

POLISH SECTOR

PREVENTION AND INSPECTION PROGRAMMES: SUPPORTING OCCUPATIONAL SAFETY AND HEALTH COMPLIANCE (CASE PL5)

1 Introduction

Promoting effective occupational safety and health (OSH) practices is key to safer and healthier workplaces. Improving arrangements and practices for managing OSH across a whole range of industry sectors and firm sizes — large, medium, and small — is stimulated, supported and sustained by a range of institutional actors and internal and external processes for firms. Scientific research highlights, among others, the critical role that state regulators for OSH, such as Labour Inspectorates and prevention services, can play¹ (EU-OSHA, 2021). This case study is part of a research project² conducted in Poland to provide further insight into this topic.

In the present and previous years, the Polish State Labour Inspection (PIP) has developed and implemented several strategies — horizontal activities — encompassing heightened inspections and promotional activities.³ This approach involves addressing OSH issues from various angles and combining methods to achieve their strategic objectives. They all have a similar structure, covering promotional activities and preventive-control actions aimed at reducing hazards by promoting compliance with labour law regulations, especially regarding OSH, and enabling employers to adjust their facilities to current regulations through participation in a prevention programme based on self-monitoring. In previous years, such horizontal activities were targeting butcheries and slaughterhouses (2019-2021) and sawmills and carpentry workshops (2016-2018).⁴ This case study presents the most recent horizontal activity, 'Preventative and Control Strategy for the Construction Industry' (*Strategia kontroli i działań prewencyjnych dla sektora budowlanego na lata 2022-2024*) with its flagship promotional campaign 'Construction. STOP Accidents!' ('Budowa. Stop Wypadkom!') as an example of this sectoral approach.

2 Description of the case

For years, construction has maintained its status as the industry with the highest number of accidents at work in Poland, with these incidents often resulting in severe consequences. Figures 1 and 2 illustrate the trends in persons injured (non-fatal accidents) and fatal accidents in the construction sector from 2016 to 2023. It is noteworthy that while the number of injured persons has shown a steady decrease since 2016, the incidence of fatal accidents has remained relatively constant over the same period.

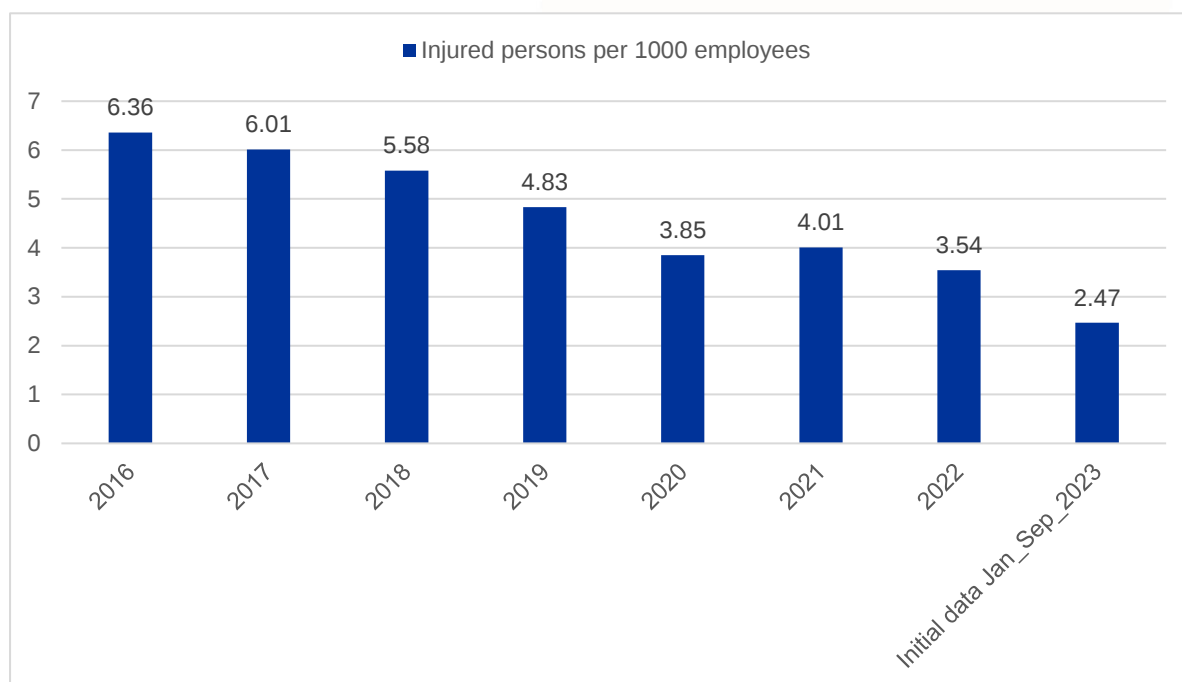
¹ EU-OSHA – European Agency for Safety and Health at Work, *Improving compliance with occupational safety and health regulations: an overarching review*, 2021. <https://osha.europa.eu/en/publications/improving-occupational-safety-and-health-changing-world-work-what-works-and-how>

