

STRUCTURAL CHANGES IN THE ROMANIAN LABOR MARKET: NEW OCCUPATIONAL STANDARDS FOR GREEN JOBS AND SKILLS

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ABSTRACT: *This article analyses the structural changes taking place in the Romanian labor market in the context of the green transition, digitalization and the development of the circular economy. These transformations generate new requirements for workers, employers and public institutions, especially in relation to green jobs, green skills, sustainable production, resource efficiency, renewable energy, waste management and energy-efficient construction. The aim of the article is to examine the need to update the occupational framework in Romania by introducing new occupational standards for green jobs and by strengthening the connection between labor market needs, vocational training and public employment policies. The research is based on a theoretical and descriptive approach, using specialized literature, national and European strategic documents, occupational classifications and policy reports. Special attention is given to the role of the Classification of Occupations in Romania and to its correlation with emerging green occupations, qualifications and skills. The article argues that the development of green jobs requires not only environmental policies and investment programs, but also a coherent system of qualifications and occupational standards. New standards may support the recognition of emerging professions such as circular economy specialist, green skills trainer, waste prevention specialist, recycling process technician, eco-design specialist, energy efficiency technician and sustainability reporting specialist. By linking occupations with competences and training outcomes, they can improve employability, support reskilling and prepare the Romanian workforce for future labor market demands.*

Keywords: *Romanian Labor Market, Green Jobs, Green Skills, Occupational Standards, Circular Economy*

JEL Classifications: *J21, J24, J48, Q52.*

1. INTRODUCTION

The Romanian labor market is undergoing structural transformation under the influence of digitalization, demographic change, technological innovation, the green transition and the

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circular economy. These changes affect not only the number of jobs available, but also the content of occupations, the skills required by employers and the way workers are trained and integrated into the labor market. The transition towards a more sustainable economic model has become an important driver of labor market change. Environmental protection, energy efficiency, waste reduction, renewable energy, sustainable construction and circular economy practices influence employment, education and vocational training. As a result, traditional occupations are being transformed, while new occupations are emerging in sectors connected with environmental protection and resource efficiency.

In this context, green jobs and green skills have gained increasing relevance. Green jobs refer to occupations that contribute to preserving or restoring the environment, either directly, through activities such as waste management, recycling or renewable energy, or indirectly, by integrating environmental objectives into traditional sectors. Green skills include the knowledge, abilities and attitudes needed to perform work tasks in a sustainable and environmentally responsible way.

The article analyses the structural changes affecting the Romanian labor market and highlights the need to update the occupational framework through new standards for green jobs and green skills. It argues that the green transition should be approached not only as an environmental or economic process, but as a labor market transformation requiring vocational training reform and better coordination between public authorities, employers, education providers and qualification bodies.

2. LITERATURE REVIEW

The structural transformation of labor markets has been widely analyzed in the literature on technological change, skills and employment. A relevant starting point is the task-based approach developed by Autor, Levy and Murnane, who show that technological change does not affect all jobs equally, but modifies the content of work by replacing routine tasks and increasing the demand for non-routine analytical and interpersonal skills (Autor, Levy & Murnane, 2003). This approach is also relevant for the green transition, because many occupations are not disappearing entirely, but are being transformed through new tasks, technologies and skill requirements. Similarly, Acemoglu and Autor emphasize that changes in technologies and tasks influence employment structures, wage dynamics and the demand for skills (Acemoglu & Autor, 2011).

In the context of the green transition, the concept of green jobs has become central to the relationship between employment, environmental protection and sustainable development. One of the most important reference documents is the report *Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World*, published by the United Nations Environment Program (UNEP), the International Labor Organization (ILO), the International Organisation of Employers (IOE) and the International Trade Union Confederation (ITUC), which argues that environmental policies can create new jobs, transform existing occupations and support decent work if they are accompanied by adequate social and labor market policies (UNEP et al., 2008). The International Labor Organization also defines green jobs as jobs that contribute to preserving or restoring the environment, either in traditional sectors such as agriculture, manufacturing and construction, or in emerging sectors such as renewable energy, waste management and environmental services (ILO, n.d.).

