Labour inspectors' insights into perceived high-risk occupations and sectors in Europe: an EU-OSHA-SLIC survey

European Agency for Safety and Health at Work

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Contents

List of figures 3
1 Introduction 4
2 Survey on high-risk occupations design 5
3 Results 6
4 Discussion 17
5 Conclusion 19

List of figures

Figure 1. Number of years that respondents work as labour inspectors 6

Figure 2. Respondent's role 6

Figure 3. OSH specialty of respondents 7

Figure 4. Occupation with the highest risks for workers according to labour inspectors ISCO-08 level 1 7

Figure 5. Occupation with the highest risks for workers according to labour inspectors ISCO-08 level 2 8

Figure 6. Occupation with the highest risks for workers according to labour inspectors ISCO-08 level 3 8

Figure 7. Occupation with the highest risks for workers according to labour inspectors ISCO-08 level 2 9

Figure 8. Distribution of responses within sub-group 81 - Stationary Plant and Machine Operators 9

Figure 9. Occupation with the highest risks for workers according to labour inspectors ISCO-08 level 2 10

Figure 10. Distribution of responses within sub-group 93 - Labourers in Mining, Construction, Manufacturing and Transport 10

Figure 11. Distribution of risks identified for the occupation presenting the highest risks (percentage of respondents who identified the risk as significant for *Craft and related trades workers*) 11

Figure 12. Groups of workers, in terms of employment relationships, exposed to risks, for the occupation presenting the highest risks (*Craft and related trades workers*) 12

Figure 13. Sector presenting the highest risks 13

Figure 14. Construction sub-sectors presenting the highest risks 14

Figure 15. Manufacturing sub-sectors presenting the highest risks 14

Figure 16. Distribution of risks identified for the sector presenting the highest risks (Construction) 15

Figure 17. Groups of workers, in terms of employment relationships, exposed to risks, for the sector presenting the highest risks (Construction) 15

Figure 18. Additional tasks performed during inspections, related to COVID-19 16

1 Introduction

Occupational safety and health (OSH) is a multidisciplinary field that applies to all kinds of occupations, sectors and workplaces. Identification of risks and prioritisation of actions (legislation, enforcement, campaigns, etc.) is a common approach for the effective use of available resources. Traditionally, there are several industrial sectors regarded as 'high-risk', such as mining (and quarrying), fishing, forestry and construction[1]. That is why in the past OSH had a particular focus on these sectors, also reflected in the preparation of campaigns as well as in specific OSH legislative provisions covering these sectors. To some extent, this could be justified by the number of accidents where these sectors tended to predominate, according to previously collected data[2].

However, the world of work is rapidly changing. New occupations and forms of work are emerging, while even the nature of what used to be called 'workplace' is being questioned. Remote work and telework are becoming more common, while private households are now becoming workplaces[3]. This blurs the line between work and home and threatens work–life balance. In addition, extensive use of new technologies could result in a number of new and emerging risks, or exacerbate existing risks, including psychosocial risks. Furthermore, health-related risks (e.g. biological factors, carcinogens, etc.) and work-related diseases still account for an estimated 200,000 deaths each year in Europe[4]. The pandemic has acted as a catalyst on all these, accelerating the rapid change[5].

Recently there has also been a growing recognition that a good understanding of risks associated with all sectors, occupations and forms of work is needed. This is because traditionally defined high-risk sectors could give a somewhat narrow perspective that may not optimally reflect OSH concerns. Furthermore, this perspective could be extended to wellbeing, to the overall burden of OSH on the workforce and to the wider community. Labour inspectorates should be prepared to face those new challenges and deal with challenging topics[6].

On the one hand, OSH, including compliance with OSH requirements pursuant to national laws and regulations, is the responsibility and duty of the employer. On the other hand, labour inspectors are empowered to enforce national legislation and ensure compliance with it[7]. In this context, labour inspectors visit workplaces of all kinds and have an all-encompassing view of the current OSH landscape. Therefore, inspectors' expert knowledge and first-hand experience could become a valuable tool to identify high-risk sectors and occupations while fostering a health and safety climate and culture in the workplace.

[1] EU-OSHA - European Agency for Safety and Health at Work, Occupational safety and health in Europe: state and trends 2023, Available at: https://osha.europa.eu/en/publications/occupational-safety-and-health-europe-state-and-trends-2023

[2] Eurostat: https://ec.europa.eu/eurostat/databrowser/view/hsw_n2_01/default/table?lang=en

[3] EU-OSHA - European Agency for Safety and Health at Work, Home-based teleworking and preventive occupational safety and health measures in European workplaces: evidence from ESENER-3, Available at: https://osha.europa.eu/en/publications/home-based-teleworking-and-preventive-occupational-safety-and-health-measures-european-workplaces-evidence-esener-3

[4] OSH Barometer, Available at: https://visualisation.osha.europa.eu/osh-barometer/osh-outcomes/work-related-diseases/icoh/prevalence-of-diseases/all-diseases

[5] EU-OSHA - European Agency for Safety and Health at Work, The future of working in a virtual environment and occupational safety and health, 2021, Available at: https://osha.europa.eu/en/publications/future-working-virtual-environment-and-occupational-safety-and-health

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

[7] EU-OSHA - European Agency for Safety and Health at Work, Supporting Compliance for Workplace Safety Requirements – European Labour Inspection Systems of Sanctions and standardised measures, 2023, Available at: https://osha.europa.eu/en/publications/supporting-compliance-workplace-safety-requirements-european-labour-inspection-systems-sanctions-and-standardised-measures

2 Survey on high-risk occupations design

In line with the European Commission's 'Guidelines on seasonal workers in the EU in the context of the COVID-19 outbreak' (2020/C 235 I/01),[8] echoed in the Council Conclusions of 9 October 2020,[9] the European Agency for Safety and Health at Work (EU-OSHA) and the Senior Labour Inspectors Committee (SLIC) worked together to provide data on high-risk occupations.

In that context, EU-OSHA and SLIC co-developed a survey to capture the labour inspectors' perspective on high-risk occupations. The survey was addressed to OSH labour inspectors around the EU-27, to draw on their expert knowledge and first-hand experiences as well as their ability to make reasoned, valid expert judgements. At this point, it should be highlighted that this is the first time that such a survey has been conducted, aiming to provide harmonised data from labour inspectors across all EU Member States. The perspective of labour inspectors is a highly appreciated source of information for OSH at workplace level. Therefore, the collected data could prove valuable in effectively mapping high-risk occupations and groups, while the inspectors' views could also provide insight into the effective alignment of scientific knowledge, statistical data and the real situation in the field. This information could serve to increase scientific knowledge and to assist in directing practical prevention efforts.

EU-OSHA and members of the SLIC WG Strategy co-developed a self-administered questionnaire by that included five sections. In the first section, labour inspectors were asked to anonymously provide some basic information, such as their country, the number of years having worked as labour inspectors, their position and field of expertise,

In the second section, respondents were asked to identify three occupations that based on their professional experience and expertise present the highest risk to workers' health and safety. As a hierarchical structure for the *occupations* section, the European Skills, Competences, Qualifications and Occupations (ESCO) was used, in which each occupation is mapped to exactly one International Standard Classification of Occupations 2008 (ISCO-08) code. This choice provided more flexibility to facilitate international comparison. For each one of those three occupations, the respondents had to report the type of risks and the workers' groups that are particularly exposed.