² The full report is available at: <https://osha.europa.eu/en/publications/polands-approach-supporting-occupational-safety-and-health-compliance-role-labour-inspectorate-and-prevention-services>

³ PIP Annual Activity Report 2022.

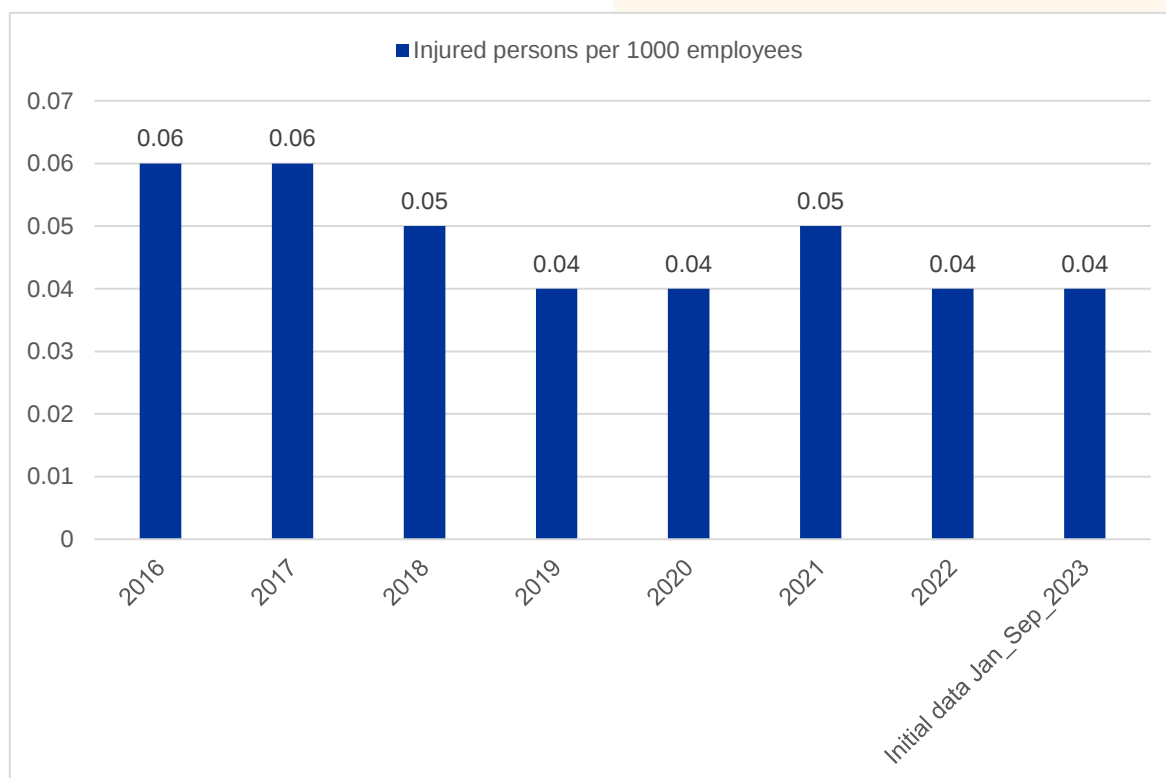
⁴ To read in more detail about the horizontal activities of the State Labour Inspection in Poland, see section 3.6 in full report <https://osha.europa.eu/en/publications/polands-approach-supporting-occupational-safety-and-health-compliance-role-labour-inspectorate-and-prevention-services>