The literature also highlights that the green transition creates both opportunities and risks. ILO's global report on skills for a greener future show that the transition to low-carbon and resource-efficient economies requires significant reskilling and upskilling efforts, because workers need to adapt to new technologies, environmental standards and sustainable production models (ILO, 2019).

Academic studies on green employment also underline the difficulty of defining and measuring green jobs. Bowen, analyze green employment from the perspective of workforce composition and show that the “greening” of the economy affects occupations differently, depending on tasks, skills and sectoral characteristics (Bowen et al., 2018). This argument is important for the Romanian case, because green jobs are not yet clearly separated in the national occupational classification, and many of them are identified indirectly through environmental activities, circular economy sectors or EU-funded projects.

The circular economy literature is also relevant for understanding structural changes in the labor market. The OECD argues that the transition towards a resource-efficient and circular economy can influence employment by creating jobs in recycling, repair, reuse, remanufacturing and waste management, while reducing employment in more resource-intensive sectors (Chateau & Mavroeidi, 2020). In another OECD study, Laubinger, Lanzi and Chateau underline that the labor market consequences of the circular transition depend on sectoral shifts, skills availability and the capacity of public policies to support workers affected by change (Laubinger et al., 2020).

At European level, policy documents increasingly connect green jobs with skills, competitiveness and social inclusion. The Europe 2020 Strategy promoted smart, sustainable and inclusive growth, placing resource efficiency and employment among the main objectives of European development (European Commission, 2010).

The development of green skills is another major theme in the literature and in European policies. Cedefop argues that vocational education and training can support the transition from linear economic models to circular economy models by developing technical and transversal skills required for circular production and consumption (Cedefop, 2023). These skills include not only knowledge of recycling technologies, renewable energy, energy efficiency and environmental standards, but also problem-solving, systems thinking, adaptability and environmental awareness. The European Skills Agenda also emphasizes the need to support skills for the green and digital transitions, including lifelong learning, micro-credentials and closer cooperation between education systems and labor market needs (European Commission, n.d.).

The concept of just transition is essential for understanding the social dimension of labor market transformation. The OECD shows that the green transition has uneven territorial effects and may generate a “green divide” between regions, sectors and workers if it is not supported by local development policies, reskilling programmes and social protection measures (OECD, 2023). This perspective is relevant for Romania, especially in regions affected by industrial restructuring and the transition away from carbon-intensive activities.

In Romania, the policy framework for green jobs was formally developed through the National Strategy for Green Jobs 2018–2025, approved by Government Decision no. 594/2018. The strategy aimed to stimulate entrepreneurship and green job creation, improve skills for green employment and strengthen cooperation between public authorities, employers, education providers and social partners (Government of Romania, 2018). The strategy also referred to the need to identify and register green jobs, which confirms the relevance of updating the occupational framework and improving statistical monitoring.

Romania’s National Strategy on Circular Economy, approved by Government Decision no. 1172/2022, provides another important policy basis. It supports the transition from the linear economic model to a circular model based on resource efficiency, waste reduction, reuse, repair and recycling (Government of Romania, 2022). This strategy is relevant for labor market analysis because circular economy activities can generate demand for new occupations and new competences, especially in waste management, recycling, eco-design, repair, reuse, renewable energy and sustainable production.

Overall, the literature suggests that structural changes in the Romanian labor market should be analysed through the interaction between technological change, green transition, circular economy, occupational standards and vocational training. Green jobs cannot be developed only through environmental investment; they also require recognised occupations, updated qualifications and occupational standards, and a training system capable of developing certified green skills. For this reason, updating the Classification of Occupations in Romania (COR) and developing new occupational standards for green jobs represent necessary steps for adapting the Romanian labor market to future economic and environmental requirements.

3. RESEARCH METHODOLOGY

This article is based on a theoretical, descriptive and qualitative research approach, aimed at analysing the structural changes taking place in the Romanian labor market and the need for new occupational standards for green jobs and green skills. The research does not aim to test a statistical model, but to provide an analytical perspective on the relationship between labor market transformation, the green transition, occupational classification and vocational training.

The methodological approach combines several types of sources. First, the article uses academic literature on labor market transformation, technological change, green jobs, green skills, reskilling, upskilling and just transition. These sources help explain how occupations change under the influence of new technologies, environmental policies and circular economy requirements. Second, the article analyses institutional reports and policy documents issued by international and European organizations, such as the International Labor Organization, OECD, CEDEFOP, the European Commission and the European Training Foundation. These documents provide definitions, policy frameworks and comparative perspectives regarding green employment and skills development.

