Diagnosis and mapping on social employment and social and sustainable entrepreneurship initiatives in Europe

A gender and generation approach to an ecological and just transition of the economy

Funded by
the European Union

TRAZA
TERRITORIO S.L.L.

Diagnosis and Mapping on green employment and social and sustainable entrepreneurship in the frame of the Greener Future project, funded by the European Commission.

Greener Future partners:

Alianza por la Solidaridad | actionaid

Isabel Iparraguirre, Coordinator of Ecological Transition and Innovation
Sandra Victoria Salazar, project officer and coordinator of the volunteering and youth program in Alianza

volonteurope

Piotr Sadowski, Secretary General
Furkan Sorkuncuk, Project Coordinator
Amer Habayba, Project Officer

We World
Member of ChildFund Alliance

Stefano Piziali, Head of Advocacy & Programs in Europe and Italy Dept.
Margherita Romanelli, Area Coordinator - EU programs and International Policies, Advocacy, Partnership and Evaluation
Camilla Crescenzi Serlupi, Project Manager in Global Education and Awareness Raising Advocacy Policy Partnership
Lucia Imbriaco, Project Manager in Global Education and Awareness Raising Advocacy Policy Partnership

MELLEMFOLKELIGT SAMVIRKE actionaid

Jacob Lang Laursen, Project Coordinator
Sebastien Verpoorten, Project Officer

Researchers:

TRAZA

Traza Territorio, S.L.L. is the consultant team that conducted the researcg
Paula Jiménez Argumosa, sociologist and economist expert in gender and social engagement
Gonzalo Navarrete Mancebo, urbanist specialised in public policies and climate change
Ibai de Juan, environmentalist and geographer specialised in applied research
Clara Majadas, graphic designer with expertise in awareness raising
With the collaboration of:
Elena Álvarez Álvarez, consultant specialised in gender and employment
Irene Ruiz, consultant specialised in migration and social equity

We would like to thank the more than 200 stakeholders: unions, social organisation and social movements, green and social enterprises, entrepreneurs and projects, and public authorities and other actors, from Spain, Italy, Belgium, Denmark, Hungary, Poland, Austria, Germany, and at the EU level who generously participated and share their time and experience for the elaboration of this report.

Funded by the European Union

This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of the Traza Territorio and Alianza por la Solidaridad and do not necessarily reflect the views of the European Union.

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1. A research on green employment in the frame of the Greener Future european project

This diagnosis and mapping is a key phase of the **Greener Future project**, funded by the European Union and led by a consortium of four organisations: Alianza por la Solidaridad - ActionAid (Spain) (www.alianzaporlasolidaridad.org), Volonteurope (Belgium) (www.volonteurope.eu), ActionAid Denmark (Denmark) (www.ms.dk) and WeWorld (Italy) (www.weworld.it).

The project has three specific objectives:

- OE1: To map and analyse existing opportunities, social and sustainable initiatives in Europe;
- OE2: To build the capacities of European organisations working with youth and other key actors; to strengthen youth employment through training and exchanges of experiences;
- OE3: To pilot and test training and support modules for youth to access to green jobs or develop sustainable and social initiatives

Within the framework of the Greener Future project, this research will be the base to help improve the capacity of organisations to train, guide and advise young people in the development of the skills needed to apply for green jobs within the framework of the solidarity economy and the transformation of economic sectors towards cleaner technologies. The study will also be used to promote young entrepreneurship towards new sustainable models, driving a stable work integration, while ensuring the care of the environment and fighting against climate change.

The team conducting this study is TRAZA (www.trazaterritorio.com), a social, environmental and territorial consultancy with extensive experience in working with the public sector, social organisations and companies. Its objective is to investigate and intervene in relation to the main challenges linked to the ecological transition and social changes. To this end, it has developed diverse studies, plans and projects on climate change, energy transition, urban ecology, sustainable mobility, urban planning, youth, economy, employment and different sectoral public policies. TRAZA's methodology stands out for the multi-stakeholder participation and for the gender and generation approach.

2. Introduction: Shifting the economic model to tackle socio-ecological challenges

The 21st century is characterised by a set of environmental challenges that impact on all spheres of life. The massive burning of fossil fuels (coal, oil, natural gas, among others) since the industrial revolution has caused the concentration of greenhouse gases directly related to the development of industrialised economies, initially in the global North and later on at global scale. According to recent scientific reports, two-thirds of the services generated by the planetary ecosystems are deteriorating, biodiversity loss is estimated to be about 1,000 times higher than at pre-industrial level[1]. Global material and energy consumption, and thus waste production, has continued to increase over the past decades. Thus, the pressure of human activity on biophysical limits is affecting the stability of ecological processes that are fundamental to the maintenance of living conditions.

This bleak diagnosis the international community began coordinating its policies to foster a global transition towards sustainability. This highlights the importance and urgency of an ecological transition. The profound changes necessary in a just ecological transition require novel skills and capacities, a way to organise a generational handover in certain activities, related to the vitality of communities and the European demographic challenge, and participation in the social and multi-party dialogues to grant workers with rights.

The creation of green jobs continues to grow[2]. Labour market dynamics are closely related to the urge, agreements, policymaking and consumer demands to transition towards an ecological economy. Its study and monitoring is an increasingly useful tool to identify macroeconomic trends in the labour market and adopt strategic measures to ensure the orientation of social, political, economic and educational measures towards a transformative social and ecological transition. Within this framework, this study includes a diagnosis and mapping to explore the concepts surrounding the ecological transformation of the economy and employment, as well as to gather diverse experiences that bring these concepts down to earth through real cases.

To correspond to the relevance of the study, the following objectives emerge:

- Identify and analyse the challenges and opportunities to improve the employability of European youth linked to the just ecological transition, linked to new sectors and opportunities that contribute to other economic models of production and consumption and to the fight against climate change in Europe;
- Analyse and explain the legal context, facilities, support opportunities and regulations regarding green employment opportunities and implementation of social and sustainable initiatives in Europe;
- Identify and map key actors in sectors where there are opportunities for access to green employment and key actors around the implementation of social and sustainable initiatives in Europe;

[1] Naredo & Gómez-Baggethun, 2016.
[2] OCDE, 2010.

- Mapping and listing, at European level, of sustainable and social entrepreneurship initiatives of special interest to young people and that can be replicated or adapted for other contexts in Europe;
- Identify strategies and opportunities to train and build capacities of civil society organisations and organisations that work with youth to promote, guide and train young people in accessing to these types of jobs and initiatives;
- Identify what can be the mechanisms and tools conducive to creating a space for action with the institutional scope to carry out political advocacy at European, national, and local level, so that measures can be implemented that promote youth employment and social entrepreneurship in sustainable activities and sectors

3. Green jobs through the lens of social and environmental justice

3.1. What are green jobs

In the last two decades, vast research about green jobs has emerged with a lot of diversity. Green jobs appear as a polysemic concept, that is in dispute to be defined. What is clear to all is that green jobs can be a possible solution to shift processes of production immersed in the climate crisis. However, there are different alternatives that seek to achieve that scenario, among which the green economy and the ecological economy stand out.

***Green economics*, as defined by academics, proposes that "societies should be embedded within ecosystems, that markets are social structures that should respond to social and environmental priorities" and raises concerns about time, justice and nature**[3]. It has its roots in *ecological economics*, considering that technology and markets have a limited capacity to cope with environmental challenges on the basis that natural and physical capital are not substitutable. This approach integrates the natural environment considering the physical nature of resources and the logic of the systems that surround them, including their scarcity and renewability cycles, and the harmfulness and possible recycling of waste generated[4]. It considers all these factors with the aim not to capitalise and consume the natural environment, but to valorise it and stop its deterioration. The ecological economy seeks to adapt to the constraints intrinsic to the natural environment by contemplating *economic degrowth*[5] or reformulation of certain economic sectors. This allows the transformation of a wide range of production processes, consumption habits and, by extension, the labour market.

However, the narratives from public institutions and private enterprises tend to associate "green" with the ability of markets and technology to solve environmental problems, understanding nature as external to the economy, but functional to production. In 2008, the United Nations program defined green economy as "one that results in improved human well-being and social equity, significantly reducing environmental risks and ecological deficit. It generates low carbon emissions, is resource efficient and socially inclusive"[6]. The European Environment Agency (EEA) defines the green economy as "one in which environmental, economic and social policies and innovations enable society to use resources efficiently, thereby enhancing human well-being in an inclusive manner, while maintaining the natural systems that sustain us"[7]. Thus, some understand the green economy as a way to promote economic growth, as achieved through fossil fuels while combating climate change.

This study will understand the green economy from its ecological roots. In this frame, green job initiatives will be mapped, as a torch that can point small steps forward. Given the lack of uniformity in understanding what are green jobs, it is important to discuss the different approaches, and how this research will be positioned. "The Green Jobs Initiative" emerged as

[3] Mellor, 2019.
[4] Herrero, 2016.
[5] Latouche, 2009; Taibo, 2009
[6] Vasilica et al., 2022: 1
[7] EEA, 2012.

a result of a partnership between the United Nations Environment Program (UNEP), the International Trade Union Confederation (ITUC), the International Organization of Employers (IOE) and the International Labor Organization (ILO). The main goal of this partnership is the promotion of opportunities, equity, and a fair transition to sustainable economies. The first report published in 2008 defines **green jobs as "any decent work that contributes to maintaining and restoring the quality of the environment, whether it is agriculture, industry, services, or administration"**[8]. This outcome may be achieved by reducing energy consumption and raw materials, minimising pollution and waste, protecting, and restoring ecosystems and enabling companies and communities to adapt to climate change. In addition, the European Commission conceptualised green jobs as "one that directly deals with information, technologies, or materials that preserves or restores environmental quality. This requires specialised skills, knowledge, training, or experience (e.g., verifying compliance with environmental legislation, monitoring resource efficiency within the company, promoting and selling green products and services)"[9]. Green jobs are therefore intended to contribute to environmental sustaniability[10] but they are meant to also have decent conditions for workers.

When analysing green jobs, the most critical definition is the one proposed by "The Green Jobs Initiative", as it combines the labour dimension with social justice. Within this framework, green jobs are integrated into economic processes where the label "green" can be associated with the positive impacts of the way in which the process is carried out (processes) or the results of that process have on the environment (outcomes)[11]. Some economic activities may have a considerable environmental impact, but its outcomes, in turn, contribute significantly to environmental and social sustainability (for example the renewable energy industry). On the other hand, economic activity may appear to be green, but it is based on the delocalisation of the most polluting processes. Therefore, an economic activity whose outcomes are polluting, but whose processes are not, cannot always be considered as green employment. We can thus speak of **degrees of sustainability within the ecological economy and green employment based on the calculation between the negative impacts of the process and the final impacts of the products or services**.

	Unsustainable outcomes	Sustainable Outcomes
Unsustainable Processes	**No Green Job**	**Potential Green Job**
Sustainable Processes	**Potential Green Job**	**Green Job**

Figure 1: Table of different understandings of green jobs

There is a branch of research dedicated to the quantitative analyses of green jobs, looking to predict and analyse its potential, usually linked to defending economic growth. It shows that green jobs have seen a gradual increase, particularly concentrated in Japan, China, United States and Europe. In particular, the renewable energy sector has seen a very significant increase in jobs globally, from 7.3 million in 2019 to 11.5 million in 2021[12]. By 2050, the green

[8] UNEP, 2008.
[9] Cit. en Moreno-Mondéjar et al., 2021: 2
[10] Sulich & Zema, 2018
[11] Poplawski et al., 2017: 3
[12] IRENA, 2020.

transition is expected to generate 60 million jobs globally, according to ILO[13]. In the EU27, throughout the period 2000-2017, green jobs increased from 3.1 million to 4.2 million, along with a growth of the green sector of the economy that raised from 1.6% to 2.2% of GDP. In this case, the increase in green jobs has been mainly concentrated in energy, waste management, environmental protection and wastewater sectors[14]. This contrasts with the route towards degrowth for an economic model compatible with environmental sustainability. In any case, the scope of this study will be more focused on a qualitative approach to how and for whom green jobs can suppose a significant change.

3.2. The journey towards an ecological and just transition

As a basis, it is fundamental to ground the study in a nuanced understanding of the ecological and just transition. The word transition not only points towards a destination, a future scenario, but also the origin, the place where one begins and wants to leave behind. **To define a transition, therefore, is to construct one of the possible paths for change**. The term has been established in the European political agenda and there are even laws and ministries that are called 'ecological transition'[15]. However, there are significant concepts and signposts that change the meaning and guide the way; for example, the adjectives that are used to describe the transition.

Given that the planet's natural resources are finite, it is necessary to consider an equitable distribution of these resources. Sustainability is thus linked to social equity. It is no longer enough to move towards a scenario of environmental sustainability. **The social impact of such a scenario must be considered too, in terms of human and labour rights, and North-South inequalities**. Socio-environmental conflicts are intrinsically linked to a North-South power relationship that leads to an unquestionable climate injustice. Industrialised nations of the Global North cause the greatest greenhouse gas emissions responsible for global warming and climate change and are enriched by the industrial activity of transnational companies that destroy and deplete the natural resources of the countries of the Global South. Thus, the path towards a just transition requires to open the myriad to global inequalities.

For instance, **an energy transition may not be 'ecological'**. It is possible to find energy transition proposals that do not take into account an overall ecological and justice framework. Renewable energy sources are a part of the energy transition path, but they do not always meet the requirements of an ecological transition, which implies tackling other criteria such as conservation of biodiversity, occupation of fertile soils, or pollution generated throughout their life cycle. Citizen Energy Communities are, in this sense, a very interesting contribution to bring the energy transition closer to ecology, as they are usually based on the implementation of renewable energy sources on buildings, or artificialized land, or spaces that do not lose their ecological functions with irreversible installations; and look to empower citizens as key agents of the energy system

[13] ILO, 2018.
[14] European Commission, 2020.
[15] Ministry of Ecological Transition and Solidarity in France, Ministry of Ecological Transition and Demographic Challenge in Spain, and Ministry of Ecological Transition in Italy.

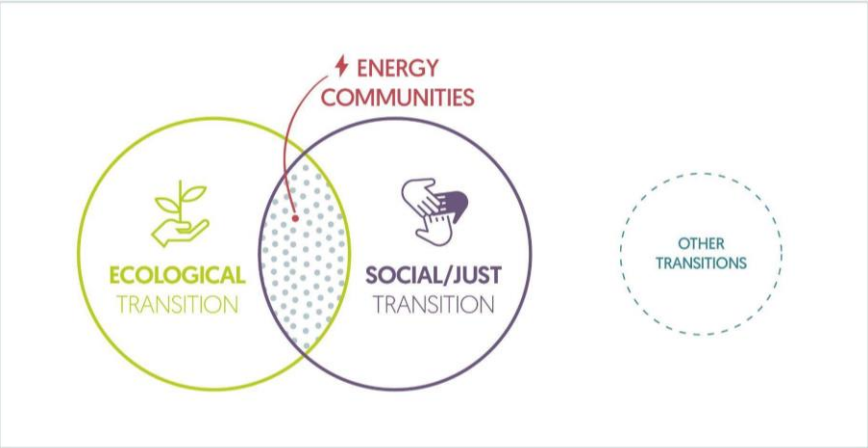

Figure 2: Diagram of the interrelation of social and ecological transition

There is not necessarily a direct correlation between ecological transition and adjectives such as social, justice, and democratic. An **ecological transition can be socially unjust** and reinforce undemocratic power structures and oligopolies through greenwashing strategies. It can be a difficult road for some social groups like youth or migrants while benefiting those who are more privileged; or it can help everyone reach the goal on an equal footing. It can concentrate power and wealth; or alternatively, it can favour the redistribution of opportunities. It can turn the population into remote customers or, on the contrary, stimulate citizen and intergenerational participation and raise awareness. In this sense, the present diagnosis and mapping proposed is a tool to provide a path towards an ecological and just transition that takes into account the social, political and economic components of equity and the democratisation of access to resources, respecting basic rights and the ecological limits of the planet.

3.3. A green and feminist route

Challenging neoclassical economics and paying attention to gendered subjects in the productive and reproductive processes, *ecological feminist economics* proposes routes towards socially just societies within the ecological limits That implies placing life (human and ecological) at the centre, and uplifting the processes that guarantee sustainability and care of life. It explores ways to provide sufficient provisioning, and democratising money[16]. Passing from re-valuing traditionally feminised economic activities (such as care work, social reproduction, health, waste management, crafts, etc.), but also promoting a political economics of redistribution of wealth.

We must start from common challenges regarding women and employment, about their access to the labour market, highlighting their lower employment, their **high presence in lower quality jobs** (higher rate of temporary hiring and part-time jobs), **a significant wage gap** (lower access to decision-making positions or comparatively lower wages) **and an overload of unpaid and care work**. The evidence indicates that the initial situation has been aggravated by the arrival of the COVID-19 pandemic. Decent employment implies productive

[16] Mellor, 2019.

work in conditions of freedom, equity, security and human dignity, as well as equal opportunities and treatment for women and men[17] as well as a good work-life balance. While we rethink the transition and the new models we need to take into consideration the care work which is highly feminised. While in the more family-oriented models, such as in Southern Europe, it is mainly women who are responsible for care, leading to their total or partial absence from the labour market, in Northern Europe the state assumes a greater role in care, and in Central Europe it is usually the market.

