



# Towards a just transition for workers in the built environment in Europe

Building materials and on-site construction sectors

## Annex I: Country fiche - Poland

# Country Fiche

## Poland

### Towards a just transition for workers in the built environment in Europe

Building materials and on-site construction sectors



#### 1. At a glance<sup>1</sup>

Strengths/Opportunities
<p>Opportunities in the construction sector:</p> <ul style="list-style-type: none"> <li>Large-scale renovation targets (7.5 million upgrades by 2050) and programmes like “Clean Air” create strong demand for retrofit specialists, heat pump installers, and energy auditors. Upskilling initiatives (e.g., BUILD UP Skills II) and digitalisation (BIM, energy management) offer career development. Job growth will concentrate in regions with older housing stock (Śląskie, Małopolskie, Łódzkie, Dolnośląskie, Mazowieckie), as well as major urban areas (Warsaw, Kraków, Wrocław).</li> </ul> <p>Opportunities in the building materials sector:</p> <ul style="list-style-type: none"> <li>CCS deployment and circular production (e.g., Holcim’s Go4ECOPlanet, Heidelberg’s ReConcrete) create new technical roles in carbon capture, process automation, and recycling. Skills development programmes (industrial academies, university partnerships) support worker adaptation. Investments in low-emission technologies strengthen job security and regional economies in cement belt areas (Świętokrzyskie, Opolskie, Śląskie).</li> </ul>
Weaknesses/Threats
<p>Challenges in the construction sector:</p> <ul style="list-style-type: none"> <li>Severe labour shortages (up to 266,000 workers annually), an ageing workforce, and low participation in training threaten renovation targets. Precarious employment (civil-law contracts, subcontracting chains) and weak collective bargaining (coverage ~10–15%) undermine working conditions. Migration of skilled workers abroad adds pressure.</li> </ul> <p>Challenges in the building materials sector:</p> <ul style="list-style-type: none"> <li>Risk of job losses in clinker production due to imports and automation. Skills mismatch as CCS and digital control require advanced qualifications. Smaller plants and subcontractors may struggle to invest in green technologies, creating regional inequalities and employment instability.</li> </ul>
Key organisations
<p><b>ZZ „Budowlani” (Construction Workers’ Union)</b></p> <ul style="list-style-type: none"> <li>Represents on-site construction and building materials workers; ~10,000 members.</li> <li>Tactics: Social dialogue, advocacy for safer working conditions, and participation in training programmes.</li> <li>Role in Just Transition: Promotes upskilling and inclusion of vulnerable groups; pushes for better enforcement of labour standards in subcontracting chains.</li> <li>Key blockers: Very low collective bargaining coverage (~10–15%) and prevalence of civil-law contracts.</li> </ul>

<sup>1</sup> The core construction sector is assessed in detail in all ten countries, while the depth of analysis varies in the building material industries, with the one or two biggest industries (measured by volume of material output produced in tons) analysed per country. For Italy, the Netherlands, Czechia, Denmark and Ireland, the analysis focuses on either steel or cement, depending on which material has the highest output. Germany, France, the United Kingdom, Poland, and Spain are subject to a deeper analysis, including steel or cement and an additional industry (either timber or glass) selected based on its importance in material output.

#### **Polski Związek Pracodawców Budownictwa (PZPB)**

- Largest employers' association in construction; ~450 companies (~30% of sector output).
- Tactics: Policy lobbying, development of training frameworks, and promotion of sustainable construction.
- Role in Just Transition: Coordinates employer-led training and safety initiatives (e.g., Agreement for Safety in Construction).
- Key blockers: Fragmented SME sector and limited resources for smaller firms to invest in green skills.

#### **Polski Klaster Eksporterów Budownictwa (PLBGC)**

- National cluster of ~300 entities from 16 regions, recognised as a Key National Cluster.
- Tactics: Supports internationalisation, innovation, and technology transfer in construction and building materials.
- Role in Just Transition: Facilitates R&D partnerships and promotes adoption of low-emission technologies across SMEs.
- Key blockers: Limited capacity among smaller firms to implement advanced green solutions without external support.

#### **Key initiatives and partnerships**

- **Fala Renowacji (Renovation Wave Poland)**
  - Coalition of businesses and NGOs promoting deep renovation, energy efficiency, and job creation.
  - Focus: Accelerating building upgrades and fighting energy poverty.
- **BUILD UP Skills II (BUPS)**
  - National strategy and training programme for energy-efficient construction skills.
  - Partners: Industry organisations, vocational schools, and public agencies.
- **Agreement for Safety in Construction**
  - Voluntary pact among major contractors and GDDKiA introducing unified OHS standards and contractual penalties for violations.
  - Impact: Improves safety and labour conditions across subcontracting chains.
- **Women in Construction – Levelling the Playing Field**
  - Public-private campaign by PORR and Polish Construction Congress to promote gender equality and inclusion in technical roles.
- **Holcim Cement Industrial Academy & Heidelberg Partnerships**
  - Company-led initiatives offering e-learning and certification for CCS and low-emission technologies, in collaboration with universities.