For the Romanian context, the research is based on national strategic documents, especially the National Strategy for Green Jobs 2018–2025, the National Strategy on Circular Economy, and relevant information regarding the Classification of Occupations in Romania (COR) and occupational standards. These sources are used to identify the extent to which Romania's institutional and qualification framework is adapted to the emergence of green jobs and green skills.

The analysis follows four main directions. The first direction refers to the identification of structural changes affecting the Romanian labor market, including digitalization, demographic change, regional disparities, skills shortages and the green transition. The second direction focuses on the emergence of green jobs and the transformation of existing occupations through environmental objectives and green skills. The third direction examines the role of occupational standards in defining competences, qualifications and training outcomes. The fourth direction analyses the need to update COR and to develop new occupational standards for green jobs.

A specific methodological element of the article is the use of a policy-oriented analytical framework. This means that the research does not only describe existing challenges, but also formulates possible policy responses. Special attention is given to the proposal of introducing new green occupations into COR and developing occupational standards for emerging professions such as Circular Economy Specialist, Green Skills Trainer, Waste Prevention Specialist, Recycling Process Technician, Eco-design Specialist, Energy Efficiency Technician, Sustainability Reporting Specialist and other related profiles.

The research also uses a comparative perspective analysis by relating the Romanian situation to European trends in green jobs, circular economy, vocational training and occupational classification. This approach is useful because Romania's labor market is

influenced by European policy objectives, EU funding programs and the broader transition towards a climate-neutral and resource-efficient economy.

The main limitation of the research is related to the availability of statistical data on green jobs in Romania. At present, Romania does not have a clearly delimited official list of green jobs, and green occupations are not systematically recorded as a separate category in labor market statistics. Therefore, the analysis relies on secondary sources, policy documents, occupational classifications and examples of emerging occupational profiles. Another limitation is that the article does not include field research, interviews or survey data collected directly from employers, training providers or public institutions.

Despite these limitations, the methodology allows a structured analysis of the need to adapt Romania's occupational framework to the green transition. By combining literature review, policy analysis and occupational standard proposals, the article provides a basis for understanding how new green occupations and green skills can support employability, vocational training and sustainable labor market development.

4. STRUCTURAL CHANGES IN THE ROMANIAN LABOR MARKET

The Romanian labor market is undergoing significant structural changes under the combined influence of digitalization, the green transition, demographic pressures, technological innovation and the gradual development of the circular economy. These transformations affect not only the number of available jobs, but also the content of work, the skills required by employers and the way occupations are defined and recognised in the national qualification system.

One of the most visible changes is the transition from traditional occupations, focused mainly on production, maintenance, administrative tasks or manual work, towards occupations that integrate environmental responsibility, digital tools, resource efficiency and sustainability criteria. In many cases, this transformation does not necessarily eliminate traditional occupations, but changes their content. For example, a construction worker increasingly needs knowledge of energy efficiency and sustainable materials, while a waste collection worker may need to understand selective collection, recycling flows and digital traceability systems.

Another important change concerns the growing demand for skills that combine technical, digital and environmental competences. Employers increasingly need workers who can operate modern equipment, understand environmental regulations, use digital monitoring systems, reduce waste, improve energy consumption and contribute to circular business models. Therefore, the Romanian labor market is moving from a model based mainly on formal qualifications and traditional job descriptions towards a model based on competences, adaptability and lifelong learning.

The circular economy plays an important role in this transformation. Activities such as recycling, repair, reuse, remanufacturing, renewable energy, sustainable construction, sustainable agriculture, green transport and environmental reporting generate new occupational profiles. At the same time, they require the updating of existing occupations and the development of new occupational standards. Without such updates, many emerging green jobs remain difficult to classify, measure and support through vocational training programmes.

A comparative view of traditional and emerging occupations shows how labor market transformation takes place across sectors connected with the circular economy.