Gender differences in social and economic roles and responsibilities exacerbate the vulnerability of women, who have less access than men to resources to adapt to climate change, including land, credit, agricultural inputs, decision-making bodies, technology, social insurance and training. Another pending challenge is the educational barriers of practical training that make women invisible and that do not allow them to access quality jobs. This happens especially in culturally masculinized sectors where there are potential niches for the creation of green jobs for women, such as in agriculture or energy sector, among others. Technical training is oriented and directed to men in order to gain access to quality jobs, especially in terms of employability, remuneration and number of jobs.

On the contrary, waste management and wastewater management and treatment are economic sectors in which women have historically played a fundamental role, however, as they have been market-oriented and their productivity has been consolidated, the role of women has been disappearing. This is why it is **imperative that certain traditional jobs be recovered or considered as green jobs, and transcend the modern linkage of green to high-tech innovations**. Uplifting traditional work such as local waste management or handcrafts empowers feminised sectors of work and can turn them into employment. This implies looking beyond productivity, economic efficiency or growth, and focusing on the fact that they do rely on quality and decent work. All that takes to position and recognize them as green jobs so that they can receive all the necessary support and aid. An example could be care work, agroecology, health, education and crafts.

3.4. Deromanticizing youth: the role of age and social class

Much of the public discourses link green jobs with youth, alluding to the opportunism of this new form of work and linking a generation to a promise. In this linkage, it is worth asking what lies behind it, what it entails for young people and for other social groups potentially benefiting from green jobs.

Youth has emerged as a new analytical category in this century, in the midst of a profound labour and climate crisis. Work constitutes a central axis of reflection to understand social changes. The role of work as the foundation and core of identity explains the profound public legitimacy derived from the integration of young people into the labour market. However, a paradox is emerging; while work is fundamental to the dignity of youth, it is increasingly precarious. For this reason, scholars[18] have studied the role of the social construction of youth

[17] ILO, 2007.
[18] Serrano, 1995.

in Europe and revealed that it is a result of the labour crisis. The idea of this group is constructed as a social condition, an incomplete state, a generation for social change or a construction with certain fashions. In these plural ways of conceiving youth there are paradoxes; it goes from youth as the subject of the mismatch between labour demand and supply, to the object of discriminatory labour market practices against certain groups of the labour force. This explains the circularity that ends up blaming young people.

What is also contributing to the politicisation of youth is the climate crisis. The generational outlook of young people has put at the centre of the debate the need to be able to think about the future, also in the long term, so that they can build life projects in livable and desirable places. The massive and global mobilisations of young people are undoubtedly a driving force for the eco-social transition. These mobilisations propose new modes of consumption and production, urge governments to take action, denounce harmful corporate activity, and there are also important critiques of the neo-extractivist practices of Global North companies in the Global South. Their active political activity is fundamental in societies that are adulto centric, making youth face big barriers to access decision making spaces. However, there youth that is engaging in these mobilizations tends to be from a medium or upper social class.

While there are great differences in the discourses and conceptualisations of youth, the type and duration of youth changes not only because of the demographic and productive structure of a place, but also because of the social structure. Belonging to a certain social class impacts how a young person faces or moves through labour precariousness[19]. This could explain why young people have hardly generated an organised protest movement referenced to the labour crises, since the discontent generated by the contradictions over access to work is different between two groups that do not have the same starting conditions (young people from a higher social class compared to others from a lower social class). At the height of identity politics, some identities (ie. women, migrants) stand out as more emancipatory than others (ie. youth). However, age is undoubtedly a relevant category of analysis for studying job opportunities. **This is why social class needs to be taken as a fundamental axis when studying age groups and their conflicts and potentialities in labour market participation**.

Although there is no agreed definition of youth, there is much research on how the socio economic crisis poses difficulties for those entering the labour market for the first time and delay their emancipation as a result of job insecurity. This uncertainty is changing the life trajectories of this group. To approach the conflicts around youth, we will take Nancy Fraser's[20] proposal for a politics of recognition and redistribution. That is, to maintain the demand for social justice in the midst of identity politics rooted in the recognition of differences between groups and their socio-cultural dimension.

3.5. Leaving no one behind to avoid another green failure

Green jobs can then be presented as a way forward for a younger population entering or recently participating in the labour market; but also for women who have been absent from

[19] Dubet, 1987.
[20] Fraser, 1999.

employment to engage in unpaid domestic and care work and are long-term unemployed; for workers in polluting and transitional sectors; and of course migrants who are forced to migrate from their countries of origin for economic, social or climatic reasons, in search of a life worth living.

Although women are outpacing men in educational attainment in Europe[21], it does not necessarily translate to the labour force participation rate. A similar trend happens with migrant women or second generation migrants: even though they have completed the tertiary level of education, they are not as present in the high skilled labour market as men[22]. It is crucial to take into account the required profile that the hiring entities are demanding, which is normally high skilled workers[23]. Although the amount of green jobs has increased during the last period, and the prediction is that it is going to keep increasing in the future, certain vulnerable groups are not yet accessing them[24].

The new structures of green employment do not allow access to the most discriminated population groups, it has become an elite labour market, where the most vulnerable often cannot access or access to the most precarious jobs. There is a part of the ILO's definition of green jobs that has been marginalised, which is equity. We cannot forget that the legislative frameworks, standards, and conditioning factors of sectors such as energy, recycling and agriculture have become hyper-specialised, technified and even elitist (especially the green sector), where the most vulnerable people cannot access their jobs.

Even the small structures that existed historically have been swept away. To give an example, which may be representative of many others, is the case of the Roma people and recycling. Historically, the collection of scrap metal was one of the most common activities for the Roma population that allowed many families to subsist. With the beginning of regulation and the appearance of recycling companies, they were prohibited or even fined if they continued collecting. No structures were created to accommodate them. Nor were they provided with training or to continue with their work activity, supporting and guiding them towards the new systems of the change process. But green employment should not always have a vision of growth, but of quality and equity (further information can be found in section 9). In this sense, a Human Rights Based Approach (HRBA) will also enable the accountability of particularities of people at risk of exclusion such as those in a situation of energy poverty, migrants, refugees, people from the LGBTIQ+ community, disabled people, and rural population, among others.

[21] Gender Equality Index 2020: Digitalisation and the future of work. EIGE, 2020.
[22] Skilled Female Migrants in the EU. Bundeszentrale für politische Bildung, 2019.
[23] Anticipating skill needs for green jobs. A practical guide. ILO, 2015.
[24] Greening with jobs. World employment social outlook. ILO, 2018.

4. Methodology of the diagnosis and mapping

A key challenge in analysing green jobs is to systematise a methodology to identify the status and future scenarios of green jobs and sustainable and social initiatives within the ecological and just transition. To this end, the present study proposes a methodology combining techniques that allow it to go from gathering information and viewpoints of a wide and diverse group of stakeholders, to progressively narrow the scope and analyse key trends of experiences and initiatives in depth.

Figure 3: Diagram of the field work.

For starters, the first phase consisted of a context analysis and conceptualization that will serve as the basis to identify, map and analyse. The analysis consisted of a critical analysis of the most relevant academic articles from the perspective of their definition for the concept “green jobs”, the field of interest and the main results obtained. To situate the study in Europe, a sociodemographic, economic and environmental analysis has been conducted, as well as the strategic framework regarding green jobs.

Leveraging on this baseline, the field study designed for the mapping and diagnosis of green employment experiences consisted of three tools: questionnaires, participatory workshops and interviews. The initial approach to agents was done through a questionnaire, revealing green jobs and entrepreneurial initiatives in different countries - the following information was asked: gender and nationality of the respondent, the economic sector the initiative belongs to (from the NACE categories and a set of green-centred sub-sectors created, outlined in section

4.4), a brief description of the activities carried out and their social and environmental impact, number of total workers, female workers and youth, type of entity (cooperative, association, entrepreneurship, civil society organisation, network, company, multinational, or think tank), training and skills that are relevant to access that green job, and challenges and opportunities in the promotion of green jobs. The questionnaire has been disseminated by email, and phone calls. Even though the sample is not representative, it allows to map a diverse range of green and social initiatives in Europe. The questionnaire was sent to companies, cooperatives and entrepreneurs involved in the green economy of different countries of Europe. The respondents were chosen using the snowball method, starting off with the initiatives or projects that the Greener Future's consortium knew of. The questionnaire reached 237 stakeholders, with the following breakdown: 20 from Denmark; 49 from Spain; 13 from Belgium: 89 from Italy; 15 from Germany; 16 from Austria; 9 from Hungary; 13 from Poland; and 13 at the EU level. As a result, we received 49 answers.

Thereafter, participatory workshops with stakeholders allowed open spaces to exchange ideas, experiences and visions about the present and future of green jobs. These participatory encounters tried to reveal the positions and relations of different agents involved in the green economy, identify driving trends regarding what is understood as green jobs (in terms of education, financing, social and environmental impact), and envision the future of green jobs in the local contexts, paving the way for a just and ecological transition. The workshops, organised in the four main countries of the study (Denmark, Belgium, Italy and Spain) counted with the participation of relevant stakeholders from social organisations, unions, private initiatives and public authorities. In total, 49 stakeholders participated; 9 in Denmark; 10 in Belgium; 11 in Italy; and 19 in Spain.

Photo from the workshop in Madrid, Spain

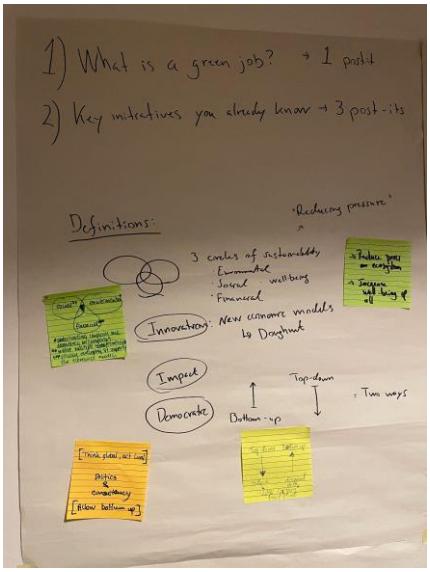

Photo from the workshop in Aarhus, Denmark

Photo from the workshop in Brussels, Belgium

Photo from the online workshop with Italian stakeholder

In order to delve deeper into qualitative aspects, semi-structured in-depth interviews were conducted with those that could bridge some knowledge gaps or dig deeper into key topics. In accordance, 11 interviews have been conducted, one academic specialised in economics of the ecosocial transition, and two public authorities at the national level in Spain; two environmental consultancies (Italy and Denmark), sustainable finance company (with branches in Italy, Spain and Germany), three entrepreneurs (Italy, Spain and Denmark), a think tank (Denmark); a European network of social enterprises.

The field study has reached the participation of a total of 297 actors (most of them in Belgium, Denmark, Spain and Italy, but others in Austria, Poland, Germany and Hungary).

5. Context of Europe

The study is focused on Europe, and looking to reveal what is the current situation and relevant experiences in the territory. Before digging into concrete experiences, it is worth analysing the sociodemographic, economic, environmental and regulatory context. This, along with the field work, leads to a proposal to categorise economic sectors and activities for the mapping of experiences.

5.1. Strategic and regulatory framework of green jobs in Europe

During the second half of the 20th century, groups of civil society and international organisations started to bring attention to climate change and its consequences. Thus, the international community began to put pressure on the states as soon as they realised that the only way to stop climate change and preserve the environment was the cooperation of the different countries. In this context, the **UN Convention on Climate Change (Rio de Janeiro, 1992)** took place, establishing the framework for the topic and setting a challenge for the parties: bringing effective measures to their national agenda to "combat human interference with the climate system". These said measures had to take into account the different realms that are involved in the process: those which are directly affected by climate change and those which are indirectly influenced. They committed to start directing their policies to a more sustainable path through periodic reports to inform of their progress, transparency about the reduction of greenhouse emissions, or the participation of the majority of stakeholders in these processes. This Convention also differentiated the responsibility of developed and developing countries, fostering the first ones to take measures according to their bigger emissions in comparison with the second ones, and opened up a space to start adding new lines of actions, such as green education and employment, which would be developed in subsequent treaties and conventions.

One of the main lines of the discussion during the **Paris Agreement (2015)** was the Just Transition, which means greening the economy in a way that is fair and inclusive, creating decent work opportunities and leaving no one behind[25]. So the jobs that are created under this idea, not only tries to contribute to stop any environmental harm, but are also meant to be respectful and aligned with social and economic principles in an integrated manner.

In this sense, some UN agencies and other organisations have been discussing and reaching agreements on green jobs. For instance, the ILO has led the creation of the initiative **"Climate Action for Jobs"** which was born during the COP 2019 focusing on the creation of decent jobs and it is co-lead by Spain and Peru. According to the General Secretary of the United Nations Antonio Gutierres, it aims to allocate the creation of green jobs and the protection of livelihoods in the centre of national plans to stop climate change. It also takes into account the current situation after the Covid 19 crisis, by suggesting some actions to facilitate a sustainable recuperation of the states after the pandemic. The main objective of this initiative is to help the different states to take specific and tangible measures to ensure a Just Transition by creating

[25] ILO, 2015.

national plans that promote green and decent employment. In this sense, they designate some guidelines to follow, such as:

- Formulating innovative social policies that protect groups that are at risk of vulnerability.
- Design policies and economic incentives to support and incentivize the transition of companies towards the production of environmentally sustainable goods and services.
- Assess the social, economic and employment impacts of climate action.

These recommendations have been useful in the sense that they serve as a guide to follow while including changes in their national plans. The initiative is designed to support countries on their process to update their national programs, and it provides them with some resources that they can bring on in case they need them, such as the Green Jobs Assessment Institutions Network (GAIN) which can evaluate their proposals and plans.

This initiative is one among other topics and agreements that have been reached during the last COPs, which have brought the debate about climate change into political discussions and also into the general public. With COP27 just finished, it is needless to say that this world's tendency to green economies in a sustainable integrated way (taking into account a social perspective) continues and plays a relevant role. In this last Convention of the Parties celebrated in Sharm El-Sheikh (Egypt) the states have delivered a **"Breakthrough Agreement on New 'Loss and Damage' Fund"** for vulnerable countries. Governments took the ground-breaking decision to establish new funding arrangements as well as a dedicated fund to assist developing countries in responding to loss and damage. This marked an important point of progress as it would imply the dedication of technical support and budget to assist developing countries that have been especially affected by the consequences of climate change.

In the same direction, we can observe how different regional actions are taken to pursue this just transition. The European Union (EU) has also made visible that reaching more sustainable standards is a priority in the agenda. In this context, the European Commission has launched the **"European Green Deal" (2020)** which aims to turn climate change into opportunities for making better policies and using resources in a more efficient way. This serves as the European Union's road map to responding to environmental and climate challenges, and asserts that "the transition can only succeed if it is conducted in a fair and inclusive way[26], avoiding that those sectors and regions most dependent on fossil fuels are left behind"[27]. However, it will also require the overall policies of the European Commission to facilitate participation and democratisation with regard to key economic decisions and resources. The European Green Deal also seeks to stop the production of net greenhouse gas emissions until 2050, conserving the environment and protecting the health and well-being of EU citizens from the challenges posed by climate change.[28] This agreement meets its legal translation in the **"European Climate Law" (2021)** where EU Institutions and states "are bound to take the necessary measures at EU and national level to meet the target, taking into account the importance of promoting fairness and solidarity among Member States". This law not only binds the agreement but also includes some updates that makes the net zero emissions goal

[26] COM (2019).
[27] To this end, a Just Transition Mechanism is being developed that includes a Just Transition Fund.
[28] Stanef-Puică, M-R et al. (2022).

more achievable. These mentioned updates come in the form of timelines that set a climate target for 2030 to reduce at least 55% of greenhouse gases compared to 1990, and start a process to set another climate target for 2040. It also specifies that the progress made by the Union will be reviewed every five years and in line with the global stocktake exercise under the Paris Agreement.

Considering this new road map and the situation after the pandemic, the European Commission has approved the **Next GenerationEU funds**, which are meant to support the economic recovery from the coronavirus pandemic and build a greener, more digital and more resilient future. Thus, objectives and guidelines have been set for the investment of this budget, focusing on different aspects such as the digitization of access to public services, the promotion of programs that fight against racism and gender inequality or the activation of employment plans for people with disabilities or living in rural areas. Likewise, one of the strongest areas that the NextgenerationEU plan is covering is the idea of creating a greener Europe, lowering greenhouse gas emissions to net zero by 2050 through the implementation of sustainable measures such as investment in public transport and reducing polluting waste and rethinking the agricultural system of the countries that are part of the Union. In this sense, the countries are encouraged to invest these funds following the guidelines that are set, so the EU can be the leader of climate action globally.
For instance, the 'Plan de relancement et résilience en France'[29] combines a great ambition for transforming the country into a greener economy and a social perspective on it, by including new measures in areas such as housing. In this Plan, they suggest the reformation of the public housing system, making it (1) more accessible by including some changes (e.g. offering some financial support from the government) and (2) more sustainable, renewing the policies about the construction of buildings so they reduce the energy waste.

All the strategic framework is embedded in the international or community system, which respects the state's sovereignty while pressuring the adoption of measures. In this sense, Spain has launched the 'Emplea Verde' program to promote this type of jobs in line with EU guidelines. This program aims to create new green jobs and transform a percentage of existing jobs into more sustainable jobs. It has two main objectives:

- For the environment and sustainability to be the basis for better jobs and more competitive companies.
- To make employees and companies key players in improving the environment.