Figure 1: Persons injured in accidents at work (per 1,000 employees) in the construction sector (2016-2023)⁵



Source: Ecorys & NIOM, own calculations based on: Statistics Poland. (2016-2023). *Domain knowledge databases. Accidents at work in 2016-2023*. Statistics Poland.

Figure 2: Persons injured in fatal accidents at work (per 1,000 employees) in the construction sector (2016-2023)⁶



Source: Ecorys & NIOM, own calculations based on: Statistics Poland. (2016-2023). *Fatal accidents at work in 2016-2023*. Statistics Poland.

⁵ Statistics Poland. (2016-2023). *Domain knowledge databases. Accidents at work in 2016-2023*. Statistics Poland.

⁶ Ibid.

Inspections of construction works confirm the high level of inadequacies in occupational safety and highlight the urgent need for planning and carrying out an intensified campaign to reduce the risk of accidents.⁷

In 2022, PIP performed 55,482 inspections, of which 11,170 were in the construction sector (constituting 20% of all inspections). Only in the trade and repair of vehicles sector was this number higher, 12,323 (22.1% of all inspections). PIP issued 27.5% of all administrative decisions in the construction sector. Of these administrative decisions in the sector, as many as 73.5% of all decisions to stop work and 66.3% of all decisions to divert workers to other work were in the construction sector. In the construction sector, on average, one inspection resulted in 4.4 decisions issued (total in all sectors 3.3 decisions per inspection).

Given the above, PIP launched a three-year strategy called the 'Preventative and Control Strategy for the Construction Industry' for 2022-2024. This strategy has two main components: increased supervision and controls on safety-critical construction sites, and the 'Construction. STOP Accidents!' campaign focused on raising awareness of occupational hazards, popularisation, broadening the knowledge of employers and workers, as well as promoting good practices on construction sites.

When planning and implementing the strategy in the construction sector, PIP took advantage of the horizontal approach, combining inspection and non-inspection activities, used during its campaigns targeted in the past at the woodworking and meat processing sectors.

2.1 Aims

Aligned with the 'Preventative and Control Strategy for the Construction Industry', the control activities conducted by labour inspectors in the construction sector are conducted simultaneously with the informational and promotional aspects of the strategy. The promotional part of this campaign is titled 'Construction. STOP Accidents!' and is implemented under the slogan 'Respect Life! You Won't Rebuild Yourself.'

The campaign aimed to improve safety in construction, in particular by:⁸

- increasing the effectiveness of the impact of the State Labour Inspection in the scope of control and supervision activities undertaken in entities implementing construction works;
- improving labour protection standards in small construction companies by raising awareness of the proper preparation of workers to perform their work safely, as well as adequate protection measures, especially concerning the risks associated with working at heights, in excavations and with operating machinery; and
- inspiring employers to fulfil their obligations concerning the general organisation of work on major construction projects. This includes reliably and comprehensively supervising the work carried out, especially when coordinating the efforts of multiple entities on a single construction site.

The campaign is aimed primarily at employers, construction workers, work managers, employees and investors. It intends to reach everyone responsible for safe work on construction sites.

