



A case study on green jobs and skills development for people with low qualifications

Milan is the capital city of the Lombardy region in northern Italy.¹ In 2021, the population of Milan was 1,372,355.² In the same year, the employment rate for people aged 15 to 64 in Milan was 68.1 per cent³ and the unemployment rate was 5.7 per cent.⁴

Context

Since 2015, the number of green jobs in Italy increased by 6.8 per cent.⁵ The Recovery and Resilience Plan (*Piano Nazionale di Ripresa e Resilienza, NRRP*) is part of the Next Generation EU (NGEU) programme.⁶ Italy has allocated €59.46bn investments from 2021 to 2026 to support the green transition. The plan

focuses on four key deliverables: i) boosting sustainable agriculture and the circular economy; ii) supporting the development of renewable energy markets and sustainable mobility; iii) enhancing private and public buildings' energy efficiency; and iv) increasing national resilience to environmental threats.⁷ While the plan does not explicitly refer to supporting the growth of green jobs, it is likely that the green stimulus package will create an increase in the demand for green jobs in the next five years.

The GreenItaly 2021 report recognised Lombardy as the region with the highest 'number of companies that have invested, or will invest within the year, in green technologies' and the highest number of contracts awarded for green jobs in Italy.⁸ Milan is ranked first in Italy for contracts awarded for green jobs and second for the level of investments in green technologies.⁹

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Green job opportunities

In 2020, companies awarded a total of 265,563 contracts for green jobs across Lombardy (23 per cent of green jobs contracts in Italy) and 116,418 across Milan (10.1 per cent of green jobs contracts in Italy).¹⁰ Approximately 16.3 per cent of the workforce in Lombardy works in the green sector, compared to 13.1 per cent at the national level.¹¹ Beyond the metalworking sector, growing green jobs sectors in Italy include innovative green industries such as recycling, sharing mobility and sustainable fashion.¹²

There are about **57,280 job opportunities** in Milan for low-skilled people, most of them (52 per cent) concentrated in three sectors:



Top occupations in these three sectors in Milan are:



The Skills-OVATE¹⁵ data gives insights to job opportunities advertised online without distinction to green jobs but allows the filtering of vacancies suitable for people with low qualifications if we exclude occupations such as professionals, managers or researchers, which likely require a university degree. The analysis of 357,347 online job advertisements (OJAs) showed that the most common occupations in OJAs that would be suitable for people with low qualifications were technical labourers (38,038), accounting clerks (22,708), sales workers (21,992), science and engineering technicians (21,268), metal and machinery workers (19,579), electrical engineering workers (16,501), cleaners and helpers (12,518), assemblers (10,256), machine and plant operators (9,638), and customer clerks (7,697).¹⁶

The specific search for green jobs carried out by RAND Europe (see **Methods**) identified 22 jobs in Milan. Key sectors included architectural and engineering activities; technical testing and analysis (n=9), waste collection, treatment and disposal activities, materials recovery (n=4), civil engineering (n=3, 14 per cent), other professional, scientific and technical activities (n=2), and manufacture of chemicals and chemical products (n=2). Among the main occupations were science and engineering associate professionals (10), science and engineering professionals (n=9), refuse workers and other elementary workers (n=2), and general and keyboard clerks (n=1).



Anticipating that green jobs will be more present across all sectors of economy and across all occupations in future, Cedefop's EU Skills Panorama forecasts for employment growth are used to identify where more or fewer jobs are expected in general. These projections are available for Italy for the 2020–2030 period. Occupations suitable for people without tertiary education (i.e. excluding managers, professionals, etc.) are expected to decline and the highest employment growth by 2030 are expected to be managers (see **Annex B**).

Future scenarios estimate the number of green jobs in Italy to increase by 38 per cent by 2025.¹⁷ The GreenItaly 2021 report identified 10 emerging green jobs in Italy: green construction worker, maintenance and repair technician, green installation electricians, sustainable heating and air-conditioning installer, eco-label sales workers, green marketing specialist, green ICT specialist, eco-designer, environmental engineer and energy auditor.¹⁸

Skills needed for green jobs



Based on a skills-based analysis of the ten emerging green jobs identified by the Green Italy 2021 report, the highest sought green skills for low-skills workers are knowledge of sustainable materials, and the ability to install renewable energy systems and upgrade energy efficiency of buildings, including heating and air conditioning.¹⁹ Another important green skillset is knowledge of machinery maintenance and repair of consumer products. Concerning soft skills, employers of green jobs expect teamwork, time management, problem solving and flexibility.²⁰ The largest potential for green jobs for people with low qualifications exists in **construction** in the homes sector.²¹

