The Concept Of Green Economy As a Challenge and Development Guideline of Gorski Kotar

Mirjana Kovačić,[1] Ana Perić Hadžić,[1]
Srđan Kerčević [2]

[1] University of Rijeka, Faculty of Maritime Studies, Rijeka, Croatia
mirjana051@gmail.com, ana.peric@pfri.uniri.hr
[2] University of Rijeka, Faculty of Tourism and Hospitality Management, Naselje Ika, Opatija, Croatia
srkercevic@gmail.com

The passage of time brings a pronounced trend of population decline but also prolongation of life span. The share of the third age population is increasing, and the gap between the rich and the poor is growing. There is also the problem of rural areas lagging urban areas and depopulation, which is not only a problem of the hilly and mountainous region of Gorski Kotar (GK) but is also present in the most developed countries of the European Union (EU). The current socio-economic model is not sustainable in the long term and innovative / different solutions are needed. One of these solutions is the application of the green economy (GE) concept, which links the stimulation of economic growth and job creation with increased care for environmental protection and equality, efficient use of resources and social inclusion. The paper explains the basic determinants, principles, and goals of the GE, as well as the most important challenges in the field of energy transition and establishing a circular economy. The authors analyze needs and potential in the field of sustainable environmental management in GK. Thematic areas were identified as key development challenges. The authors explain the advantages of green construction and emphasize the importance of regional connectivity and mobility. The presentation of the research results is summarized in the SWOT analysis.

DOI
https://doi.org/10.18690/um.fov.2.2025.36

ISBN
978-961-286-963-2

Keywords:
green development, green economy, needs and potential, challenges, Gorski Kotar

University of Maribor Press

1 Introduction

The rural areas of the EU are crucial for green transition, and represent a significant opportunity for job creation, the fight against the abandonment of rural areas and the mitigation of depopulation. This includes harnessing the potential of the bio and circular economy to stimulate economic diversification and create quality jobs, especially in the transition to a carbon-neutral and sustainable bioeconomy.

The GK microregion is in the western part of Croatia and is one of the three microregions of the Primorje-Gorski Kotar County (PGC). According to the Law it is an area of interest and under special national protection to encourage demographic renewal, settlement and the creation of assumptions so that natural and other economic resources can be used as efficiently as possible for economic development while preserving biological and landscape diversity. Negative demographic trends in GK represent a threat to the local economy and in the long run can become a significant limiting factor in the County's economic and social progress. In this sense, the application of the GE concept offers solutions that contribute to low-carbon development, with the aim of efficient use of resources. The authors especially emphasize social justice and social inclusion, with increased concern for environmental protection.

This paper will provide an overview of GK with elaboration of potential development challenges and implementation of the GE measures in different sectors to boost the microregions' economic potential and retain people.

2 Conceptual Framework of Green Economy

In recent decades, along with the blue economy, green development, GE, and green growth have been emphasized (Neusteurer, 2016; Gavrić et al, 2019; Denona Bogović, et al 2000. Kovačić et al, 2021) as synonyms of the transition towards sustainability. It is one of the directions of development that is often promoted and emphasized as desirable and necessary. The GE offers a solution to certain problems that have been caused throughout the century. Namely, a great dependence on fossil fuels that has been created. However, the GE sometimes does not fulfill its ultimate purpose since it uses economic and business models that promote profit maximization at any cost, and the rule of money over product and person. The above

includes projects that are economically and energetically self-sustaining, while trying to shift the focus from large utility projects (for example, high-power wind farms or photovoltaic systems) that often bring profit to private investors. However, the emphasis is and should be on projects of the same or smaller scale, but which creates a greater economic benefit for the local community. Therefore, it is important to make responsible (political) decisions that will support the transition to technologies and activities with less carbon emissions and pollution.

As early as the eighties of the last century, awareness about the need to change the existing model of economic development, with a more rational use of limited, non-renewable resources, with the aim of reducing harmful effects on the environment began to develop. It became evident that economic development cannot be stopped, but it was necessary to change direction and move to sustainable models of development and lifestyle. The well-known concept of sustainable development, at the time a new development model, emphasized the importance of parallel consideration of economic, social and environmental requirements in order to ensure "meeting the needs of the present generation without jeopardizing the ability of future generations to meet their needs". (Bruntland Report, 1987.).

The term GE also appears in the 1980s. According to Neusteurer (2016), the term was mentioned for the first time in the Blueprint for a GE report prepared in 1989 for the needs of the British government. The use of the term grows slowly until the global economic crisis of 2008, when its more intensive use begins. The United Nations Environment Program (UNEP) then promotes the so-called green stimulus packages to avoid a global recession. At the same time, the Global Green New Deal, a planning document of the UN Department of Economic and Social Relations (UNDESA) for climate, energy and development in 2009, brings the first comprehensive presentation of the concept of the GE as a new model of economic development based on the principles of sustainable development.

In the conclusions of the UN Earth Summit conference from Rio in 2012, it is stated that member states should find their own GE models and create long-term plans with clearly defined priorities (which may differ from richer to less rich countries). At the same time, 15 goals for the GE were adopted at the conference. It is clear that the world is dealing with an economy that should generate increasing prosperity, but at the same time maintain natural systems that serve humans. Historically, green

growth has not been a priority. Economic expansion has imposed unsustainable demands on natural systems - both in terms of the amount of resources that are extracted or harvested, and the amount of emissions and waste that the environment is expected to absorb and neutralize. The results come from the fact that growth based on such a form of management cannot continue indefinitely, that is, that the environment has its natural limits related to absorption.