The third section collected information on high-risk sectors and groups. Based on their professional experience and expertise, labour inspectors were asked to select three sectors that in their opinion present the highest risk to workers' health and safety. The NACE Rev. 2 statistical classification of economic activities was used as a hierarchical structure for the *sectors* section, facilitating international comparison. For each one of those three sectors, the respondents had to report the type of risks and the worker groups that are particularly exposed.

The fourth section dealt with COVID-19, referring to additional tasks, specifically related to COVID-19, which labour inspectors perform during their inspections. Finally, an optional textbox was provided as the fifth section of the survey, in which labour inspectors could provide further details or express their opinion on other relevant aspects of high-risk occupations that in their view were not effectively covered.

The survey structure and questions were finalised in March 2021, translated into all EU languages and implemented using the EU Survey web-based tool. By the end of April 2021, the survey was launched, and its link was sent through SLIC to all National Labour Inspectorates of Member States. The respondents could choose their preferred language using a simple button that opened a drop-down list of all EU languages. The EU Survey tool was open for responses until mid-June 2021.

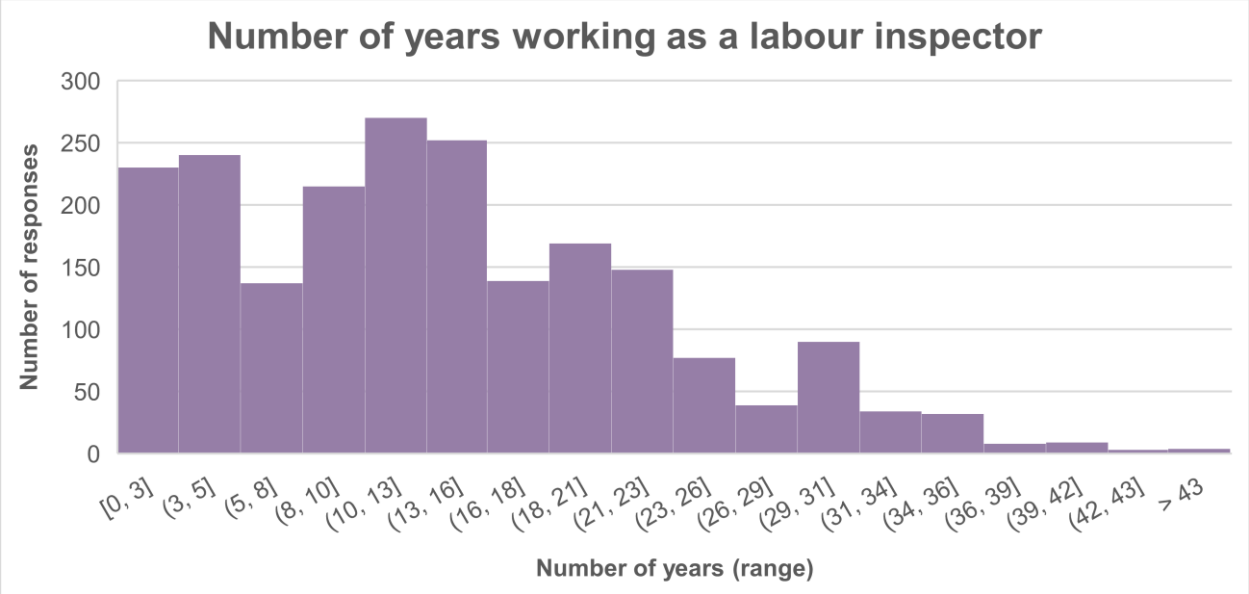
[8] See: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020XC0717%2804%29
[9] See: https://data.consilium.europa.eu/doc/document/ST-11726-2020-INIT/en/pdf (p. 11, para. 57)

3 Results

In total, 2,096 responses were collected from labour inspectors coming from almost all Member States, while the distribution of respondents by country followed a pattern similar to country population size. EU-OSHA conducted a preliminary analysis of the collected data, as agreed during the 78th SLIC plenary meeting, at EU level, and no comparison among Member States was made.

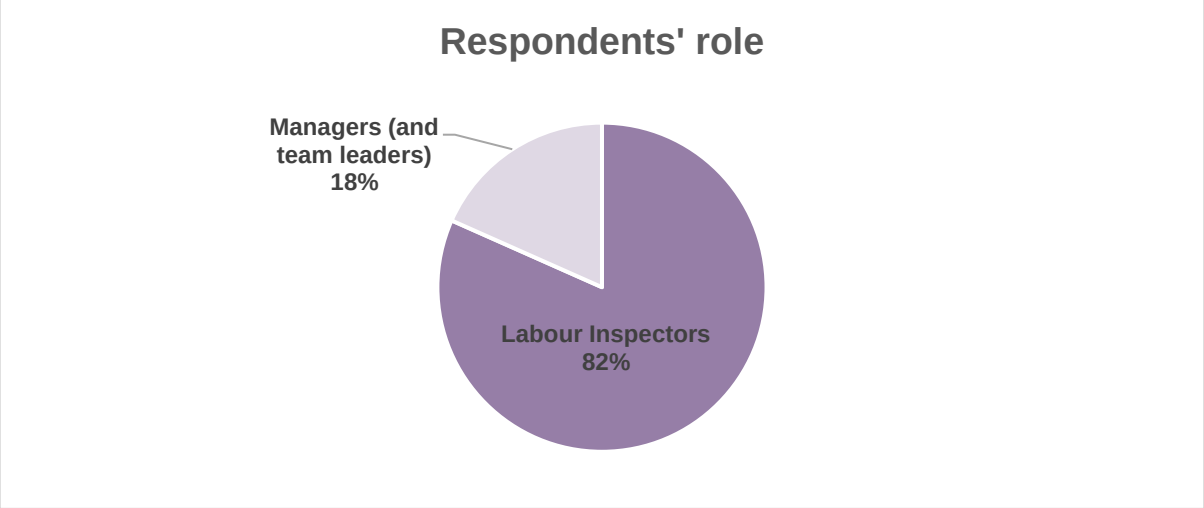
Data analysis indicate that on average, respondents have been working as labour inspectors for 14 years, while the distribution of years is presented in Figure 1.