## Hotspots of a Transition in the Construction Sector

Poland

### Legend

On-site construction:



Expected job creation

Building materials:

*Cement*



Modernisation of production site  
and reskilling of workers



Closure and/or repurposing with  
redundancy plans

*Glass*

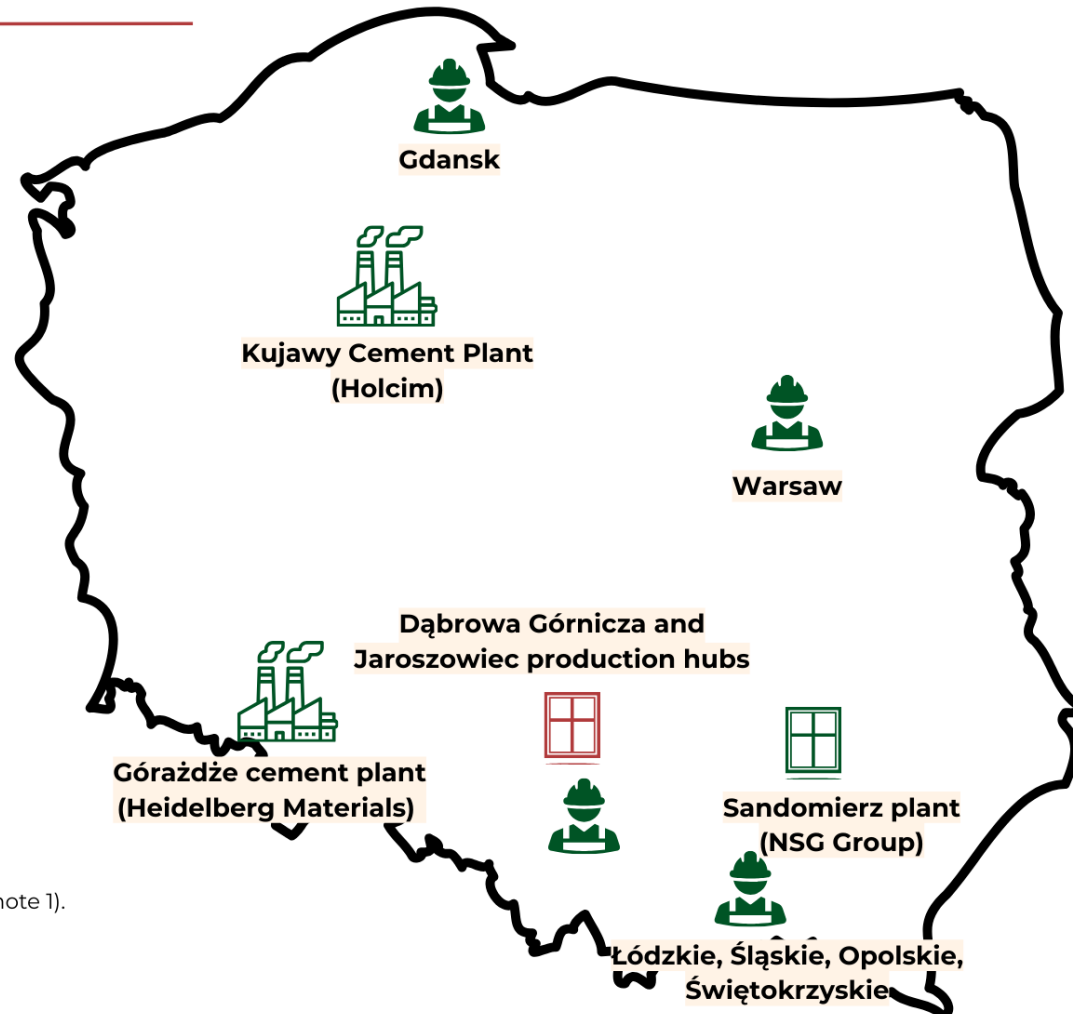


Decarbonisation of production  
site and reskilling of workers



Closure and/or repurposing with  
redundancy plans

Not covered in the analysis: steel and timber (see footnote 1).



## 2. The broad construction sector

### The construction sector today

Economic indicators (2023) <sup>2</sup>	Employment (2023)	Workforce characteristics
<p>Construction (NACE F):</p> <ul style="list-style-type: none"> <li>Number of enterprises: 421,187</li> <li>Average employment size: 2,7</li> <li>Value added (million € per year): 26,369 (4% of GDP)</li> <li>Net turnover (million € per year): 128,149</li> </ul> <p>Architectural and engineering activities; technical testing and analysis (NACE M71):</p> <ul style="list-style-type: none"> <li>Number of enterprises: 81,407</li> <li>Value added (million € per year): 4,158 (0.6% of GDP)</li> <li>Net turnover (million € per year): 12,008</li> </ul>	<ul style="list-style-type: none"> <li>In 2023, Poland's construction sector employed over <b>1,1 million people</b> (Eurostat). The sector's unemployment rate remained very low at around 2.9% (source), and the job vacancy rate at the level of 1.6, the highest among all other sectors.</li> <li>Despite demographic decline and migration pressures, the construction industry created approximately 62,000 new jobs in 2024, demonstrating its resilience and structural importance to Poland's economy (Poland Insight, 2024).</li> </ul>	<ul style="list-style-type: none"> <li><b>Workers</b> in the construction sector are distributed across age cohorts as follows: ages 15 - 24 account for 6.9%, ages 25 - 34 for 23.0%, ages 35 - 44 for 30.3%, ages 45 - 54 for 23.3%, ages 55 - 64 for 13.3%, and ages 65 and above for 3.1%. (Source)</li> <li>The construction sector in Poland remains heavily gender-imbalanced. In 2020, approximately 728,000 people were employed in construction (excluding self-employed individuals), of whom only 93,700 (almost 13%) were women. Furthermore, in that year, only 4,075 women held building-sector professional permissions, representing just 12% of all members of the Engineers' Chamber in the building sector (Izba Inżynierów Budownictwa).</li> <li><b>Education level</b> in construction sector in 2014: 8% - primary, 40% - basic vocational, 30% - secondary, 23% - tertiary.</li> </ul>

### The legislative framework for decarbonisation and its impacts on workers

Decarbonisation policies and emission timelines and targets
<ul style="list-style-type: none"> <li><b>Draft National Energy and Climate Plan (NECP 2021–2030)</b>: Targets 17.7% emission reduction in non-ETS sectors (including buildings) by 2030 vs. 2005. Prioritises energy efficiency, renewable heating (heat pumps, solar PV), and deep renovation.</li> <li><b>Long-Term Strategy for Building Renovation – DRSB (2022)</b>: Aims to thermally retrofit 236,000 buildings annually (2020–2030), reaching 7.5 million upgrades by 2050, including 4.7 million deep</li> </ul>

<sup>2</sup> For countries outside the euro area, figures were sourced from Eurostat, which reports them already converted into euro.

renovations. Targets a 3.8% annual renovation rate, with 65% of buildings achieving EP  $\leq$  50 kWh/m<sup>2</sup>/year by 2050.