2.2 Organisations involved

PIP implements the campaign in cooperation with social and institutional partners, such as:

- the Social Insurance Institution (Zakład Ubezpieczeń Społecznych – ZUS);
- the Office of Technical Inspection (Urząd Dozoru Technicznego – UDT);
- the Central Office of Construction Supervision (Główny Urząd Nadzoru Budowlanego);
- the Central Institute for Labour Protection - National Research Institute (Centralny Instytut Ochrony Pracy - Państwowy Instytut Badawczy – CIOP-PIB);

⁷ Action Programme of the State Labour Inspection for 2024 and for 2022-2024.

⁸ Action Programme of the State Labour Inspection (PIP) for 2024 and for 2022-2024. <https://www.pip.gov.pl/o-nas/cele-i-zadania>

- the Agreement for Safety in Construction (Porozumienie dla Bezpieczeństwa w Budownictwie);⁹
- the Nationwide Association of Occupational Safety and Health Service Employees (Ogólnopolskie Stowarzyszenie Pracowników Służby – BHP);
- the Trade Union “Budowlani”;
- the Polish Association of Construction Engineers and Technicians (Polski Związek Inżynierów i Techników Budownictwa),
- the Building Research Institute (Instytut Techniki Budowlanej – ITB); and
- the Nofer Institute of Occupational Medicine (Instytut Medycyny Pracy im. prof. dra med. Jerzego Nofera – NIOM).¹⁰

Cooperation with the above-mentioned partners involved mainly co-organising educational meetings, seminars and conferences, promotion of the campaign or involvement in common events. Jointly with the Agreement for Safety in Construction, PIP organised the Safety Week during which labour inspectors, among others, promoted safe behaviour on a construction site and indicated the most frequent irregularities revealed in the course of inspections in the construction sector.

2.3 What was done, and how?

According to the ‘Action Programme of The State Labour Inspection for the years 2022-2024’, the following preventive and outreach actions are planned as part of the ‘Construction. STOP Accidents!’ campaign:

- organisation of training courses dedicated to the construction industry;
- labour inspectors’ consulting for employers;
- promoting good practices and distributing materials on work safety in the sector; and
- informative media activities intended to raise public interest in labour protection in the construction industry and to promote a culture of work safety among employers and construction workers.

As the preparatory step before the development of the strategy, PIP analysed the following data from the construction sector:

- data from inspections of labour inspectors conducted in the construction industry,
- accident data of PIP and Statistics Poland (Główny Urząd Statystyczny – GUS),¹¹ and
- data related to the implementation of preventive tasks aimed at employers and employees in the construction industry produced by the State Labour Inspection. This includes PIP data, and data from the District Labour Inspectorates (Okręgowa Inspekcja Pracy – OIP) – regional, local branches of the State Labour Inspection.¹²

The Supervision and Inspection Department and the Prevention and Promotion Department of PIP performed the above analysis. PIP also developed elements of the strategy during consultations with a working group consisting of labour inspectors who carry out inspection and prevention activities in the construction industry.

In 2022, PIP implemented the first stage of the ‘Construction. STOP Accidents!’ campaign. Promotional activities in the mass media targeted at the construction sector were planned by the PIP for three years. In 2022, OSH in the construction sector was to be promoted on radio and Internet, in 2023 on television and Internet, and in 2024 on radio and Internet.¹³ PIP coordinates those nationwide media activities (on

⁹ For details on the Agreement for Safety in Construction, see case study *Polish ‘Agreement for Safety Construction’: supporting occupational safety and health compliance (Case PL4)* <https://osha.europa.eu/en/publications/polish-agreement-safety-construction-supporting-occupational-safety-and-health-compliance-case-pl4>

¹⁰ Report on the activities of the State Labour Inspectorate in 2022. Warsaw 2023. <https://www.pip.gov.pl/o-nas/sprawozdania>

¹¹ GUS is the official national office for statistics.