Growth and development are often used as synonyms, even though they denote different processes that usually run parallel to each other. According to the author (Jackson, 2009), growth always means a shift in quantity, a quantitative change. On the other hand, development is a new state to be aspired to, with its positive and negative meanings. However, the fact is that growth ignores the importance that the environment has for people's well-being, while development also includes an environmental component. The goals of the GE can meet the needs of food, transportation, energy and more, in a sustainable and fairer way. The EEA's main report, The European Environment: State and Outlook 2010 (SOER 2010), states that there is a need to ensure a fair distribution of benefits (as well as costs) in the transition to a GE. In this context, the GE can be considered an alternative vision for growth and development, as it can generate growth and improvements in people's lives in ways that are consistent with sustainable development. The GE represents a breakthrough in thinking about growth and development, the production of goods and services, and consumer habits, through well-being, justice, the limits of resource use, efficiency and sufficiency, and a holistic approach to resource management.

It is obvious that the current socio-economic model is not sustainable in the long term and that some new solutions are needed, and one of them is precisely the concept of the GE. One of the tools available to achieve the goals of the GE is the circular economy, which promotes practices such as sharing, renting, reusing, repairing and recycling, in order to extend the life cycle of products and reduce the amount of waste. The circular economy is an important segment of the economic recovery of the EU. The European Commission (EC) adopted the Action Plan for the Circular Economy, which is one of the main components of the new European Green Plan, which aims to prepare the economy for a green future, strengthen competitiveness, protect the environment and give new rights to consumers.

3 Microregion Gorski Kotar Analysis

The analysis of the GK microregion contains a general description of the area, location and population, as well as a development index. Development needs and potentials are explained and the most important development determinants in the field of sustainable environmental management and circular economy, sustainable transport and green mobility, energy transition and low-carbon development and green construction are highlighted. The future development of tourism in the context of a holistic approach is also considered. Special emphasis is placed on social innovations and smart development as support and implementation of technological solutions in function of the quality of life of the population.

3.1 Location, population, development index

According to the NUTS 2[1] classification, GK belongs to Adriatic Croatia, and according to the NUTS 3 classification to PGC. Administratively, it is divided into 6 municipalities (Mrkopalj, Lokve, Brod Moravice, Skrad, Ravna Gora and Fužine) and 3 cities (Delnice, Čabar and Vrbovsko). According to the data of the Geoportal (2024), GK has an area of 1,273.1 km^2, which is 35.5 % of the land territory of the County. According to the 2021 Census, 265,419 inhabitants lived in PGC, of which 19,032 (7,42 %) inhabitants lived in the microregion of GK. The decrease in the number of the County in the past decade (2011/2021) was 9.91 %. In the same period, the decline in the population of GK amounted to 17.29 %. The percentage decrease in the number of inhabitants in the County was greater than the percentage decrease in the County's population, which reduced the share of the County's population in the total population from 7.77 % to 7.14 %. The microregions' population density in 2021 was 14.95 inhabitants per km^2, while in the County it was 74.28 inhabitants per km^2. It follows that the GK district is 5 times less populated than the county average. Compared to the base year of 1991, the number of inhabitants in the municipality of Mrkopalj and the town of Vrbovsko decreased by 50 % over the 30 years, while the smallest decrease of 25 % was recorded in the town of Delnice.

[1] The nomenclature of spatial units for statistics, known under the acronym NUTS, is a statistical classification that serves for the collection, processing, analysis and publication of statistical spatial data at the level of the European Union.

All local units from the GK area belong to the hilly-mountainous area, of which the municipalities of Lokve, Mrkopalj, Skrad, Brod Moravice and the cities Čabar and Vrbovsko belong to assisted area, while the others are in the group that according to the value of the Development Index are in the third and the fourth quarter of above-average ranked local self-government units. The Development Index is a composite indicator calculated as an adjusted average of standardized values of socio-economic indicators for measuring the development level of local and regional self-government units in each period.

Table 1: Development Index for the local self-government units in Gorski Kotar

National rank of 556	Local self-government unit	Development group	Development index 2024
138	Fužine	6	104,069
153	Delnice	6	103,588
267	Skrad	5	100,036
268	Ravna Gora	5	100,034
285	Čabar	4	99,542
304	Lokve	4	98,864
333	Mrkopalj	4	97,860
393	Vrbovsko	3	95,716
463	Brod Moravice	2	93,459

Source: Adjusted by authors according to the Ministry of the Regional Development and Funds of the European Union of the Republic of Croatia

All cities and municipalities of GK have recorded a decline in the development index compared to the period 2016-2018, except for Skrad which now belongs to 5th development rank. Fužine, Delnice, Ravna Gora, and Mrkopalj have retained their development status, while Čabar and Lokve became assisted area. Vrbovsko decreased to rank 3 of the assisted area, while Brod Moravice significantly decreased status from 4 to rank 2 of the assisted area. Almost all local units of GK, except Delnice and Fužine are assisted areas while Ravna Gora and Skrad are clearly on the edge of becoming one. Therefore, this data just underlines the fragility of the microregion which it is essential to identify the potential and needs and deliver the concrete actions. The evident development trends in the microregion have already been identified since 2014 in the Declaration on the Existence of Gorski Kotar, bearing in mind that active domestic and international measures must ensure the balanced progress of GK. Declaration emphasized all relevant actions from the

regional legislator perspective to be done in order to boost the equal development and prosperity. However, not much since then on the national level has been done.