- **Draft National Building Renovation Plan - KPRB:** Under public consultation (2024–2025), it will replace DSRB by the end of 2026, in line with the EPBD directive. Focuses on short- and medium-term actions and building-level detail. Draft submission to the European Commission expected by the end of 2025.
  - 2030 DRSB target: Thermal modernisation of 236,000 buildings annually (2020–2030).
  - 2030 KPRB additional information on targets: the renovation potential is estimated at 305 TWh/year (energy savings) for the entire building stock (split across single-family houses ~130 TWh, multi-family ~55 TWh, public buildings ~3.7 TWh).
  - 2050 DRSB target: Approximately 7.5 million thermal-retrofitting investments, including 4.7 million deep renovations; ~3.8% average annual renovation rate, and 65% of buildings achieving an EP  $\leq$  50 kWh/m<sup>2</sup> a year

### Impacts on the construction industry

- **(Expected) impacts on the construction sector and investments:** Key risks include rising material and labour costs, skilled labour shortages, and macroeconomic uncertainty. The sector faces shortages of skilled labour, wage inflation, volatile prices for cement and steel, and additional risks from geopolitical and macroeconomic uncertainty.
- **(Expected) impacts on employment, skills and activity of on-site construction workers:** Estimates of the number of jobs required for building renovation in Poland vary depending on the time horizon and the depth of renovation assumed. According to the *Polish Renovation Wave* report by the Fala Renowacji Association, implementing an ambitious renovation programme could create around 94,000 jobs by 2035. Another [study](#) from the same organisation suggests that, under a scenario of comprehensive energy renovation across the building stock, total employment—both direct and indirect—could reach as many as 300,000 jobs over a longer period (e.g., up to 2050). Poland’s Long-Term Renovation Strategy (Długoterminowa Strategia Renowacji Budynków, DSRB) foresees approximately 7,5 million renovation projects between 2021 and 2050. However, it also highlights a major challenge: a shortage of skilled labour. Current analysis from the Buildup Skills project suggests that the construction sector may be short 266,000 qualified workers annually to meet the expected demand for building renovations.

## Towards a Just Transition for Construction Workers

### Just transition vision in construction

- **Collective Agreements:** Formally, there are both enterprise-level (zakładowy) and multi-enterprise (ponadzakładowy) collective bargaining agreements in Poland for all economic sectors. Multi-enterprise agreements can cover any number of workplaces or firms, but they only apply to enterprises that voluntarily join the agreement; there is no legal obligation for employers to participate. The Polish labour law (specifically the Kodeks pracy – Labour Code, Chapter 11) does not impose an obligation to establish sector-wide collective bargaining agreements covering an entire industry (e.g., construction, steel, cement). In practice, the coverage of collective agreements in Poland remains relatively low, and according to stakeholders interviewed, it is practically non-existent in the construction sector. Only around 10–15 % of employees are covered by collective bargaining agreements. Instead, negotiations between employers and a trade union at the company level take place through changes to workplace regulations (regulamin pracy).

- Country-level policies for just transition and relevance of just transition in policy debates:** The just transition policy framework is based on the European Just Transition Mechanism and two social contracts<sup>3</sup>, yet these instruments are focused exclusively on the coal and coal-based energy sector in six out of 16 Polish regions. The term 'just transition' is therefore not used in domestic discourse within the construction sector. As this is used in the construction sector at the European level and there are actual support instruments for trade unions, it is operational only in the sense that it provides a stream of support for trade unions operating in Poland. In Poland, opposition to the European Green Deal has been most visible through broad union protests organised by [NSZZ Solidarność](#), which included [industrial workers](#), farmers, and occasionally other sectors. While there is no strong evidence of construction-specific unions staging independent protests, some construction workers may have participated in these broader rallies. Unions [oppose](#) aspects of the Green Deal mainly due to fears over job losses, rising production costs, and economic insecurity in energy-intensive and rural sectors, arguing that the transition to climate-friendly practices could threaten livelihoods if not supported by adequate social and economic measures. The opposition is thus driven less by anti-climate sentiment and more by concerns over the pace, distribution, and support for the green transition.

#### Labour implications of the decarbonisation agenda

- Labour rights challenges:** Poland's construction sector faces several structural labour barriers that complicate its green and renovation-driven transition, that are similar to the situation in several European countries, but with its own national conditions. The workforce is ageing, the share of micro-firms and self-employment is high, and subcontracting chains are long - factors repeatedly highlighted in reports by the National Labour Inspectorate (PIP). Inspectors note the frequent use of short-term or civil-law contracts, irregular employment practices, and safety risks on multi-layered subcontracted sites. This context helps explain why the government is strengthening enforcement: from 2026, PIP will be able to reclassify civil-law or B2B contracts into regular employment when the working relationship fits an employment model (MRPiPS, reform of Państwowa Inspekcja Pracy, 2024–2025). At the same time, the green transition requires large-scale retraining, particularly for heat pump installation, insulation, airtightness work, and energy-efficient renovation. Yet - as the [strategy](#) for meeting the demand for skilled workers in energy-efficient construction by 2030 emphasises – the current practice mostly adds green skills to existing trades rather than creating distinct new occupations.
- Geographical distribution of the implications:** Job creation and labour demand in Polish construction vary regionally.
  - Renovation-driven employment will be highest in regions with older housing stock and colder climates, notably in Śląskie, Małopolskie, Łódzkie, Dolnośląskie and Mazowieckie, where BUPS II and GUS data show the largest concentration of pre-2000 buildings requiring thermal modernisation. Large agglomerations such as Warsaw, Kraków, Wrocław, Poznań, and Tricity are expected to generate further demand through the construction of housing, metro-area suburbanisation, and major infrastructure programmes. However, a notable Polish specificity is the substantial stock of apartments and single-family houses in small and medium-sized towns, as well as in rural municipalities, which represents a significant share of the renovation potential. These areas will absorb a significant portion of insulation and heating-system modernisation jobs, especially if government programmes (e.g., [Czyste Powietrze](#)) remain stable.