Other countries such as Germany are also including new measures to promote green jobs. The German government has put a lot of effort into encouraging the transition to a more sustainable model of energy production and communications. Today, renewable energies are already an important source of electricity in Germany. By 2021, more than 41 % of Germany's electricity will already come from wind, sun, water or biomass, creating an ideal environment for the supply of green jobs[30].
This strategic framework serves as a review of international and European tools and builds the present study on existing foundations. This compilation allows us, on the one hand, to appreciate the progress that has been made in the last decade and, on the other hand, to

[29] Gouvernement de la République française (2021)
[30] Federal Government of Germany (2022)

identify the following potential decisions that could be taken. It is important to follow this trend of promoting public policies that lead to more sustainable economies and societies, and thus to the creation and regulation of green jobs.

5.2. Employment: youth, women and migrants

Looking at the labour dynamics in Europe, the composition of the working-age population differs by age, but the distribution is equal between the sexes. The majority of the working age population is between 25 and 54 years old (31%), followed by the 55-64 age group (11%) and finally the 15-24 age group (8%). However, the composition of the labour force shows differences in terms of sex; 53.4% of the labour force in the EU27 are men compared to 46.6% of women. The highest activity rate activity rate for both sexes is concentrated in the 25-54 age group and the lowest in the 15-24 age group.

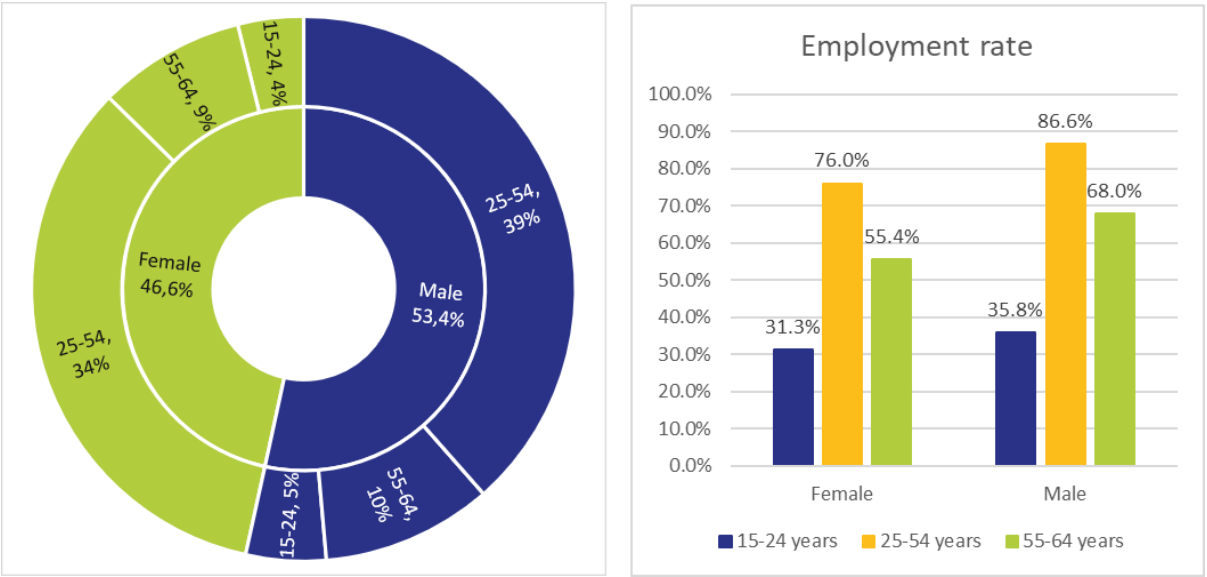

Figure 4: Composition of active population and employment rate. Eurostat

One of the reasons why the younger age groups have the lowest activity rate may be due to the fact that they are in many cases still in the stage of completing their studies. The majority of the working age population has secondary and post-secondary non-tertiary education (45%) followed by the population with tertiary education. Within the latter, **there is a higher percentage of women with tertiary education than men**. However, **for all age ranges, the activity rate among women is 5-13% lower than among men**. This pattern is repeated in the employment rate where women aged 15-24 are the group with the lowest employability. **The highest unemployment rates correspond to the youngest groups, which almost triple the unemployment rates of older groups**. By gender, unemployment is slightly higher for young men than for women, but this trend is reversed after the age of 24, where the unemployment rate is higher for women.

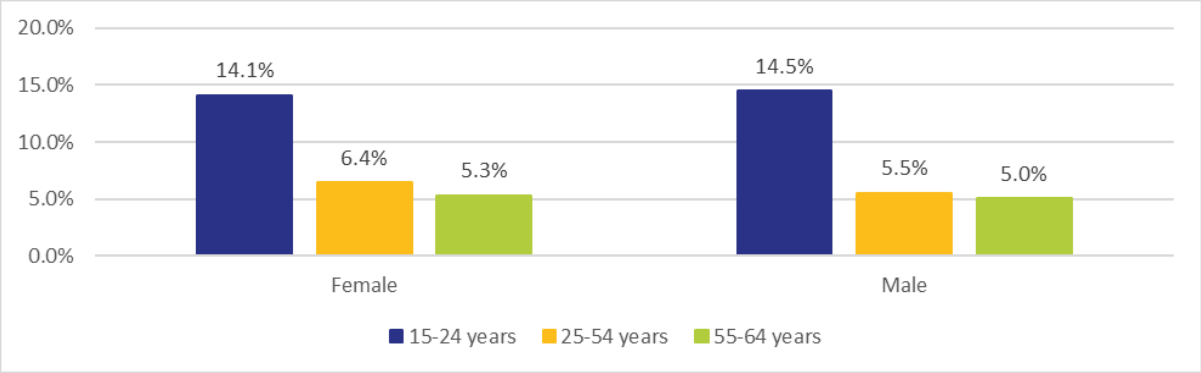

Figure 5: EU Unemployment rate in 2022. Eurostat

In terms of income, **the groups with the lowest incomes are young people** with averages between 18,000 and 19,000 euros per year. Income rises in direct correlation with age to an average of 23,000 euros per year. However, **in the upper age groups of 65 and over, incomes drop significantly**. While **in all age groups women earn between 350 and 900 euros less per year than men**, in old age the difference rises to 2260 euros. Geographically, **people living in cities have higher incomes than those living in suburbs**, small towns and rural areas. **However, the gender gap in rural areas is smaller than in urban areas**.

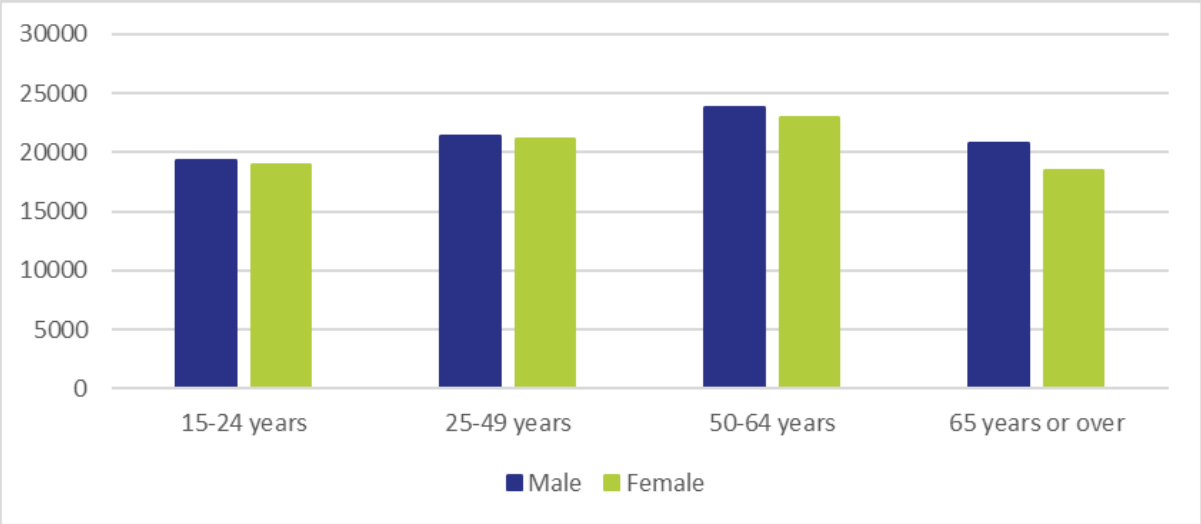

Figure 6: Mean equivalised net income in 2021. Eurostat

The unemployment rate is mostly concentrated in the Mediterranean countries (especially Spain, Italy and Greece) where the unemployment rate among young people is usually above 30%. The highest employment rates are found in Central Europe, with Germany in particular, where the average youth unemployment rate is below 6%. There is a notable difference between central and northern Europe and the Mediterranean area. France is in the middle of this duality with youth unemployment rates of around 15%[31].

[31] European Commission, 2019.

Taking these differences and gender and age inequalities into account, the analysis of green employment will be forwarded.

5.3. Emissions and economic metabolism

In addition to the socio-economic analysis, it is necessary to emphasise the potential of green jobs through an environmental analysis. This analysis aims to provide an overview of the main dynamics that link the economies of Europe to climate change and the environment. It is necessary to look at the EU's economic metabolism, that is to analyse the inputs of matter and energy in the form of resources, as well as the outputs of matter and energy in the form of waste. By 2019, the EU27 had reduced its greenhouse gas emissions by 24% compared to 1990 emissions. **The largest share of emissions is distributed between the Electricity, Gas, Steam and Air Conditioning Supply sectors (26,4%) and the Manufacturing sector with (25,7%)**. They are followed by the Agriculture, Forestry and Fishing sector (15,7%), and the Motorcycles sector (15,5%). This will be key to devise which economic sectors are key for an ecosocial transition.

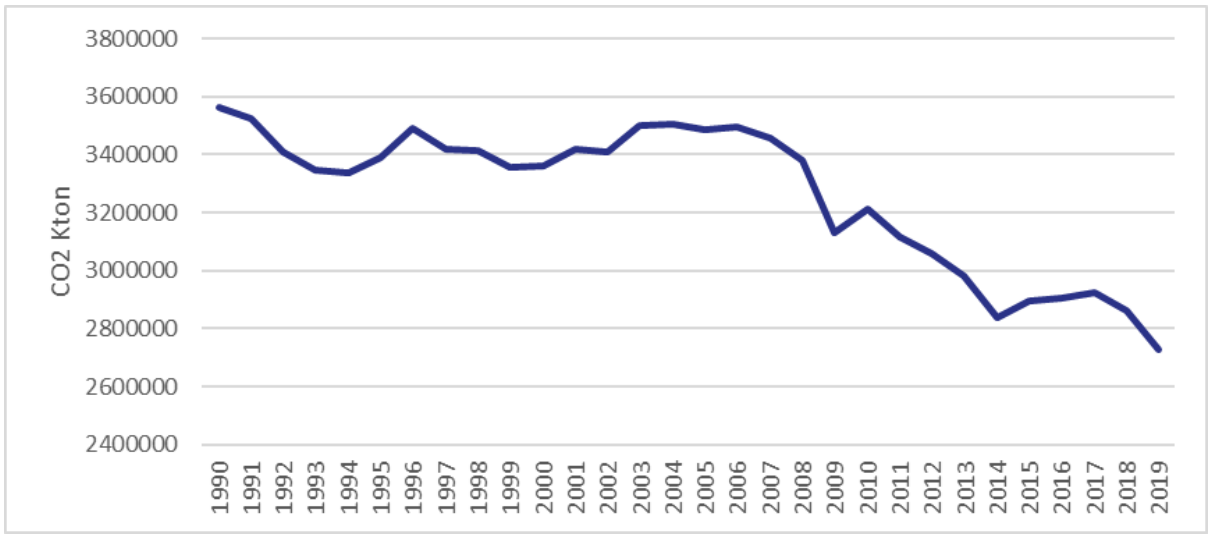

Figure 7: EU annual emissions since 1990. Eurostat

Energy consumption has remained relatively constant since 1990, but there has been a gradual decline in primary production. By sector, **consumption associated with industry has decreased while consumption in other sectors such as transport has increased**. Although energy production has declined, the share of renewable energies has risen to 22% in 2020, from 10% in 2004. The input of materials into the economic metabolism experienced a decline after the 2008 recession but since 2012 shows a slight increase especially in non-metallic minerals, the most consumed, followed by biomass and fossil energies. In turn, the circularity rate - the share of material resources used which came from recycled waste materials, saving extractions of primary raw materials - has increased from 9% to 13% in the last 11 years.

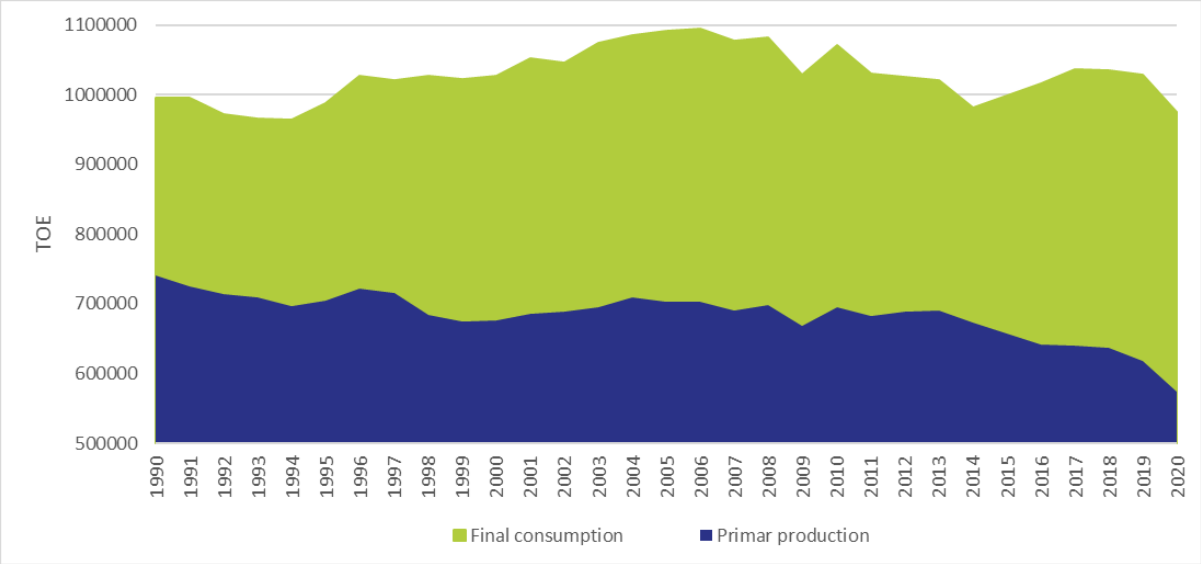

Figure 8: EU energy flow since 1990 (TOE = Tonnes Oil Equivalent). Eurostat

Thus, **there is a transformation of the energy system in which renewable energies are becoming increasingly important, which is generally reducing primary production**. At the same time, most economic sectors are increasing their consumption not only of energy but also of materials. On the other hand, the increase in the circularity rate does not seem to translate into a decrease in material consumption.

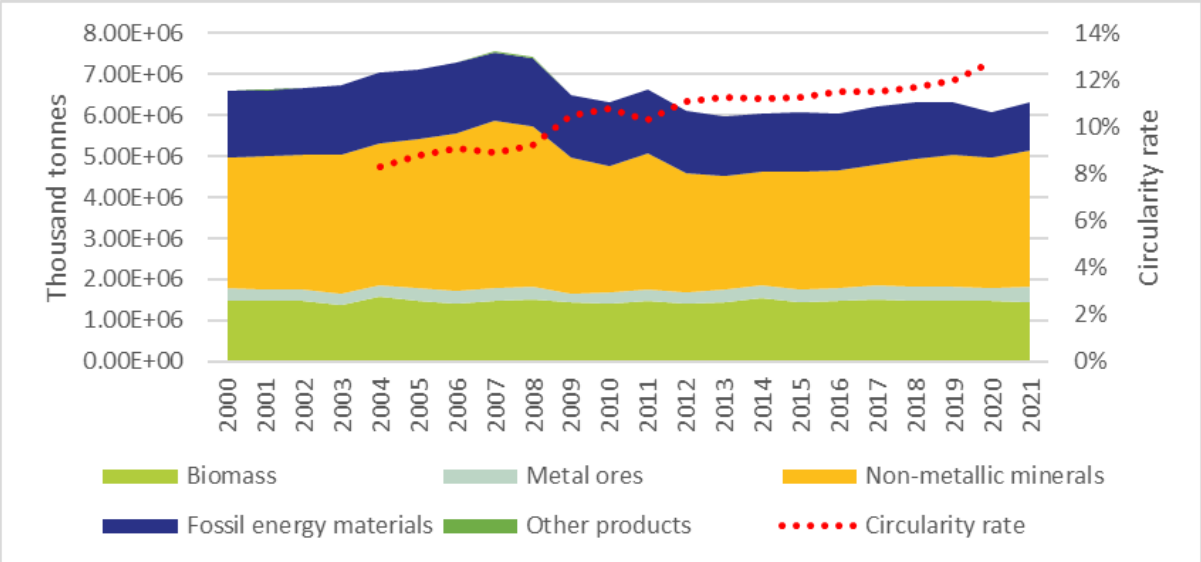

Figure 8: EU domestic material consumption since 2000 and circularity rate since 2004.