3.2 Development needs and potential

Development needs and potential in GK are recognized through sustainable environmental management, sustainable transport and mobility, energy transition towards low-carbon development and green construction, green/sustainable tourism, smart villages and social innovations.

Sustainable environmental management / circular economy

Sustainable management of the environment and green areas includes the management of forests and waters, protected areas, sustainable agriculture, rural tourism and circular economy, especially in waste management. The maintenance of green areas is of great importance for GK, which contributes to the social and recreational function of the development, which is important for the health and quality of life of the residents. Analysis of the potential of GK in the context of the GE indicates that despite numerous resource opportunities, there are almost no green investments that focus on production processes and technologies based on improving energy efficiency as well as on efficient waste management and recycling. The above points to the importance of greater employment of the working population in secondary sector activities, namely, processing industry, waste management, electricity supply, water supply, air conditioning, and environmental rehabilitation and construction. Innovative design, construction and production of low-energy / green buildings and houses can be drivers of economic activities. The fact is that the possibilities of modular construction with wooden elements allow flexibility in the use of residential spaces, which can easily be converted into business or other spaces. All these activities have many direct and indirect effects, through employment, taxes and others. A significant role is also played by the tertiary sector, namely green/rural tourism, which has all the prerequisites to contribute to the protection of the natural resources of Croatia.

Sustainable transport / green mobility

Of all the forms of the transport system, road and rail transport are the most common form of transport infrastructure in hilly and mountainous areas. In the area of GK, due to the insufficient number of intercity bus lines, the distance and the dispersion of the settlements, road traffic is mostly carried out by private car. Public transport is provided only by bus, mostly for the purpose of children education and mostly for the local population who do not own a vehicle. The process is two-way, so there is an emigration of the population from smaller, remote settlements, and some bus lines are canceled due to economic unprofitability. The lack of transport offer in the context of railway transport is correlated with the distance of the line route from the settlement, the low frequency of departures and the weak transport offer especially in the afternoon, which makes it impossible to transport children and young people to extracurricular activities. Increasing train traffic compared to road traffic would indirectly contribute to less pollution, which, as is known, rail traffic compared to other forms of transport has on the environment. There is great potential in sustainable transport, both in terms of infrastructure and more energy-efficient vehicles.

Energy transition towards low-carbon development / Green construction

The transition of the energy sector in GK still insufficiently includes increasing energy efficiency, developing the energy market, increasing the use of renewable energy sources (RES), especially water and wind, and increasing the quality of energy management. At the same time, with the use of new (smart) technologies, it is important to raise the level of information of the population and entrepreneurs/economy. Energy efficiency, as the first component of the energy transition with the aim of reducing the need for energy, can significantly contribute to the reduction of production and CO2 emissions. Renewable energy sources (RES) in GK are still an underutilized potential, from the use of energy from the sun, wind, biomass and small watercourses. The installed production capacities of renewable energy sources and cogeneration are modest, and the total installed power is low. Wood, as the main source of biomass, has its limitations, since it is a renewable source of energy only as long as it is used within the limits of the annual cutting mass, which is approximately 569,000 m^3. However, considering the current production, there is still room for encouraging the use of wood-based cogeneration

plants (given the available raw material). A plant to produce pellets is operative in the business zone, products are mostly exported.

In order to increase the use of renewable energy sources, the possibilities for development of small hydropower plants (up to 10 MW) in the area of GK is great. Planned locations for the construction of small, mini and micro hydropower plants have already been determined in the entire water supply system managed by the utility company. In the transition from non-renewable to the use of renewable energy sources, in consumption patterns and the use of recyclable materials, technology and energy efficiency are significant drivers. However, the challenge will be the development of the necessary expertise, implementation of knowledge and influencing changes in the population's behavior and habits, given that there is a long-term practice of unsustainable energy use.

Green construction

Although a green building is a building that, through its design, construction or operation, reduces or eliminates negative impacts and can create positive impacts on the climate and natural environment (Ying et al, 2021, Yin et al, 2024). The authors Bungau et al. (2022) emphasize that green buildings preserve precious natural resources and improve the quality of life. There are several features that can make a building, green. According to the authors (Ying et al, 2021, Bungau et al, 2022) this includes: efficient use of energy, water, wind or sun, good indoor air quality, use of materials that are non-toxic, ethical and sustainable, consideration of environmental issues in design, construction and production, consideration of the quality of life in design, construction and operation, design that enables adaptation to a changing environment. The wealth of wood raw material, its accessibility and the knowledge and skills of wood processing make wood the original building material in GK. Requirements for reducing greenhouse gas emissions in industry also apply to construction as a sector that contributes greatly to environmental pollution. Wood processing requires less cost and energy compared to concrete and steel and creates residues that are used to produce heat and sound insulation and as firewood. The tradition and culture of the manufacturer would certainly contribute to the functionality, reliability, quality and promotion of such products. This is precisely the opportunity for innovative projects and employment of young people in jobs where smart/technological, innovative and functional solutions are sought.