Figure 1. Number of years that respondents work as labour inspectors



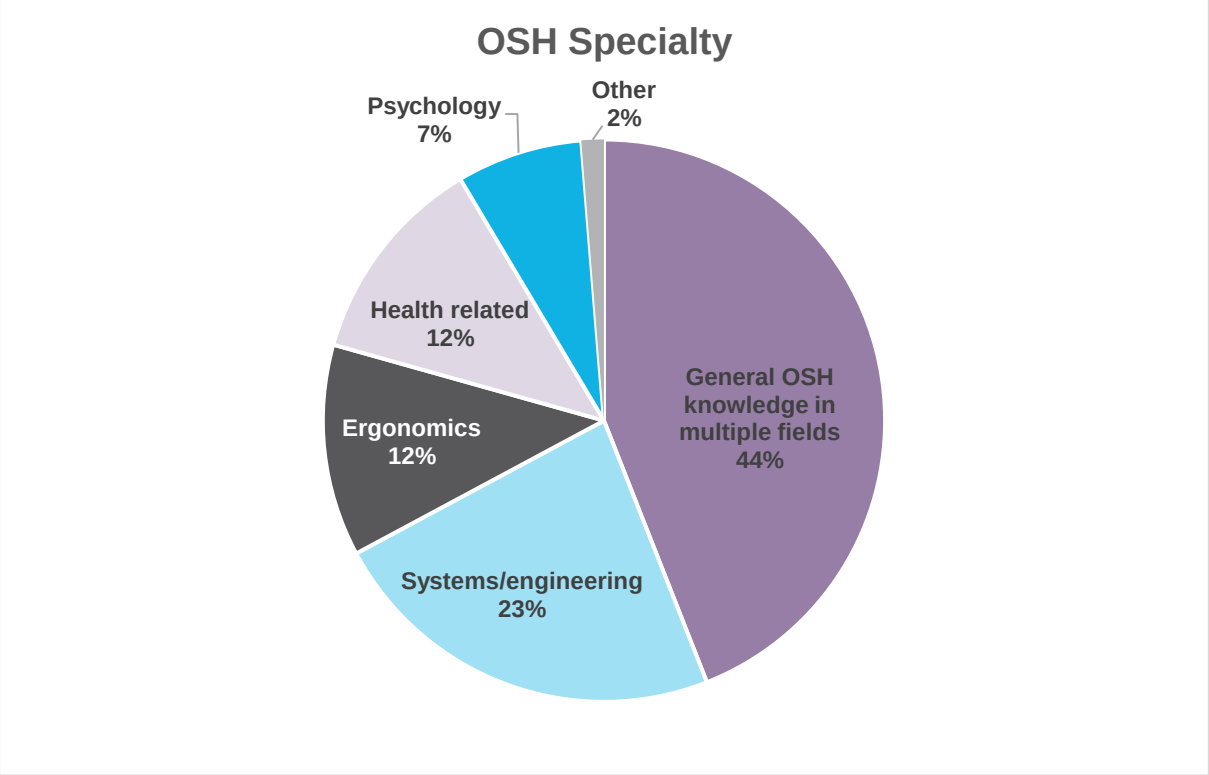
The vast majority of the respondents (82%) were labour inspectors working in the field and 18% were either managers or team leaders who usually have previous experience in conducting inspections as well (Figure 2).

Figure 2. Respondent's role



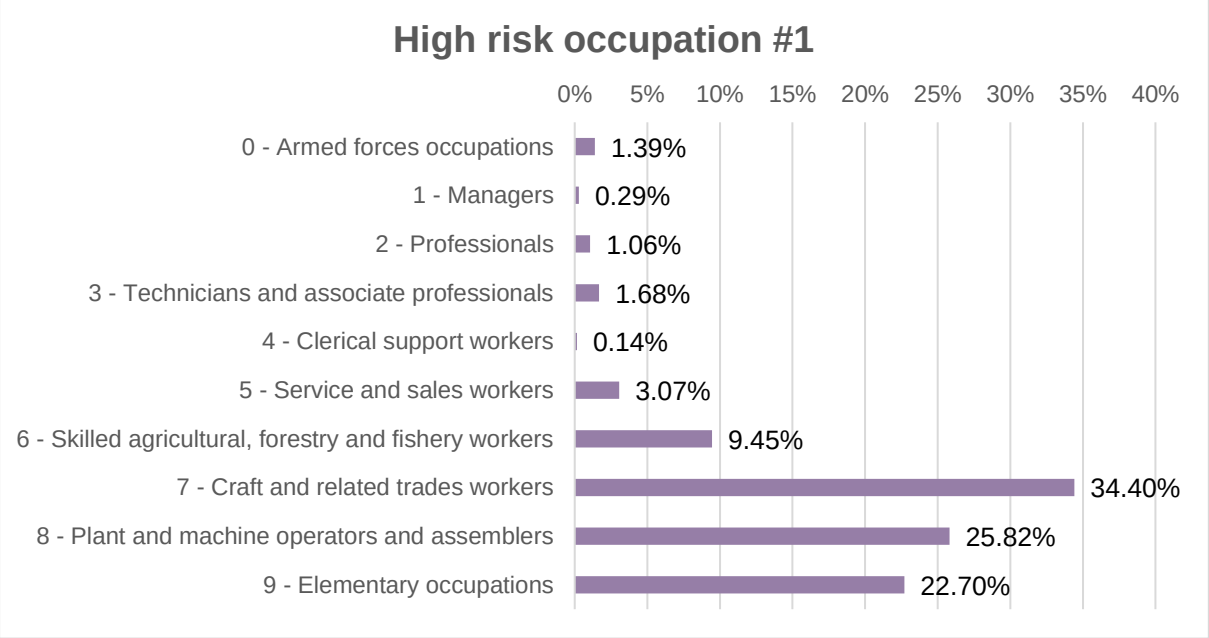
Around half of the respondents (44%) have general OSH knowledge in multiple fields, while 56% are also specialised in a specific field, as presented in Figure 3.

Figure 3. OSH specialty of respondents



Based on the responses, according to labour inspectors, the occupation presenting the highest risks falls into the ISCO-08 general category: *7 - Craft and related trades workers.*

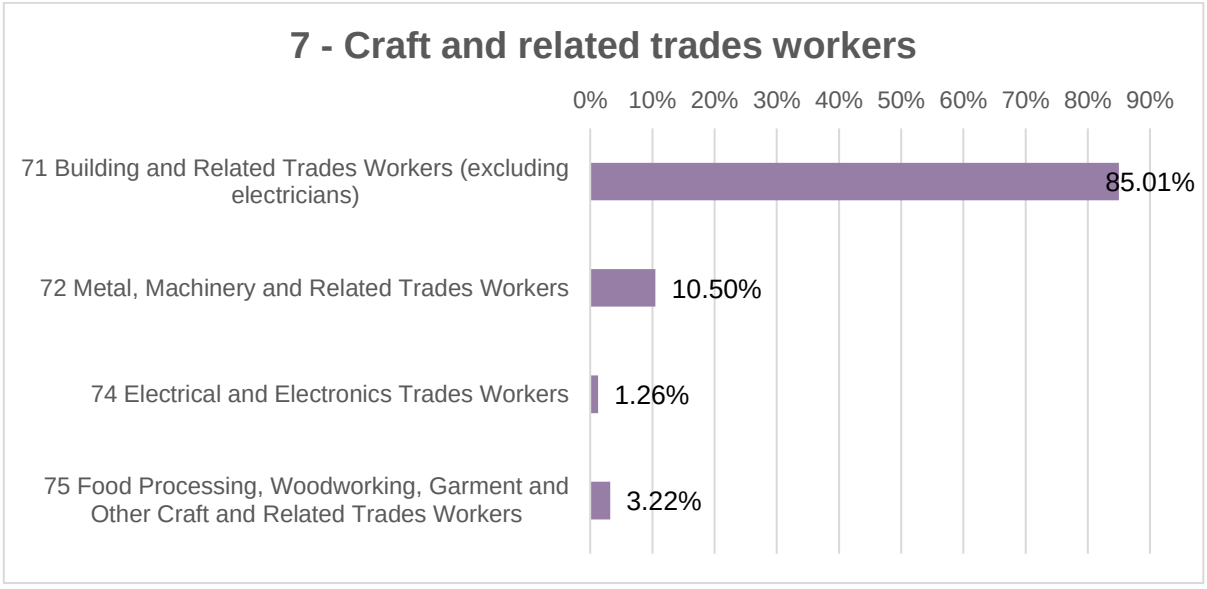
Figure 4. Occupation with the highest risks for workers according to labour inspectors ISCO-08 level 1



(base: All respondents)

Within this category, most of the respondents selected the category *71 - Building and Related Trades Workers (excluding electricians)*.