Finally, **investments in environmental protection, which were severely cut in 2016, have been mostly focused on the wastewater management sector** followed by waste management. Although investments are increasing since 2020, they have not yet reached the pre-2016 level.

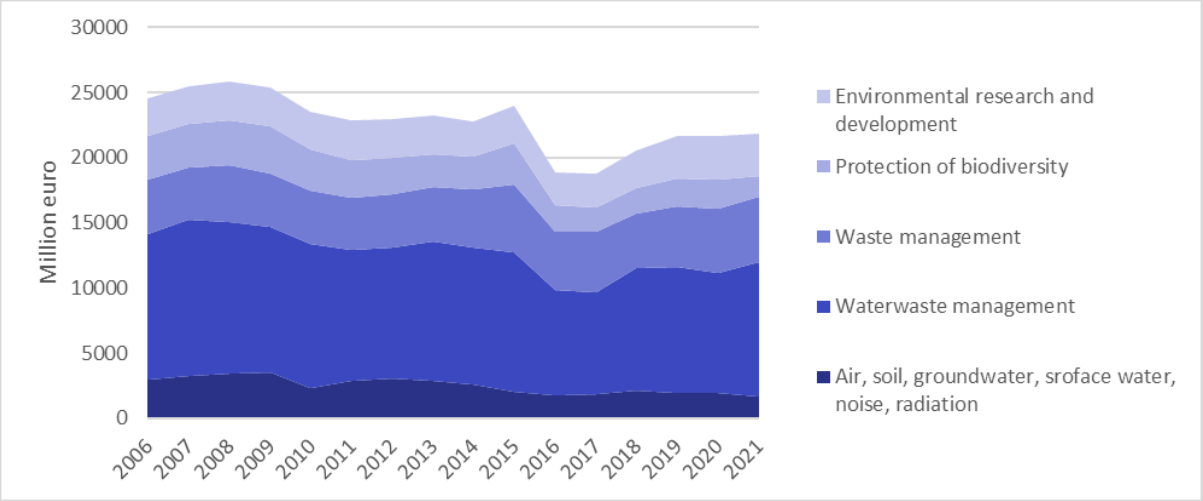

Figure 8: EU investments in environmental protection

5.4. Economic sectors of green employment in Europe

Within the conceptualisation of green employment, the way to devise an ecosocial of the transition is two-folded; analysing how existing economic sectors are transitioning (or not), as well as identifying concrete green activities that are already being promoted and greening the economy. For that, the NACE economic sectors will be taken as a reference, and a set of green sub-sectors are proposed.

This recognized and systematised list of sectors from NACE, allows to trace the extent to which diverse economic sectors are transitioning in the ecological economy, either by developing new processes and outcomes of existing activities (ie: primary education) or by proposing new activities within a sector (ie: new technological innovation). All sectors have the potential of becoming greener and more socially inclusive.

Economic sectors (NACE)
Agriculture, forestry and fishing
Mining and quarrying
Manufacturing
Electricity, gas, steam and air conditioning supply
Water supply; sewerage, waste management and remediation activities
Construction
Wholesale and retail trade; repair of motor vehicles and motorcycles
Transportation and storage

Economic sectors (NACE)
Accommodation and food service activities
Information and communication
Financial and insurance activities
Real estate activities
Professional, scientific and technical activities
Administrative and support service activities
Education
Human health and social work activities
Arts, entertainment and recreation
Other service activities
Activities of households as employers; undifferentiated goods and services producing activities of households for own use
Activities of extraterritorial organisations and bodies

Primary sectors such as *agriculture*, forestry and energy are expected to be major beneficiaries of the transition to a low-carbon economy that could raise the proportion of green and decent jobs. Given their dependency on these sectors, it is anticipated that women could benefit by turning their natural resource dependency into green and decent job opportunities. In many developing countries, though unrecognised and undervalued, women as forest stewards, farmers, natural resource managers and entrepreneurs already engage in green economic activities.[32] In addition, the obstacles faced by women in accessing green jobs are highly differentiated in the *rural sector*, especially in agricultural jobs, where there is an association between paid and unpaid work, with a distinction between domestic and care work and work that is sold on the labour market. As a result, a form of unpaid agricultural work is concentrated on women, since formal employees are mainly men, thus showing a gender gap in access to employment in this sector[33].

On the other hand, digitalization, so much advocated within the conceptualizations of green jobs, has highlighted the consequences of the digital divide which is greater for women who have to become empowered to work and increase their ability to use digital tools and online resources to streamline their operations and provide flexibility. Women in the energy sector also suffer from substantial underrepresentation in the labour market, and this situation is bigger when we consider more specialised professional categories (engineering, etc.),

[32] Gender equality and green jobs, ILO, 2015

[33] Estudio sobre acceso de las mujeres al empleo verde en América Latina, Estudios temático 21, 2022

therefore they continue to be underrepresented in leadership positions, both in the public and private sectors, and are not equally represented throughout the sector's value chain. Thus, showing the lack of equal opportunities between men and women generated by the projects, and encouraging the incorporation of women into non-traditional jobs within the sector that consider making the transition to cleaner and more technologically advanced energy systems.

However, the NACE sectors are quite general and outdated. A more concrete categorisation of green economic activities is needed to better analyse how transformations in the productive economy are taking place, and devise ways to promote an ecosocial transition. Thus, the following green specific sub-sectors of the economy have been identified.

Green specific sub-sector
Treatment, Purification and Regeneration of water - Urban or industrial water
Management, treatment and minimisation techniques in the generation waste - Including upcycling and recycling of urban, industrial, or inert waste, circularity, and cleaning and regeneration of contaminated soils
Renewable Energies - Wind, Solar PV, Solar Thermal, Geothermal, Aerothermal, Biomass, Biofuels, Hydrogen; self-consumption and Energy Communities
Management of Natural Spaces - Exploitation (wood and non-timber), regeneration of affected areas, reforestation of trees or scrub, restitution of habitats, restitution of wetlands, regeneration and cleaning of soil, green infrastructures for water management
Socio Environmental Services - Research, political advocacy, engineering, consulting and auditing, ACV, ecodesign, green purchasing, laboratories for the analysis of water, waste, soil, air, etc.
Agroecology and agri-food management - Including plant and animal level
Urban ecology and bioclimatic architecture - Rehabilitation for energy efficiency of buildings, rehabilitation of urban areas, sustainable mobility, re-naturalisation of landscaped areas and channels and wetlands, new biophilic or natural cities, nature-based solutions, bioconstruction
Local and slow tourism - Ornithological and "adventure" tourism in protected or unprotected natural environments
Sustainable finance - Including equity crowdfunding, crowdlending of social and sustainable projects and entrepreneurship
Communication and Awareness - Including Environmental Education, cultural and audiovisual projects

Green specific sub-sector
Micro manufacturing - Crafts, laser cutting, numerical design, manual work in textiles, etc. at a small scale
Research for an ecosocial transition - From Social Sciences and Humanities, STEM, etc, and including theoretical, evaluation of case studies, developing new technologies and services
Net zero industrial services - Cyclo logistics, bike distribution, reverse logistics

Within these green activities, there are entrepreneurship opportunities in all of them. This classification does not intend to be exhaustive and probably leaves some emerging activities out, however, its an initial approach that reveals some sectors that are emerging and gaining importance in Europe.

6. A map of relevant experiences of green jobs in Europe

The mapping of green and social initiatives, agents and training programs in Europe, sheds light on the efforts put in promoting the ecosocial transition. This mapping of activities and agents will enable the critical analysis of challenges and opportunities, as well as the proposal of strategies to guide green jobs and potential training programs.

In total, 53 economic activities in Europe have been mapped; these not only consider themselves as green jobs or social and sustainable entrepreneurship (as shown in their responses to the questionnaire or public announcements) but also show an alignment - at least in their discourse - with the ecosocial transition. Moreover, 59 social agentes, as key allies for the ecosocial transition, and 17 training programs related to green jobs have also been identified. This mapping shows actors and practices that are leading the way in moving towards a socio-ecological economy. These are concrete cases from Austria, Belgium, Spain, Germany, Poland, Hungary, Italy and Denmark, which allow us to see good practices, and to analyse some emerging conflicts, opportunities for youth and other groups, and the capacities or needs they demand.

6.1. Green jobs and green and social and sustainable entrepreneurship

The following initiatives of green jobs and social and sustainable entrepreneurship illustrate ways in which economic sectors and activities are pointing towards a just transition. A diverse range of initiatives have been identified[34], trying to portray how green employment is emerging in different economic sectors, and also the types of organisations that are being created (associations, cooperatives, companies, networks, think tanks, NGOs or entrepreneurial projects).

[34] This is an exploratory mapping, and a more thorough analysis of their environmental and social impact, ideally with indicators developed at the EU level, would allow a more tuned analysis of why they are green jobs or if they are not. As discussed later, the evaluation of the economic activities is key in order to consider them as green employment or not, yet is a pending methodology to be developed at the European and global level.

	Name of initiative	Description	Type of entity	Employees	Economic sector (NACE)	Sub-sector in the green economy
Austria	en2	Engineering services related to energy efficiency in buildings.	Company	Unknown	Electricity, gas, steam and air conditioning supply; Professional, scientific and technical activities	Renewable energies
	Wohnwagon	Company focus on bioconstruction, research and environmental education	Company	Unknown	Manufacturing	Socio environmental services
	SFC Umwelttechnik GmbH	Design and supply of water and wastewater treatment plants	Entrepreneur	12	Water supply, sewerage, waste management and remediation activities	Treatment, Purification and Regeneration of water
Belgium	ARCHE Consulting	Environmental risk assessments for chemicals, emission reduction plans for pesticides in surface water, study monitoring with contract labs, Cradle 2 Cradle assessments, research projects on (eco)toxicology and sustainability	Company	38	Professional, scientific and technical activities	Socio environmental services
	Ecco Nova	Participatory finance of projects in the ecological transition.	Company	Unknown	Financial and insurance activities	Sustainable finance
	Urbike	Last-mile bike distribution, including bicycle delivery services for all types of goods, advice and support for organisations in the transition to cyclo-logistics, training to ensure the safety, performance and sustainability of cargo bike trips, sale of rolling materials designed for bicycle deliveries.	Cooperative	650	Transportation and storage	Net zero industrial services
	Ressources	Social and circular economy companies federation formed 74 companies working on local services related to recycling, reutilisation and reparation of many different products	Network	Unknown	Manufacturing Wholesale and retail trade; repair of motor vehicles and	Management, treatment and minimisation techniques in the generation waste

	Name of initiative	Description	Type of entity	Employees	Economic sector (NACE)	Sub-sector in the green economy
					motorcycles Activities of households as employers; undifferentiated goods and services producing activities of households for own use	
	HERW!N	Collective of social and circular entrepreneurs with over 90 companies with a social and environmental sustainability perspective. The companies associated in HERW!N work in the manufacturing and recycling sectors. The network provides advocancy services and training courses for the companies.	Network	10.000	Manufacturing Water supply, sewerage, waste management and remediation activities	Management, treatment and minimisation techniques in the generation waste
	Pan Terre	Second hand clothes and recycling initiative focusing on circular economy and social integration	Company	250	Water supply, sewerage, waste management and remediation activities	Management, treatment and minimisation techniques in the generation waste
	TeamGroen	Environmental conservation initiative with a social economy perspective. They work in the preservation and maintenance of protected areas and urban green zones	Company	Unknown	Other service activities	Management of Natural Spaces
	Retrival	Selective deconstruction, circularity with construction materials	Cooperative	36	Water supply, sewerage, waste management and remediation activities	Management, treatment and minimisation techniques in the generation waste
	Rumgehør	Architectural firm focused on bioclimatic design	Company	Unknown	Professional, scientific and	Socio environmental

	Name of initiative	Description	Type of entity	Employees	Economic sector (NACE)	Sub-sector in the green economy
		adapted to the needs of the environment and people			technical activities	services
	Andelsgaard	Cooperative with the aim of buying, rebuilding and leasing farms to cultivate the land in a regenerative, modern and sustainable way	Cooperative	Unknown	Agriculture, forestry and fishing	Management of natural spaces
	Sheworks Atelier	Create job for females on the outskirts of the danish labour market by recycling textiles into new design products B2B	Entrepreneur	17	Manufacturing	Management, treatment and minimisation techniques in the generation waste
Denmark	Aalborg Energie Technik	Engineering and construction company that delivers biomass energy plants using local biomass available such as residuals, wood waste, demolition wood, industrial waste, chicken litter, meat and bone meal.	Company	130	Electricity, gas, steam and air conditioning supply	Renewable Energies
	Sheworks Atelier	Textile design studio and manufacturing initiative using leftover and waste materials from the textile industry creating handmade circular products with low environmental impact. The company employs talented immigrant and refugee women, improving their opportunities to network, create and develop together.	Company	17	Manufacturing	Micro manufacturing
	Concito	They provide climate solutions to politicians, companies and citizens to catalyse action to limit the harmful effects of global warming as a way to build climate safe and robust societies	Think tank	Unknown	Information and communication; Professional, scientific and technical activities	Socio environmental services
	Merkur	Cooperative bank working with the SDGs and investing in green and social initiatives to improve their developpement	Cooperative	Unknown	Financial and insurance activities	Sustainable finance

	Name of initiative	Description	Type of entity	Employees	Economic sector (NACE)	Sub-sector in the green economy
	Research centre for Democratic Businesses	Analysis, advocacy and public affairs initiative to promote democratic enterprises and empower the cooperative business sector	Think tank	11	Information and communication; Professional, scientific and technical activities	Socio environmental services
Germany	KlimAktiv gGmbH	Partner for companies, NGOs, municipalities and other organisations for active climate protection through awareness of their own carbon footprint	Company	12	Professional, scientific and technical activities	Communication and awareness
	Landgut Stober	Hosting the most sustainable Hotel & Event Location in Europe (300 rooms, 30 meeting rooms)	Company	71	Accommodation and food service activities; Information and communication	Socio environmental services
	Lebenskleidung	They produce textile products by addressing the entire value chain to ensure fair and sustainable production.	Company	Unknown	Manufacturing	Micro manufacturing
	Neumarkter Lammsbräu	They produce organic beer working with local producers	Company	Unknown	Manufacturing	Agroecology and agri-food management
Hungary	BioAqua Pro Ltd.	Ecological status assessments, biomonitoring, impact assessments	Entrepreneur	18	Professional, scientific and technical activities	Socio environmental services
	Sövit Ltd.	Environmental consulting	Entrepreneur	2	Professional, scientific and technical activities; Administrative and support service activities	Socio environmental services
	Nagyapám Háza	Teaching old ways of building, preserving old buildings, teaching how to use local material, "old house holds don't make litter and pollution" - so all their camp is zerowaste	Network	3	Construction; Education; Arts, entertainment and recreation	Management, treatment and minimisation techniques in the generation waste

	Name of initiative	Description	Type of entity	Employees	Economic sector (NACE)	Sub-sector in the green economy
	Humusz Szövetség	Waste prevention and environmental education	NGO	4	Education; Arts, entertainment and recreation	Communication and awareness
Italy	Impronta Etica	Communication and dissemination of sustainable practices, experiences and documents of its members, to encourage fruitful knowledge-sharing and partnerships	Association	3	Information and communication; Education	Communication and awareness
	Shifting Lab	Application of systemic and sustainable approach to the way temporary events are designed and implemented	Association	4	Information and communication; Other service activities	Socio environmental services
	Collettivo Verso	Urban regeneration starting from participatory processes with the communities, and with environmental and social principles	Collective	5	Construction; Professional, scientific and technical activities Education; Arts, entertainment and recreation; Other service activities	Urban ecology and bioclimatic architecture
	CRITERIA	Urban and environmental planning and design, maintenance and restoration of biological diversity, Strategic Environmental Assessment (SEA), assessment of plans and projects related to NATURA 2000 sites, Environmental Impact Assessment (EIA)	Company	16	Professional, scientific and technical activities	Urban ecology and bioclimatic architecture
	Ener2Crowd S.r.l. SB	Crowdfunding campaigns for sustainable environment and energy efficiency	Company	10	Financial and insurance activities	Sustainable finance
	Camminamentre	Environmental education	Cooperative	70	Education; Activities of households as employers, undifferentiated goods and services producing activities of households for	Communication and awareness

	Name of initiative	Description	Type of entity	Employees	Economic sector (NACE)	Sub-sector in the green economy
					own use	
	Banca Etica	Filiale Banca Etica is a tool at the service of social transformation through the financing of third sector projects, the social and solidarity economy and the promotion of a culture of financial intermediation, under the principles of transparency, participation and democracy.	Cooperative	Unknown	Financial and insurance activities	Sustainable finance
	Atelier Riforma	Promotes the transition of the fashion industry towards a more circular production and consumption model. They have invented and patented an innovative technology called Re4Circular. This is provided to all entities that manage post-consumer textile waste so that they can direct each discarded garment they collect towards the best form of circular recovery (between reuse, recycling or upcycling)	Entrepreneur	6	Water supply, sewerage, waste management and remediation activities; Wholesale and retail trade; repair of motor vehicles; Other service activities	Management, treatment and minimisation techniques in the generation waste
	Reborn Ideas	Marketplace of Italian makers who produce fashion and design trough upcycling, recycling and sustainable materials	Entrepreneur	2	Manufacturing	Management, treatment and minimisation techniques in the generation waste
	AIMEF	Association that promotes Forest Medicine, encourages the spread of 'Urban Jungles', and safeguards and protects the Woodland and Natural Heritage in our country, conveying the therapeutic potential of Nature Immersion	Association	Unknown	Human health and social work activities	Socio Environmental Services
	AIGAE	From 1992, AIGAE in Emilia-Romagna is the institutional representation of excursion guides which promotes environmental dissemination and sustainability, and nature education.	Association of entrepreneurs	Unknown	Education	Socio Environmental Services

