practices.
- ✓ Job Disruption: Certain sectors may experience job losses as traditional industries evolve or decline.
- ✓ Technological Challenges: Developing and implementing green technologies can present technical and logistical challenges.
- ✓ Policy Complexity: Crafting effective policies to incentivize green practices while maintaining economic growth can be complex.

Several obstacles hinder the widespread adoption of green economy principles in Bulgaria and particularly in the agricultural sector:

- ✓ Lack of Awareness: Many farmers, citizens, businesses, and policymakers may not fully grasp the benefits and urgency of transitioning to a green economy and this could limit the understanding of green economy concepts among stakeholders and can hinder its adoption. Many farmers might not be fully aware of the benefits of green practices or might be resistant to change due to unfamiliarity.
- ✓ Financial Barriers: Insufficient funding and limited access to green financing options can impede the adoption of sustainable practices. Transitioning to greener practices often requires upfront investments in technology, training, and infrastructure, which can be a barrier for some farmers.
- ✓ Infrastructural Gaps: Outdated infrastructure may not support the requirements of renewable energy integration or resource-efficient practices. Some regions

might lack access to necessary resources, such as renewable energy infrastructure or advanced farming technologies.
- ✓ Policy Fragmentation: Inconsistent policies across different sectors can create confusion and hinder a cohesive transition.
- ✓ Resistance to Change: Industries reliant on conventional practices may resist adopting new, greener methods due to uncertainties or vested interests.

The following difficulties are very important for the agricultural sector and impede its transition to a green economy:
- ✓ Dependency on Conventional Practices: Traditional farming methods may rely heavily on agrochemicals and resource-intensive processes.
- ✓ Knowledge Gap: Farmers may lack information about sustainable practices and their benefits.
- ✓ Economic Pressures: Low-profit margins can discourage farmers from investing in costly sustainable technologies.

Good practices for the development of the Green economy activities in Bulgaria

Certain sectors in Bulgaria are well-suited for green economy implementation:
- ✓ Renewable Energy: Bulgaria's potential for solar, wind, and hydroelectric power makes renewable energy a promising sector, which could power both agricultural operations and local communities. Moreover expanding wind, solar, and hydropower capacity to reduce greenhouse gas emissions and promote energy independence.
- ✓ Tourism and Ecotourism: Leveraging Bulgaria's natural beauty can drive sustainable tourism growth. The country's diverse landscapes and natural beauty provide opportunities for sustainable tourism linked with agriculture, such as farm stays and agri-tourism. Developing sustainable ecotourism and promoting responsible travel can boost local economies while preserving natural resources.
- ✓ Waste Management: Developing efficient waste management systems can lead to resource recovery and reduced pollution and generated economic value. Developing innovative solutions particularly for agricultural waste management and recycling can have very high positive economic and environmental impacts.
- ✓ Circular Economy: Focusing on recycling, reusing, and reducing waste can drive economic growth while minimizing environmental impact. Establishing systems for reducing food waste and promoting local, sustainable supply chains.
- ✓ Sustainable Agriculture: Supporting organic farming, agroecological practices, and local food systems can enhance biodiversity and food security.
- ✓ Sustainable Forestry: Managed forestry practices that prioritize biodiversity and carbon sequestration can contribute to both the economy and the environment.

There are well defined possibilities for Green economy concept implementation in Agriculture, such as:

- ✓ Sustainable Farming Practices: Implementing techniques such as agroforestry, organic farming, crop rotation, and precision agriculture to reduce the use of chemicals and promote soil health.
  - Shifting towards organic practices eliminates the use of synthetic pesticides and fertilizers, promoting healthier ecosystems and producing more nutritious food.
  - Precision Agriculture implements technology to optimize the use of water, fertilizers, and pesticides, reducing waste and minimizing environmental impact.
  - Agroforestry integrates trees with crops or livestock can provide multiple benefits such as carbon sequestration, improved soil quality, and diversified income sources
  - Agroecology via application of ecological principles to agriculture can be reduced the reliance on synthetic inputs, enhanced biodiversity, and improved soil health.
- ✓ Renewable Energy Integration: Using renewable energy sources like solar panels and wind turbines to power farm operations, reducing reliance on fossil fuels.
- ✓ Water Conservation: Implementing efficient irrigation systems and water management practices to reduce water usage and minimize runoff.
- ✓ Biodiversity Conservation: Creating wildlife corridors, preserving natural habitats, and using native plants to support biodiversity on agricultural lands.
- ✓ Waste Reduction and Recycling: Properly managing farm waste through composting and recycling, and reducing plastic and chemical waste.
- ✓ Local Food Systems: Focusing on local production and distribution reduces the carbon footprint of food transportation and supports local economies.