<sup>3</sup> One social contract relates to the hard coal mining sector, the other relates to lignite and coal-based power plants. None of the contracts was accepted by the EC in the notification procedure.

- By contrast, some regions face risks of job losses, particularly where construction activity relies heavily on declining industrial segments or on large one-off projects. Post-industrial areas in Śląskie and northern regions with shrinking populations may see employment decline without targeted renovation programmes or industrial diversification. Supply-chain sectors tied to carbon-intensive materials, such as cement, steel, and aggregates, also face pressure to adjust. Polish analyses (MRPiPS, MAP, PAIH) indicate that carbon-intensity reduction requirements may lead to reduced employment in these industries unless supported by Just Transition funding and new green manufacturing investments.
- Regions with the oldest housing stock, notably Łódzkie, Śląskie, Opolskie, Świętokrzyskie, and parts of Mazowieckie, also report the sharpest local skill shortages in retrofit trades. According to the BUPS II Skills and Qualifications Assessment (KAPE, 2023), shortages of certified heat-pump installers, insulation workers, electricians for building automation, and HVAC specialists are among the key constraints to accelerating renovation. Ensuring fair wages, safe working conditions, and predictable project pipelines, alongside regional training centres and employer-supported certification, will be crucial for attracting and retaining workers in renovation across both metropolitan and smaller-town contexts.

Benefits for workers brought by the green transition in the construction sector	Disadvantages for workers brought by the green transition in the construction sector
<ul style="list-style-type: none"> <li>• Creating demand for renovation and modernisation offers long-term employment stability</li> <li>• For the engineering and technical workforce, the green transition is an opportunity for workers to develop professionally through new technologies, digital tools, sustainable material management etc.</li> <li>• The green and digital transition brings generally progress, which means safer and better conditions of work as well as prospects for better work-life balance. Digitalisation reduces exposure to physical risks through automation, remote monitoring, and smarter work organisation, while green investments often go hand in hand with higher health and safety standards and skills upgrading. At the same time, digital tools enable more flexible working arrangements, including remote and hybrid work, which can reduce commuting time and improve well-being. Several European countries and companies are also experimenting with reduced working time models, such as the four-day working week, supported by productivity gains from digitalisation, with pilots showing positive effects on workers' health, work-life balance, and job satisfaction.</li> </ul>	<ul style="list-style-type: none"> <li>• New skills and competencies mostly do not translate into higher salaries</li> <li>• For semi-skilled workers (assemblers or installers) the green transition may become difficult to adapt to, and it will be more difficult to retain their job or their current level of salaries.</li> <li>• Skilled workers move abroad, attracted by significantly higher levels of salaries for comparable work, even accounting for living costs.</li> <li>• Although public funds and programmes for training exist, actual participation and motivation among workers are low, leading to persistent skills gaps in the green construction sector.</li> </ul>

Ways to reinforce these	Ways to reduce these
<ul style="list-style-type: none"> <li>Promote better use of available training funds by linking them to career advancement or wage incentives, encouraging workers to participate voluntarily.</li> <li>Strengthen cooperation between industry, vocational schools, and public employment services to better match training with real labour market needs identified in the KPRB and NRSB.</li> <li>Support the dissemination of good practices showing that green construction jobs can mean better working conditions, higher professional prestige, and long-term job stability.</li> </ul>	<ul style="list-style-type: none"> <li>Relaxations of the impacts of the EU ETS or other instruments which would shield from imports from countries with no carbon pricing</li> <li>Expand re-skilling programmes specifically targeting low- and medium-skilled workers, using flexible and short-format trainings adapted to their needs and schedules based on prior behavioural research regarding low attendance in the currently offered trainings.</li> <li>Increase targeted awareness campaigns about available training and its benefits, as lack of interest—not lack of funds—remains one of the key barriers.</li> <li>Provide incentives for companies that retain or retrain older and semi-skilled employees rather than replacing them.</li> </ul>

Workers groups most affected	
<ul style="list-style-type: none"> <li><b>Professional groups in the core construction business and supply-chain who have the highest environmental footprint and how these are affected:</b> The construction sector’s environmental footprint is concentrated in its core supply chains-cement, steel, glass, and, to a lesser extent, industrial timber. Among these, the highest emissions are associated with cement kiln operators, steel furnace and coke-plant technicians, and glass furnace operators, whose work relies on fossil fuel combustion and process emissions. In Poland, for example, cement plants located in the “Cement Belt” regions (Lubelskie, Świętokrzyskie, Śląskie and Opolskie) are responsible for a significant share of industrial CO<sub>2</sub> emissions, over 2% of industrial emissions in that region. Instead, steel production accounts for over 10% of industrial output and is concentrated in Silesia. Employment in blast-furnace and clinker operations is expected to decline, while new demand emerges for process engineers, digital control specialists, and maintenance technicians capable of operating electric arc furnaces (EAFs) and, in the longer term, possibly hydrogen-DRI or carbon-capture systems.</li> <li><b>Groups where most training is needed and what kind of training:</b> There’s a <a href="#">rising demand</a> for workers skilled in the use of new materials, recycling, waste sorting, and eco-design practices at construction sites. To address this, PARP calls for systematic upskilling programmes in sustainable construction methods - including financial support for companies to send employees to training courses on environmental protection, green building, and material circularity. These programmes should involve industry organisations, public authorities, and educational institutions, including vocational schools and universities, to ensure alignment between education and labour-market needs.</li> </ul>	
Workers positively affected	Workers negatively affected