	Name of initiative	Description	Type of entity	Employees	Economic sector (NACE)	Sub-sector in the green economy
	R2menergy	R2M Solution is an engineering company specialising in integrated, multidisciplinary consultancy. Our mission is to bridge the gap between research activities in the field of real estate, promoted by the European Commission especially through the Horizon 2020 and Horizon Europe programmes, and their application on the market.	Company	Unknown	Professional, scientific and technical activities, Electricity, gas, steam and air conditioning supply	Renewable Energies, Research for an ecosocial transition
Poland	Gas Nanobubble Technology	They design and produce advanced nanobubble generators and carry out research with the use of this technology and impact it has on sustainable and highly organic agriculture	Company	>10	Agriculture, forestry and fishing; Water supply, sewerage, waste management and remediation activities; Professional, scientific and technical activities	Socio environmental services
	Friends of the Rivers of Ina and Gowienica Association	River restoration, development of nature based tourism, nature conservation, improvement of public awareness	Network	70	Agriculture, forestry and fishing; Water supply, sewerage, waste management and remediation activities; Professional, scientific and technical activities; Education	Management of Natural Spaces
	West Pomeranian Nature Society	It's a non-governmental public benefit organisation that runs its activities for the sake of nature, including in particular protection and research of birds and their habitats	NGO	Unknown	Professional, scientific and technical activities	Socio environmental services
	La Magrana Vallesana	Association of agroecological consumers and producers in the region based in Granollers. They integrate more than 300 associated family units that enjoy food healthy and respectful with the environment. Their five fundamental pillars	Association	3	Agriculture, forestry and fishing	Agroecology

	Name of initiative	Description	Type of entity	Employees	Economic sector (NACE)	Sub-sector in the green economy
Spain		are agroecology, food sovereignty, ecofeminism, the social and solidarity economy, and participation.				
	Ecooo - Energía Ciudadana	By socialising solar participations they promote a greener economy and also they build residential systems, for both individuals and collectives	Cooperative	30	Electricity, gas, steam and air conditioning supply; Construction	Renewable energies
	Garúa	Ecosocial research, training and consulting	Cooperative	11	Accommodation and food service activities; Professional, scientific and technical activities; Arts, entertainment and recreation	Socio environmental services
	Germinando	Consultancy for entrepreneurship in agroecology	Cooperative	14	Agriculture, forestry and fishing; Professional, scientific and technical activities; Administrative and support service activities; Education	Socio environmental services
	La Corriente	Green power trading & photovoltaic plants installation	Cooperative	5	Electricity, gas, steam and air conditioning supply; Education	Renewable energies
Spain	Som Energia	Production and commercialization of renewable energy for citizens and organisations.	Cooperative	89	Electricity, gas, steam and air conditioning supply	Renewable energies
	Mercenatura		Entrepreneur	1	Wholesale and retail trade	Micro manufacturing
	Besha wear	Project to transmit Afropositivism in Spain, through sustainable fashion, music and solidarity. It works in alliance with anti-racist groups.	Entrepreneur	1	Wholesale and retail trade	Micro manufacturing

	Name of initiative	Description	Type of entity	Employees	Economic sector (NACE)	Sub-sector in the green economy
	Trèvol	Sustainable bicycle micrologistics cooperative focus on courier and delivery services between companies	Cooperative	Unknown	Transportation and storage	Net zero industrial services
	HOPE	Producer of videos on climate change, to raise awareness about different global social and environmental conflicts.	Company	Unknown	Education	Communication and awareness
EU level	Aalborg Energie Technik a/s	Supply of biomass and waste stream fired CHP plants	Company	130	Electricity, gas, steam and air conditioning supply	Management, treatment and minimisation techniques in the generation waste
	Patagonia Action Works	They support world wide grassroots groups that work to find solution to the environmental crisis	NGO	Unknown	Not answered	Socio environmental services
	Land Life	Forest and soil restoration	Company	60	Agriculture, forestry and fishing	Management, treatment and minimisation techniques in the generation waste

Social enterprises and social entrepreneurship show to have the focus on upskilling and reskilling individuals and workers, from different socioeconomic backgrounds, to engage in new socioeconomic processes. More precisely, **cooperatives** are emerging fast in the green economy, as they are oriented towards cooperation, solidarity, self-management and democratic values, in a transition that is just and environmentally conscious[35]. These are alternatives to business as usual that are becoming references to tackle concrete climate and social challenges in different regions. As the recently approved first resolution on **social and solidarity economy** by the UN General Assembly, the social and solidarity economy can contribute “to the achievement and localisation of the Sustainable Development Goals, particularly in terms of employment and

[35] International Cooperative Alliance, 2021.

decent work, the provision of social services, the promotion of gender equality and empowerment of women, access to affordable finance, and local economic development (...), as well as inclusive and sustainable growth", among others.

Regarding **entrepreneurship**, the initiatives mapped fit with the definition proposed by the OECD: "Social entrepreneurship is the process through which specific types of actors – the "social entrepreneurs" – create and develop organisations that may be either social enterprises or other types of organisations. It also designates a field including a broad set of initiatives with a social impact dimension in a spectrum ranging from for-profit to non-profits." Social entrepreneurs in Europe are also integrating sustainability criteria, and becoming opportunities for women, youth, migrant populations and innovative peoples, to propose services, products and areas of work increasingly important for an ecosocial transition. However, the success of social entrepreneurs depends on financing opportunities, a regulatory framework that ensures their access to markets (and competition against bigger companies or even oligopolies) and the development of skills (especially regarding business models). Moreover, entrepreneurs are in need of networks and social structures that connect them and allow them to learn together, exchange ideas, and - more importantly - gain collective power to demand better regulatory, political and financial conditions for their work. Some examples of existing networks are shown in the following section.

6.2. Social and institutional actors for a green and just transition of the economy

The role that the social agents in different European countries are playing or can play is also fundamental. The diversity of actors provides essential value: through their specialisation in bringing together actors from key economic sectors, through their links with young people, through their orientation towards guaranteeing labour and human rights and reducing inequalities, or through a profound ecological approach. The following list of actors[36] previews some of the partnerships that will be key to promoting a just transition in different countries and in Europe as a whole; these include social movements, networks of entities and peoples, associations or entities with a strong social orientation in the just and ecological transition, NGOs and unions. Special attention was paid to associations and networks of entrepreneurs, given that they have specific needs that sometimes do not fit into traditional trade unions, and it is essential for them to form associations in order to enjoy collective power for negotiations and political advocacy that will benefit them.

	Name of actor	Description
	Bond Beter Leefmilieu	Network of companies and social organisations involved in the preservation of the environment in the Flemish region.

[36] The focus is more on the partner countries of the Greener Future project, although some illustrations of Central and Eastern Europe are also shown.

	Name of actor	Description
Belgium	Climate Action Network (CAN) Europe	Network that promotes sustainable climate, energy and development policies throughout Europe, empowering civil society organisations to influence in the design and development of effective climate change policies
	CAPATA	A critical active citizenship movement based in Belgium but with a global reach. It is made up of more than 100 young volunteers and thousands of supporters who seek to end the mining and extraction of non-renewable raw materials through communication activities and research.
	Inter-Environmental Brussels	Inter-Environment Brussels is an association of residents of the Brussels region who are active in urban, ecological and social issues. It is made up of groups of residents in the form of neighbourhood committees, associations and collectives that seek social transformation according to principles of solidarity, social emancipation and urban democracy. Inter-Environment Brussels claims for all the right to define and defend collectively its environment (social, ecological, economic, political, cultural, etc.)
	Straten General	stRaten General is a citizen collaboration platform for the promotion of the quality of life and sustainability of neighbourhoods made up of a wide network of volunteers.
	Espace Environment	It is an independent public interest organisation composed of an interdisciplinary team of 40 people. They carry out social research, awareness-raising and communication work on issues such as sustainable food and consumption and environmental conservation.
	Canopea	Canopea is a federation that groups 130 environmental non-profit associations.
	General Labour Federation of Belgium	Socialist national trade union federation in Belgium, with a membership of 1.5 million workers.
	ECOS	International NGO with a network of members and experts advocating for environmentally friendly technical standards, policies and laws.
Denmark	Den Grønne Ungdomsbevægelse	The biggest youth-led grassroot movement on the green agenda and green new deal in Denmark. Den Grønne Ungdomsbevægelse is formed by volunteers

	Name of actor	Description
		organising in horizontal structures.
	Operation 8	Operation 8 is an organisation that seeks to empower entrepreneurship & youth in the urban periphery with attention to social and cultural aspects. Among others, they support initiatives related to decent and sustainable jobs, education and capacity building.
	Sociale Entreprenører i Danmark	Association focused on social entrepreneurship, co-production and other forms of solutions to concrete social problems. They seek to create optimal conditions for social entrepreneurs in terms of funding, education and sharing of knowledge. They provide training, support and competence building for social and green entrepreneurs
	Dansk Ungdoms Fællesråd	Dansk Ungdoms Fællesråd is a network for 80 children's and youth organisations involved in the community, from environmental and social organisations to scouts and student organisations.
	Kooperationen	Cooperative formed by 114 members and companies and 14.000 employees with social and environmental companies among them.
	DGUB - The Green Youth Movement	The biggest youth-led grassroot movement on the green agenda in Denmark. Their policy statement is “A green future”, which sets a vision for the future of 14 areas of our society and the choices that can take us there.
	3F	Denmark’s biggest trade union, which helps collective agreements and works to improve different workplaces. They also offer personalised guidance.
	DM	Academic union that indices in salaries, offerts personalised and professional advice on career and skill development, and has important bargaining power in the private labour market.
Italy	Italian alliance for sustainable development	Lobbying for the culture of sustainability and the promotion and implementation of the UN 2030 agenda.

	Name of actor	Description
	Mygrants S.r.l. S.B.	Web app based on adaptive microlearning and thematic module quizzes designed especially to provide several services to immigrants, including: information, training, access to credit, entrepreneurial support and job placement
	Rete Italiana di Economia Solidale REIS	RIES is an association whose members are part of other associations and organisations too. Their aim is to promote and dynamize initiatives related to the solidarity economy.
	Forum per la Finanza Sostenibile	Non-profit association that seeks to introduce environmental and social sustainability criteria in the field of financial investments.
	Fuori Mercato	Fuori Mercato Autogestione in Movimento is a trade union and social organisation made up of workers from various formal and informal sectors that promotes the solidarity economy and the struggle for decent living and working conditions.
	Politici per caso	Politici per caso is an initiative to promote citizens' assemblies in relation to specific issues such as climate change and to promote change through bottom-up policy proposals.
	Nuove Ri-Generazioni	Created to contribute to the growth of a culture of sustainability, offering tools for reading and in-depth analysis, stimulating policies oriented towards green building, urban regeneration, and the recovery of urban peripheries, promoting concrete actions and disputes in the territory to launch pilot projects, starting from the most degraded large urban areas.
	AVANZI	Since 1997 they have been promoting sustainability through social innovation, in order to design and develop innovative solutions for sustainability and facilitate their implementation through initiatives, projects and new ventures.
	IMPRESA 2030	Non-Governmental Organization which has been fighting to achieve social, economic and environmental justice around the world for over 50 years. They operate in Africa, Asia and Latin America, with projects for international cooperation to develop an independent and sustainable economy together with local communities. In Italy, thanks to thousands of active volunteers, we promote projects, volunteering camps and a lifestyle based on solidarity and sustainability.

	Name of actor	Description
	ENEA	ENEA is the Italian National Agency for Energy and Sustainable Development whose objective is to provide services to companies, public administration and citizens in the energy sector, environment and sustainable economic development.
	Factory 2030	Phoenix Factory is a community of young people from all over Italy, that offers online training courses and supports youth projects in line with one of the 17 Sustainability Goals 2030.
	Rete delle Lotte Ambientali Bolognesi	Network of associations committed to the fight against climate change and social and environmental justice, including international associations such as Extinction Rebellion Bologna and Fridays For Future Bologna.
	Rete Emergenza Climatica e Ambientale del Emilia Romagna (RECA ER)	The Climate and Environmental Emergency Network of Emilia Romagna (RECA ER) is a network that coordinates numerous local organisations to join forces and amplify the voice of civil society and social movements concerned about the climate inaction of the government and job insecurity. It is made up of 75 associations and committees.
	Forum italiano del Movimenti per l'acqua	The Forum Italiano del Movimenti per l'Acqua group different social organisations, unions and local committees concerned with public water management defending the water as a primary common resource.
	Entrepreneur's Organization Italy	Organisation created by entrepreneurs for entrepreneurs, to support and help them reach the full realisation in their business and private life.
	Italian Labour Union	National trade union in Italy, founded on social, democratic and laic values. Represent almost 2.2 million workers.
Spain	Instituto para la Transición Justa	Public organisms dependent on the Spanish ministry of ecologic transition and demographic challenge focus on the transitión of the labour force to a more sustainable economy.
	Basque Circular Hub y Circular Berrindartzea	Public-private partnership project together with the Basque Government. They work on environmental projects also look for young people and then manage their internship stage in Circular Economy

	Name of actor	Description
	Plataforma Nave Boetticher	In search of a greater impact on the activities of the Nave Boetticher, which is an industrial space in the South of the city of Madrid. The warehouse is an opportunity to turn around the difficult socio-economic situation of the South, supporting innovation and hosting processes and activities that promote a more balanced development, helping to promote employment, training in new skills, innovation, and equity.
	Fundación Secretariado Gitano	Social and cultural organisation of the gypsy community that promotes social development and equal access to rights as the rest of the society.
	FAD Juventud	Organisation that works with youth to improve their quality of life also through programs of green employment
	Greenpeace	Greenpeace is a global movement of more than 3 million people in 55 countries, taking action to stop environmental abuses.
	Sindicato de Manteros	A trade union of street vendors, mostly of African origin, which defends the rights of migrants as well as the working conditions of these workers.
	Consejo de la Juventud	Platform of youth organisations formed by the Youth Councils of the Autonomous Communities and youth organisations at state level. It is made up of 60 youth organisations and its aim is to promote the participation of young people in the political, social, economic and cultural development of Spain.
	Talento para el futuro	Talento Para El Futuro is an organisation that seeks to promote the youth impact on policies closing the intergenerational gap and fighting for a fairer society.
	Arousa Moza	Arousa Moza is the youth association of the municipality of Vilagarcía de Arousa in Galicia. They organise activities related to gender equality, and social and environmental sustainability.
	CCOO	The Confederación Sindical de Comisiones Obreras is an important trade union in Spain, intervening in workplaces, lobbying, participating in collective bargaining, and offering legal advice to workers.
	UGT	The Trade Union Unión General de Trabajadoras y Trabajadores with an important presence in Spain.

	Name of actor	Description
	CGT	The Confederación General del Trabajo is a trade union that promotes mutual support and has anarcho-syndicalist values. It has an important alliance with the LGTBI and racialised groups, also defending their rights.
Central and Eastern Europe	EPIZ	EPIZ is a global learning centre that seeks to promote a new perspective with ecological, human rights and economic contexts more firmly in vocational training and to contribute to capacity building of skilled workers.
	Gólya	Gólya is a cooperatively operated pub and community centre in Budapest. It has become a platform for 9 social organisations that organise different activities such as sports and dance, workshops, radio programs, publications, etc. It has also a messaging service.
	ÖKOBÜRO	ÖKOBÜRO is a group of 20 Austrian organisations concerned with the environmental conservation, and biodiversity loss
	Green Federation GAIA	Green Federation “GAIA” is a non-profitable and non-governmental association, working for nature conservation, environmental protection, sustainable development and development of civil society.
EU level	RREUSE	International network representing social enterprises active in re-use, repair and recycling.
	European Anti Poverty Network (EAPN)	European network that involves anti-poverty organisations such as grassroot groups and NGOs. Across voluntary organisations they fight against poverty and social exclusion.
	Rescoop	Reescoop is a federation of European energy cooperatives concerned with environmental sustainability and energy efficiency.
	European Environmental Bureau	Is the largest network of environmental citizens organisations in Europe. The work on environmental communications and sensibilization and giving services of advocacy among others to promote environmental justice and participatory democracy.

