

# Romania: Toward Low Carbon and Climate Resilient Economy

## Benchmarking Study

### What is Green Growth Benchmarking?

**Green growth benchmarking is a country-level diagnostic that helps define a country's strengths and vulnerabilities in adopting a path to greener growth.**

Using a broad set of green growth indicators, this Benchmarking analysis helps to compare Romania (or any other country) with international and regional benchmarks, and on this basis, provides an initial portrait of the country's status, prospects, and challenges with respect to green growth. Green growth starts with a traditional concern about the sustainable use of natural resources, including minerals, water, clean air, and biodiversity, and then adds consideration of the mitigation of greenhouse gas emissions, attention to adapting to a changing climate, and increased focus on innovation and green jobs.

**Is Romania ready for green growth? It is well-endowed with natural resources, but the economy has high emissions intensity and low adaptive capacity to address climate threats. The economy's strengths are in high level of investment in fixed assets, a large share of manufacturing in industry, and energy security. However, economic flexibility needs to improve: better competitiveness, higher exports, and labor mobility are essential. The biggest weakness is the lagging research and development and innovation and knowledge.**

For any individual country, the nature of a greener growth path will depend on its endowments and history, which can position countries quite differently with respect to their current 'greenness' and the potential greening of their growth paths.

**The process of defining a country's green growth path starts with an analysis aimed at mapping the country's current position on a multi-dimensional green-growth chart, with each dimension defined by an indicator of green growth.**



While some aspects of any country's current condition are driven by recent policy choices, many derive from exogenous characteristics such as geography, endowment of fossil fuels, hydropower potential, or forests; and the myriad of distant policy decisions that drove national development to its current levels. These characteristics position countries quite differently with respect to their current 'greenness' and the potential greening of their growth paths.

In considering the complex task of assessing green growth at the country level, the starting point is fundamental to the costs and tradeoffs a country faces in choosing a greener path forward.

The purpose of such analysis is to understand what the country must do to pursue green growth and what policy decisions, investments and institution building need to be undertaken to support green growth efforts. The proposed methodology for such analysis is green growth benchmarking.

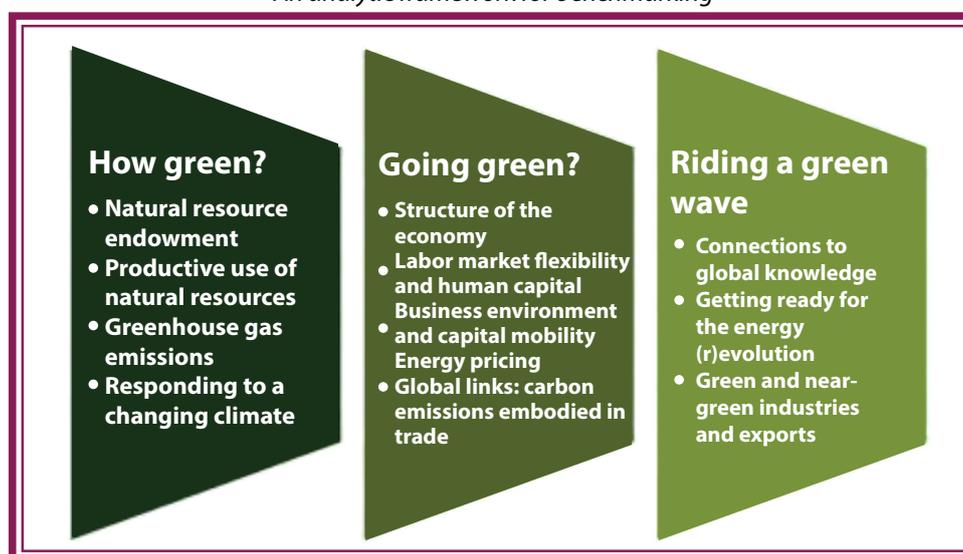
## Methodology<sup>1</sup>

**A framework to define a list of questions key to understanding how Romania or any country compares in an international context is constructed with three considerations: “how green?,” “going green,” and “riding a green wave.”**

This framework is used to guide a benchmarking exercise that maps Romania against comparator countries and country groups using a dataset of more than 100 indicators for 69 countries. Benchmarking can provide a practical starting point for a country’s green growth assessment, with an emphasis on analysis rather than monitoring. Attempting to measure green growth is not new: this methodology builds on existing analysis and applications, but with a new focus. The benchmarking method presented here differs from other green growth indicators in that it has primarily an analytic objective rather than a monitoring one. It also focuses on the economic factors of green growth and the economy’s capacity to absorb the shock of a greening world and climate change using its natural resource endowment, flexibility of the economy, and openness to a technological transition. The three aspects of measuring ‘green-ness’ capture a country’s status, prospects, and challenges with respect to the task of constructing a country-specific green growth path (see Figure 1):