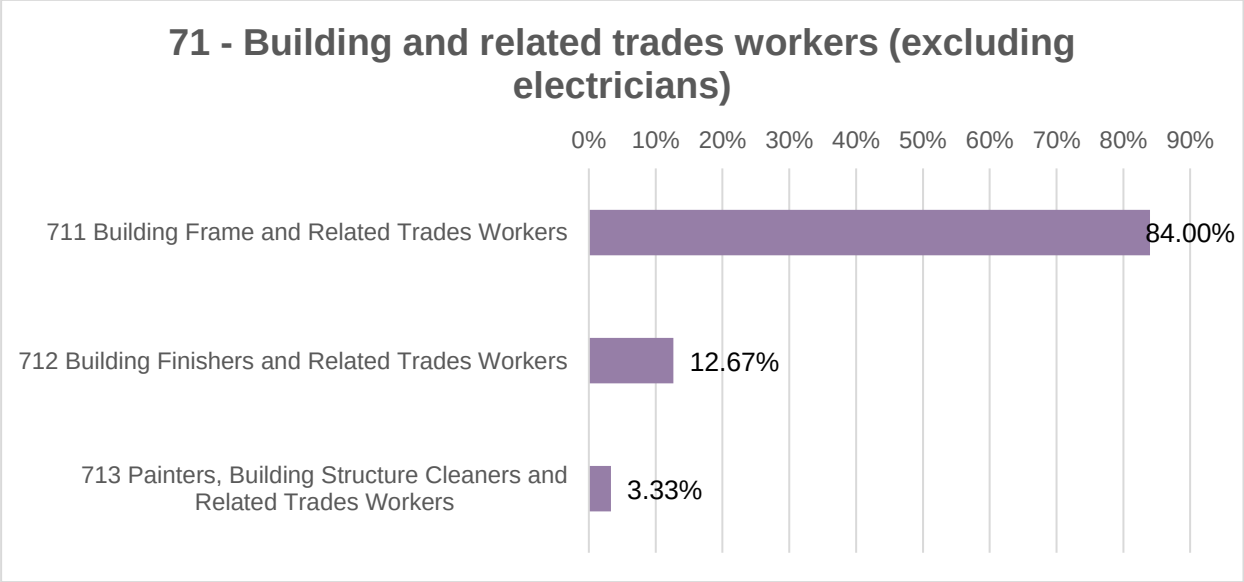
Figure 5. Occupation with the highest risks for workers according to labour inspectors ISCO-08 level 2



(base: Respondents who selected '7 - Craft and related trades workers' as the occupation presenting the highest risks)

Moving one level down into the ISCO-08 classification, most of the respondents selected the category *711 - Building Frame and Related Trades Workers* (Figure 6).

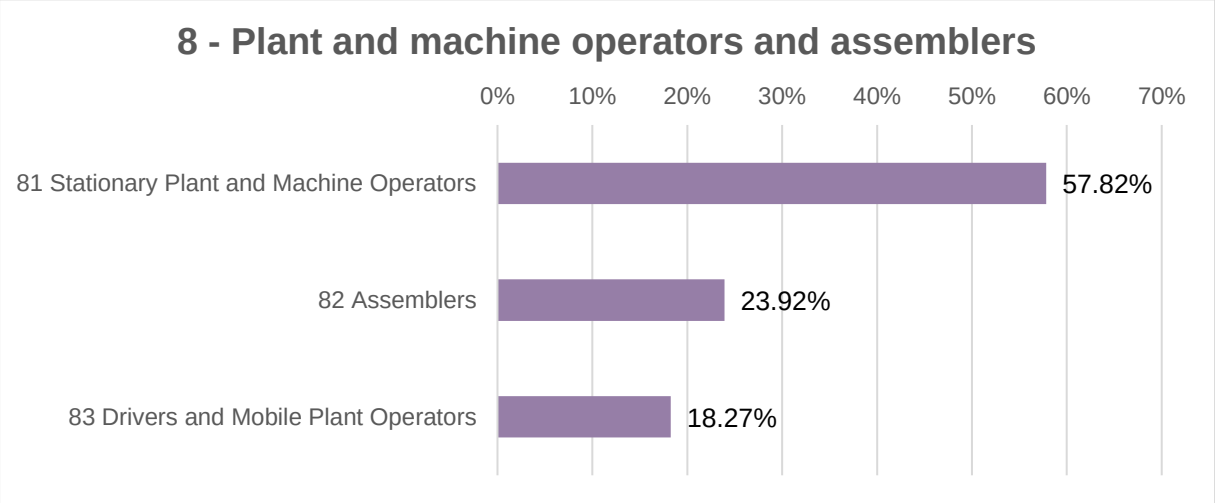
Figure 6. Occupation with the highest risks for workers according to labour inspectors ISCO-08 level 3



(base: Respondents who selected '71 - Building and Related Trades Workers (excluding electricians)')

As presented in Figure 4, the ISCO-08 group that came second in terms of responses was group *8 - Plant and machine operators and assemblers.* Within this group, the majority of the respondents selected sub-group *81 - Stationary Plant and Machine Operators* as the one presenting the highest risks (Figure 7).

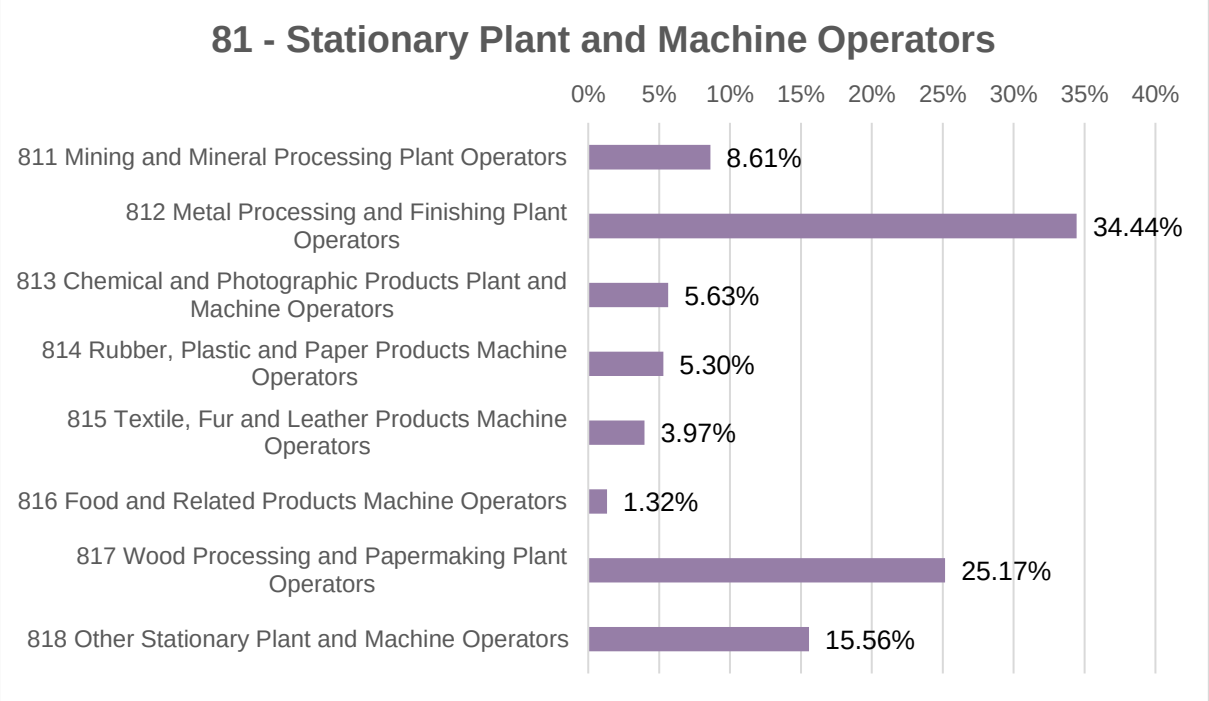
Figure 7. Occupation with the highest risks for workers according to labour inspectors ISCO-08 level 2