	Name of actor	Description
	ENSIE	European Network for Social Integration Enterprises, represents the interests of national and regional networks of 'Work Integration Social Enterprises' (WISEs) striving for more inclusive and integrated forms of employment at European level.
	LifeLong Learning Platform	The Lifelong Learning Platform is an umbrella that gathers 42 European organisations active in the field of education, training and youth, coming from all over Europe and beyond. Currently these networks represent more than 50 000 educational institutions and associations covering all sectors of formal, non-formal and informal learning. Their members reach out to several millions of beneficiaries.
	Just Transition Fund	The Just Transition Fund is the organism that provides economic support to the diversification of the economy and the transitions of the different state members to a more sustainable economy
	SDG Watch	SDG Watch Europe is an EU-level, cross-sectoral CSO alliance of NGOs from development, environment, social, human rights and other sectors. Its goal is to hold governments to account for the implementation of the 2030 Agenda for Sustainable Development (SDGs).
	European Disability Forum	European Disability Forum is an umbrella organisation of persons with disabilities. It brings together representative organisations of persons with disabilities from across Europe, defending the interests of more than 100 million persons with disabilities in Europe. It is run by persons with disabilities and their families. We are a strong united voice of persons with disabilities in Europe.
	Fridays for Future	Fridays for Future is an international environmental social movement, led by youth, and focused on actions that seeks to impact public opinion and media about climate change.
	Extinction Rebellion	International social movement Extinction Rebellion focused on communicating and raising awareness about climate change and the biodiversity crisis, calling for new public policies to reduce greenhouse gas emissions. It is led by local youth of different countries, and uses non violent actions.

6.3. Training opportunities

Some actors are already leading the way, designing and implementing training programmes for different groups and in different fields and sectors. These training programmes for green jobs are promoted by public institutions or social organisations. Without being exhaustive, this compilation of actors who organise training programmes allows us to elucidate some of the key issues underway.

	Training program	Description of the project or actor	Description of the training strategy
Belgium	Reséau Transition	Reséau Transition is a training platform for the environmental transition of individuals, companies and institutions with the aim of creating new socio-economic paradigms.	They provide numerous training courses related to the ecological transition (addressing both dimensions of resource management and governance, energy, sustainable practices, etc.) for individuals as well as for start-ups and established companies in both face-to-face and online modalities. Reséau Transition also keeps track of transition initiatives in Belgium.
	Institut Eco-Conseil	Eco-Conseil is dedicated to advising, coaching and training people, creating a wide network of professionals, aware of the energy transition and sustainable development.	The Eco-Conseil initial training is aimed at unemployed jobseekers with at least a short higher education qualification. It is organised as a full-time day course and lasts one year. One program is focused on a practical training directed towards public, private or associative sectors, aimed at preparing the professional integration of future eco-counsellors by allowing them to become involved in the management of environmental projects in their training locations. They offer a certificate of training as a "sustainable development project manager". Complementary, short training courses and seminars are also offered to promote transitions, to understand the levers of change, and to build on how to respond optimally to ecological and societal challenges, both at the individual and collective level. Based on a project-based approach (group work, case studies, communication courses, internships, etc.), the training consists of six months of theoretical courses and a practical internship in a professional situation.
Denmark	Global Fokus	Platform that brings together public entities that carry out humanitarian, environmental and global development activities. The aim of Global Fokus is to contribute to the professional development of individuals and their leadership in civil society to drive social and political change towards a	Global Fokus organises different capacity building courses designed for companies and institutions focusing on education, team building, team management and leadership from a social and environmental perspective.

	Training program	Description of the project or actor	Description of the training strategy
		framework of greater social justice and environmental sustainability.	
	Klima Akademiet	The climate academy is a non-profit initiative of the social economy company Academia Rethos and with the support of the ecological studies centre COINCITO. It aims to disseminate knowledge and train people, institutions and companies in matters related to the climate crisis.	Klima Akademiet organises numerous workshops, interdisciplinary courses and conferences throughout the year. In this way, it aims to achieve an intersection between the public, private and academic dimension capable of addressing a socially and environmentally just transition. The main course offered (the academy for humanists) is mainly aimed at young people under 35 with a humanities background (journalists, anthropologists, psychologists, teachers) and is oriented towards acquiring skills for the professional world.
	Kooperationen	Employer and interest organisation for cooperative and social economy enterprises in Denmark Across industries and company forms, they work based on values of democratic participation and societal sustainability. They have in-depth knowledge of the labour market and regularly participate in professional networks and plan courses.	The incubator "From academic to entrepreneur" is a development course that advises and helps groups of potential entrepreneurs and start-ups so that their ideas can become viable cooperative enterprises. Along the way, the participants have their business ideas qualified and strengthened, hear inspiring presentations and be presented with a number of tools for business development, law, sales, funding, etc. At the same time, mentors are assigned who to make the participants' ideas and businesses flourish through advice and sparring.
Italy	Schola Campesina	Schola Campesina is a training centre supported by FAO that seeks to promote peasant knowledge in the framework of food sovereignty and specific knowledge on global governance mechanisms in food and agriculture.	The Schola Campesina programme is aimed at peasants, fishermen, indigenous peoples and landless farmers with the objective of moving towards a more sustainable agricultural system based on the use and dissemination of traditional knowledge. They count with an e-learning platform through which they give an overview of the global spaces of governance related to food and agriculture. It gives a general insight on the role of civil society organisations and social movements within crucial spaces of governance.
	ISPRA	The italian Institute for Environmental Protection and Research, ISPRA works with European and international institutes to implement the mandate of the Ministry of Environment, Land and Sea, Ministry of Agriculture, Food and Forestry, and the Ministry of Education.	ISPRA plans, promotes and organizes environmental training courses- both in classroom, e-learning, and blended learning - on environmental specialist thematic. The objective of the course is to promote knowledge and skills in the areas involved in training initiatives and spread methodologies and innovative approaches in the environmental protection field. The recipients tend to be: Environmental Agency System (ARPA and APPA); Research bodies (eg. CNR, ENEA, University, etc.); Central Administrations (Ministry of the Environment MATTM, Ministry of Health, etc.).; Local body (Regions, Provinces, Municipalities), and other Bodies (eg. regional bodies, etc.).

	Training program	Description of the project or actor	Description of the training strategy
	CIMA	The International Center for Environmental Monitoring CIMA Research Foundation is a non-profit research organization. It aims to promote the study, scientific research, technological development and advanced training in engineering and environmental sciences for the protection of public health, civil protection and ecosystems.	The Capacity Development for Resilience and Climate Adaptation aims to develop expertise in risk reduction, increasing resilience and adaptive capacity to climate-related disasters, civil protection, and safeguarding terrestrial and marine ecosystems. The main objective of the program is to structure an advanced capacity development process based on national and cross-national projects and characterized, among other elements, by co-design with the main beneficiaries, verification of the impacts achieved, scientific approach and the presence of an "exit strategy" that allows to consolidate and maintain effective capacities beyond the life of the project.
	AICCON	AICCON Alta Formazione aims to spread social economy, co-operation and non-profit culture through training courses, seminars, conferences and educational activities also aimed at supporting the academic master course on "Management for Social Economy" promoted by the University of Bologna, School of Economics, Management and Statistics, Forlì Campus.	The Social Innovation Community Summer School is held at the University of Bologne, and aims at presenting an opportunity for a lively discussion about the role of regions as possible ecosystems for social innovation. In this respect, a special emphasis will be devoted to the importance of history and culture of a region for the development of such an ecosystem, as well as the role of institutions. Three parallel workshops organises in the afternoons in order to tackle challenges proposed by stakeholders of the Social Innovation Community in the Emilia-Romagna region. Each group presents the results of the work conducted in the school in a final plenary session on the last day of the school. Moreover, study visits will be organised in order to give participants a better understanding of the ecosystem of social innovation in the Bologna region.
	Koinètica	Koinètica is a platform that works in the field of communication and training for greater environmental sustainability.	They organise communication strategies, events, network management, editorial projects and training courses from the environmental and social sustainability for private entities and associations.
Spain	Agroecology training Zaragoza	Zaragoza Dinámica (Municipal Institute of Employment and Business Development) is an autonomous local body aimed at promoting quality employment and the dynamization of the labour market and the business fabric. They are committed to the professionalisation of the primary sector in order to respond to the challenges we face as a society.	The aim of the training programme is to professionalise the organic farming sector and is aimed at workers, self-employed, unemployed people, as well as young people who want to enter the sector. In the training, skills in agro-ecological production in accordance with European commitments and the requirements of society are promoted. The programme is free. Different formats are used: E-learning; virtual classroom sessions; master classes with an expert in the subject to obtain information of the highest quality and with direct application; blended learning to combine e-learning with some face-to-face or virtual classroom sessions; and demonstration days in the field.
	Fundación Biodiversidad	Fundación Biodiversidad is a públic organism from the Ministry of Ecological Transition and Demographic Challenge	Fundación Biodiversidad has the Emprendeverde Network where it offers three types of courses: Ideation itinerary for people who want to start an environmentally sustainable business; Creation itinerary for entrepreneurs who already have a business idea but

	Training program	Description of the project or actor	Description of the training strategy
		with the aim of changing the socio-economic model towards a more sustainable one.	need tools to carry it out; Alumni itinerary for people who are already part of a sustainable initiative and want to acquire new skills to strengthen or adapt their business within the sustainable economy.
	Alcalá de Henares	The University of Alcalá de Henares offers training in the framework of the co-financing between the European Social Fund and the Emplea Verde programme of the Biodiversity Foundation.	The Circular Economy Training project seeks to favour the sustainable economic development of the area by improving the employability of the beneficiaries through the promotion of the principles linked to the Circular Economy. These new trends are related to gardening, pest control, waste management, environmental certifications, urban planning and the use of endogenous resources. Among the fundamental objectives of the Circular Economy are to extend the value of products and materials, minimise waste and resource use, create value and generate employment, innovation, competitive advantages, economic savings for the entire value chain, quality of life and protection of health and the environment.
	University of Burgos	The University of Burgos promotes free training actions, co-financed by the European Social Fund, to promote Training and Quality Employment.	The training programme "RETO VERDE: Professional skills for green and sustainable jobs in innovative environments" includes 13 Training Courses (9 are distance learning and 4 are blended) and 2 Distance Counselling. Individual counselling for workers and entrepreneurs on how to undertake successfully in the field of green economy, in a sustainable way and generating the minimum environmental impact. The counselling will consist of a case study (6 hours) and distance counselling structured in one or two sessions (4 hours), using the Zoom or Teams platforms.
	Universidad Pablo Olavide Sevilla	A public university that, in addition to conventional training cycles at the academy, opens its doors to students of Secondary, Baccalaureate and Formative Cycles from all over the province of Seville (Andalucía).	The Rector's Delegation for the Sustainable Campus organises the Course: Green Employment with the aim of orienting future graduates in Environmental Sciences or recent graduates about the existing training possibilities and job opportunities, especially in the field of green employment, oriented to the circular economy and waste management. The course is part of the Environmental Education Programme on waste and recycling-RECAPACICLA, funded by the Department of Sustainability, Environment and Blue Economy of the Andalusian Regional Government, the Andalusian Federation of Municipalities and Provinces, Ecoembes and Ecovidrio.
	Professional training	The Ministry of Education and Vocational Training offers non-academic training to facilitate integration into the labour market.	The Higher Technician in Renewable Energies degree is aimed at learning about electrical systems in power stations, electrical substations, remote control and automation, electrical risk prevention, renewable energy systems, configuration of photovoltaic solar installations, management of the assembly of photovoltaic solar installations, management of the assembly of wind farms, operation and maintenance

	Training program	Description of the project or actor	Description of the training strategy
			of wind farms, entrepreneurial initiative and training in workplaces.
	Resinlab project	The RESINLAB project is conceived as a network of experimentation territories where the different actors in the resin value chain can co-create innovations in order to guarantee user-centred innovation with a clear socio-cultural, environmental and economic return on investment based on the bioeconomy and the maintenance of ecosystem services and rural development.	RESINLAB seeks to have a stable and quality professional fabric that also facilitates the labour insertion of vulnerable groups and offers new job opportunities to reduce rural depopulation. It seeks to promote the professionalisation of resin work, which is a biodegradable alternative to petroleum. New technologies have been developed in order to reduce the necessary technical skills, and training has been provided to young people, migrants and other interested parties. Accompaniment has also been provided to help trainees start their work successfully.

7. Semantics of green jobs. Frameworks to interpret vulnerability

To understand what is happening with green jobs in Europe; what activities are being promoted, how the green transition is explained and justified, who are the main actors involved and why, where are the opportunities, we need to understand what narratives emerge. The rhetoric around green jobs is shown as an expression of social and environmental problems, and also as a contribution to the ways of naming them. But green jobs cannot be understood without the re-semanticization process of employment. That is, **understanding the (de)politicisation** - how green employment empowers and mobilises groups like youth but also to demobilise and avoid political interpellation of groups.

Through language, changes can be generated and produced, as it allows for a broadening of the political imagination. Naming involves ordering, dividing and classifying categories of thought, and thus shaping them in the realm of the visible and the real. If Taylorism happened, in large part, was through a disciplining of subjectivity and the emptying of the subject of labour (mechanical, automated and alienating), in industrial societies subjectivity is channelled into corporate therapeutic culture, and in post-industrial societies the subjection of self-governance through the knowledge of disciplines like psychology or economy will dominate. The proper notion of **unemployment** arose to problematize the labour market by shifting the interpretative framework from thinking about the lack of employment to the social risk of unemployment.

At the end of the 20th century, in Europe, social issues were rearticulated on the basis of the paradigm of employability. **Dependency came to be understood not as a political problem but as a pathology or lack of will (linked to capacities)**. The new **employability paradigm** consisted of the implementation of training and contractual measures for increased recruitment in the European Union[37]. The employability paradigm progressively individualises the problem, linking unemployment to professional deficiencies and socialisation deficits. Thus, the structural demand for unemployment is no longer a problem and the focus is placed on the supply of employment and the psycho-social competences of the individual (psychologistic framework). Going further in this direction, the **activation paradigm** is based on the obligation for jobseekers to be assisted and guided in their job search and to improve their skills. Activation is presented as a re-engineering of the state in a logic of employment-centrism. The origin and the solution of the problem becomes the subject (not the market) and the social aspect is turned into an attitudinal and psychological (not political) issue. These paradigms are still shaping how we conceive employment (and green jobs). Thus, it is important, when designing policies and strategies to build capacities in the ecosocial transition, to do it without blaming jobseekers, and focusing on understanding structural political conditions that place workers in unemployment (sexual and racial division of work, feminisation of the care economy, adult centric societies that undervalue youth and elderly, etc.)

[37] Darmon et al., 2006.

At the end of the 20th century, the European Union promoted a model that questioned the anchoring of a worker to a single job, and proposed breaking with this rigidity by promoting mobility between jobs without the anxiety of falling into vulnerability. The concept of **flexicurity** entered the social lexicon in 2007, posing an oxymoron. The flexicurity model adopted in southern Europe was an import from the Danish model, although its adoption is problematic given the very different socio-productive, institutional and political contexts and traditions of regulation, collective action and state-market-family relations[38]. It is inspired by the Danish experience, which has a unique model because of its highly flexible employment (with easy hiring and firing), but also unemployment protection (covers up to 90% of wages for one year). In Spain, on the other hand, small and medium-sized enterprises dominate, operating in a local market and with a lot of informal work, there is a deep precariousness of employment, with weak R&D capacities and low provision of social coverage. Moreover, economic growth is based on the service sector, with low tax contribution, low wages and high temporariness. Flexicurity implies undermining the political and semantic principles that were regulating relations between employers and employees (labour law or social dialogue). The activation of this economicist framework sets an authoritarian relationship of rules of market functioning, rather than voting for more agreed modes of flexibility or more room for manoeuvre on the part of the worker.

Progressively, the flexicurity paradigm is appealing to **entrepreneurship** and an entrepreneurial logic is taking shape. The Entrepreneurship 2020 Action Plan, presented by the European Commission, speaks of the figure of the entrepreneur as the solution to unemployment, the permanent crisis, and market problems. "The technological advance of capitalism and the crisis of the regulatory frameworks of social citizenship mark a slope in which risks tend to be strongly individualised"[39]. Through this logic, social interpellations make the subject responsible for situations over which he or she has little control. **The depoliticisation and psychologisation of employment is a social tendency** that has also been seen in the discourses and actions surrounding green jobs, which key agents - institutions and the private sector - present as a solution to the problem of unemployment, without appealing to groups with greater vulnerability and barriers to accessing them. However, there are also experiences, especially in Denmark, looking to politicise green and social entrepreneurship

Passivity is also common in the discourses (of interviewees of the study) when it comes to proposing green jobs or how to promote a just transition. Who is responsible for this is hidden in a use of the metaphor of the market, which becomes a demiurge that makes policy a response to the demands, impositions and dictates of the market. "We are seeing that there are jobs that are going to disappear, and ambitious processes of change, in the face of which the labour market has difficulties and needs" (extract from an interview with a civil servant). This type of metaphor naturalises the market, perceiving it as willing and able to indicate needs. The personification of the market appeals to economics in order to distance political conclusions. Employment-centrism also raises some problems related to the fact that the ultimate goal is to generate employment, and the means to achieve it is to green the economy

[38] Leonardi et al, 2010.
[39] Amigot and Martínez, 2013.

that appears as a niche market. This will not lead to profound social and ecological transformation. In how we have come to understand employment, and the challenges of an eco-social transition of the economy, it is worth **problematising an approach centred on employability or skills**, and moving on to assess gender, economic and psychologising biases and the conflicts that arise.

The risk of the current approach that does not focus on who is responsible and centres on the lack of capacities, is that it created the perfect conditions for greenwashing. In interviews with social and environmental consultancies it becomes apparent the importance of signalling who is responsible for what (public authorities, social organisations, big and small companies, entrepreneurs…), counting with concrete climate targets, and measuring the social and environmental change and impact needed from green jobs and entrepreneurship initiatives. Certificates and ecolabels are being required from companies, however, due to a lack of awareness and low requirements, they tend to produce little change in production processes of existing companies. Thus, capacity building programs need to put at the centre ways to measure social and environmental impact and road map feasible change for different economic sectors and countries.