The analysis of skills in the Skills-OVATE²² data for Lombardy shows that the most sought-after skills in Lombardy include business, administration and law, attitudes, communication, collaboration and creativity, and working with computers. To lesser degree, other skills sought include management skills, assisting and caring, and languages (see **Annex A**).²³

The analysis of green jobs identified by RAND Europe shows that six out of the 22 job adverts identified indicated minimum of two years required experience (otherwise, this information as not provided). In terms of qualifications needed, 11 adverts asked for a university degree,²⁴ 6 adverts asked for a 'diploma', two adverts asked for 'lower than diploma' and three adverts did not specify a particular qualification. In terms of the skills sought in the 22 job adverts, about half of the adverts asked for green skills. This included knowledge of environmental topics and issues (5), experience in the energy sector (3), and ability to undertake environmental research and analysis (3). In terms of general skills required, this included languages (12) and working in a team (10).

Training and education provision for green skills

The *Corso FER – Fonti Energetiche Rinnovabili* programme is provided by the Milan Artisans Union (*Unione Artigiani della Provincia di Milano*).²⁵ This training programme aims to train and certify plant and equipment installers in the energy sector to work with renewable energy systems. It is delivered on a rolling basis to adults, but a similar training is offered also as a school profile for young people who attend the vocational training institute (*Unione Artigiani CFP*).²⁶

Lombardia Circolare is a training programme delivered by the Chamber of Commerce of Lombardy. It aims to equip micro-, small- and medium-sized enterprises of any industry with green skills, such as circular economy business models, environmental regulatory frameworks and green management.²⁷ It is an unstructured training programme consisting of a series of webinars online where businesses can sign up for free. In 2020, the programme covered the following topics:



Relevant stakeholders and interventions

Within Lombardy, 30 key stakeholders were identified in relation to green jobs and green skills. These can be grouped into civil society organisations (7), employers (10), local authorities (3), training organisations (3), social cooperatives (2) and other (5). The graphic below introduces some of the relevant stakeholders.

Relevant stakeholders identified in Milan



Education and training providers

AFOL
Talent Garden Milano Isola



Employers

Right Hub Srl
Unione Artigiani
Assolombarda



Civil society organisations

Fondazione Lombardia per l'Ambiente (FLA)
Agenzia InnovA21
Fondazione Cariplo



Local authorities

Sviluppo Sostenibile – Regione Lombardia
Citta Metropolitana di Milano
Unioncamere Lombardia



Social cooperatives

Confcooperative Lombardia
Vestisolidale



Unione Artigiani – Renewable energy sources technician²⁸

Two-year evening vocational training course. Some of the vocational training students come from vulnerable backgrounds (e.g. criminality).



Fondazione Cariplo – Coltivare valore²⁹

Grants given out to finance projects of social agriculture that aim at creating employment opportunities in sustainable agriculture for vulnerable groups. Projects funded by the grant are open to young people, people with low levels of qualifications and people with mental and physical disabilities.



Fondazione Cariplo – Progetto green jobs³⁰

Training providing entrepreneurial skills for high school children (4th year, i.e. 17 and 18 years old) in order to develop skills requested by green economy jobs. This 30-hour training can be done online.



Unioncamere Lombardia – Training programmes in waste management and environmental regulation³¹

Webinars equip entrepreneurs with the skills to comply with environmental legislation and make sure their work has a better impact on the environment. The webinars take place over the course of six weeks, one day per week.

Summary conclusion

- Milan has some of the greatest potential for green jobs growth of all cities in Italy, having experienced considerable investment in the green economy from both the private and public sector in recent years.
- Common **occupations** for people with low qualifications in the green sector include housekeeping assistants, receptionists, electricians and electrical fitters, gardeners and plumbers.
- **Green skills** sought in job ads related mostly to knowledge of environmental topics and issues or experience in the energy sector. General skills sought by employers in Italy include business, administration and law, communication, collaboration and creativity, ICT skills and languages.