Table 1. Traditional occupations versus emerging green and digital occupations in circular economy-related fields

Field of activity	Traditional occupations	Emerging green / digital occupations	Main new skills required
Waste management	Waste collection worker; sanitation worker; landfill operator	Waste Prevention Specialist; Waste Flow Coordinator; Digital Waste Traceability Operator	Waste prevention, selective collection, digital reporting, environmental compliance, resource efficiency
Recycling and material recovery	Recycling plant worker; sorting worker; machine operator	Recycling Process Technician; Secondary Raw Materials Quality Controller; Circular Materials Specialist	Operation of recycling technologies, material quality control, sorting systems, circular material flows
Repair and reuse services	Repair worker; mechanic; electronics repairer; furniture restorer	Repair and Reuse Coordinator; Refurbishment Technician; Reuse Centre Manager	Product life extension, refurbishment, reuse logistics, customer-oriented repair services
Manufacturing and industry	Production worker; industrial technician; maintenance worker	Circular Production Technician; Industrial Symbiosis Facilitator; Resource Efficiency Specialist	Waste reduction, cleaner production, industrial symbiosis, energy and material efficiency
Construction	Construction worker; installer; site technician; building maintenance worker	Energy Efficiency Technician; Green Building Specialist; Sustainable Materials Technician	Energy performance, thermal insulation, sustainable materials, building renovation, smart metering
Energy sector	Electrician; energy plant operator; maintenance technician	Renewable Energy Maintenance Technician; Solar PV Technician; Wind Turbine Maintenance Technician	Renewable energy systems, technical monitoring, safety standards, preventive maintenance
Agriculture	Farm worker; agricultural technician; livestock worker	Sustainable Agriculture Technician; Composting Specialist; Biomass Valorisation Technician	Organic farming, composting, soil protection, biomass use, food waste reduction
Transport and logistics	Driver; logistics operator; fleet dispatcher	Green Transport Coordinator; Electric Mobility Technician; Circular Logistics Coordinator	Low-emission mobility, charging infrastructure, reverse logistics, route optimisation
Public procurement and administration	Public procurement officer; administrative officer	Circular Public Procurement Specialist; Green Public Policy Officer	Green procurement criteria, life-cycle costing, environmental clauses, circular economy policy
Business consultancy and SMEs	Business consultant; management consultant; financial adviser	Green Transition Adviser for SMEs; Circular Economy Consultant; Sustainability Adviser	Circular business models, green financing, resource efficiency, sustainability strategy
Environmental management	Environmental officer; environmental inspector	Environmental Data Analyst; ESG and Sustainability Reporting Specialist	Environmental indicators, ESG reporting, data analysis, sustainability compliance
Education and vocational training	Vocational trainer; teacher; career counsellor	Green Skills Trainer; Green Jobs and Skills Counsellor	Green skills curricula, adult training, reskilling, career guidance for green occupations

Product design	Product designer; industrial designer	Eco-design Specialist; Life- Cycle Design Analyst	Eco-design, recyclability, reparability, life-cycle thinking, sustainable product development
Digital services for circular economy	IT technician; database operator; software support specialist	Circular Economy Digital Platform Manager; Environmental Data Systems Operator	Digital platforms, environmental databases, traceability tools, circular economy data management

Source: Author's own analysis

The table shows that structural change is not limited to the emergence of completely new occupations. In many cases, traditional jobs are being transformed by adding green and digital components. This means that workers already active in the labor market need access to reskilling and upskilling programs. For example, a maintenance technician can become a renewable energy maintenance technician, a public procurement officer can specialize in circular public procurement, and a vocational trainer can become a green skills trainer.

This transformation also creates pressure on the education and training system. Vocational schools, universities, adult training providers and employers must adapt their programs to include green competences. At the same time, public authorities need to update occupational classifications and occupational standards so that emerging green occupations become visible in labor market statistics, training programs and employment policies.

The Romanian labor market also faces a deficit of competences in several areas relevant to the green transition. These include technical skills for renewable energy and energy efficiency, operational skills for recycling and waste management, digital skills for environmental monitoring, and transversal skills such as problem-solving, adaptability and environmental awareness. The lack of these competences can slow down the development of green jobs, even when investment opportunities exist.