Green/rural tourism

Croatian Institute for Tourism created the Action Plan for the Development of Green Tourism (2016), which states that green tourism is not a special type of tourism, but a concept of green development, which should be included in all levels of tourism planning and tourism development of GK (2016). Green tourism is rapidly developing under the influence of the growing tourism industry's great pressure on the environment, but also the increasing demand for green tourist destinations. The development of green tourism depends on various stakeholders in the area of GK, decision-makers and GK Tourist Board. Destination management should look at the development of green tourism in terms of creating a stimulating environment that will provide support to all stakeholders in the greening of tourism. The negative implications of tourism for the environment and the connection between environmental elements and tourism development are known. The development of green tourism should be defined by certification of tourist facilities or the destination as a whole. Green certificate (Dias et all, 2024) is confirmation that the destination or business entity behaves responsibly towards the ecological, economic and social environment and invests financial and non-financial resources in reducing its own negative impacts on the environment, as well as in meeting the needs of tourists. Gorski Kotar tourism development master plan issued in 2020 is an important document for the development of green tourism. However, each destination is unique, so it is necessary to consider the specifics and challenges in order to create an environment for the development of green tourism in the area of GK.

Development of smart villages

The initiative to develop smart villages in the EU was launched with the aim of improving the quality of rural life and solving the problem of depopulation and an aging rural population. The standard of living is on average lower in rural than in urban areas. The level and quality of education and healthcare is also lower, and economic activity is weaker. The idea is to enable the local population, which is best acquainted with the possibilities and needs of their community, to self-initiatively join and direct their own social and economic development with the use of innovative solutions and digital technologies. According to the definition in the EU Action For Smart Villages (European Commission, 2019), Smart villages are rural

areas and communities that develop based on their own advantages and territorial wealth, using new opportunities to create added value. Communities in which traditional and new networking is supported by means of digital technologies, innovations and smart use of available knowledge for the benefit of its residents**.** According to the authors (Guzal-Dec et al, 2018, Emerllahu et al, 2024) this implies: the fact that the community is managed by the residents jointly and on their own initiative, innovative use of technology with the aim of improving services and quality of life, long-term development consideration, creation of new forms of cooperation and partnerships, reflection on the development of one's own environment.

In 2019, the EU Parliament accepted Smart Villages as a new concept for the development of rural areas in the EU Multiannual Financial Framework 2021-2027. and decided on this concept financing. Respecting the fundamental determinants of this concept in GK, the following effects can be achieved:

- better access to public services,
- digitization and diversification of local entrepreneurship, creation of sectoral, innovation and development centers, creation of new quality jobs and remote work opportunities,
- development of short food supply chains and innovative agricultural models,
- better use of renewable energy sources and greater energy efficiency,
- development of the GE,
- preservation of the environment and biological diversity and better adaptation to climate change,
- better daily connectivity within the microregion and surrounding urban areas,
- greater participation of residents in the adoption and implementation of development plans.

Rural areas across Europe are undergoing strong changes. The challenges are great, but at the same time it is an opportunity for rural areas to participate almost equally in business and other activities like urban areas. For the residents of GK, it is an opportunity to improve the quality of life and business and retain young residents.

Social innovation / smart development

In the context of green public administration, efficiency and effectiveness are important from the aspect of the speed of implementation of administrative procedures and the capacity to attract investments. However, the introduction of green practices in business, as well as responsible reporting, are of particular importance to GK. Technological and social innovations according to the authors (Raworth et al, 2014, Moulaert, 2017, Broughel et al, 2019, Selvakkumaran, 2021) are important from the aspect of improving and improving public and other services, with the purpose of improving people's quality of life.

Technological innovations in the field of GK have not yet taken root, in such a way that they offer practical and immediately applicable solutions, and the ecological and social aspect is also often missing. Social innovations should result in meeting the social needs and demands of residents and improving the quality of life. They should also contribute to the efficient use of resources (human, financial and other) and encourage more individuals and communities to act as co-creators and solve problems. In this sense, social innovations can have a positive effect on employment, mitigating the aging of the population, access based on social needs (health, education, transport, public availability of services and others).

4 Development challenges

Summarizing the development needs and potential in GK, thematic areas set as key development challenges were defined. The above includes functional settlements and sustainable lifestyle, solutions based on nature, circular and GE, and inclusive city / region, emphasize green construction, and social and other connectivity and more efficient mobility. There are many challenges, but the transformation towards sustainability and a higher quality of life for the residents of GK has already begun with the implementation of certain green policies.

Functional settlements are not just a modern concept, they are policies and interventions that encourage the development of local settlements and connected neighbourhoods in the populated area. The challenge for the residents of GK is reflected in the fact that it is necessary to improve a functional community where people can live, work and access basic services without having to travel long

distances. The availability of smaller offices, co-working and business spaces can offer proximity to workplaces or the possibility of working remotely. Better understanding and management of spatial plans, energy communities and care for green areas are important development determinants for GK.

Sustainable lifestyles appear for the first time in the sustainable development goals of the United Nations program, through goal 4. Education and goal 12. sustainable production and consumption. Everyday behavior patterns that reduce the negative impact on the environment and support the quality of life are present through three levels. For the residents of GK, the above means improving the way of life by being aware of the influence of the choice of homes and their construction, food and clothing, means of transportation and free time organization. The public administration is faced with making decisions and improving the infrastructure that supports changes in citizens' habits and acceptance of innovations. A sustainable lifestyle for residents of GK includes self-sufficiency in food production through incentives for sustainable agriculture development, use of eco products, movement/recreational and other activities of the population, quality of life (environment, age of the population, health, housing, income).