¹² The PIP structure comprises the Chief Labour Inspectorate (GIP) overseeing labour law compliance in Poland and 16 District Labour Inspectorates (OIPs) with field offices in each voivodeship capital. To learn more about the labour inspection structure in Poland, see section 2.2 in full report <https://osha.europa.eu/en/publications/polands-approach-supporting-occupational-safety-and-health-compliance-role-labour-inspectorate-and-prevention-services>

¹³ Promotion via television was carried out just in 2023 due to the campaign’s limited budget. Interview with the PIP representative, March 2024.

television, radio and Internet), cooperates with social partners at the national level, and runs the campaign website. Overseeing control and prevention activities implemented locally was assigned to the district coordinator within each OIP and based on the PIP guidelines. Such guidelines include specific tasks and goals to be implemented yearly (such as the number of employees to be trained, and a schedule for activities and reporting). Implementation by the OIPs at the local level is supported by the coordinator at the national level (PIP).

For example, the main form of campaign implementation was training for employers and entrepreneurs conducted by labour inspectors specialising in inspections of the construction industry. They were mainly held directly on construction sites. It ensured that a broader range of interested parties were covered and the subject matter was tailored to the work scope on a particular construction site. Hence, the main activities carried out by the OIPs besides inspections were training sessions, seminars, meetings for employers, participation in work safety days at construction sites and in trade fairs, organisation and recruitment of employers to join the competition 'Build safely', cooperation with local partners and local media, and distribution of free PIP publications.

The achieved goals are presented by all the OIPs yearly by reporting:

- a) on quantitative indicators (number of inspections, training sessions implemented, etc.); and
- b) via annual reports from campaign implementation, where additional information is provided:
 - number and thematic scope of seminars and conferences, and
 - initiatives carried out along with local partners, etc.

It is worth mentioning that the organisation of training at construction sites was the responsibility of the management of the contractor's companies, working in close cooperation with labour inspectors. It allowed for a better selection of topics to be covered and the setting of convenient meeting dates. The advantage of the training was direct contact between those responsible for safety on the construction site and labour inspectors, who answered the participants' questions on an ongoing basis. Training sessions included theoretical and practical parts (like the staging of accidents and ways of assisting injured workers).

2.4 Degree of innovation

This model, incorporated in PIP's 'Preventative and Control Strategy for the Construction Industry', involved collaborative efforts to ensure compliance with labour laws, health and safety regulations, and other relevant standards within the construction industry. It acknowledges that the regulatory authority and construction companies are jointly responsible for maintaining safe and healthy working conditions.

Key elements of the co-enforcement model in construction include:

1. Partnership and collaboration develop a shared understanding of regulatory requirements and foster a culture of compliance among companies.
2. Proactive compliance management by companies, including implementing robust health and safety policies, conducting regular risk assessments, providing adequate training to workers, and maintaining accurate records of safety inspections and incidents.
3. Risk-based approaches — the labour inspection, and construction companies prioritise enforcement efforts based on the level of risk posed by specific hazards and non-compliance issues. It may involve targeting high-risk activities.
4. Capacity building and support: PIP provides guidance, resources and technical assistance to help construction companies understand and meet regulatory requirements.
5. Continuous improvement and learning for both the labour inspection and construction companies: regular feedback mechanisms, performance evaluations and sharing of best practices help identify areas for improvement and drive ongoing enhancements to safety standards and enforcement practices.

Another innovative element of PIP's programme was establishing cooperation with a well-known influencer who runs the [YouTube channel Mario Budowlaniec](#) as one of the promotional activities performed. This channel has more than 557,000 subscribers and nearly 335 published instructional videos. It is the largest and most popular Polish channel for construction. Thanks to the collaboration, one of the films produced on the channel was dedicated to promoting the 'Construction. STOP Accidents!' campaign, occupational safety when carrying out renovation work, use of personal

protective equipment and working with power tools. As of the end of October 2022, the film has been viewed by more than 100,000 users.

3 Results

3.1 What was achieved

In 2022, labour inspectors conducted 405 training sessions nationwide, including 7,817 participants (including, among others, 1 912 employers and non-employer entrepreneurs, 3,290 employees and 483 OSH experts, and 511 students).