A specific feature of the Romanian context is that many green jobs are still identified indirectly, through sectors or projects, rather than through clearly defined occupations. This creates difficulties for employers, training providers and public institutions. Employers may need workers with green skills, but the occupational classification does not always provide clear job titles. Training providers may want to develop programs for emerging green occupations, but they need occupational standards in order to design authorized qualifications. Public authorities may support green employment through European funds, but without clear occupational references, monitoring and evaluation remain limited.

Therefore, the structural changes in the Romanian labor market require a stronger connection between economic transformation, occupational classification and vocational training.

5. OCCUPATIONAL STANDARDS AND THE NEED FOR UPDATING COR

Occupational standards play an essential role in connecting labor market needs with vocational training, certification and employment policies. They define the knowledge, skills, competences and work activities required for a specific occupation and provide a basis for developing qualification programmes. In the context of the green transition, occupational standards become particularly important because they can translate broad environmental objectives into concrete professional profiles and measurable training outcomes.

In Romania, the Classification of Occupations in Romania (COR) is the official system used for coding and identifying occupations on the labor market. It is used by employers, public authorities and statistical institutions for registering and monitoring occupations. However, COR does not currently include a distinct and coherent category of green jobs. Many

occupations with a green component are either included under traditional occupational titles or are identified indirectly through sectors such as environmental protection, waste management, renewable energy, construction, agriculture or industrial production.

By comparison, the European framework ESCO - European Skills, Competences, Qualifications and Occupations - provides a more flexible approach to occupations and skills. ESCO identifies and categorises skills, competences and occupations relevant for the European labor market and education systems. Each ESCO occupation is mapped to an ISCO-08 code and includes descriptions, scope notes and lists of knowledge, skills and competences relevant for that occupation (European Commission, n.d.). ESCO has also introduced a specific taxonomy of skills for the green transition. According to the European Commission, this green skills taxonomy includes 381 skills, 185 knowledge concepts and 5 transversal skills relevant for a greener labor market (European Commission, 2022).

This difference is important for Romania because the green transition changes not only job titles, but also the content of existing occupations. For example, a construction technician may need energy efficiency skills, a public procurement officer may need circular procurement competences, and a maintenance technician may need knowledge of renewable energy systems. Therefore, updating COR and developing new occupational standards should not focus only on creating new job titles, but also on recognizing the green transformation of existing occupations.

The need for better correlation between COR and ESCO is already visible. The National Authority for Qualifications provides information on ESCO and its use in Romania, and mapping work between COR and ESCO has already been developed (ANC, n.d.). This creates a useful starting point for identifying occupations with green tasks and green skills. However, the mapping should be further developed specifically for green jobs, by distinguishing between fully green occupations, partially green occupations and occupations in transition.

A comparative analysis between ESCO and the Romanian occupational framework shows several gaps and possible directions for improvement.

Table 2. Comparative analysis between ESCO and the Romanian occupational framework for green jobs

Criterion	ESCO framework	Romanian framework: COR and occupational standards	Gap / need for improvement
General approach	Integrated classification of occupations, skills, competences and qualifications relevant for the EU labor market	COR mainly classifies occupations by codes and titles; occupational standards are managed separately	Romania needs stronger integration between occupations, skills and training standards
Green skills recognition	ESCO includes a green skills taxonomy with 381 skills, 185 knowledge concepts and 5 transversal skills	Green skills are not systematically labelled across COR occupations	Need to introduce green skill labels or green competence descriptors in occupational standards
Occupation description	Each occupation includes descriptions, scope notes and relevant knowledge, skills and competences	COR mainly provides occupational codes and titles; detailed competence requirements depend on occupational standards	Need to link COR occupations more clearly with occupational standards and competence profiles
Mapping with ISCO-08	Each ESCO occupation is mapped to one ISCO-08 code	COR is also built in relation to international occupational classifications, but practical green mapping is limited	Need to use ISCO/ESCO mapping to identify green occupations in COR