Methods

1. **Targeted documentation review:** The review followed a protocol that spelled out the search terms, inclusion and exclusion criteria (see details in the final report).³² The full list of sources consulted is presented in **Notes and References**.
2. **Analysis of EU Skills Panorama data:** The analysis included Cedefop projections of future employment growth across all sectors and occupations, as well as the changes in the level of education expected in Italy by 2030. The dataset uses NACE Rev. 2 (statistical classification of economic activities) and International Standard Classification of Occupations (ISCO-08).
3. **Analysis of Skills-OVATE data:** The database provided by Cedefop collates OJAs from multiple sources, including private job portals, public employment service portals, recruitment agencies, online newspapers and corporate websites. The dataset uses NACE Rev. 2 (statistical classification of economic activities) and classification of European Skills, Competences, Qualifications and Occupations (ESCO). In December 2021, there were 357,347 OJAs in the Skills-OVATE database for Lombardy, covering the period from the third quarter of 2020 to the second quarter of 2021. The database does not allow filtering out green job vacancies or opportunities only for people with low qualifications. OJAs do not reflect the market demand for jobs across all occupations and sectors equally well: some sectors or

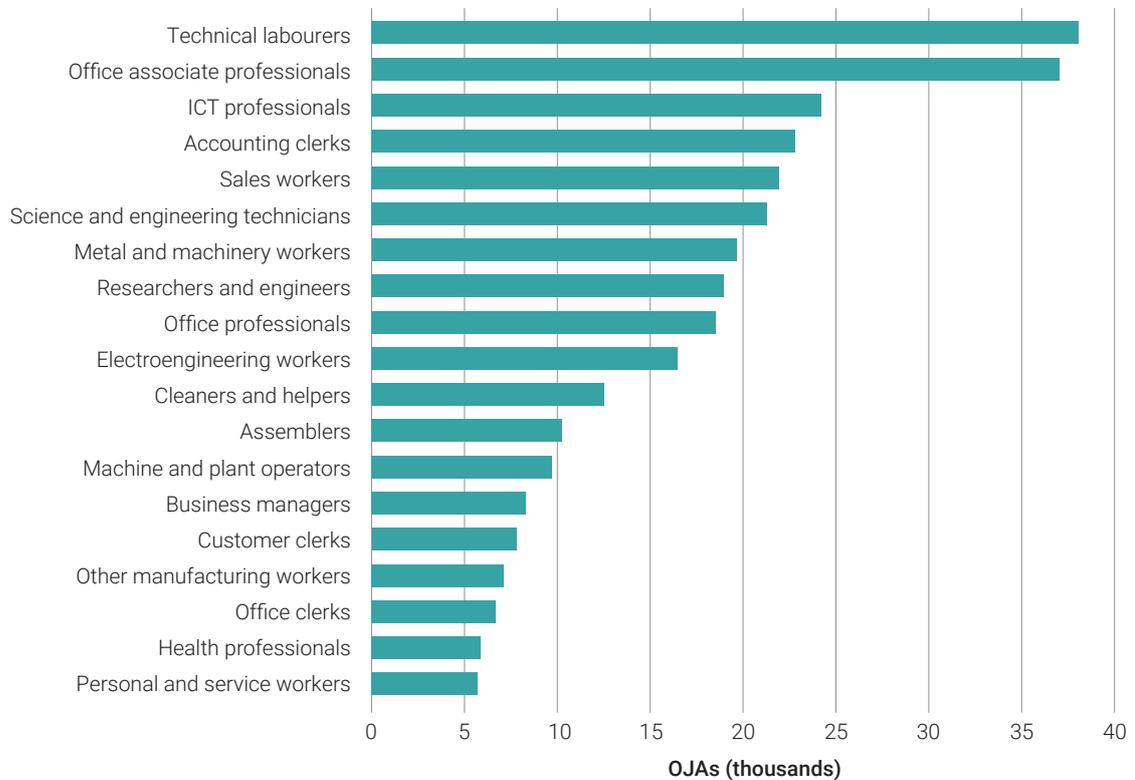
professions are overrepresented if they are more likely to advertise online, while others are underrepresented.

- 4. Online search for green jobs and data analysis:** The search of www.greenjobs.it and it.indeed.com conducted on 23 September 2021 identified 22 green job advertisements in Lombardy. Data was extracted, coded and cleaned. Descriptive statistics was used to analyse the results.