The Green economy seeks the balance between economic growth, social development and environmental protection. The problem is in their implementation, because they face resistance from existing practices, and hence the need for systemic changes in management, the value system and consumption patterns. Bulgaria, like many countries, has been exploring ways to transition to a green economy. In the context of agriculture, the country has the potential to leverage its natural resources and biodiversity to promote sustainable practices. Here are some socially responsible strategies applied by Bulgarian companies in the agricultural and food sectors mainly:

Biomic is a biotech startup revolutionizing packaging. The company offers packaging inspired by natural processes. The company takes the green approach and use tobacco stems binds with mushroom mycelium or agricultural crop residue, to develop a composite material that rivals plastic foams from unused or waste resources. Creating products made from environmentally friendly ingredients without the addition of synthetic ones results in biodegradable products which reduce the harmful impact on the environment. They have developed two products – a sustainable transport packaging solution that looks like EPS (Expanded Polystyrene) but is entirely biodegradable and a furniture fiberboard that contains 70% less timber and no petroleum-based adhesives.

Nasekomo are another such example. The first biotech company in Eastern Europe to produce fodder from insect black fly (Hermetia illucens). The team has found a solution how to produce food again from organic food waste using a natural mechanism. Currently, Nasekomo's product is concentrated protein. Suitable for feeding aquatic crops and pets. Their goal is to build their first industrial factory because this is an industry with huge potential.

Zero Wave – a company that is involved in the production of biodegradable tableware, crackers and flour from a material that is thrown away and treated as garbage – the residual malt after the production of beer. And with each package you „save" 100 g of malt from being thrown away. They come in several flavors – sunflower seeds and sun-dried tomatoes, pumpkin seeds, white and black sesame.

Cupffee, a Bulgarian edible cup producer, produces cookie cups made from natural grain cereal and allow users to enjoy beverages with temperatures as high as 85 degrees Celsius. Cupffee already has its own production site.

The Harmonica company makes a beer with the wonderful name „From nothing – Something", because they produce craft beer from bread that has not reached the table. To make it, in addition to the familiar Bulgarian barley malt, German yeast and hops, they also use a special ingredient – unsold bread with which they replaced 20% of the malt in the recipe. In this way, new life is breathed into a completely edible food product that would otherwise end up in the trash. Beer is offered in 3 variants – light and dark ale, and wheat beer.

Pollenity (Bee Smart Technologies) has been developing lot of products for beekeepers helping to prevent bee extinction. Beebot – the main product of the company has a set of sensors that could be installed in hives and would allow beekeepers to remotely monitor the conditions in the hive. It measures and analyses key parameters from inside the hive and sends the beekeeper alerts when the interaction is needed.

Sea Harmony is creating farms designed to restore rather than deplete marine life. The company has developed a vertical reef mussel-farming technology and has installed its reefs on 13 locations already. The farms are made from durable materials that do not emit pollutants into the water. They can be placed in the open sea, so they do not disturb boat traffic. The mission of the team is to bring marine life back to the „Dead" zones, restoring the food chain and all of its participants: mussels, shrimps, and fish.

The company „Biopak" offers and distributes ecological packaging as a substitute for disposable packaging in the production of food and beverages. The materials that are used are completely biodegradable – paper, cardboard, bioplastic from corn and one that is resistant to high temperature.

Nordic Oral Care started with the production of degradable bamboo toothbrushes and evolved to a developer of diverse sustainable daily hygiene products such as toothpaste, dental floss made of corn starch, bamboo cotton buds, and recently – straws. Their mission is to present a new approach to everyday dental hygiene.

In order to successfully meet the EU's goals for efficient use of resources by 2030, the implementation of Green economy concept should become a state priority. It is not enough to increase energy efficiency or reduce emissions, although these are also significant steps. It is necessary to expand the concept, but also to increase consumer and producers awareness, to support innovations. There is significant potential to increase the awareness and ambition of SMEs to increase their resource efficiency and develop products and services for green markets.

In order successfully to implement the Green economy concept in Bulgaria the following guidelines for efficient Green Economy Development can be summarized:

1. Education and Awareness: Implement comprehensive public awareness campaigns to educate citizens, businesses, and policymakers about the benefits of a green economy.
2. Financial Support: Establish accessible green financing options and incentives to assist businesses and individuals in adopting sustainable practices.
3. Policy Integration: Develop cross-sectoral policies that align with green economy principles, promoting a cohesive transition.
4. Capacity Building: Provide training and resources to farmers and businesses to facilitate the adoption of sustainable practices.
5. Innovation and Research: Invest in research and development to spur innovation in green technologies and practices.

Conclusion

Implementing a green economy in Bulgaria holds the promise of a sustainable and prosperous future. By capitalizing on the nation's strengths and addressing its challenges, Bulgaria can forge a path toward economic growth while preserving its natural heritage for generations to come. Through collective effort, informed policies, and innovative practices, Bulgaria can serve as a shining example of a country committed to harmonizing economic advancement with environmental stewardship. The transition to a Green economy allows Bulgaria to transform its own economy – from a low-efficiency and resource-intensive one to an economy based on knowledge, digitalization and green growth, generating high added value and guaranteeing long-term sustainability. This will allow finding a balance between economic growth, the health of ecosystems and social development.

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