Criterion	ESCO framework	Romanian framework: COR and occupational standards	Gap / need for improvement
Green jobs category	ESCO does not create only one separate “green jobs” group, but identifies green skills and green-related occupations through skills and tasks	Romania does not have a separate official green jobs category in COR	Need to create a national green jobs framework based on tasks, skills and sectors
Emerging occupations	ESCO allows the identification of emerging skills and occupations connected with the green transition	Some emerging occupations are absent or insufficiently defined in COR	Need to introduce or update occupations such as Circular Economy Specialist, Green Skills Trainer, Waste Prevention Specialist
Use in training	ESCO supports the connection between labor market needs, qualifications and education	Romanian occupational standards are used for adult training and certification, but green standards are fragmented	Need to develop new occupational standards for green jobs and update existing ones with green skills
Statistical visibility	ESCO can support European comparability of occupations and skills	Green jobs are difficult to measure in Romania because they are not clearly separated in official classifications	Need to improve statistical monitoring of green employment
Policy relevance	ESCO supports European skills policies, digital platforms and labor mobility	COR supports national labor administration, employment contracts and statistical reporting	Need to align COR updates with European green transition policies and funding programmes
Adaptability	ESCO can be updated to reflect new skills and labor market trends	COR updates are formal and may be slower in relation to emerging green occupations	Need for a faster mechanism to introduce green occupations and update standards

Source: Author's own conception

The table shows that Romania already has an institutional basis for occupational classification and qualification development, but the current framework is not sufficiently adapted to the green transition. The main limitation is that green jobs remain administratively and statistically less visible. This affects not only labor market monitoring, but also the design of training programmes, the allocation of European funds and the capacity of employers to recruit workers with certified green skills.

A first necessary step is the development of a national green jobs mapping exercise, based on COR, ESCO and ISCO-08. This mapping should identify occupations that already include green tasks, occupations that require additional green competences and new occupations that should be introduced into COR. It should also distinguish between three categories: fully green occupations, partially green occupations and occupations in transition. Fully green occupations would include jobs directly linked to environmental protection, circular economy and renewable energy. Partially green occupations would include traditional jobs that integrate green competences. Occupations in transition would include jobs affected by decarbonization, digitalization and circular economy requirements.

A second step is the updating of existing occupational standards. Many occupations in construction, agriculture, industry, transport, public administration and services can be updated by adding green competences. For example, occupational standards for construction workers and technicians should include energy efficiency, sustainable materials and building renovation. Standards for public procurement officers should include circular procurement and life-cycle costing. Standards for trainers should include the design and delivery of green skills programs.

A third step is the introduction of new occupations and occupational standards for emerging green jobs. These may include occupations such as Circular Economy Specialist, Green Skills Trainer, Waste Prevention Specialist, Recycling Process Technician, Repair and Reuse Coordinator, Energy Efficiency Technician, Eco-design Specialist, Circular Public Procurement Specialist, Sustainability Reporting Specialist, Environmental Data Analyst, Circular Logistics Coordinator and Industrial Symbiosis Facilitator.

A fourth step is linking new occupational standards with vocational training and certification. Once new green occupations are defined, authorized training providers can develop qualification programs. This would help workers acquire certified green skills and would support employers in recruiting qualified staff. It would also make green jobs more visible in employment services, EU-funded projects and labor market statistics.

Therefore, updating COR and developing new occupational standards should be considered a strategic policy measure for Romania. It would improve the recognition of green jobs, support vocational training, increase the number of qualified workers and strengthen the connection between the green transition and labor market development. In this way, occupational standards can become an operational tool for transforming environmental objectives into concrete employment and qualification outcomes.

6. PROPOSED NEW OCCUPATIONAL STANDARDS FOR GREEN JOBS

The development of new occupational standards for green jobs should be directly connected to the structural changes of the Romanian labor market, the requirements of the circular economy and the need to increase the number of workers with certified green skills. These standards should define not only job titles, but also the competences that trainees must acquire through vocational training programs.

The proposed standards below are not intended to replace existing environmental occupations, but to complement them by covering emerging areas such as circular economy management, waste prevention, recycling technologies, repair and reuse, energy efficiency, eco-design, circular procurement, sustainability reporting and green career guidance.