Social and institutional actors who, in different territories, are trying to politicise climate change, are key allies in politicising green jobs. In the mapping of actors, we have included those with interesting experiences or visions that could engage in proposing formulas for green employment to be provided in decent conditions, not to end up being a kind of greenwashing of large companies, and to integrate a deep social vision with youth at the centre. An illustration of these are Climate Action Network (CAN) Europe (Belgium), Sociale Entreprenører (Denmark), Rete Emergenza Climatica e Ambientale del Emilia Romagna (Italy) and Instituto para la Transición Justa (Spain). Youth social movements in all countries are also fundamental to design policies, and funding and training programs that ensure a just transition.

8. Challenges and opportunities around green jobs and social and sustainable entrepreneurship

The analysis of these case studies, along with the stakeholder workshops and in depth interviews, allowed us to analyse current trends, as well as challenges and opportunities of how the green economy is understood and promoted in Europe. From a just transition perspective, there are some key issues to be considered and that will be crucial in order to pave the way towards a greener but also more inclusive economy.

By appealing to green employment from a political framework, we understand that the decarbonisation and greening of the economy must go hand in hand with addressing vulnerability and social inequalities. Approaching some of the challenges that green employment is generating in people, sectors and territories allows us to see some lights and shadows, and then to draw paths for a just transition. Given that the largest share of emissions in Europe are in the energy and manufacturing sectors (detailed in section 5.3), and contrasted with the field work, the following section analyses challenges and opportunities in strategic areas for the European green economy. These are (1) climate mitigation and adaptation, (2) the energy transition, mobility and urbanism, and (3) textile manufacturing. However, other key activities have also come to light (in the mapping of section 6).

8.1. Climate mitigation and adaptation as an abstract and distant framework

Action on climate change seems to be in tension between two opposing poles; on the one hand, the long-term future and the distant polar meltdown, and, on the other hand, the urgency and short-term vision due to the extreme natural events in each place. Both poles are difficult to understand as useful references for a transformation of the economy and employment, and yet they make the classification, in two boxes, of the actions and policies underway. This classification, often simplified through climate mitigation and adaptation, is shrouded in abstract concepts hiding social problems that may need new approaches regarding hazard, threat, exposure, vulnerability and uncertainty.

This simple classification of adaptation and mitigation activities and actions could be related to the lack of a nuanced diagnosis. There seem to be “good green intentions” that do not seem rooted in social problems and changes in collective processes and relationships, but rather a general and superficial agreement on the overall importance of environmental challenges, from which an appeal is made to a change in individual attitudes. In the workshops and interviews conducted, we found a unanimous environmental motivation among technical teams, politicians and social organisations. We have not contacted people who doubt or deny climate change or who question the role of human activity in global warming. Those consulted who represent companies, and who highlight the business opportunity that sustainability represents, seem to agree on the general need for an ecological transformation. But this

general agreement occurs without delving into the complexities in the diagnosis, which is very much focused on individual attitudes and capabilities related to environmental issues. A company representative stated that "there is a need for education in the circular economy, both for companies and, especially, for consumers, so that everyone can demand changes in the market". Likewise, people linked to public administration insistently appealed to the environmental awareness of the population, considering that the problem is that "people" do not prioritise climate change among their concerns. They also put a lot of weight on training and capacity building for employment through "improving the skills of unemployed and employed people for changes within the labour market, as well as entrepreneurs within the green economy."

Under this abstract and alien framework of mitigation and adaptation, a psychologising framework unfolds, insistent on the lack of environmental awareness and knowledge about the climate challenge of other people, whether they are individuals, social groups or activity sectors other than the speaker. This makes it difficult to qualify what the problem is and prevents self-criticism and the assumption of one's own responsibility. Instead of thinking about what we can do from each role, the demand is repeated, in particular, about the training of other people who need to be educated to understand climate change or to be responsible for what the speaker needs in order to work together to face this challenge. The transformation of the economy and employment in the context of climate change action, is not only shrouded in technical scientific language, but is often understood as a process weighed down by others.

However, actions to mitigate and adapt to the unavoidable effects of climate change are taking place in a world of social problems. The causes and consequences of the climate problem are linked to the way we live and the way we relate to each other, and do not make previous socio-economic needs and conflicts disappear. It is just another element in the current social and cultural changes, full of conflicting positions and competing interests, as well as diverse perceptions, fears, desires and hopes. The absence of complex diagnosis is also evident in the abundance of solutions, such as nature-based solutions, energy demand management software, new electric cars, and even training programmes for green jobs that are presented as good in themselves, without knowing whether they reproduce or underpin social inequalities (such as female or youth unemployment). Meanwhile, the usual approach to climate risk analysis falls short of the complexity of the current framework characterised by the individualisation of risks and the accelerated resignification of the idea of precaution.

The social disengagement from the climate challenge is traceable in the conversations that feed into this research through the gender and class bias that pervades mitigation and adaptation initiatives and discourse. A representative of a public institution pointed out the difficulty of separating mitigation and adaptation in concrete actions and proposals, but also the inequality in the allocation of resources and the ambition and greater prominence of mitigation actions: "a lot of money has been put into some areas of activity that are directly related to mitigation, such as renewable energy production and energy rehabilitation of buildings, although they have an adaptive component, but the bulk of the funding is very clearly considered to have mitigation objectives". This person also pointed out the majority participation of men in policies and discourses on mitigation, as well as the fact that in his work team, focused on adaptation, there are people who share a social focus or with experience in

social issues, but acknowledging that there is no one specialised in social research, but that "most of them are people who come from the world of environmental sciences; there is an engineer, two of us come from environmental biology after working on issues of communication, environmental education, in other words, on social issues".

Resin work is a good illustration of a male dominated activity, which is increasingly important in the ecosocial transition, and that can include a social and political focus. Resin has been harvested for thousands of years, and in the 1990s it was an endangered crop. However, resin is making a comeback as a biodegradable alternative to petroleum. So much, in fact, that a Plan for the promotion of natural resin has been created in Europe. New technologies allow it to be used as a biodegradable substitute for petroleum in the creation of ecological plastics and other materials. Projects such as Resinlab seek to promote new models of professionalisation of the resin trade, minimising technification and promoting a generational change through the training of young people, women and migrants. One of the most interesting parts of this project, which has a focus on the green employment of social groups with low participation in the forestry sector, is its political frame. The project encourages association among the resin workers, who, because they work individually, are often disconnected. Identifying that resin workers lack collective bargaining power, processes have been carried out to create associations that bring together resin workers in different territories. This will allow them to consolidate as collective political subjects, to share experiences and learning, and - above all - to defend better conditions and institutional support at local, national and European level. This is key in a key sector for the ecosocial transition.

8.2. Techno optimism in the energy transition

The energy transition brings with it some crossroads, which relate to how green and social the related employment or entrepreneurship can be. There is a contradiction in that while companies need to consume more energy and materials to keep growing, a green energy transition has to go hand in hand with less consumption. However, in many of the jobs that are considered green, the focus is on the transition to renewable energies and to a much lesser extent on how to consume less. It is not only necessary to generate employment and stimulate knowledge about energy efficiency or building renovation, for which initiatives are beginning to emerge as we saw in the mapping, but also policies and intervention programmes to promote a socio-cultural change that modifies the relationship we have with the use and perception of energy. In this sense, cultural elements such as books, stories, theatre, as well as social research or awareness-raising processes, are key. While socio-cultural change has long been at work in Europe in relation to healthy and sustainable eating habits, it is something that is hardly raised in the energy sector. And this has to do with a notion still of growth, or very much focused on infrastructure or technologies. If employment in the energy sector continues to focus on renewables for a growth-based economic model, there will hardly be a green transition.

Renewable energies do not necessarily contribute to a green transition or generate green jobs. Some examples that are particularly interesting in Europe relate to consumer cooperatives, which facilitate access to energy to promote economic activity, local employment and

entrepreneurship, key to occupying the productive space left after the closure of coal mines and thermal power plants. Shared self-consumption of renewable energies and Local Energy Communities are the ultimate expression of decentralisation and democratisation of the energy system. Although there are pilots or projects of this type underway in all European countries (REScoop is the European federation of citizen energy communities that groups 1.900 energy communities), generating green jobs to a greater or lesser extent, political leaders, citizens and social organisations point out that this revolution has only just begun. **Jobs will continue to be generated around these Energy Communities, for the installation of solar panels, the participatory dynamization of the communities, economic and governance management, community-driven projects (circular economy, sustainable mobility, awareness-raising, etc.), social and environmental research and public-private partnerships**. There is an opportunity here to stimulate youth employability, connecting them with Energy Communities, raising awareness so that they create and lead the communities, or involve and lead the generation handover needed in them (especially in rural areas).

In terms of research on Energy Communities and energy-related societal challenges, the concept of energy citizenship is proliferating in Europe and is already mentioned in the EU Clean Energy Package adopted in 2019. Energy citizenship introduces the active participation of people in the energy market as a right (not linked to nationality) beyond consumer roles. Some characteristics of energy citizenship relate to combating energy poverty, ensuring fair and sufficient access to renewable energy, increasing citizens' participation in decision-making and strengthening the sense of belonging. In this sense, the EU and national governments set the stage for articulating the right to energy citizenship by providing policy frameworks for energy communities, while local governments are the enablers and facilitators of these rights. The latter play an important role in the implementation of energy policies, including the support, creation and participation in energy communities. They can facilitate citizens' access to knowledge, funds and even provide municipal rooftops for energy communities. Changing the model of energy governance and social organisation not only brings jobs in technological innovation, but also in research, participatory action, new regulatory frameworks, communication and awareness raising, dynamisation between territories and people, etc. There is still a huge amount of work to be done in the transposition, adaptation and implementation of the new European directives on the promotion of the use of energy from renewable sources (2018/2001) and on the internal electricity market (2019/943).

The over-emphasis on technological innovation or techno-optimism in the energy transition, and its counterpart, the under-emphasis on research and socio-cultural change, points to a key challenge for the green economy. Energy poverty, for example, requires more research at local and neighbourhood level to better understand the health and social impacts and causes of energy poverty. In addition, an in-depth gender perspective needs to be integrated, breaking away from the household as a homogenous unit and paying attention to the differential relationship of men and women to energy. Research, citizen participation, and even political advocacy and new regulations will be key economic activities to regulate large companies, provide citizens with rights and decarbonise.

8.3. The paradox of efficiency and the model of sustainable urbanism and mobility

Technical and scientific developments promote energy efficiency and the use of natural resources, but the total amount of materials, energy and water we consume continues to grow. This is an obvious pitfall in relation to mobility. Today's car fleet is much more efficient and less polluting than that of a few decades ago, but there is a rebound effect that reverses the trend: the more efficient a good or service is, the more it consumes, which ultimately increases the use of energy and resources. The number of cars grows and energy dependence increases. Moreover, energy consumption in mobility, mainly from oil, should include in its accounts the requirements of activities that are less visible or obvious than the movement of people but are part of the life cycle of products and activities, from vehicle production to infrastructure construction or waste management, including electric vehicles. This account also excludes non-monetary social and environmental impacts. However, some car manufacturers claim that their cars are green. This could lead to confusion not only in public opinion and consumption, but also in the classification of the sector as a generator of green jobs, and therefore receiving in some countries large sums of money to increase car production. Avoiding a simple greenwashing needs a wider approach. The ecological transition of employment in the vehicle production industry does not yet integrate the challenge that sustainable mobility might require not only more efficient cars, but also fewer cars in total, fewer and shorter daily trips and new management activities to foster active transportation and change the mobility model.

Mobility and energy systems depend on urban planning, which in turn depends, or has been moulded, to the needs of transportation in cars and a high energy consumption. There is a problem in the city model and related complex challenges, which implies that thinking about the green transition of each sector that has traditionally participated in the construction of the city is insufficient. Energy efficiency in the refurbishment of buildings, energy self-consumption installations and new electric vehicles do not solve problems such as traffic congestion, air and noise pollution, road accidents, lack of access to adequate and affordable housing and the loss of convivial use of public space. Electric cars reproduce inequalities in the use of public space and promote private use and individual mobility instead of collective meeting and use of public transport. Moreover, electrification of transport can play a role, but it will not convert a huge, oil-dependent industry into an equivalent, completely clean one, and jobs will not be preserved as they are.

Instead, the success of life in cities has to do with the concentration of a myriad of activities and services in close proximity to homes (shops, workplaces, public facilities, parks and friendly places for people of all ages to play and meet, etc.). The transformation of the economy and employment in the mobility sector, construction, urban retail or small industry must tackle what essentially makes cities work and go beyond mega infrastructure projects and innovative technological solutions. Essentially, intensification and mix of uses in spatial, social and economic terms is a key factor to make it easier for many daily activities to be carried out on foot or by bicycle. Local shops in urban areas have traditionally fulfilled a function, both in terms of providing goods and services necessary for daily life, and as a space that promotes social interaction and security, by encouraging the surveillance of the street.

Furthermore, it is women and the elderly who make more frequent use of this type of commerce on a daily basis, so that the tendency to replace local commerce with large supermarkets has a generational and gender impact that needs to be taken into account.

An interesting economic activity for the transformation of the urban mobility model is last-mile logistics, the final stage of delivery where goods are transported from a distribution centre or hub to the end consumer. Some experiences, such as Urbike, minimise its impact on the environment by reducing emissions, waste, and energy consumption through the use of bicycles, electric vehicles and the optimization of routes and the use of packaging materials that are recyclable or biodegradable. In addition, some of these experiences are also intended to ensure fair and ethical treatment of workers, including safe working conditions and fair wages. This combination of social equity and eco-friendly transportation in the distribution of goods has a small-scale approach, but it aims to balance the economic, social, and environmental impacts of the final stage of delivery while meeting consumer demands and urban needs.

From the conversations with different actors throughout this research, we can still point to specific challenges that could pave the way for thinking about green jobs in the framework of the urban economy. Basically, it is not just about reducing greenhouse gas emissions, but about understanding what are the real existing problems and the ongoing processes of change that link different economic sectors, spaces and social actors. For instance:

- Small urban manufacturing and associated service-industrial activities, with high added value in terms of employment and land use, have the potential to generate production chains in connection with the employment and the services needed in the neighbourhoods.
- Production sites close to residential neighbourhoods can also be places of community life, ensuring services and spaces that support industrial activity, such as shops, facilities and local services, necessary for both working and residing people.
- In these places it is also possible to promote the retention and attraction of economic activities aligned with climate action and which are also necessary for life and social relations in the neighbourhoods, therefore compatible with the challenges in housing, retail and local business, water and food supply, energy consumption, mobility and public space adaptation, among others.
- The change of the urban model and mobility systems also requires and drives the transformation of research, training, consulting, associated technical services and implementation activities. Each of these activities is adapting to developments such as green infrastructure, nature-based solutions, net-zero energy building, waste reduction and circular economy, water cycle management, urban governance and decision-making, citizen participation, tactical urbanism and other innovative actions to improve public space.

The change in urbanism, urban economy and mobility does not only refer to employment, but also poses an institutional, social, and cultural transformation that affects our urban way of life and the development of cities and economy. In the field of mobility, the European Commission speaks of a new culture of urban mobility, beyond new infrastructures and technologies, which

may be key when thinking about the learning and skills necessary to implement a new model less demanding in terms of transporting people, materials and energy.

8.4. Crafts and textile activities in the circular economy

Changing the economic model is one of the major challenges for green employment. If we refer to the textile sector, this framework must be particularly taken into account given that it is one of the most polluting industries. In recent years, it has been a sector with a great evolution in terms of improving its environmental impact. Recycling is one of the keys to this activity, sustained at various levels: from new materials, such as the creation of new fabrics that recycle different polluting components from other industries, to the rise of second-hand clothing. The representation of women in employment, both at artisan and industrial level, is also important in this sector. This is why we consider it to be a strategic activity, although it is often not given the importance it should have within green employment.

The textile sector brings together different spheres: the modern and more technological (research and development of new materials), and the traditional, through manual and artisan clothing, and with traditional materials. Crafts are a sector of activity that should be considered green jobs in its entirety, given that manual labour pollutes less in its production than industry, even more so when recycling is, to a large extent, part of its raw material. If we analyse the textile and handicraft sector in Spain, women are mainly the protagonists, representing 86% of the textile handicraft sector in 2009. That is why we find it particularly interesting to dig deeper, qualitatively, into this activity, and how it affects green employment and entrepreneurship.

The interviews conducted with rural and urban artisan entrepreneurs and ecommerce platforms of artisans and textile manufacturing, have shed light on sustainability opportunities of the production: recycling of fabrics and agricultural raw materials, and upcycling (for an illustration of case studies, see the mapped initiatives ir micro-manufacturing focused on textiles in section 6.1, which are all entrepreneurs). Especially in Spain, it seems like the world of handicrafts, and recognition of the activity as sustainable and ecological is very scarce; however, in Denmark and Italy it does not appear to be like that, on the contrary, there is recognition and more opportunities for entrepreneurs to meet and connect. However, in Europe, at the administrative level, it is not always easy for them to be recognized as green jobs, given that, although conceptually they would comply with the canons, administratively this is not always the case.