<ul style="list-style-type: none"> <li>• Installers and technicians of renewable energy sources and heating systems (heat pumps, PV, heat recovery ventilation) - direct increase in demand for energy efficiency and renewable energy installations in renovations.</li> <li>• Deep renovation teams and specialists (renovation crews, insulators, comprehensive modernisation specialists) - KPRB/DSRB are planning a scale of renovation that requires specialist teams for thermal modernisation work.</li> <li>• Energy auditors, renovation coordinators, technical advisors - the growing role of audits and work coordination is creating more office/coordination positions (often available to people less capable of physical work).</li> <li>• Engineers, BIM designers and energy management specialists - the need for BIM design, energy optimisation and digital solutions provides opportunities for upskilling and better pay.</li> <li>• Trainers and training staff/certifiers - the development of training programmes provided for in BUPS and KPRB creates demand for instructors and examiners.</li> </ul>	<ul style="list-style-type: none"> <li>• Low-skilled manual workers (traditional construction workers without additional skills) - changing requirements (new technologies, greater use of prefabrication, work requiring precision and knowledge) increase the risk of skills mismatch.</li> <li>• Employees in the production of high-emission materials (e.g. some cement and clinker plants) - pressure to decarbonise + imports from markets outside the ETS may reduce the profitability of production and result in job cuts in these plants. (KPRB/DSRB point to the need to take into account the impact on industry and supply chains).</li> <li>• Employees who are unwilling/unable to participate in training - even when training resources are available (BUPS/KPRB), lack of interest or barriers to access (time, motivation, location) hinder retraining and lead to exclusion.</li> <li>• Employees in the subcontractor chain with unstable forms of employment - short contracts, self-employment and lack of social protection increase the risk when demand for typical construction work changes.</li> </ul>
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#### Existing protection mechanisms

- **Existing mechanisms to protect or reinforce labour rights/conditions during the transition:**
  - Poland's construction sector has a set of general and sector-specific mechanisms that indirectly protect workers during economic and structural transitions, including the green transition. Labour rights are primarily ensured through the Labour Code and public procurement rules requiring OHS compliance. The "Agreement for Safety in Construction," signed by major construction companies and GDDKiA (General Directorate for National Roads and Motorways), introduced unified OHS standards and contractual penalties for non-compliance across both direct and subcontracted workers.
  - In parallel, national training and upskilling schemes such as "*Competent Construction Workers*" (co-funded by the European Social Fund) support SMEs and employees in adapting to new environmental and technological requirements, indirectly reinforcing job stability and working conditions during the green transition.
- **Existence of gender-/age group-/workers group-specific measures:**
  - There are no legal provisions specific to gender or age in the Polish construction sector's transition policies. However, several public-private campaigns promote women's

<p>participation and equal opportunities in construction. Initiatives such as “<a href="#">Women in Construction – Levelling the Playing Field</a>” (by PORR and the Polish Construction Congress) and “<a href="#">Equality Built In</a>” (by Eiffage Polska Budownictwo) aim to counter stereotypes and highlight women’s contribution to modern construction.</p> <ul style="list-style-type: none"> <li>○ The <a href="#">BUILD UP Skills II national strategy</a> further recommends nationwide campaigns to attract women and young people to energy-efficient construction occupations, addressing labour shortages and promoting inclusion as part of the green transition.</li> </ul> <ul style="list-style-type: none"> <li>● <b>The role of trade unions/construction businesses in professional development (and implementation costs):</b> <ul style="list-style-type: none"> <li>○ Trade unions play a limited role in direct transition planning but are active in sectoral consultations through the <a href="#">Sectoral Skills Council for Construction</a>. Employer organisations, particularly the <a href="#">Polish Association of Construction Employers (PZPB)</a>, have taken a stronger lead in developing training frameworks, occupational standards, and promoting decent work.</li> <li>○ Professional development initiatives are mostly financed by EU funds (ESF+, PO WER) and the National Training Fund, which significantly reduces implementation costs for companies and individual workers. This structure enables firms to access subsidised upskilling while maintaining competitiveness during the transition to energy-efficient and low-emission construction.</li> </ul> </li> </ul>	
Specific measure #1	Specific measure #2
<ul style="list-style-type: none"> <li>● <b>Agreement for Safety in Construction:</b> A voluntary industry pact among major construction firms and GDDKiA, establishing uniform OHS standards, training obligations, and contractual sanctions for violations. The measure covers direct employees and subcontractors, improving workplace safety and standardising labour practices across the sector.</li> <li>● In 2023, GDDKiA included safety clauses based on the Agreement in all major road and infrastructure contracts, ensuring that smaller subcontractors meet the same OHS obligations as general contractors.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Women in Construction – Leveling the Playing Field:</b> A public-private partnership between PORR, the Polish Construction Congress, and social partners aimed at promoting gender equality, preventing discrimination, and supporting women’s career development in construction and engineering. Launched in 2024, the programme provides mentorship, awareness campaigns, and corporate policy reviews to enhance gender balance in management and technical roles within large Polish construction firms.</li> </ul>