Table 3. Proposed new occupational standards for green jobs and competences to be acquired by trainees

No.	Proposed occupational standard	Main field	Competences to be acquired by trainees
1	Circular Economy Specialist	Circular economy management	Understanding circular economy principles; analyzing material and resource flows; identifying waste prevention and reuse opportunities; designing circular business models; preparing circular economy action plans; monitoring circular economy indicators
2	Green Skills Trainer	Vocational training and adult education	Designing training programs for green skills; delivering courses on sustainability and circular economy; assessing trainees' green competences; adapting training content to labor market needs; using interactive and digital training methods
3	Waste Prevention Specialist	Waste prevention and resource efficiency	Developing waste prevention plans; identifying sources of waste in organizations; applying reuse and reduction strategies; monitoring resource consumption; supporting compliance with waste legislation; promoting responsible consumption

No.	Proposed occupational standard	Main field	Competences to be acquired by trainees
4	Recycling Process Technician	Recycling and material recovery	Operating recycling equipment; sorting and processing recyclable materials; applying quality control procedures for secondary raw materials; respecting environmental and safety standards; using digital tools for waste traceability
5	Repair and Reuse Coordinator	Repair, reuse and product life extension	Organising repair and reuse activities; coordinating repair centers or reuse networks; evaluating products for reuse or refurbishment; managing second-hand and refurbished goods flows; promoting product life extension
6	Renewable Energy Maintenance Technician	Renewable energy	Performing maintenance of solar, wind or biomass systems; monitoring energy production equipment; identifying technical faults; applying safety procedures; supporting preventive maintenance and operational efficiency
7	Energy Efficiency Technician	Energy efficiency in buildings and industry	Monitoring energy consumption; supporting energy audits; identifying energy losses; applying energy efficiency measures; using smart metering systems; preparing basic energy performance reports
8	Eco-design Specialist	Sustainable product design	Applying life-cycle thinking in product design; reducing material and energy use; improving product durability, reparability and recyclability; selecting sustainable materials; integrating environmental criteria into design processes
9	Circular Public Procurement Specialist	Public procurement and circular economy	Developing green and circular procurement criteria; applying life-cycle costing; evaluating environmental clauses in public contracts; promoting recycled, reusable and energy-efficient products; monitoring contract compliance with sustainability criteria
10	Sustainability Reporting Specialist	ESG and environmental reporting	Collecting and analyzing environmental data; preparing sustainability and ESG reports; monitoring environmental indicators; understanding reporting standards; supporting organizational transparency and compliance
11	Environmental Data Analyst	Environmental monitoring and digitalization	Collecting environmental data; using digital monitoring tools; analysing indicators related to waste, energy, emissions and resources; preparing dashboards and reports; supporting evidence-based environmental decisions
12	Circular Logistics Coordinator	Reverse logistics and circular supply chains	Organizing reverse logistics flows; coordinating collection, return and redistribution systems; optimizing transport for recyclable and reusable products; managing traceability of returned materials; reducing logistics-related environmental impact
13	Green Transition Adviser for SMEs	Business consultancy and green transformation	Advising SMEs on circular economy practices; identifying green investment opportunities; supporting access to European funds; proposing resource efficiency measures; helping companies comply with environmental requirements

No.	Proposed occupational standard	Main field	Competences to be acquired by trainees
14	Industrial Symbiosis Facilitator	Circular industrial cooperation	Identifying opportunities for by-product exchange between companies; facilitating cooperation between industrial actors; reducing industrial waste; supporting circular industrial networks; monitoring environmental and economic benefits
15	Green Jobs and Skills Counsellor	Employment services and career guidance	Advising workers and jobseekers on green career pathways; identifying training needs for green jobs; supporting reskilling and upskilling; connecting beneficiaries with training providers and employers; promoting green employability

Source: Author's own proposal for new Occupational standards

These proposed occupational standards would help create a clearer connection between the labor market, vocational training and green transition policies. Each standard should include learning outcomes, required knowledge, practical skills, transversal competences, assessment methods and possible employment sectors. This would allow training providers to develop authorized programs and would help employers identify workers with certified green competences.

The introduction of such occupational standards could also support the updating of the Classification of Occupations in Romania (COR). Some of the proposed occupations may require new COR codes, while others could be introduced as specializations or updated profiles within existing occupational groups. For example, Energy Efficiency Technician could be linked to construction and energy-related occupations, while Circular Public Procurement Specialist could be connected to administrative and procurement occupations.

A key advantage of these standards is that they would make green skills more visible and measurable. At present, many workers perform green tasks without being officially recognized as green workers. By defining specific competences for green occupations, Romania could improve labor market statistics, better design vocational training programs and increase the number of qualified workers able to support the circular economy.