Annex

Annex A. Analysis of Skills-OVATE data (Q3 2020–Q2 2021)

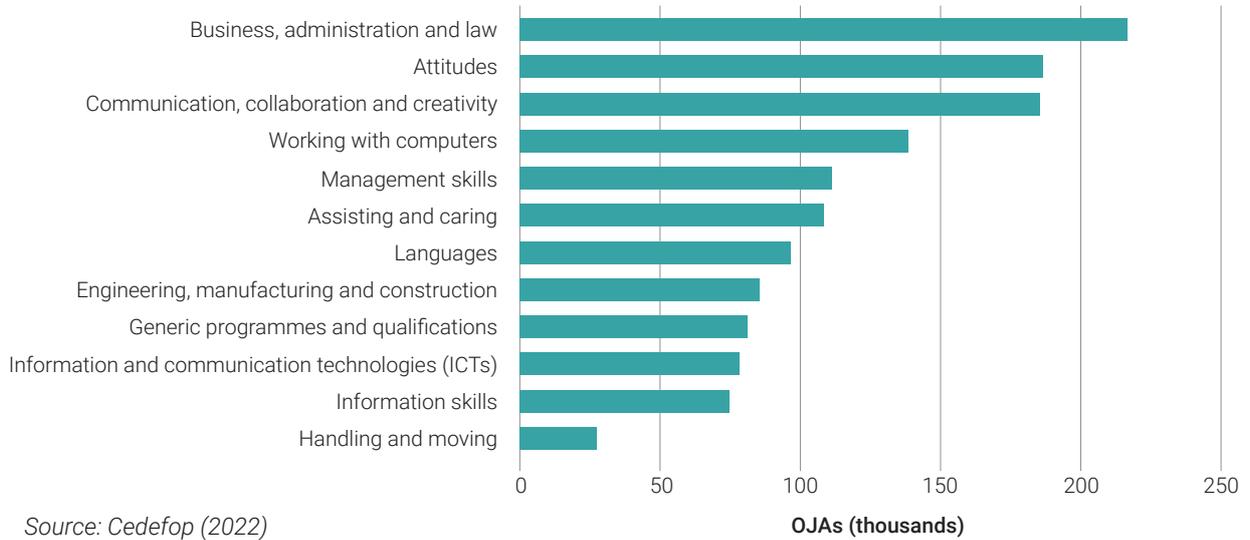
Figure 1. Online job advertisements (OJAs) per occupation (Milan, Lombardy)



Source: Cedefop (2022)

Note: Cut-off point is the median of OJAs per occupation (3,890.5).

Figure 2. Most requested skills – level 2 ESCO (Milan, Lombardy)



Annex B. Analysis of EU Skills Panorama data

Figure 3. Future employment growth (% change) across occupations in Italy in 2020–2030

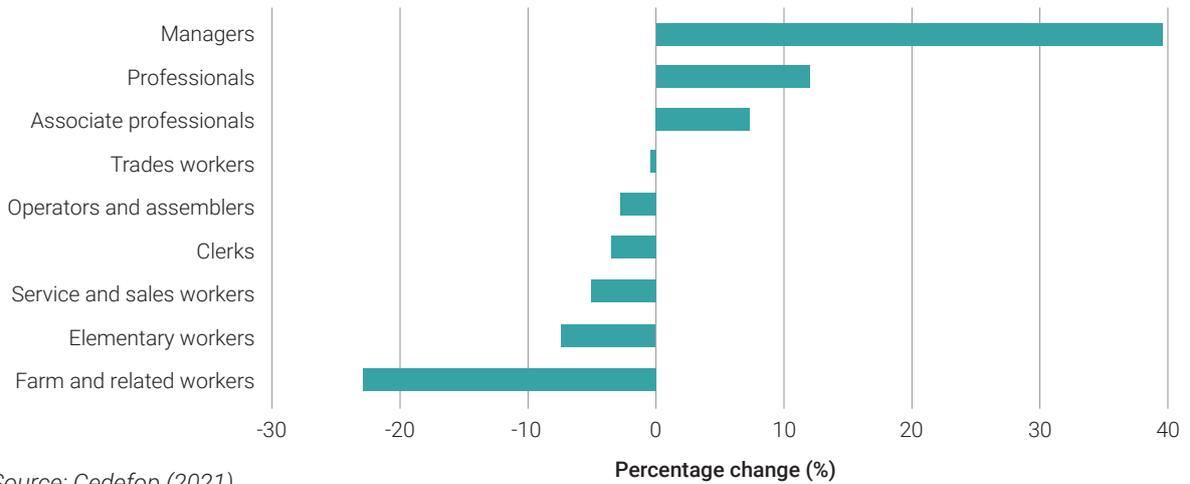
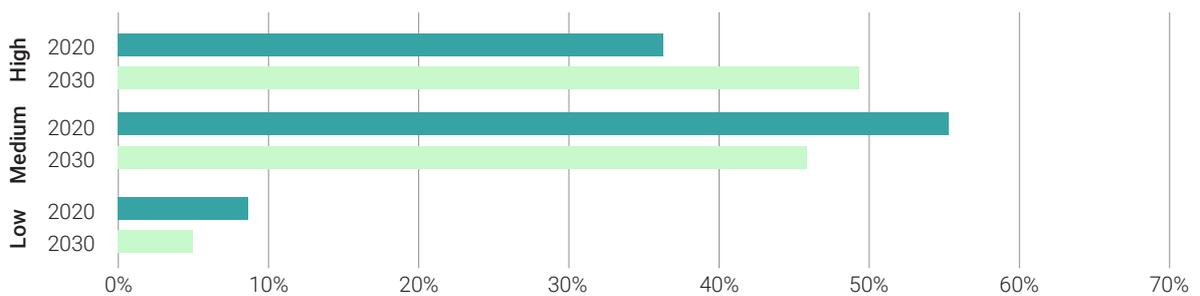