### 3. The construction material supply chain

In focus: Decarbonising construction building material	
<ul style="list-style-type: none"> <li>List key enterprises (tonnes of production per year, net turnover)</li> <li>Górażdże Cement S.A.: 3,2 mln t (2,9 mln t CO<sub>2</sub>), Net turnover 2,5 bln PLN</li> <li>LAFARGE CEMENT S.A 2,8 mln t (2,5 mln t CO<sub>2</sub>) Net turnover 1,8 bln PLN</li> <li>Grupa Ożarów S.A 2,5 mln t (2,2 mln t CO<sub>2</sub>) Net turnover 1,7 bln PLN</li> <li>CEMENTOWNIA „WARTA” S.A. 1,7 mln t (1,5 mln t CO<sub>2</sub>) Net turnover 928 mln PLN</li> <li>CEMEX Polska Sp. z o.o 1,6 mln t (1,4 mln t CO<sub>2</sub>) Net turnover 2,1 bln PLN</li> <li>Dyckerhoff Polska Sp. z o.o. 1,1 mln t (1 mln t CO<sub>2</sub>), Net turnover 775 mln PLN</li> <li>Lhoist S.A. 1 mln t (0,9 mln t CO<sub>2</sub>)<sup>4</sup> Net turnover 652 mln PLN</li> </ul>	<ul style="list-style-type: none"> <li>No reliable data for all companies regarding their employment is available. Rough estimates indicate that Lafarge Cement employs approximately 1,500-1,800 workers and Cemex Polska employs around 1,300 workers.</li> <li>In 2021, the <a href="#">Polish cement industry</a> generated approximately PLN 5.1 billion of gross value added (GVA) in the economy through a combination of direct, indirect, and induced demand-side effects. The analysis captures not only the direct output of cement producers, but also the supply-chain effects (indirect) and the effects of employees spending their wages in the economy (induced).</li> <li>The sectors that benefited the most (in terms of value added) from the downstream demand generated by the cement industry include: transport, postal services and telecommunications, which saw around PLN 458 million; electricity, gas, water and recycling, with about PLN 363 million; and trade, which gained roughly PLN 307 million.</li> </ul> <p>Regionally, the highest value-added effects were recorded in the voivodeships (provinces) where cement plants are located, reflecting local demand and supply-chain spillovers. According to the report, the largest contributions came from Świętokrzyskie.(PLN 1.2 bn), Opolskie (PLN 748 m), Śląskie (PLN 667 m) <a href="https://bta-czasopismo.pl">bta-czasopismo.pl</a></p>
<ul style="list-style-type: none"> <li><b>Title and main features of key decarbonisation policies:</b> There is currently no government policy document addressing decarbonisation plans for the cement sector. Two areas where new legislation has been adopted to facilitate the achievement of decarbonisation targets in the sector are in the areas of CCUS and direct line (in electricity). There are no decarbonisation policies and emission reduction timeline/targets at the national level relevant for the building material sector other than NECP. The targets for the cement sector are defined at the EU level by the sector's Net Zero Roadmap. If Poland does not adopt ambitious domestic decarbonisation legislation, EU policies like ETS and CBAM will nonetheless drive change in the cement sector through rising carbon costs and competitive protections. The government is likely to support implementation of these EU policies — framing them as tools to support industry competitiveness — while pushing for transition flexibility and infrastructure support. Over the next five years, the combination of EU regulatory pressure, industry adaptation (e.g., CCS investment), and gradual alignment of national policy is expected to shape the decarbonisation pathway for the Polish cement sector.</li> <li><b>Existence of collective bargaining agreements:</b> There is no evidence about any existing collective bargaining agreements for workers in the cement sector.</li> </ul>	
<ul style="list-style-type: none"> <li><b>(Expected) impacts on the supply chain:</b> Since there is no direct legislation to decarbonise the cement industry, there is no impacts on the supply chain and on employment, skills and activity levels.</li> </ul>	
<ul style="list-style-type: none"> <li><b>Country-level policies for just transition in the building materials sector:</b> There are no country-level policies for just transition in the building material sector other than for coal (thermal and lignite) mining and the coal-based power sector.</li> </ul>	

<sup>4</sup> There is no data about cement production but based on the E-PRTR data on yearly emissions, we use the the conversion factor for emissions in cement production 0.85 tonnes of CO<sub>2</sub> per 1 tonne of clinker (average for Polish cement plants using mainly Portland clinker) and assume that clinker accounts for approximately 95% of the weight of the cement produced.