A connected city / region as a concept implies the introduction of technologies for data collection and their networking in order to make decisions that will contribute to direct and indirect effects and savings. Considering the size of the cities and municipalities of GK and the number of inhabitants, better connectivity would enable residents to more easily integrate into the community, better communication, saving resources and more efficient use of public services. In doing so, digital tools can be used to improve communication with residents and contribute to efficiency in the management of infrastructure and public services.

Mobility is of great importance and should be people-centered, especially in areas of low population density, dispersed workplaces and services where private car transport is the only means of most travel. In the area of GK, public transport is expensive and economically unsustainable, walking and using bicycles are limited by long distances and weather conditions. Better mobility is the biggest challenge for GK residents. It is important to improve the quality of public transport / connection of local government units, activate on-demand transport, start activities on appropriate rail connections, increase the use of digital infrastructure, etc.

By implementing **the principle of clean construction** in GK, the use of local materials with low carbon content and biomaterials such as wood will be promoted. One of the challenges in the transition to clean construction is encouraging the reuse of construction materials in construction and renovation works.

Green buildings and energy make it possible to reduce the low-carbon footprint on the natural environment. Gorski Kotar is facing a big challenge in how to better implement measures of energy efficiency, water conservation and air quality. The starting point is a holistic approach to facility planning, design, construction and maintenance. It is known that practices, technologies and materials that reduce its negative impact are available for all phases of the object's life cycle. As an example, collected rainwater and filtered gray water can be used to irrigate gardens and flower beds. The economic benefits of implementing green construction are also manifested through a higher property value, which is achieved through optimized use of resources and better building quality.

Circular resources represent a transition to the use-reuse-renewal paradigm, which is the basis for ensuring a sustainable future of GK. According to the authors (Velenturf et al, 2021, Ristić Trajković, et al, 2024) the introduction of the circular model begins with raising awareness and public communication about the circular economy, educations with the cooperation of educational and research institutions, the media and civil society. It continues at the level of households that actively participate in the recovery of materials. The transition from a linear to a circular process can be/will be encouraged by presenting new construction technologies, providing subsidies for energy efficiency measures in residential buildings, and more. Public administration in GK is expected to be open to testing and experimenting with new circular concepts, approaches and business models.

As stated by the authors in their research (Sowińska-Świerkosz et al, 2022, Ristić Trajković, et al, 2024, Dunlop et al, 2024), **nature-based solutions** are activities that serve to protect, sustainably manage and restore natural or modified ecosystems that are effectively and adaptively dealing with social challenges, while simultaneously benefiting people and biodiversity. They are supported by the benefits of healthy ecosystems and address major challenges such as climate change, disaster risk reduction, food and water security, and health are crucial for economic development. The challenge and purpose of the policy „a place for all“ for GK

assumes the creation of a safe, attractive and healthy area for living. The policy of a place for everyone is important for the revitalization of underutilized areas of GK. By conducting a greater number of activities and creating new, innovative content, public space must provide equal access and equal opportunities for everyone.

Having in mind that GK is truly rich of natural resources and has a huge potential for clean growth, the microregion still lags behind regarding the infrastructure and industry, while industry is focused mainly on processing industry (mainly wood). In order to reach environmental first preservation, and secondly goals, one of the potential solutions could lead to **green taxation**, often referred to as environmental taxation, which according to Thanasas (2024) involves the imposition of taxes on environmentally harmful activities such as carbon emissions, pollution, and resource extraction. This form of taxation is designed to provide economic incentives for individuals and businesses to adopt more sustainable practices and reduce their environmental impact. However, the grand question still remains should (green) taxation be an appropriate measure to tax the pollutants in the fragile environment or should the absence of any taxation deliver results regarding the growth and development of the microregion. Scholars (Hu in Thanasas, 2024) found that green taxation can enhance a country's total factor productivity by encouraging cleaner technologies and more efficient resource use, while at the same time boosting innovation and research that can deliver progress financed by pollutants. However, that policy would perform the full effect for the microregion such as GK, in case of broader fiscal decentralization, where the local communities or local administration could redistribute this revenue to support other policy areas or according to Murauskaite-Bull and Caramizaru (2021) re-invest it social schemes. The revenues from income tax in Croatia are distributed in such a way that the share of the municipality or city is 72%, the share of the county is 16%, and the share for decentralized functions is 12%. However, those requirements have not been met.

5 SWOT analysis of Gorski Kotar

According to many studies, the GE has grown from a trend to an indispensable part of economic development planning. As the authors (Raworth et al, 2014) emphasize, it becomes a structural element that offers a fairer distribution of funds and resources, while at the same time ensuring equality in society and responsible behavior towards the entire community. It redefines the concept of wealth in such

a way that the economic evaluation should also include the values of health and the environment. It also includes the development of human resources, i.e. staff training in the direction of the green economy. GK residents, thanks to their experience and education, can initiate and achieve many changes. Some of the challenges in this sense are sustainable / green tourism, establishment of a green market with indigenous products, green jobs and implementation of new skills, lifelong learning / center for the development of green competenices and skills, transformation of business entities / enterprises, attracting entrepreneurs and craftsmen to green jobs and another. The existence of several EU, national and regional funding opportunities and financing mechanisms represents the solid base for the development of the microregion. However, the impact of those investments remains to be evaluated. The absorption rate of each and the obstacles preventing GK local units to fully implement those resources present the high risk. Therefore, the need for adjusting the grants to the real territorial needs and the stronger fiscal decentralization, should be considered for future actions. However, the balance between preserving natural resources, and investments that create added value jobs still remain high priority and should not be discouraging factor for the private investments in economic development, but smartly stimulated by smart and green taxation policy that would attract potential investors in the future.