Figure 4. Current and future employment for educational level possessed in Italy



Notes and References

- 1 Comune di Milano (homepage). 2022. As of 25 July 2022: <https://www.comune.milano.it/>
- 2 ISTAT. 2021. 'Bilancio demografico anno 2021 (dati provvisori).' As of 25 July 2022: <http://demo.istat.it/bilmens/query.php?lingua=ita&Rip=S1&Reg=R03&Pro=P015&Com=146&anno=2021&submit=Tavola>
- 3 Comune di Milano. 2022. 'Lavoro: principali indicatori sull'occupazione dei residenti tra i 15 ed i 64 anni per genere.' As of 25 July 2022: <https://dati.comune.milano.it/dataset/ds112-economia-indicatori-occupazione-residenti-15-64>
- 4 Comune di Milano. 2022. 'Lavoro: principali indicatori sull'occupazione dei residenti tra i 15 ed i 64 anni per genere.' As of 25 July 2022: <https://dati.comune.milano.it/dataset/ds112-economia-indicatori-occupazione-residenti-15-64>
- 5 Symbola and Unioncamere. 2021. 'GreenItaly 2021: Un'economia a misura d'uomo per il futuro dell'Europa.' As of 25 July 2022: <https://www.symbola.net/ricerca/green-italy-2021/>
- 6 Italia Domani. 2022. 'Piano Nazionale di Ripresa e Resilienza, NRRP.' As of 25 July 2022: <https://italiadomani.gov.it/it/home.html>
- 7 Italia Domani. 2022. 'Piano Nazionale di Ripresa e Resilienza, NRRP.' As of 25 July 2022: <https://italiadomani.gov.it/it/home.html>
- 8 Symbola and Unioncamere. 2021. 'GreenItaly 2021: Un'economia a misura d'uomo per il futuro dell'Europa.' As of 25 July 2022: <https://www.symbola.net/ricerca/green-italy-2021/>
- 9 Symbola and Unioncamere.. 2021. 'GreenItaly 2021: Un'economia a misura d'uomo per il futuro dell'Europa.' As of 25 July 2022: <https://www.symbola.net/ricerca/green-italy-2021/>
- 10 Symbola and Unioncamere. 2021. 'GreenItaly 2021: Un'economia a misura d'uomo per il futuro dell'Europa.' As of 25 July 2022: <https://www.symbola.net/ricerca/green-italy-2021/>
- 11 Symbola and Unioncamere. 2021. 'GreenItaly 2021: Un'economia a misura d'uomo per il futuro dell'Europa.' As of 25 July 2022: <https://www.symbola.net/ricerca/green-italy-2021/>
- 12 Symbola and Unioncamere. 2021. 'GreenItaly 2021: Un'economia a misura d'uomo per il futuro dell'Europa.' As of 25 July 2022: <https://www.symbola.net/ricerca/green-italy-2021/>
- 13 Unioncamere – ANPAL.2021. 'Progetto Excelsior'. As of 29 July 2022: https://excelsior.unioncamere.net/index.php?option=com_content&view=article&id=282
- 14 Unioncamere – ANPAL.2021. 'Progetto Excelsior'. As of 29 July 2022: https://excelsior.unioncamere.net/index.php?option=com_content&view=article&id=282
- 15 Skills-OVATE database by Cedefop collates OJAs from multiple sources, including private job portals, public employment service portals, recruitment agencies, online newspapers and corporate websites. In December 2021, there were 357,347 OJAs in the Skills-OVATE database for Milan. The database does not allow filtering out green job vacancies only. OJAs do not reflect the market demand for jobs across all occupations and sectors equally well: some sectors or professions are overrepresented if they are more likely to advertise online, while others are underrepresented.
- 16 Cedefop. 2022. Skills-OVATE data. Specific sectors likely to require higher education (e.g. legal, civil engineering, veterinary activities) were not included.
- 17 Symbola and Unioncamere. 2020. 'GreenItaly 2020: Le imprese green affrontano meglio la crisi – Comunitcato stampa Lombardia.' As of 25 July 2022: <https://www.symbola.net/approfondimento/comunicato-stampa-greenitaly-2020/>
- 18 Symbola and Unioncamere. 2021. 'GreenItaly 2021: Un'economia a misura d'uomo per il futuro dell'Europa.' As of 25 July 2022: <https://www.symbola.net/ricerca/green-italy-2021/>. Emerging green jobs are identified as traditional occupations with more than 10,000 new contracts in Italy in 2020 that require a larger number of green skills compared to the past. According to the GreenItaly 2021 report, such modification