<ul style="list-style-type: none"> <li>• <b>Shifts between sectors:</b> The analysis of the local impacts in the cement sectors conducted by EY (2023) indicates that the largest impacts in terms of value added, employment, and local government revenues were generated in the counties (powiat) where the cement plants are located. However, due to indirect and induced effects, the impacts also spread to other regions of the country, usually being stronger in counties relatively close to the cement plants. The counties where the cement sector generated the highest value added include Krapkowice, Opatów, Żnin, Jędrzejów, Pajęczno, Kielce, the city of Warsaw, and Chełm. The highest employment effects were observed in the city of Warsaw, Opatów, Krapkowice, the city of Kraków, Kielce, and Chełm. Local public revenues from the cement sector were largest in Krapkowice, Opatów, Chełm, Żnin, and Kielce counties.</li> </ul>	
Key hotspot for transformation #1	Key hotspot for transformation #2
<ul style="list-style-type: none"> <li>• <b>Kujawy Cement Plant (Holcim):</b> Holcim is moving forward with a major CCS project in Poland, called <a href="#">Go4ECOPlanet</a>, at its Kujawy cement plant. The plan is to capture 100% of CO<sub>2</sub> emissions—around 1.2 million tonnes per year—using Air Liquide’s Cryocap FG technology, with operations targeted for 2027. Captured CO<sub>2</sub> will be liquefied and transported to offshore storage sites in the North Sea. The project, supported by a €228 million <a href="#">EU Innovation Fund grant</a>, aims to make Kujawy one of Europe’s first near-net-zero cement plants.</li> <li>• One of the key <a href="#">initiatives</a> at Holcim Kujawy aimed at upskilling employees in the context of the green transition is the Holcim Cement Industrial Academy, which offers over 400 e-learning modules covering, among others, decarbonization technologies and production processes. Additionally, a certification program has been implemented for maintenance inspectors, planners, laboratory operators, and control system operators, enabling employees to retrain for new low-emission technologies.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Góraźdże Heidelberg Materials:</b> Heidelberg Materials is implementing significant technological upgrades at its Góraźdże cement plant in Poland to reduce its carbon footprint. The company is investing in carbon capture and utilisation technologies, including a pilot “enforced carbonation” installation (ReConcrete) that absorbs CO<sub>2</sub> while using <a href="#">recycled concrete</a> as a building material. Additionally, Heidelberg has <a href="#">opened</a> an innovative recycling plant near Katowice to selectively separate demolition concrete and recover RCP, sand, and aggregates. These investments are part of its broader 2030 <a href="#">strategy</a> to reduce CO<sub>2</sub> emissions, scale circular production, and deliver more sustainable cement products.</li> <li>• Global <a href="#">program</a> for competencies development at the group level is implemented in Poland through collaboration with local universities like Politechnika Śląska, Politechnika Wrocławska, Politechnika Opolska or AGH.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Benefits for workers:</b> In the Polish cement sector, the green transition can deliver several concrete worker benefits. Job creation is enabled by CCS deployment, which can significantly <a href="#">boost</a> sector employment. Competitive stability and job security stem from <a href="#">CCS</a> helping companies remain viable under tightening CO<sub>2</sub> regulations. Skills <a href="#">development</a> occurs as employees are trained in CCS operations, advanced production, and alternative fuels. Improved working conditions result from low-emission technologies that reduce pollutants, thereby enhancing health and safety. Local and community <a href="#">development</a> is supported through investments in modern infrastructure, which strengthens regional economies and sustains employment.</li> <li>• <b>Disadvantages for workers:</b> Job <a href="#">displacement</a> risk arises from modernisation and automation of production processes which may reduce the need for certain manual or routine positions. A skills <a href="#">mismatch</a> can occur when employees must adapt quickly to new technologies and processes, leaving those without sufficient training at risk of redundancy. Work pressure and retraining demands may <a href="#">increase</a>, as workers need to undergo continuous upskilling while maintaining productivity. Potential regional <a href="#">inequality</a> could emerge if</li> </ul>	

smaller plants or subcontractors struggle to invest in green technologies, threatening job security in less modernised sites. Some branches, like steel or cement, may face job losses due to imports from countries without carbon pricing systems. In the cement sector, for instance, the production of clinker has become less profitable due to recent growth in imports. This would lead to the closure of limestone production, which, in the case of a cement plant, would result in a reduction of approximately 350-500 jobs.

In focus: Decarbonising construction building material – glass	
<p><b>Euroglas Polska</b></p> <ul style="list-style-type: none"> <li>• Production: ~640,000 t/year (flat glass – float glass)</li> <li>• Turnover: ~PLN 1.35 bn (2023)</li> </ul> <p><b>O-I Produkcja Polska</b></p> <ul style="list-style-type: none"> <li>• Production: ~440,000 t/year (container glass)</li> <li>• Turnover: ~PLN 1.25 bn (2023)</li> </ul> <p><b>BA Glass Poland</b></p> <ul style="list-style-type: none"> <li>• Production: ~430,000 t/year (container glass)</li> <li>• Turnover: ~PLN 1.05 bn (2023)</li> </ul> <p><b>Ardagh Glass Poland</b></p> <ul style="list-style-type: none"> <li>• Production: ~370,000 t/year (container glass)</li> <li>• Turnover: ~PLN 1.06 bn (2023)</li> </ul> <p><b>Guardian Industries Poland</b></p> <ul style="list-style-type: none"> <li>• Production: ~360,000 t/year (flat glass – float glass)</li> <li>• Turnover: ~PLN 0.75 bn (2023)</li> </ul> <p><b>Saint-Gobain Polska (Glass Division)</b></p> <ul style="list-style-type: none"> <li>• Production: ~350,000 t/year (flat glass – float glass)</li> <li>• Turnover: ~PLN 0.78 bn (2023)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Euroglas Polska</b> <ul style="list-style-type: none"> <li>○ Employees: ~600 (Ujazd plant)</li> <li>○ Yes – float glass is primarily used for windows, facades, and architectural glazing</li> </ul> </li> <li>• <b>O-I Produkcja Polska</b> <ul style="list-style-type: none"> <li>○ Employees: ~850 (Jarosław + Poznań plants)</li> <li>○ Note – container glass is for bottles and jars, not building applications</li> </ul> </li> <li>• <b>BA Glass Poland</b> <ul style="list-style-type: none"> <li>○ Employees: ~550 (Sieraków, Jedlice)</li> <li>○ Note – container glass is for food and beverage packaging</li> </ul> </li> <li>• <b>Ardagh Glass Poland</b> <ul style="list-style-type: none"> <li>○ Employees: ~1,000 (Gostyń, Ujście, Wyszaków)</li> <li>○ Note – container glass is not used in construction</li> </ul> </li> <li>• <b>Guardian Industries Poland</b> <ul style="list-style-type: none"> <li>○ Employees: ~400–500 (Częstochowa plant)</li> <li>○ Yes – float glass is widely used in windows, facades, and insulating glass units</li> </ul> </li> <li>• <b>Saint-Gobain Polska (Glass Division)</b> <ul style="list-style-type: none"> <li>○ Employees: several hundred in Dąbrowa Górnicza (group total ~7,000)</li> <li>○ float glass is a core material for architectural glazing and energy-efficient windows</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• <b>Title and main features of key decarbonisation policies:</b> There are no specific decarbonisation policies and emission reduction timelines/targets for the glass sector</li> <li>• <b>Existence of collective bargaining agreements:</b> There are no evidence about collective bargaining agreements for workers in the sector</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>(Expected) impacts on the supply chain:</b> Growing demand for high-purity silica sand and stricter quality requirements will increase pressure on domestic reserves, raise processing costs, and accelerate the shift toward greater use of recycled cullet to reduce reliance on virgin building</li> </ul>	

materials. EU recycling policies are increasing cullet use in glass production, contributing to decarbonisation through lower energy consumption and emissions, while reshaping material flows in the glass industry ([Burkowicz et al. 2020](#))