The training was complemented by educational meetings, seminars and conferences organised in cooperation with the Polish Chamber of Civil Engineers, the Polish Union of Construction Engineers and Technicians of the Construction Industry, and universities.

The following conferences are noteworthy:

- 'Construction. STOP Accidents! Challenges and strategies for work safety on construction sites in Poland'.
- [XXX Scientific and Technical Conference 'Building Accidents'](#).¹⁴
- Scientific conference [New technologies in construction – risks to occupational safety](#).¹⁵
- ['We build safe and modern'](#).¹⁶

Some of the above events were combined with a visit to chosen construction sites.

PIP, as it does every year, also joined in the Safety Week, organised by the signatories of the Agreement for Safety in Construction.¹⁷ It entailed training sessions on selected construction sites, lectures on OSH, rescue and good practice demonstrations, and presentation of modern technical solutions. As a result, 145 training courses were held, attended by 746 employers, 1,709 employees and 81 OSH experts.

The implementation of the campaign was also supported by promotional activities undertaken. Presented below are some examples of these activities implemented in 2022:

- Organisation of 259 events promoting safe work on construction sites for 522 employers, 377 workers, and 86 health and safety representatives.
- 3,237 broadcasts were made on 67 national and local radio stations, reaching 3.8 million people.
- Activities on the Internet were carried out using websites on construction and the GDN advertising network (Google Display Network).
- Banners were used to direct Internet users to the campaign's website (www.bhpnatak.pl) — 201,300 clicks on banners and other forms of advertising.

¹⁴ More information: https://www.przegladbudowlany.pl/images/archiwum/2022/7-8/2022_7-8_Awarie%20budowlane_14.pdf

¹⁵ More information: <https://behapowcy.com/konferencja-nowe-technologie-w-budownictwie/>

¹⁶ A summary on all mentioned conferences can be found in the PIP Annual Activity Report 2022.

¹⁷ For details on the Agreement for Safety in Construction, see case study *Polish 'Agreement for Safety Construction': supporting occupational safety and health compliance (Case PL4)* <https://osha.europa.eu/en/publications/polish-agreement-safety-construction-supporting-occupational-safety-and-health-compliance-case-pl4>

Figure 3: Campaign banners¹⁸

Source: Downloadable campaign materials

- Broadcast of a promotional video on the influencer's YouTube channel, reaching over 550,000 users (available at: <https://www.youtube.com/watch?v=WLjiG4ZmObo&t=5s>).
- A 30-second spot promoting safety at work in the construction industry (placed on PIP's YouTube channel and the website, available at: <https://www.youtube.com/watch?v=dyhc2bNnMNs>).
- 233 information spots on television, radio, press and the Internet (promotion in local media based on non-profit principles).
- Distribution of more than 28,000 free publications in Polish and Ukrainian.
- Posters promoting the campaign and eight infographics on occupational safety in construction.

Figure 4: Example of campaign infographic¹⁹

Source: Downloadable campaign materials

In 2023, the campaign was continued, and the following results were achieved:

- The TV campaign, carried out in November 2023, comprised 7,433 broadcasts of a 30-second spot on TVP1, TVP2 and Polsat channels, as well as on 97 thematic TV channels. Owing to this, 2.1 million persons got acquainted with the message. The TV spot was also used in other mass media activities of the campaign 'Construction. STOP Accidents!'. There were more than 1.4 million displays of the spot during promotion in the YouTube service.

¹⁸ More information: <https://www.bhpnatak.pl/>, downloadable materials.

¹⁹ Ibid.