Table 2 : SWOT analysis of Gorski Kotar

	STRENGTH	WEAKNESSES
Location and natural features	- Good traffic (railway and road) connection of the area with the rest of the Republic of Croatia as well as abroad	- Underutilized geographic position of the microregion - Insufficient valorization and economic use of natural heritage
Population and human resources	- Experience and competencies in traditional occupations of GK - forestry, wood industry and eco-agriculture - Active civil sector	- Unfavorable demographic trends and age structure of the population - Negative migration balance - Average net wages below the county average
Economy	- Excursion tourism related to natural resources - The tradition of forestry and wood processing industry - Export-oriented industry, integrated into global value chains - Membership in the Local Action Group	- Below average economic development - Unattractiveness of business zones - Technological lag (industry at the level of industrial revolution 2.0 and 3.0) - Insufficient focus of entrepreneurs on technology and innovation and research

	STRENGTH	WEAKNESSES
Infrastructure	- Road and railway infrastructure - The infrastructure of the protection and rescue system - Recreational and sports infrastructure - Adequate energy infrastructure - Business infrastructure (availability of business zones)	- Insufficiently developed network of water supply systems and drainage and purification system - Insufficient telecommunication infrastructure (there is no optical infrastructure) - Insufficient availability of public transport
	OPPORTUNITIES	**THREATS**
Location and natural features	- Great biological and landscape diversity and wealth - Forest and water wealth	- Climate changes - Inability to manage resources due to centralization (forests, water, state agricultural land)
Population and human resources	- New work opportunities - work from home; - The new generation of traditional occupations is based on advanced technologies, it is an opportunity for the young and highly educated population of GK	- Unwillingness to change and lifelong learning; - Further urbanization of the Republic of Croatia
Education of the population	- Lifelong education through modern communication tools - School in nature as a new educational trend	- Mismatch between the education system and the needs of the economy
Economy	- Proximity to the sea and tourist destinations - Growing popularity of outdoor and eco-tourism - New trends that connect forests, medicine and health tourism - Growth in demand for eco-agricultural products - Potentials for the development of renewable energy sources - The trend of using wood in construction - Green Taxation - Availability of EU, national and regional funds to boost development	- Unfavorable business environment compared to neighboring Slovenia and coast - Insufficient degree of fiscal and functional decentralization and overemphasized role of the central state
Infrastructure	- Global development of MaaS mobility systems	- High costs of maintaining communal infrastructure in areas with low population density

It is evident that there are numerous challenges and opportunities for the further development of GK. At the same time, it is necessary to work on limitations and weaknesses, to implement new solutions and policies that will bring direct and indirect benefits to the entire community. Only through the joint forms of action of

all stakeholders, the development of GK can go in the direction of increasing the quality of life of residents, mitigating negative demographic trends and social progress.

5 Conclusion

Population and depopulation are the most important challenges that calls for a comprehensive approach to the future development of GK. Regions that, like GK, record a significant decrease in the number of inhabitants have a large gap in the provision of social services (health care, cultural events), physical (transportation) and information technology connectivity, education and employment opportunities. Therefore, it is necessary to stop the negative trend mentioned in order to minimize the consequences for the economy, social life and social standard. The implementation of green policies and the concept of GE in the area of GK can reduce negative trends and at the same time stimulate development. It is known that a region cannot be successful if it loses its population. A more developed transport network and better-quality mobility can significantly reduce depopulation by strengthening the connection between rural and urban areas. Rural / eco-tourism and remote work are only some solutions that can play an important role in the economic and demographic revitalization of the GK area.

Acknowledgment

Author Contributions: M Kovačić and S. Kerčević prepared the conceptualisation and methodology. Both was responsible for data collection and data curation. A.Perić Hadžić and S. Kerčević contributed to validating the information, reviewing and editing.

References

Broughel, J., Thierer, A., D., (2019). Technological Innovation and Economic Growth: A Brief Report on the Evidence. Mercatus Research Paper, Available at SSRN: https://ssrn.com/abstract=3346495 accessed 10. 01. 2025.

Brundtland Report (1987). https://www.britannica.com/topic/Brundtland-Report, accessed 8. 01. 2025.

Bungau, C., Bungau, T., Prada, I., Prada, M. (2022). Green Buildings as a Necessity for Sustainable Environment Development: Dilemmas and Challenges. Sustainability. 14. 13121. 10.3390/su142013121. accessed 8. 01. 2025.

Carić, H., Škunca, O. (2016). Akcijski plan razvoja zelenog turizma, Institut za turizam, Ministarstvo turizma RH, 2016, Zagreb, URL: https://mint.gov.hr/UserDocsImages/arhiva/160715_AP_Zelenog_t.pdf, accessed 09. 01. 2025.