- First, how green is Romania? A country’s natural resources support economic growth, but require investment, maintenance, and good management in order to be productive and contribute to rising output and welfare. How important are natural resources to current growth, and how productively has the country made use of them? Has Romania made progress in decoupling economic growth and emissions? Is the country preparing for the effects of a changing climate?
- Second, what will Romania’s greatest challenges be in going green? Transition to a green growth path is the equivalent of an economic shock, and economies differ in their ability to weather such shocks. Is Romania’s economy flexible enough to succeed in the transition to green growth? Is it diversified, and ready to reap emerging opportunities?
- Third, can Romania ‘ride the green wave’ and reap substantial payoffs from ‘going green’? More rapid green growth is inconceivable without innovation, which can help to decouple growth from the depletion of natural capital and environmental pollution and make it cleaner, resource-efficient, and resilient. Is Romania ready for the surge of innovation?

*Figure 1. Green growth benchmarking is aimed at analysis, not monitoring  
An analytic framework for benchmarking*



Source: Romania: A Climate Change and Low-Carbon Green Growth Country Assessment, World Bank, 2015, forthcoming.

<sup>1</sup>This methodology has been developed by the World Bank.

## Findings

### **Romania is well-endowed with natural resources, which, if used productively, can support strong and sustained economic growth.**

The country possesses fuel and mineral deposits, hydropower and wind power resources, and agricultural and forest lands. In several aspects, Romania's implementation of policies to protect its resources and the relatively high productivity of their usage supports greener growth. However, the country needs significant reforms in agriculture aimed at increased productivity and reduced emissions.

The improved management of forests is also critical for sustaining the quality of this resource and its ability to sequester carbon, and water usage will require better management with climate change.

### **Despite drastic improvements since the early 1990s, Romania's economy has high intensity greenhouse gas emissions and high energy intensity. However, as a member of the EU the country already faces obligations to reduce its emissions.**

In 2010, the emissions intensity of the Romanian economy remained 2.8 times the EU average, and 2.1 times the OECD average.

With the EU's current, imminent, and prospective targets for emissions reduction which will progressively tighten requirements for reducing carbon, Romania needs to make substantial investments, especially in the energy sector, to advance mitigation of greenhouse gases.



### **Making adaptations to protect tomorrow's output from climate damage is also important for Romania, a country more vulnerable to climate change than others in the EU.**

According to the adaptation index, although Romania's exposure (or projected climate variability for future decades) is average, the country has a higher sensitivity to climate shocks owing to current characteristics such as limited water availability, the share of agriculture for the economy, and the susceptibility of infrastructure and the power sector.

Romania's weakest point on adaptation, though, is its adaptive capacity or ability to address climate threats, which requires organizational skills, access to and the ability to use information, and access to financing.

### **A greener world will require economic transition, and successful transformation will depend on the flexibility of the country's economy—its ability to absorb shocks—and its readiness to take advantage of new opportunities.**

A flexible economy has sufficient capital mobility to ease firms' entry and exit, a nimble sectoral structure with a high share of manufacturing and services, developed global links and openness to trade, a flexible labor market including adequate human capital for a modern economy, and a supportive business environment.

Against these metrics, Romania's strengths are its high level of investment in fixed assets, a large share of manufacturing in industry, and good energy security.

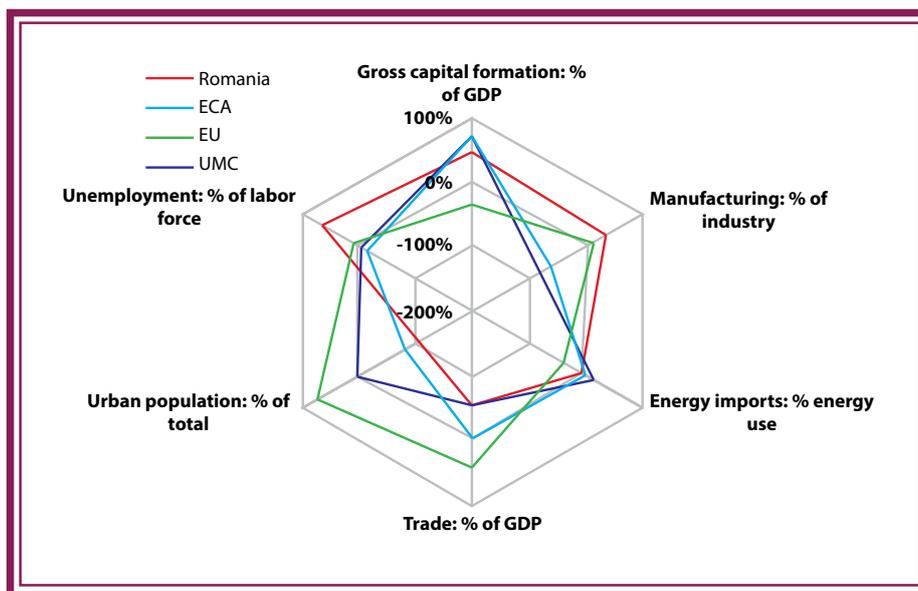
Areas critical to improving economic flexibility are trade openness (strengthening competitiveness and exports) and better labor mobility. Policy reforms would include improving the regulatory environment (especially product market regulation) and liberalizing the labor market. (Figure 2)