in competences effectively creates new categories of green jobs. Note that maintenance and repair technician is categorised as a green job because it is part of the circular economic model.

- 19 Symbola and Unioncamere. 2021. 'GreenItaly 2021: Un'economia a misura d'uomo per il futuro dell'Europa.' As of 25 July 2022: <https://www.symbola.net/ricerca/green-italy-2021/>
- 20 Symbola and Unioncamere. 2021. 'GreenItaly 2021: Un'economia a misura d'uomo per il futuro dell'Europa.' As of 25 July 2022: <https://www.symbola.net/ricerca/green-italy-2021/>
- 21 Symbola and Unioncamere. 2021. 'GreenItaly 2021: Un'economia a misura d'uomo per il futuro dell'Europa.' As of 25 July 2022: <https://www.symbola.net/ricerca/green-italy-2021/>
- 22 Cedefop. 2022. Skills-OVATE data.
- 23 Cedefop. 2022. Skills-OVATE data.
- 24 One ad asked for a bachelor's degree, two adverts asked for a master's degree and eight adverts asked for a 'university degree' but did not specify the level.
- 25 Unione Artigiani della Provincia di Milano. 2019. 'Corso FER – Fonti Energetiche Rinnovabili, aggiornamento 16 ore.' As of 25 July 2022: <https://unioneartigiani.it/appuntamenti/corso-fer-fonti-energetiche-rinnovabili-aggiornamento-16-ore/>
- 26 Unione Artigiani della Provincia di Milano. 2019. 'Corso FER – Fonti Energetiche Rinnovabili, aggiornamento 16 ore.' As of 25 July 2022: <https://unioneartigiani.it/appuntamenti/corso-fer-fonti-energetiche-rinnovabili-aggiornamento-16-ore/>
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- 28 Unione Artigiani della Provincia di Milano. 'Corso FER – Fonti Energetiche Rinnovabili, aggiornamento 16 ore.' As of 25 July 2022: <https://unioneartigiani.it/appuntamenti/corso-fer-fonti-energetiche-rinnovabili-aggiornamento-16-ore/>
- 29 Fondazione Cariplo. 2021. 'Coltivare Valore.' As of 25 July 2022: <https://www.fondazionecariplo.it/it/bandi/coltivare-valore.html>
- 30 Progetto Green Jobs. 2022. 'Il Progetto.' As of 25 July 2022: <http://www.progettogreenjobs.eu/il-progetto/>
- 31 Unioncamere Lombardia. 2021. 'Formazione per gli Adempimenti Ambientali di Legge.' As of 25 July 2022: <http://www.unioncamerelombardia.it/?/menu-aree-di-intervento/Agricoltura-e-ambiente/Ambiente-e-green-economy/Formazione-per-gli-Adempimenti-Ambientali-di-Legge>
- 32 Hofman, Joanna, Michaela Bruckmayer, Katrin Feyerabend, Giulia Lanfredi & Lydia Lymperis. "Green' jobs and skills development for disadvantaged groups.' Santa Monica, Calif: RAND Corporation. As of 27 May 2022: <https://www.rand.org/randeurope/research/projects/green-jobs-and-skills-development-for-disadvantaged-groups-.html>