- In October and November 2023, advertising banners directing to the campaign website www.bhpnatak.pl were displayed on the Internet portals devoted to construction-related topics and in the GDN advertising network. Additionally, special adverts were prepared for the Google search engine for contextual displaying to users interested in construction and safety issues in that sector. Promotion was also carried out on the advertising portal olx.pl, where the campaign banners were placed, among others, under a tab with offers of construction machinery and equipment, as well as under a tab with offers of construction and renovation services. During the activities on the Internet, in total there were more than 157,000 clicks on banners and other forms of advertising connected with the campaign.
- For two weeks in October 2023, the 30-second spot of the campaign 'Construction. STOP Accidents!' was broadcasted on over 1,600 advertising screens in public buses in Warsaw. It resulted from an agreement between the State Labour Inspection and the Municipal Bus Company Ltd. (MZA Sp. z o.o.) concerning the promotion of safety issues in construction and positive behaviour related to safety in transport.
- Labour inspectors from 16 district labour inspectorates provided (from 15-21 May 2023) training, talks, lectures and webinars promoting good practice and safety culture in the construction industry in the 10th edition of Construction Safety Week. Inspectorates conducted 145 training sessions for companies, their subcontractors, employees and site managers. Labour inspectors nationwide conducted training for 1,016 employers, 2,108 workers, and 110 health and safety representatives.
- Moreover, the Labour Inspectorates co-organised and participated in several conferences, seminars and educational meetings in the campaign.
- Promotional activities in local media were continued.

In addition, an open cooperation formula was also created for the campaign, allowing interested parties to join the project as campaign supporters. A company or institution could propose implementing its project in line with the campaign's objectives and finance it from its resources or using materials prepared by PIP. In return, the company obtained the right to use, for the campaign, a specially prepared campaign logo with the message 'The company supports the PIP campaign'. The campaign logotype can be placed on the company's website or advertising materials. Examples of such activities carried out during the campaign included:

- promotion of the campaign on the website of the Polish Building Depots (Polskie Składy Budowlane — the largest Polish retail chain selling building materials);
- recording of three podcasts on accidents at work and occupational safety in the construction industry by the ipomocni.pl Foundation, in cooperation with PIP; and
- promotion of the campaign spot on advertising media for Warsaw public transport buses.

For 2024 the State Labour Inspection has planned continuation of inspection, preventive and promotional activities targeted at the construction sector. The mass media activities will focus, in particular, on promoting issues of work safety on the radio and the Internet. Moreover, PIP will conduct training for employers, workers and representatives of OSH services and will organise conferences, seminars and meetings devoted to work safety on construction sites.

3.2 Success factors and challenges

In the construction sector, PIP has resigned from implementing preventive programmes based on a classical model of self-inspection. For the construction sector, the State Labour Inspection offers a programme of an educational and training nature and it is, in fact, carried out mainly on large construction sites.

One success factor was PIP's previous experience in running similar programmes in other industries (see section 2) — the woodworking and meat processing sectors. This experience was crucial in developing effective strategies for the construction industry. By analysing accident rates, irregularities recorded by labour inspectors and their severity, PIP was able to plan and implement appropriate measures to improve health and safety. While this campaign focuses on the construction sector, it highlights the broader importance of sectoral campaigns and the value of applying lessons learned from one industry to another.

The high adaptability potential of the combination of inspection and preventive activities, consisting of the shift toward a co-enforcement model at the company level across sectors, can be evidenced by a similar approach adopted by PIP in the past. These three-year campaigns included both the implementation of media activities and the running of a prevention and control programme. It aimed to bring about a reduction of risks in workplaces, to influence compliance with labour legislation, in particular OSH, and to enable employers to bring their workplaces (from various sectors) into compliance with the law by participating in a prevention programme based, like many other PIP programmes, on self-inspection (with the exception of the construction sector). Based on the campaign 'Switch on safety in woodworking', it has been concluded that the previous campaigns positively influenced the results of later inspections performed in companies that have undertaken preventive cooperation with PIP. Moreover, there was a difference in the severity of the safety breaches (in terms of the identified irregularities) in both groups of companies (those that cooperated with PIP and those that did not).