**Romania does not appear ready to take advantage of new green opportunities: in research and development indicators and the innovation and knowledge economy, Romania lags far behind the EU.**

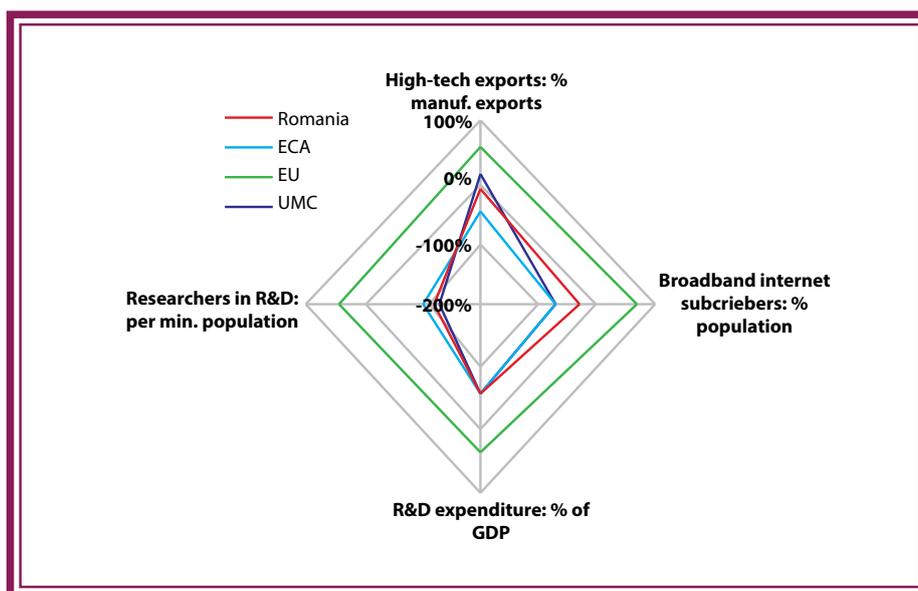
Compared to the EU, Romania significantly underperforms on indicators such as broadband subscribers, percentage of researchers, research and development expenditures, and high-tech goods in manufacturing exports. Research has been consistently underfunded for twenty years or more, which, along with the 'brain drain,' has generated a crisis in Romania's research community.

Romania is ranked last in the EU by the European Commission's Innovation Union Scoreboard. Even against a wider set of countries, Romania's innovation performance is low. According to the Global Innovation Index, Romania ranks 55th among 143 countries evaluated on their innovation capabilities and results.

Figure 2. Benchmarking Romania on the scales of economic flexibility and innovation readiness



a. Going green: economic flexibility is backed by investments, low reliance on primary sectors, and low dependency on energy imports; weaknesses are in trade and rural issues.



b. Riding the green wave: Romania significantly lags behind the EU in innovation and knowledge economy.

How to read the chart: the higher the indicator value, the better the outcome with respect to green growth. Data rescaling makes indicators that are measured in different units comparable, and adjustment of the data sign (+, -) reflects the interpretation of the indicator. ECA is Eastern Europe and Central Asia, a World Bank regional country group; UMC is upper middle-income countries, a World Bank global country group by income, which includes Romania. R&D is research and development. Sources: World Bank databases. Green Growth Benchmarking Technical Report.

## Conclusions and Recommendations

**This benchmarking exercise identified a selected set of issues within the broad green growth agenda which Romania should focus on as it considers how to move onto a greener growth path.**

More investment in maintaining and upgrading some natural assets seems warranted, in particular agricultural land and forests today, and water going forward.

Substantial investments are needed to advance mitigation of greenhouse gases and contain energy demand, especially in the energy sector; the government needs to actively manage the likely impacts of a changing climate on agriculture and water.

To be part of a greening world, policies and investments should foster greater flexibility of the economy, strengthened connections to global knowledge, and the support of innovation.

**A country pursuing green growth might find regular benchmarking analysis of value in identifying emerging green issues.**

This would be the most useful when supplemented with a locally-designed results framework to monitor progress on greening efforts and support the implementation of its national strategies and plans related to climate action, resource use, and sustainability.