(base: Respondents who selected '8 - Plant and machine operators and assemblers' as the occupation presenting the highest risks)

The distribution of responses within sub-group *81 - Stationary Plant and Machine Operators* is presented in Figure 8.

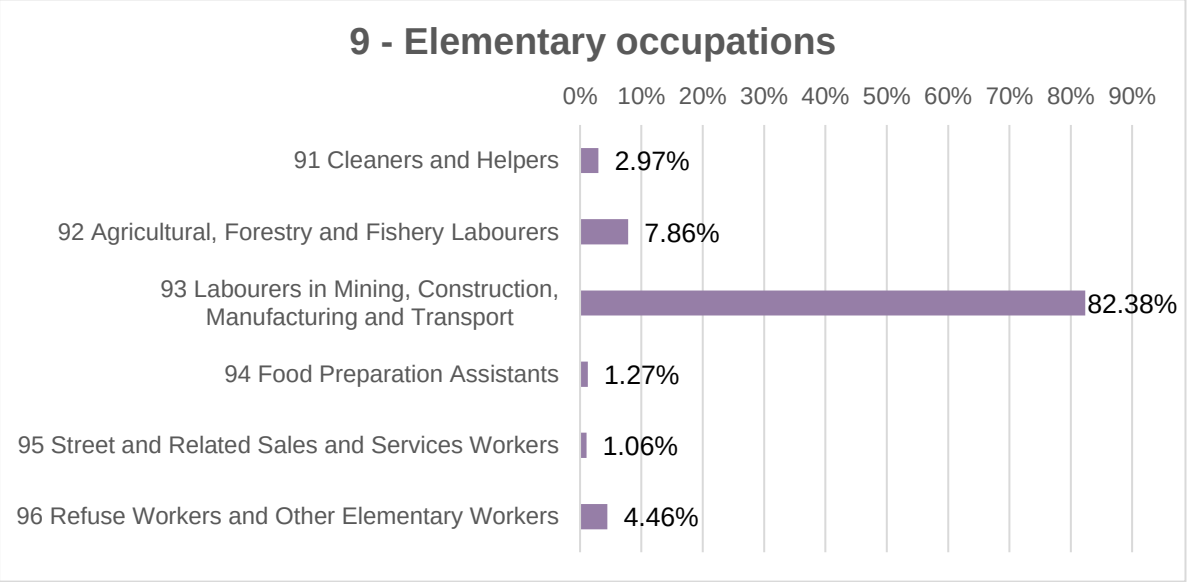
Figure 8. Distribution of responses within sub-group 81 - Stationary Plant and Machine Operators



(base: Respondents who selected '81 - Stationary Plant and Machine Operators')

As presented in Figure 4, the ISCO-08 group that came third in terms of responses was group *9 - Elementary occupations*. Within this group, the majority of the respondents selected sub-group *93 - Labourers in Mining, Construction, Manufacturing and Transport* as the one presenting the highest risks (Figure 9).

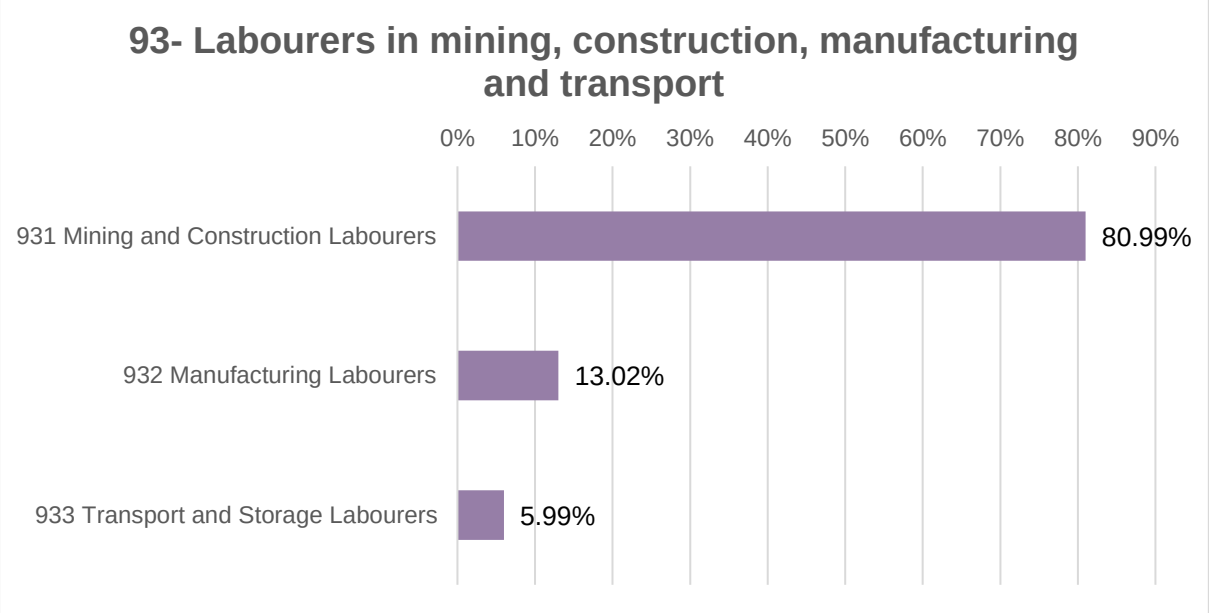
Figure 9. Occupation with the highest risks for workers according to labour inspectors ISCO-08 level 2



(base: Respondents who selected '9 - Elementary occupations' as the occupation presenting the highest risks)

The distribution of responses within sub-group *93 - Labourers in Mining, Construction, Manufacturing and Transport* is presented in Figure 10.