Chartier, H. et al. (2021). Green and thriving neighbourhoods Guidebook, URL: https://www.c40.org/wp-content/uploads/2021/10/C40-Arup-GTN-Guidebook_2021.pdf, accessed 7. 01. 2025.
Croatian Bureau of Statistics, URL: https://dzs.gov.hr/vijesti/objavljeni-konacni-rezultati-popisa-2021/1270, accessed 7. 01. 2025.
Decision on the Classification of Local and Regional Self-Government Units According to the Degree of Development, Official Gazette 3/2024
Decision on the scope and classification of local self-government units that acquire the status of a mountainous area, Official Gazette 24/2019
Denona Bogović, N., Šverko Grdić, Z. (2020). Transitioning to a Green Economy—Possible Effects on the Croatian Economy // Sustainability, 12 (2020), 22; 1-19 doi:10.3390/su12229342, accessed 8. 01. 2025.
Dias, F.; Lavaredas, A.M.; Esteves, P. (2024). What Is the Value of an Environmental Certification Label in Tourism Industry? Is It Worth the Effort? *Sustainability* 2024, *16*, 8587. https://doi.org/10.3390/su16198587, accessed 9. 01. 2025.
Dunlop, T., Khojasteh, D., Cohen-Shacham, E. *et al.* (2024). The evolution and future of research on Nature-based Solutions to address societal challenges. *Commun Earth Environ* **5**, 132 (2024). https://doi.org/10.1038/s43247-024-01308-8, accessed 10. 01. 2025.
EEA, 2011. The European environment — state and outlook 2010: assessment of global megatrends. European Environment Agency, Copenhagen, URL: https://temis.documentation.developpement-durable.gouv.fr/docs/Temis/0068/Temis-0068954/19064_megatrends.pdf, accessed 9. 01. 2025.
EEA, URL: https://www.eea.europa.eu/highlights/rio-2012-is-an-opportunity, accessed 20. 01. 2025.
Emerllahu,V., Bogataj, D. (2024). Smart Villages as infrastructure of rural areas: Literature review and research agenda, IFAC-PapersOnLine, Volume 58, Issue 3, Pages 268-273,
EU action for Smart Villages (2017)., https://ec.europa.eu/enrd/news-events/news/eu-action-smart-villages_en.html, accessed 11. 01. 2025.
European Commission (2019). European Green Deal, URL: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_hr, accessed 10. 01. 2025.
European Commission (2020). A new Circular Economy Action Plan, URL:https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC_1&format=PDF, accessed 7. 01. 2025.
Gavrić, O., Mitrovic, D. (2019). Development of Green Economy and Competitiveness of EU Countries: Macro- Level Empirical Analysis. 415-425. 10.5937/EKOPRE1908415G.
Guzal-Dec, D. (2018). Intelligent Development of the Countryside – The Concept of Smart Villages: Assumptions, Possibilities and Implementation Limitations. Economic and Regional Studies / Studia Ekonomiczne i Regionalne. 11. 32-49. 10.2478/ers-2018-0023. https://www.researchgate.net/publication/329521077_Intelligent_Development_of_the_Countryside_The_Concept_of_Smart_Villages_Assumptions_Possibilities_and_Implementation_Limitations accessed 15. 01. 2025.
Horwath HTL (2020). Master plan turističkog razvoja Gorskog kotara, https://gorskikotar.hr/strateski-dokumenti/, accessed 7.01.2025.
https://doi.org/10.1016/j.ifacol.2024.07.162. ; accessed 08. 01. 2025.
International Institute for Environment and Development, URL: https://www.iied.org/earth-summit-2012-crucial-opportunity-needs-broader-buy
Jackson, T. (2009). Prosperity without growth? The transition to a sustainable economy, https://www.sd-commission.org.uk/data/files/publications/prosperity_without_growth_report.pdf, accessed 7.01.2025.
Kovačić, M., Kerčević, S., Burić, E.: Towards the circular economy in Croatia – the perspective of EU Green Deal on regional level // 40th International Conference on Organizational

Science Development: Values, Competencies and Changes in Organizations: Conference Proceedings / Polona Šprajc et al. (ur.). Maribor: Univerzitetna založba Univerze v Mariboru, 2021. str. 463-479 doi: 10.18690/978-961-286-442-2

Kovačić, M., Perinić, L. & Kerčević, S. (2021). Greening the Blue Economy as an Incentive to Sustainable Development of Primorje-Gorski Kotar County. *Pomorstvo, 35* (1), 159-169.

Law on Assisted Areas, Official Gazette 118/2018

Law on Hilly and Mountainous regions, Official Gazette 118/18

Ministry of Regional Development and European Union Funds of the Republic of Croatia, URL: https://razvoj.gov.hr/o-ministarstvu/regionalni-razvoj/indeks-razvijenosti/112, accessed 9. 01. 2025.

Moulaert, F., Mehmood, A., MacCallum, D., Leubolt, B. (2017). *Social Innovation as a Trigger for Transformations. The Role of the Research.* European Commission. doi:10.2777/68949

Murauskaite-Bull, I. and Caramizaru, E. (2021). *Energy taxation and its societal effects*, EUR 30552 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-28371-3, doi:10.2760/223415, JRC123486.