With a path already influenced by the requirements of EU membership, this first glance at green growth for Romania indicates complementarity between the short and the long term, with relatively little conflict between policies, and structural reforms that will lead to more vibrant, as well as more sustainable, growth.





UNIUNEA EUROPEANĂ

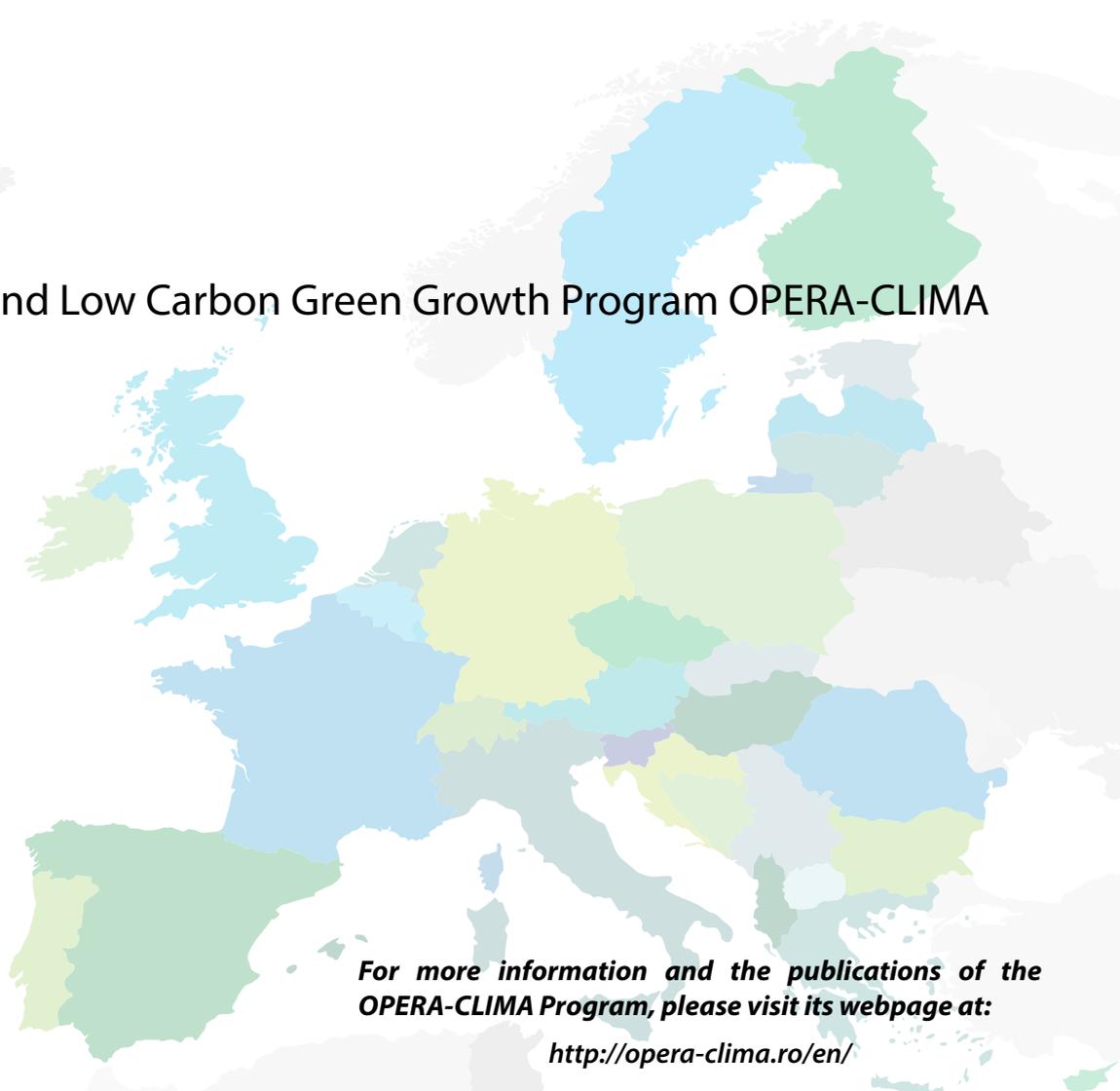


Instrumente Structurale  
2007-2013

Project co-financed by the European Regional Development Fund through OPTA 2007-2013

## Romania:

Climate Change and Low Carbon Green Growth Program OPERA-CLIMA



*For more information and the publications of the  
OPERA-CLIMA Program, please visit its webpage at:*

*<http://opera-clima.ro/en/>*



MINISTRY OF ENVIRONMENT,  
WATERS AND FORESTS



**THE WORLD BANK**  
IBRD • IDA | WORLD BANK GROUP