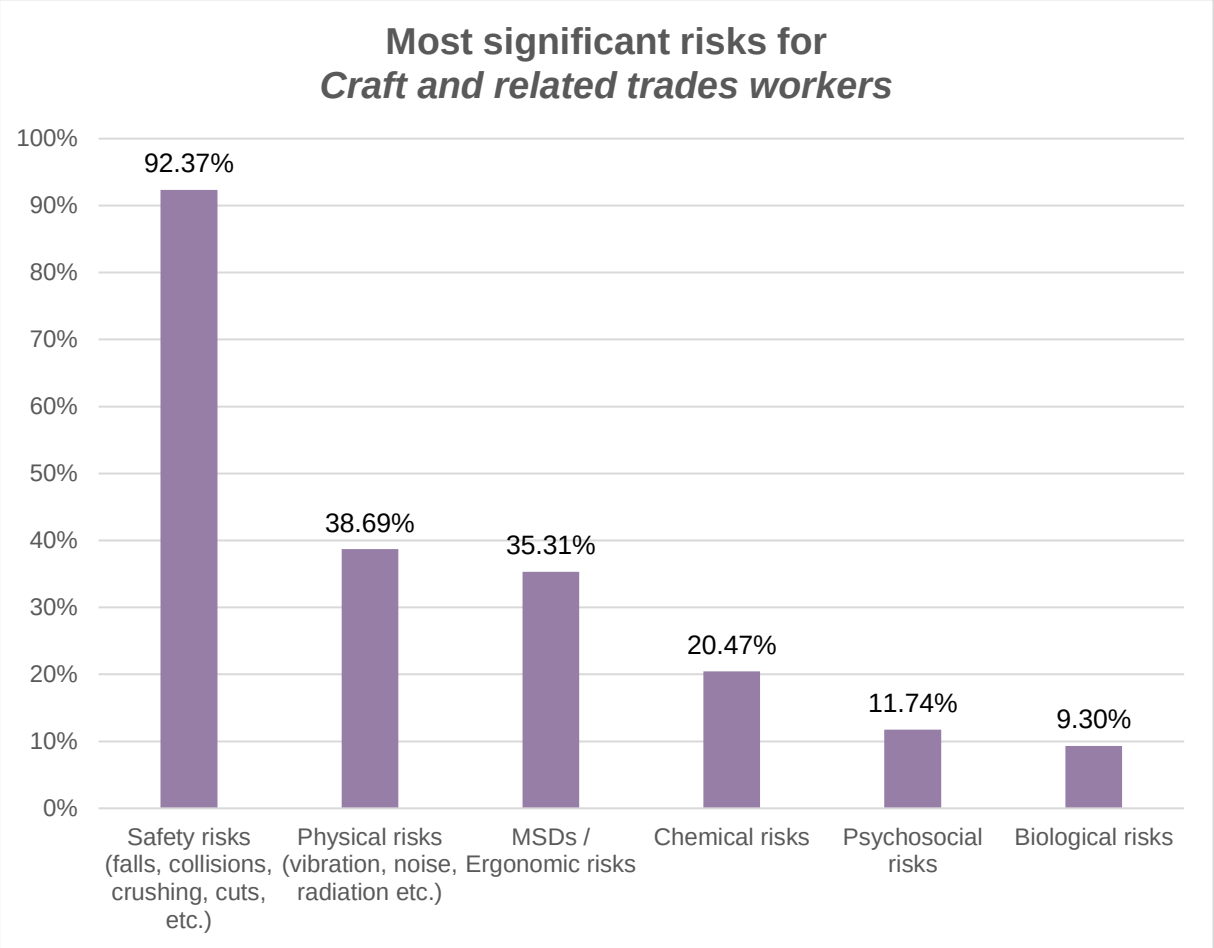
Figure 10. Distribution of responses within sub-group 93 - Labourers in Mining, Construction, Manufacturing and Transport



(base: Respondents who selected '93 - Labourers in Mining, Construction, Manufacturing and Transport')

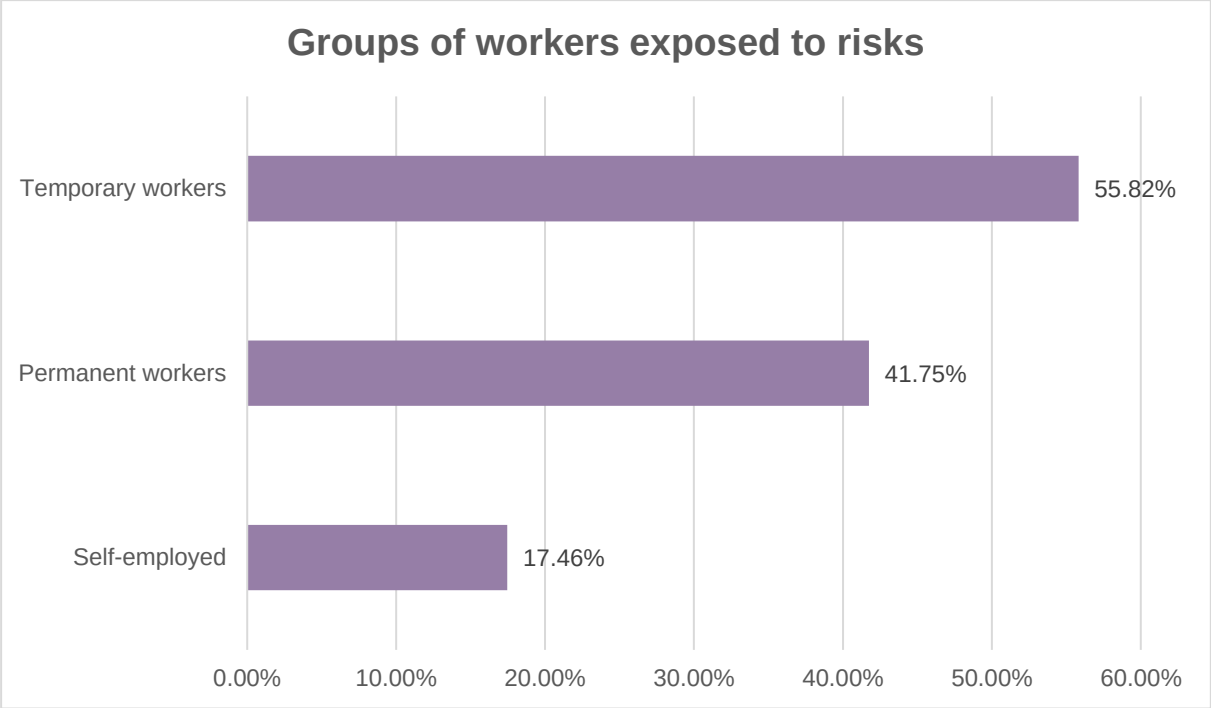
Referring to the occupation presenting the highest risks, that is, *Craft and related trades workers*, the predominant category of risk identified was safety risks (falls, collisions, crushing, cuts, etc.), followed by physical risks (vibration, noise, radiation) and musculoskeletal disorders (MSDs) / ergonomic risks. The distribution of risks reported is presented in Figure 11 (respondents were able to choose more than one risk).

Figure 11. Distribution of risks identified for the occupation presenting the highest risks (percentage of respondents who identified the risk as significant for *Craft and related trades workers*)



As regards the groups of workers (in terms of employment relationships) exposed to risks, temporary workers were identified as those mostly exposed to risks (for the occupation presenting the highest risks). The respondents could select more than one group. The distribution of the groups of workers is presented in Figure 12.