In addition, the proposed standards could support the use of European funds for green employment. Projects financed through programs related to education, employment, regional development, just transition, circular economy and climate action often require measurable outputs, including trained persons, new qualifications or jobs created. Clear occupational standards would make these outputs easier to define, monitor and evaluate.

7. PUBLIC POLICY RECOMMENDATIONS

The development of green jobs and green skills in Romania requires a coherent public policy framework that connects labor market transformation, occupational standards, vocational training and European funding. The green transition cannot be supported only through environmental strategies or investment programs; it also requires an institutional mechanism capable of defining new occupations, certifying competences and preparing workers for emerging labor market needs.

The main public policy recommendations are the following:

- Create an interinstitutional working group for green jobs and green skills;
- Map COR with ESCO from the perspective of green jobs and green skills;
- Develop new occupational standards for emerging green jobs;
- Update existing occupational standards by integrating green competences;

- Develop authorized vocational training programs for green jobs;
- Use European funds more effectively for green skills and green employment;
- Create stronger partnerships between universities, employers, ANC and ANOFM.
- Develop a national monitoring system for green jobs and green skills;

Overall, public policies should treat green jobs not only as an environmental issue, but as a strategic labor market priority. Updating COR, developing occupational standards, financing authorized training and building institutional partnerships are essential measures for preparing Romania's workforce for the green transition. These actions would increase employability, support circular economy development and create a clearer pathway for workers to acquire certified green skills.

8. CONCLUSIONS

The analysis carried out in this article shows that the Romanian labor market is undergoing significant structural changes under the combined influence of digitalization, demographic pressures, technological innovation, the green transition and the development of the circular economy. These changes affect not only the number of jobs, but also the content of occupations, the skills required by employers and the way workers are trained, certified and integrated into the labor market.

The article highlights that green jobs and green skills should be understood as key elements of this transformation. Green jobs are not limited to new occupations in environmental sectors, but also include traditional occupations that are gradually transformed through environmental standards, resource efficiency, digital tools and circular economy practices. Therefore, the transition from traditional occupations to green and digital occupations requires a stronger connection between employment policies, vocational training and occupational standards.

A central conclusion of the article is that Romania needs to update its occupational framework in order to better reflect the changes generated by the green transition. Although the Classification of Occupations in Romania remains the official instrument for identifying and coding occupations, it does not currently provide a distinct and coherent framework for green jobs. This limits the statistical visibility of green employment and makes it more difficult to design targeted training programmes and public policies.

The comparative analysis between ESCO and the Romanian occupational framework shows the need for a more integrated approach to occupations, skills and qualifications. ESCO provides a flexible model by linking occupations with skills, competences and green transition requirements, while the Romanian system still separates occupational classification from occupational standards and training outcomes. A national mapping between COR, ESCO and green skills would therefore be necessary in order to identify fully green occupations, partially green occupations and occupations in transition.

The proposed new occupational standards, such as Circular Economy Specialist, Green Skills Trainer, Waste Prevention Specialist, Recycling Process Technician, Energy Efficiency Technician, Eco-design Specialist, Circular Public Procurement Specialist and Sustainability Reporting Specialist, can support the professionalization of emerging green activities. These standards would define the competences to be acquired by trainees and would help training providers develop authorized qualification programs adapted to labor market needs.

The article also shows that the development of green jobs cannot be achieved only through environmental strategies or investment programs. It requires a coherent institutional mechanism involving public authorities, employers, universities, vocational training providers, ANC, ANOFM and sectoral committees. Public policy should focus on creating an interinstitutional working group, mapping COR with ESCO, updating existing occupational

standards, developing new standards, financing authorized vocational training and creating a national monitoring system for green jobs and green skills.

In conclusion, adapting the Romanian labor market to the green transition requires the recognition, classification and certification of emerging green occupations. Updating COR and developing new occupational standards are practical and necessary measures for increasing employability, supporting reskilling and upskilling, improving statistical monitoring and preparing the Romanian workforce for future economic and environmental challenges. In this way, green jobs and green skills can become not only an environmental priority, but also a strategic direction for labor market modernization and sustainable development in Romania.

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