Neusteurer, D. (2016). The Concept of Green Economy and its Role in Hegemonic Neoliberal Capitalism. Socijalna ekologija, 25(3), p. 311-324.

Pisano, U., Endl, A., Berger, G. (2022). The Rio+20 Conference 2012: Objectives, processes and outcomes European Sustainable Development Network Office at the Research Institute for Managing Sustainability, Vienna University of Economics and Business, Vienna, Austria https://www.esdn.eu/fileadmin/ESDN_Reports/2012-June-The_Rio_20_Conference_2012.pdf, accessed 20. 01. 2025.

Primorje-Gorski Kotar County Assembly (2014), Declaration on the Existence, Survival, Development and Progress of Gorski Kotar, Klasa: 021-04/14-01/2; Ur. broj: 2170/1-01-01/5-14-18 Official Gazette of Primorje-Gorski Kotar County, Year XXII. – Number 8., URL https://www.sn.pgz.hr/default.asp?Link=odluke&izdanje=885&mjesto=00001&odluka=53 accessed 20. 01. 2025.

Raworth, K., Wykes, S., Bass, S. (2014). Securing social justice in green economies, URL: https://pubs.iied.org/pdfs/16578IIED.pdf , accessed 10. 01. 2025.

Ristić Trajković, J., Krstić, V., Milovanović, A., Calheiros, C. S. C., Ćujić, M., Karanac, M., Kazak, J. K., Di Lonardo, S., Pineda-Martos, R., Garcia Mateo, M. C., Milošević, D., Milousi, M., Niţă, M. R., Palermo, S. A., Piro, P., Pirouz, B., Siscan, Z., Turco, M., Vaccari, M., ... Đolić, M. (2024). Moving Towards a Holistic Approach to Circular Cities: Obstacles and Perspectives for Implementation of Nature-Based Solutions in Europe. *Sustainability*, *16*(16), 7085. https://doi.org/10.3390/su16167085 , accessed 09. 01. 2025.

Selvakkumaran, S., Ahlgren, E. O. (2021). Understanding social innovation in local energy transitions processes: A multi-case study. *Global Transitions, 3*, 1-12. doi:https://doi.org/10.1016/j.glt.2020.12.001

Sowińska-Świerkosz, B., García, J. (2022). What are Nature-based solutions (NBS)? Setting core ideas for concept clarification, Nature-Based Solutions, Volume 2, 100009, https://doi.org/10.1016/j.nbsj.2022.100009, accessed 7. 01. 2025.

Thanasas, G. (2024) Innovations in Environmental Accounting and Green Taxation: A Narrative Review. *Theoretical Economics Letters*, **14**, 1818-1833. doi: 10.4236/tel.2024.145091.

UNEP, URL: https://www.unep.org/resources/report/global-green-new-deal-policy-brief-march-2009 accessed 20. 01. 2025.

Value of the Development Index and Indicators for Calculating the Development Index 2024, Ministry of the Regional Development and Funds of the European Union of the Republic of Croatia, available at: https://razvoj.gov.hr/o-ministarstvu/djelokrug-1939/regionalni-razvoj/indeks-razvijenosti/vrijednost-indeksa-razvijenosti-i-pokazatelja-za-izracun-indeksa-razvijenosti-2024/5508

Velenturf, P.M. A., Purnell,P. (2021). Principles for a sustainable circular economy, Sustainable Production and Consumption, Volume 27, Pages 1437-1457, https://doi.org/10.1016/j.spc.2021.02.018, accessed 7. 01. 2025.

Yin, S., Wu, J., Zhao, J., Nogueira, M., Lloret, J. (2024). Green buildings: Requirements, features, life cycle, and relevant intelligent technologies,Internet of Things and Cyber-Physical Systems, Volume 4, Pages 307-317, https://doi.org/10.1016/j.iotcps.2024.09.002, accessed 7. 01. 2025.

Ying L., Yanyu, R., Umme Marium A., Xiaotong W., Jian Z., Guozhu M., (2021). A comprehensive review on green buildings research: bibliometric analysis during 1998–2018. *Environ Sci Pollut Res* 28, 46196–46214 (2021). https://doi.org/10.1007/s11356-021-12739-7, accessed 7. 01. 2025.

About the authors

Mirjana Kovačić, PhD, full professor at University of Rijeka, Faculty of Maritime Studies. She has contributed to numerous publications focusing on coastal managing, maritime spatial planning (domain), nautical tourism and sustainable, green development. Mirjana is an active member of the Croatian Academy of Sciences and Arts' Scientific Council for Maritime Affairs and the Croatian Scientific Society for Transport.

Ana Perić Hadžić, PhD, dean and full professor at University of Rijeka, Faculty of Maritime Studies. She has participated as project researcher and project manager on several European projects (Erasmus+, FP7, FP6, Interreg, IPA CBC, ESF, Horizon) and many professional projects and studies related to maritime transport, research and industry. She published more than forty scientific and professional papers that directly contributed to debates on transport and logistics, seaport organization and management, ports financing, port economics, PPP in port community.

Srđan Kerčević, Master in Political Science and PhD student of sustainable development management at the University of Rijeka, Faculty of Tourism and Hospitality Management. Srđan is a Member of Team Europe Direct, experienced in political analysis and information and communication. Since 2017 he lectures European Union and International Relations studies at the Faculty of Humanities and Social Sciences University of Zagreb and has coauthored several papers related to EU and sustainable development.