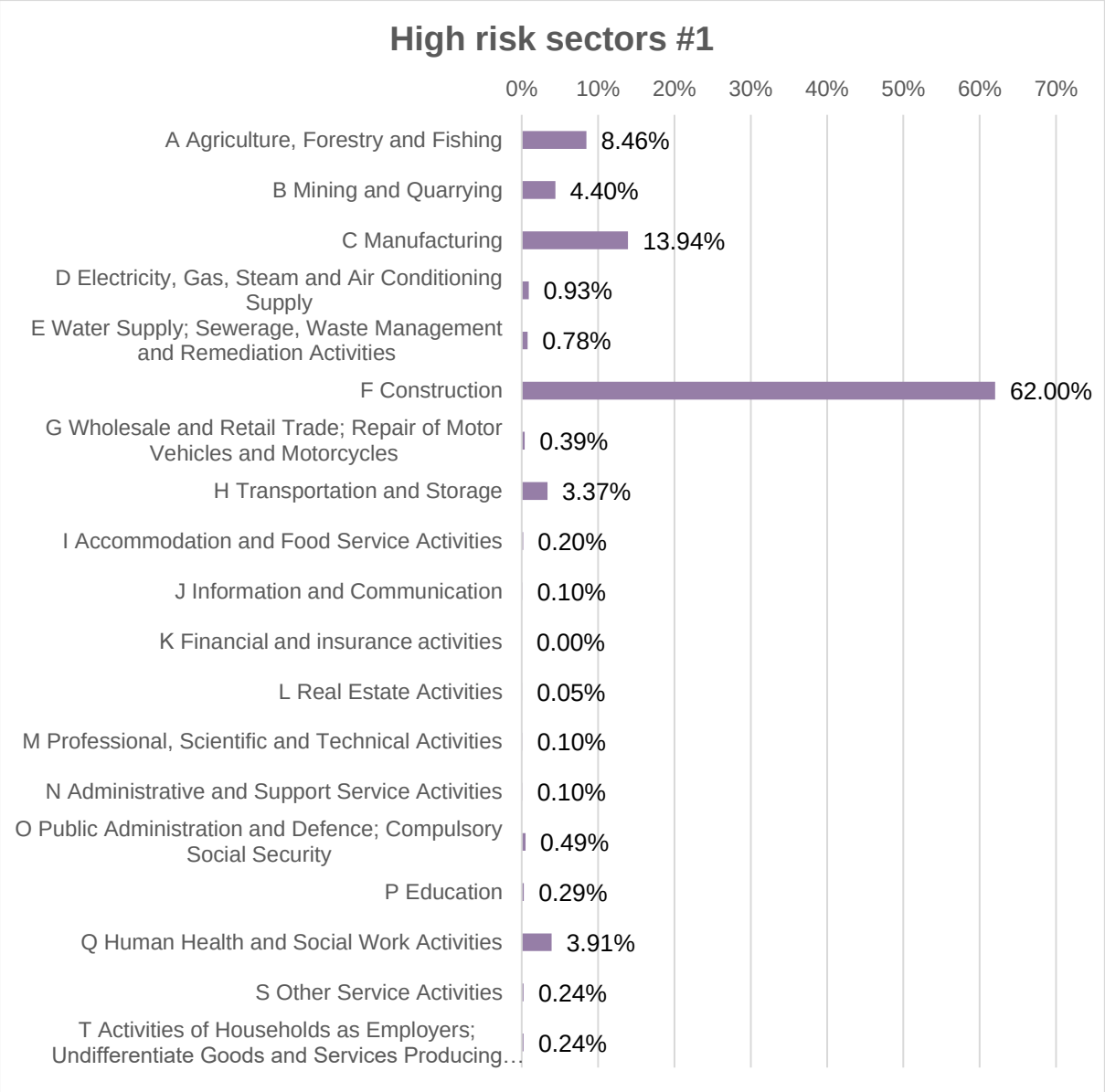
Figure 12. Groups of workers, in terms of employment relationships, exposed to risks, for the occupation presenting the highest risks (*Craft and related trades workers*)



In addition, migrant workers were identified as a high-risk group by 31.73% of the respondents, while mobile workers (those workers whose workplace is not a single place and due to the nature of their work they need to move, even between countries) were identified as a high-risk group by 8.87% of the inspectors. Furthermore, 54% reported that during their inspections there are no additional provisions that they consider (e.g. accommodation, living conditions) for seasonal workers / posted workers / mobile workers.

Moving to a sectoral approach, for the first sector to present the highest risks, the vast majority of the respondents reported the construction sector (NACE Rev. 2 *F - Construction*), followed by the manufacturing sector (Figure 13).

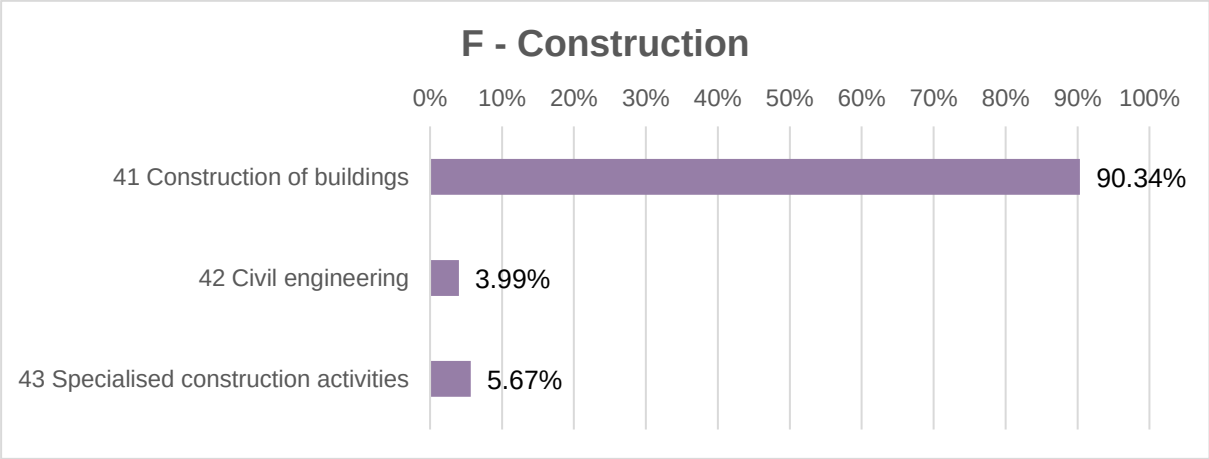
Figure 13. Sector presenting the highest risks



(base: All respondents)

Moving to a lower level in the NACE classification, the respondents reported the sub-sector *41 - Construction of buildings* as the sector with the highest risks (Figure 14).