- Women have more difficulties to be recognized because they receive less support through administrative procedures from the existing structures, since they are seen in some spaces and sectors as intruders. For example, within agricultural production in general, women often have difficulties in accessing congresses, cooperatives, etc. of production. It should also be taken into account that many times they do not own the land or the means of production, but rather they buy it and innovate in its more traditional use. All these characteristics of some craftswomen hinder their access to decision-making and information spheres. Craftswomen often innovate in the use of

raw materials, recycling products that are discarded and do not own the land or the machinery for primary production, so their work does not fall within the standardised canons. For example, a craftswoman who recycles olive pits to make her product is not considered a producer because she has neither olive trees nor an olive mill, so her recognition in this sector is nil and her opinion is often misunderstood and not taken into account.

- At times, crafts made by women are not considered as such, classifying them as handicrafts and not recognizing the profession and specialisation they require. Not only do they face a lack of recognition of the sustainability of their activity, but there is also an undervaluation of their work. As one craftswoman told us “many times I have to defend my product, even in front of my colleagues, who do not consider it a craft. It is true that in Spain the ecological value of craftsmanship does not exist, but it does in other countries such as Germany”.
- The recycling of fabrics is another aspect of craftsmanship that is often not recognized. Even if it is designed, made manually, etc., it is not considered as crafts: “Actually, in Spain what is considered crafts are the traditional trades of ceramics, esparto grass, forging, etc.” Very few lines of aid for sustainable economy reach crafts, and it is even more difficult if it is not considered as such because you do not enter the circuits. In many cases, recycling in handicraft production is not considered sustainable because they require that the raw material is ecological.
- Textile craftsmanship works with fabrics in many different ways, recycling, creating new materials, through fair trade, etc. and creating and designing different products. It involves the creation of new concepts that are not always seen as green jobs. It is necessary to have a special sensitivity and adaptation to the different forms of sustainability that often do not go through the standardised lines and canons by which European and national legislation is governed. Large structures tend to be more patriarchal and women's access to established structures is not always easy or adequate to their circumstances, vision and economic and labour characteristics.

Another aspect to take into account is fair trade with countries where there has been or continues to exist traditional labour and environmental exploitation. And a separate chapter would be the second-hand clothing market, which has a tradition in northern European countries but which in southern Europe is more recent and is nevertheless advancing very rapidly, and where we can find mostly women's employment. However, it does not have the prestige, salaries or working conditions that can be found in other sectors of green employment.

All in all, social enterprises in Europe are dedicating important efforts to upskilling and reskilling workers in the circular economy (regarding manual skills but also for individuals with a low skill baseline). “Despite the efforts of social enterprises to facilitate the upskilling and reskilling of vulnerable individuals in the circular economy, a number of challenges need to be addressed. These include a lack of funding, difficulty in finding qualified instructors, lack of recognition of social enterprises in the provision of training, limits on the duration of work integration programmes, imbalances between skills supply and demand, and the lack of focus on learner-centric and work-based training in VET programmes. These challenges are multifaceted and involve a number of stakeholders.” (RREUSE, 2023).

9. Recommendations: paving the way forward in the ecosocial transition

This study is exploratory and has forwarded existing tensions in the European green economy, as well as driving capabilities and themes that can be useful for an ecosocial just transition of the economy. This, trying to surpass important challenges and exploit the full potential of social, technological and environmental innovations. As a result of the field and desktop work, and opportunities and weaknesses analysed, a series of recommendations are forwarded.

9.1. Social organisations for the sociocultural change

Solutions to the climate crisis cannot be thought of only in terms of technology substitution: they also require profound socio-economic, cultural and political transformations. Green jobs and entrepreneurship in Europe is much more focused on technological advancements, leaving behind important social innovations needed. The following recommendations are intended to bridge that gap:

- **Research** and **educational projects** oriented towards achieving a unified and understandable variety of concepts related to the ecosocial transition means in the economy. In this sense, alliances between academia, NGOs, the private sector and public institutions can be crucial to disseminate knowledge. To socialise new ways of understanding economic activities through a green and social lense, innovation in the **dissemination of research** is crucial; street actions, participatory workshops, hands-on actions in schools are some ideas. Rethinking knowledge and how different collectives gain knowledge is a crucial activity to stimulate a sociocultural change in the ecosocial transition.
- **Communication and awareness raising activities** that represent possible short and long term greener futures is also a large field of work to be developed. This would complement the existing apocalyptic messages, but also cultivate hope with grounded pathways.
- **Awareness raising projects** that have the objective of shifting behaviours and consumption habits of citizens towards more sustainable practices in relation to

energy, water, food, clothes, etc. Through a just transition lens, these projects and campaigns should differentiate the messages towards wealthier people and countries that consume more, versus the poorer populations that face difficulties in accessing their right to resources such as water, energy or food.

- Create **socio-labour spaces**, to build or strengthen a political culture of workers (including entrepreneurs), around trade unions or networks, in which to re-create social ties. This is key to consolidate a sense of collectivity and count with bargaining power in green jobs and green and social entrepreneurship, and thus to be able to articulate demands, report injustices and generate new discourses and policies.

9.2. The role of governments and public institutions

Governments and public institutions have different ways of supporting and directing green jobs and social and sustainable entrepreneurship towards a just transition. Funding, green taxation, regulation of economic practices and training are some of the key tools. These, in the frame of not only national policies and legislation, but also regional and local scales that bring down European and national targets to the needs, opportunities and possibilities of local communities and environmental challenges.

- The current approach of governments and public institutions is sectoral, linked to physical and territorial ecosystems (infrastructures, water and nature management, forest management, reuse, recycling, energy, etc.). It is necessary to incorporate an **inter-sectoral approach**, with areas that collaborate intensely in proposing multi-disciplinary solutions, and always cross cut by a social and governance lens. This, including a gender and intersectional perspective and acknowledging the different needs and impact that greening the economy exists between men and women. For instance, a public institution that drives an Energy Community can touch on education of youth through public schools and universities, culture through events and campaigns, small businesses, energy poverty, public spaces as climate refugees, among other areas.
- In institutional projects related to green jobs, the disciplines tend to be engineering, while new profiles that address a **multi-layered vision** would be useful. In some cases, the presence of social sciences, humanities and arts provides important viewpoints and methodologies to address social challenges and inequalities regarding the climate crisis; taking into account the needs and experiences of migrant populations, upholding the work of women, recognizing the gender and racial bias in certain green jobs, etc.
- Rethinking the relation between people, local communities and territories, through research and possibly creating **new job positions in public administrations**, to regulate companies and people's relationship with the territory. These could be local development figures to moderate tourist structures, community gardens or Energy Communities, for instance.
- The **regulation of oligopolies and non sustainable practices of local and international businesses**. One way would be to apply the Due Diligence law, at

European level[40], to oblige corporations to respect social and environmental justice, by taking accountability of the human rights respect along the entire supply chain.

- **Funding technological and also social innovations**, driving Next GenerationFunds, among others EU funds, towards the just ecosocial transition. These funds should include social and environmental indicators so that local projects, social and solidarity economic initiatives, small businesses, entrepreneurs, women, migrants and youth, as well as sociocultural activities are benefitted from them.
- Proposing concrete **policies and legislation at the local level**, which are unusual in terms of green jobs and have a great potential (at the municipality or neighbourhood scales). For instance, **proximity employment and proximity services** are ways of promoting green jobs at the local level that favour community-relations and tends to have a positive impact in female employment and the care economy, as it facilitates reconciling family and work.
- Involving **diverse stakeholders' participation** and social dialogue in the decision making around the green economy is a pending task. At the local level, an Advisory Council can be consolidated, representing different social, economic and institutional agents of the city or town, to contribute to decision-making on policies that favour green jobs. At the national level, ad-hoc processes can be organised or a group of representatives with territorial diversity. And at the European level, it would be advisable to create spaces to share experiences, challenges and propose regulations to stimulate a fair and ecological transition of the economy.
- Promoting the opportunity of **scaling up small projects**. Connecting entrepreneurs or projects of sub-sectors, for instance in agriculture, in transformation, cultivation, harvesting, processing, packaging, transport, sales, consumption, waste, reuse and recycling; Regulating local trade to prevent the disappearance of neighbourhood shops and municipal markets and to increase their market share; Creating knowledge and support networks, with public support for farmer transfer and generational exchange; among others.

9.3. To avoid greenwashing

Given the lack of indicators or concrete criteria that differentiates a green job, there is an important risk of greenwashing[41]. To better identify what makes a job or entrepreneurship activity green and social, the following measures are proposed:

- Academia, public institutions and social agents (such as social movements, unions, local associations and NGOs) at the EU level should work on **developing a set of indicators, as a result of research work**, to measure social and environmental impact of economic activities, at a local and global scales. Therefore creating a threshold that clearly and objectively allows the differentiation of green jobs, and

[40] About - Justice is Everybody's Business (justice-business.org)
[41] A good reference to identify greenwashing is the following: Net-Zero Toolkit: Resources to Spot Greenwashing in the Dangerous Net-Zero Framing - ActionAid USA News

establishes an objective for workers and entrepreneurs to achieve in their activities and to become green. Among these, environmental variables to be taken into account are carbon emissions, energy use, resource use, and impact on biodiversity, and social indicators could be gender equality, youth engagement, impact in local communities (of different parts of the world) and tackling inequalities. Measuring impact should be sensitive to global chains and how transnational impact operates, pointing at labour, social, environmental and economic conditions that could guarantee a global just transition.

- **Diagnosis and evaluation** of the environmental and social impact of different economic sectors will be key to progressively refine what is green and what is not, or how to become greener. Research projects at the EU level, centred on economic sectors, would favour this. Evaluating measures implemented to favour green jobs and social and sustainable entrepreneurship will also allow us to see if they reduce or increase social inequalities, and continuously improve policies and interventions.
- Tackle the **gender bias** in technification jobs or technological activities. The under-representation of women in sectors such as energy and over-representation in other jobs such as crafts or care services, poses the challenge to include traditional and feminised jobs as green jobs but also to encourage the participation of women in traditionally male dominated activities. Analysing the gender impact of green jobs is also crucial; does the funding of green jobs benefit masculinized sectors and male employment over the female?
- Social organisations, social movements, and institutions should **make visible green jobs or social and sustainable entrepreneurship initiatives that are not mainstream or part of big corporations** (which in Europe enjoys of the majority of the funding and visibility), such as **crafts, small projects or circular economy entrepreneurship in neighbourhoods, small agri-food businesses in neighbourhoods and villages, recycling of the Roma community**, among others. And also projects or initiatives of migrants, that perfectly enter the definition of green jobs but have never received funding, support or visibility as a green job.

9.4. Why and how to train youth

We cannot train youth without knowing where we are going and the changes we want to achieve. Training tends to be understood as an end in itself, and not as a means to address profound climate and societal challenges. Thus, climate has become a business niche. If we change that view, understanding the socio-cultural and technological challenges of a just ecological transition, employment is a powerful means to transform practices and relationships. In this sense, and building on the field work and learnings of existing programs, some recommendations emanate to enable and empower youth in this regard:

- **Capacity building is only part of the solution**, and needs to be addressed in relation to the social and environmental concrete problems that arise for different economic sectors, territories and social groups. Therefore, training programs should count with

an in-depth rationale of what is the problem that the intervention (training) will tackle. This justification should include who is affected by such problems and what are the environmental implications.

- **Supporting and promoting entrepreneurial projects** with a special focus on migrants, youth and women and other groups that lack employment opportunities, with sufficient economic investments for different projects and short, medium and long term support in designing the commercial strategy, evaluating and improving. The training offer needed in green and social entrepreneurship should also be a target of policies, and more intensely collaborate with private entities and social organisations. In these policies, sociocultural knowledge should play a key role (which tends to be missing), but also include a strong social and solidarity economic logic.
- **Creating platforms to connect entrepreneurs** is key. Preventing young entrepreneurs to feel alone, or from having to bear by themselves the risk of starting a project will guarantee that more people engage in entrepreneurial activities (including lower income and migrant youth, that if left alone face higher barriers). These platforms can act as unions and collective negotiation agents, can offer support to improve business models or services, and connect entrepreneurs and other key stakeholders.
- **Hands-on on the job training**, tailored to businesses. Learning in the company, from the specifics of the innovation needed in that sector and activity, through ad-hoc training provided by the company. Public and private collaboration can also help develop training lines for companies so that employees acquire new ways of thinking, approaching problems and techniques, and therefore, promote the ecosocial shift of an existing economic activity.
- **Training of technicians and politicians at multi-level institutions** about climate change, the sociocultural shift needed in an just ecosocial transition and novel methods to work from an intersectoral approach to tackle complex challenges.
- **Training to stimulate the political culture that has been weakened in Europe** (with lower engagement in unions or political networks). Increasing youth participation in trade unions, as well as generating networks of workers in new sectors (entrepreneurship, crafts, etc.) is key for them to be able to share experiences and visions about their work, to improve, and also to have a political impact. The formative and participatory processes to enrich the political culture of the labour world is a pending task, and one that is gaining importance at a time of climate and social crisis where we need an empowered citizenship and youth. This requires that young people, as a collective, understand themselves as political subjects, learn the dynamics and tools of citizen participation, and create spaces to share and make demands that improve green employment. For that, adults - especially those in positions of power - should move beyond adulto centric views, and promote real involvement of youth in reflection, co-ideation and decision making processes, avoiding the tokenization of youth's participation.
- Training programs should, at least, be two-folded; for graduates of formal studies (in the labour market and also those distanced from the labour market) and for people without studies. To leave no one behind, capacity-building should focus on different

levels of education. **Different formats can suit different objectives, populations and strategies**:

  - **Formal education (higher education)** that has shown to significantly contribute to greening the economy are very diverse. Those with more visibility and that already are recognized as important are Environmental, Engineering, Sustainability, Agro-ecology, STEM. Also crucial and in need of a stronger orientation towards the ecosocial transition are Social sciences, Arts and Humanities (Degrees and Masters in these). Deepening in an intersectoral way of analysing the context and the social reality, pushing to fit in negotiated and transforming visions, with capacity for real change in the structure and in the social, economic and environmental relations is key.
  - **Formal education (professional training)** counts with the flexibility and adaptability to respond to new economic sectors and activities that are created or transformed for a just transition. Some key areas where it is especially recommended: to acquire skills in renewable energies installation, regulation and Energy Communities, novel skills in forestry and agroecology management, and cooperatives or novel governance models.
  - **Short training courses** can be useful to tackle a concrete skill, technique or method needed to transition in a concrete economic sector. These are especially useful for workers, youth looking to enter a specific sector, or unemployed. They should be sector-specific and show concrete tools or skills (see section 5.4 for economic sectors in the green economy of Europe).

- **Strategies** to train: (1) Base a capacity building process on a concrete and real project or challenge through case studies, applied work and alliance with green initiatives; (2) Follow-up the training with a process to guide the trainees in job searching or becoming entrepreneurs.
- **Useful skills and tools** for green jobs and green and social entrepreneurship
  - **Communication** and public speaking is crucial for every green economic activity. Storytelling of complex problems and solutions is a method that can help position new products, services and processes in the green economy.
  - **Analytical mindset** to measure and evaluate the carbon footprint, environmental damage and protection, the impact of economies in social relations and inequalities, among others.
  - Problem solving related to socio-environmental challenges, integrating theories, methodologies and techniques from the Social Sciences. Especially that of **Participatory Action Research**, to base actions and interventions on concrete problems diagnosed and involving the voice, needs and ideas of different stakeholders.
  - **Cocreative processes**, using creative and design thinking is also useful to transform. Using drawing, imagery, maps, process facilitation tools and other resources to collaboratively create new ways of designing, producing, communicating, financing, selling and selling among diverse actors.

- **Project management and strategic design** are skills of increasing importance, because more and more projects need to integrate different visions, disciplines and territories. Thus, big teams with medium and long-term objectives to solve complex problems require coordination, leadership and strategizing.
- **Financial and commercial** skills for green services, products and projects, in order to stimulate new ways of consuming, and also making green jobs economically sustainable.
- **Business and governance model design** is key. Knowledge about cooperatives, community-led projects, associations, entrepreneurship, among others, is fundamental to create organisational structures that suit the activity and people involved in it.
- **Manual work, repair and recycling** is not only key in the circular economy sector, but is fundamental to many jobs (maintenance, cleaning, design and repair of cars, bicycles, furniture, homes, etc.).

There may be many other challenges and opportunities in relation to employment that simply have not been addressed in this study, either because informants and participants have not spoken about them or because the writing team is not specialised in many areas that nevertheless suggest possible continuations and deepening from this work.

One of these areas, linked to technological and scientific development, has to do with the current and foreseeable changes related to Industry 4.0, research in artificial intelligence and advanced models of text and natural language processing. Regardless of the more techno-optimistic or more techno-sceptical views, this activity is already affecting sectors such as education, consulting, security, copyright, scientific research, and even human resources and recruitment processes. Repetitive and predictable tasks and different jobs that require writing from information available on the internet could be displaced or transformed, raising the need for possible trade-offs or training at different paces in the adoption of new technologies. Debates also emerge on the what for and also ethical questions on the how, with possible social biases (precarious jobs, algorithms that perpetuate stereotypes) and offshoring of undesirable environmental effects that will have to be considered globally both in terms of reducing emissions and waste and in terms of working conditions and human rights in the different territories that are involved in the international production and trade chains.

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Consultants / Researchers:

TRAZA
TERRITORIO S.L.L.

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Funded by:

Funded by the European Union