It is also worth mentioning that the share of responsibilities within the PIP organisational structure (among Chief Labour Inspectorate and district labour inspectorates, see section 2) ensured good coordination of all actions envisaged under the programme, constant monitoring of its success and incorporation of changes if required. This cooperation model contributed to tailoring the campaign to the local context. Similarly, creating partnerships with various stakeholders also contributed to the campaign's greater outreach and reduced the use of PIP's resources. The social partners were invited to get involved in PIP's promotional campaign conducted in the construction industry (e.g. by promoting campaign banners on their websites, organising joint training, seminars and conferences, and publishing materials in magazines).

No significant obstacles in implementing the control and prevention programme were reported.²⁰ The construction industry is very interested in the campaign. The biggest challenge identified was conducting procurement procedures to outsource individual media activities and coordinating subcontractors performing various tasks on behalf of PIP. Moreover, PIP is organising several meetings during the year of the team of specialists responsible for carrying out control and prevention activities to discuss any obstacles faced. According to the results of the discussions, guidelines for control and prevention activities were updated if required. Noteworthy, however, is that due to the organisational capacity limitations, PIP does not simultaneously carry out such developed inspection and prevention activities in several industries.

4 Transferability to other EU Member States

The horizontal activities approach, combining increased controls with promotional and preventive actions, has proven highly successful for PIP over the past eight years. This success suggests that the strategy could be effectively transferred to other EU countries. However, its adaptation requires careful consideration of several factors including legal frameworks, cultural contexts, resource availability, industry dynamics and stakeholder engagement. The approach has already demonstrated sector adaptability, as evidenced by the successful implementation of similar programmes in other industries. Therefore, PIP's control and prevention strategy in the construction industry could offer valuable insights and practices for other EU countries and various sectors.

A key step for transferability is conducting a thorough analysis of industry-specific accident rates, irregularities recorded by labour inspectors and their severity to identify sectors that would benefit the most. For example, in preparation for the construction strategy, PIP analysed data from labour inspections in the construction industry, accident data from PIP, national official statistical data and data related to preventive tasks aimed at employers and employees in the construction industry from PIP and OIPs. The success of transferring the strategy depends on the available data and the strategic priorities of the labour inspections in each country.

The strategy's success in Poland was due to a combination of centralised coordination and localised implementation. PIP's Supervision and Inspection Department coordinated inspection activities, while the Prevention and Promotion Department handled central-level prevention and promotion activities. On a local level, inspectors conducted inspections and delivered preventive campaign elements, such as training sessions. Transferring this approach to other national contexts may require additional

²⁰ Interview with the PIP representative, March 2024.

consideration, as the legal, regulatory and systemic frameworks in other countries might differ, requiring significant adaptations.

Effective media presence and cooperation with partners were crucial for the 'Construction. STOP Accidents!' campaign, where national and local media, as well as communication through partners, played a significant role. For the successful transferability of the campaign or its elements, it is crucial to consider the available resources, partner relationships and the willingness of partners to engage with the labour inspection authorities.

References and sources

Interview (written response to the questionnaire) with the State Labour Inspection representatives (Prevention and Promotion Department), March 2024.

Państwowa Inspekcja Pracy (State Labour Inspection). *Budowa. STOP Wypadkom!*. Website. <https://www.bhpntak.pl/>

Państwowa Inspekcja Pracy (State Labour Inspection). *PIP Annual Activity Report for the year 2022 (Sprawozdanie z działalności Państwowej Inspekcji Pracy. Rok 2022)*. <https://www.pip.gov.pl/files/130/Sprawozdania/934/Sprawozdanie-PIP-2022.pdf>

Państwowa Inspekcja Pracy (State Labour Inspection). *Action Programme of the State Labour Inspection for 2024 and for 2022-2024 (Program Działania Państwowej Inspekcji Pracy na lata 2022-2024. Rok 2024)*. <https://www.pip.gov.pl/files/238/Misja-i-Program-PIP/982/Program-dziaania-PIP-2024.pdf>

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