- **(Expected) impacts on employment, skills and activity levels of workers in the materials industry:** Polish glass factories are undergoing rapid modernisation driven by high energy costs, EU ETS obligations, and demand for low-carbon products, which will reshape workforce needs. While overall employment is likely to remain stable or slightly decline in traditional roles due to automation and efficiency improvements, new jobs will emerge in areas such as furnace electrification, hybrid melting technologies, process automation, and quality control. Skills requirements will shift toward technical and digital competencies, environmental compliance, and energy management, supported by vocational training and industry-led programs (e.g., for glass technology technicians). Working conditions will improve through stricter BAT standards and safety regulations, but restructuring in some plants (such as recent closures of glass furnaces in Gostyń and Chełm) shows that regional job losses may occur where demand falls or modernisation is delayed. Overall, the sector will prioritise reskilling and upskilling rather than large-scale layoffs, aligning with Poland’s energy transition and circular economy goals.

- **Country-level policies for just transition:** there is no just transition instruments available for the glass sector

- **Cross-sector mobility:** There is no data or studies to assess the transfers of workers between glass and other trade or sectors

- **Geographical distribution of the implications:** The transformation of Poland’s glass sector may bring some risks for traditional production hubs like in Śląskie region (Dąbrowa Górnicza, Jaroszewiec) and Małopolskie regione due to EU decarbonization targets and rising CO<sub>2</sub> costs ([Forum Energii](#); [PROMET Glass](#)). In contrast, Świętokrzyskie (Sandomierz) is emerging as a growth center, with NSG Group investing PLN 160 million in advanced coating technology to produce energy-efficient glass ([NSG](#)).

Hotspot #1	Hotspot #2
<ul style="list-style-type: none"> <li>• <b>Ardagh Glass Polska – Gostyń:</b> In October 2023, Ardagh Glass Polska shut down one of its two glass furnaces at the Gostyń plant, citing a sharp decline in demand for glass packaging and rising energy costs. The decision triggered a restructuring process and group layoffs affecting around 30 employees, with the company notifying the local labour office of planned redundancies. Management linked the move to “dynamic changes in the business environment” and the need to adapt production capacity, while promising support for affected workers. This illustrates how energy price volatility and decarbonisation pressures (including EU ETS costs) can lead to production cuts and job losses when modernisation is delayed. (<a href="#">Source1</a>; <a href="#">Source2</a>)</li> </ul>	<p><b>Glass plant “Marta 2” – Chełm:</b> The Chełm-based glassworks “Marta 2,” specialising in hand-formed glassware, announced layoffs of over 200 employees in mid-2025, following years of financial strain caused by soaring gas and electricity prices. The company had already suspended production in Chełm in 2022 and moved some operations to Dubeczno, but ultimately entered liquidation in May 2025. Management pointed to the unprecedented increase in energy costs and difficulties in adapting to low-carbon requirements as key reasons for closure. Local authorities and labour offices organised retraining and support programs for affected workers, highlighting the social impact of the energy transition on traditional glassmaking. (<a href="#">Source1</a>, <a href="#">Source2</a>)</p>
<ul style="list-style-type: none"> <li>• <b>Benefits for workers brought by the green transition in the sector:</b> Creation of new jobs and greater employment stability, as seen in Pilkington Polska’s (Sandomierz), where a PLN 160 million</li> </ul>	

investment will add over 30 positions in advanced glass production ([Carpatia Biznes](#)). Workers will gain opportunities for upskilling and acquiring new competencies in ecological project management and modern technologies, improving career mobility ([Wikana Bioenergia](#)). The shift to sustainable production also may allow better pay prospects and long-term industry stability, as companies adopting green technologies strengthen competitiveness ([ZielonaGospodarka.pl](#)), while modernisation and automation enhance workplace safety and ergonomics in heavy glass manufacturing ([Przemysł Info](#)).

- **Disadvantages for workers brought by the green transition in the sector:** Modernisation of glass plants in Poland under ESG strategies brings risks for workers, mainly linked to automation and new low-carbon technologies, which reduce demand for manual labour and may lead to job cuts in traditional production lines ([Trend Glass – Polityka środowiskowo-energetyczna](#)). Companies like Pilkington and Saint-Gobain emphasise decarbonization and hybrid furnaces, requiring advanced technical skills and continuous training, creating potential challenges for older or less-qualified employees ([Pilkington Polska](#); [Saint-Gobain Glass](#)).
- **Existing mechanisms to protect or reinforce labour rights/conditions:** Poland relies on obligations under the general European Pillar of Social Rights, which require social dialogue and worker participation in restructuring processes ([EUR-Lex](#)). National labour law guarantees collective bargaining (although it is applied rarely in practice) and consultation rights, as well as protection against discrimination. Additionally, trade unions can negotiate social packages during plant modernisation or closures.
- **The role of trade unions/construction businesses:** Glass producers such as Pilkington Polska and Saint-Gobain Glass integrate ESG strategies that include employee training in low-carbon technologies and sustainability standards, often co-financed through EU or national programs ([Pilkington Polska](#); [Świat Szkła](#)). Trade unions play a key role in negotiating retraining programs and ensuring fair conditions, through social dialogue.