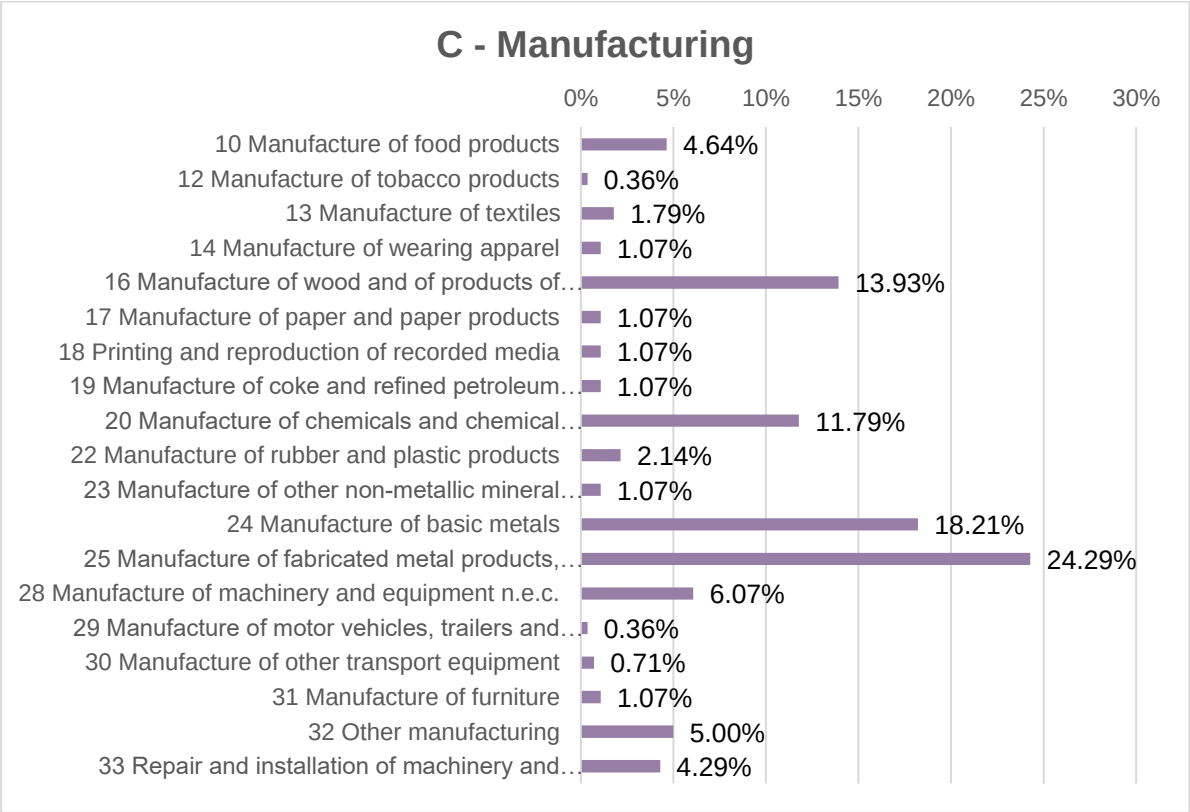
Figure 14. Construction sub-sectors presenting the highest risks



(base: Respondents who selected 'F - Construction' as the sector presenting the highest risks)

In the case of manufacturing, there were several sub-sectors reported, such as *25 - Manufacture of fabricated metal products (except machinery and equipment)*, *24 - Manufacture of basic metals*, and *16 - Manufacture of wood and of products of wood and cork*, as presented in Figure 15.

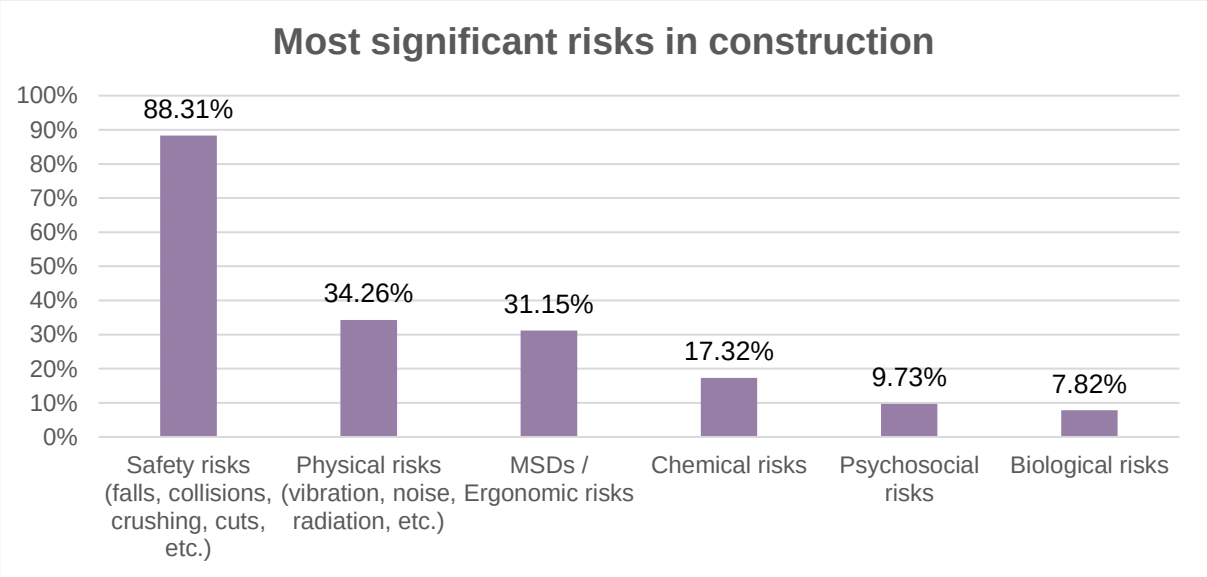
Figure 15. Manufacturing sub-sectors presenting the highest risks



(base: Respondents who selected 'C - Manufacturing' as the sector presenting the highest risks)

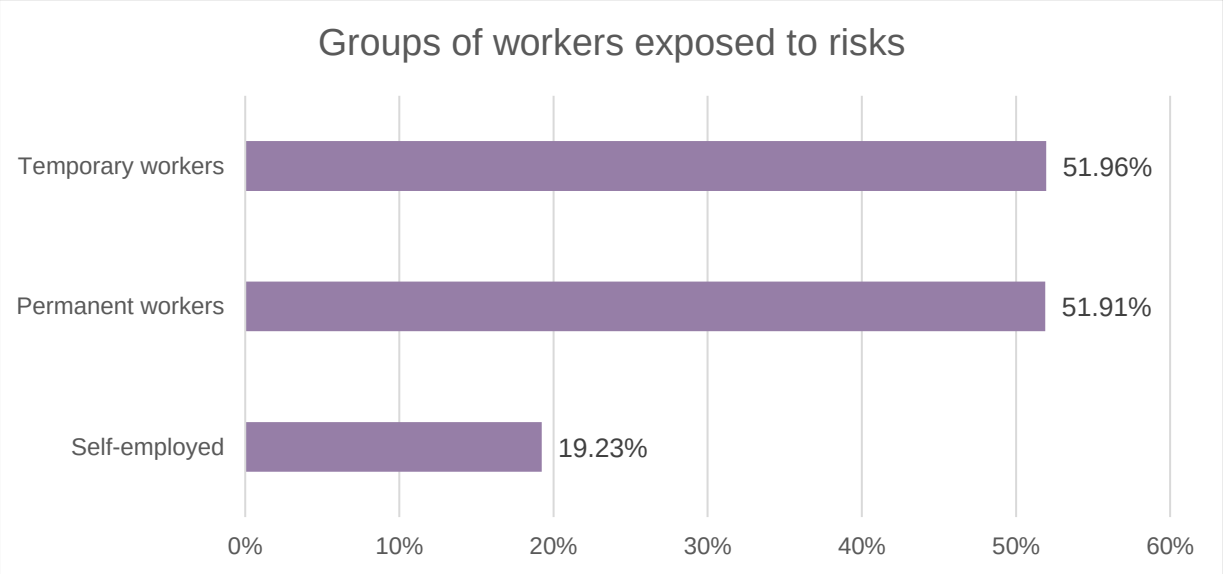
Referring to the sector presenting the highest risks, that is, *41 - Construction of buildings*, the predominant category of risk identified was once again safety risks (falls, collisions, crushing, cuts, etc.), followed by physical risks (vibration, noise, radiation) and MSDs / ergonomic risks. The distribution of reported risks is presented in Figure 16 (respondents could select more than one risk).

Figure 16. Distribution of risks identified for the sector presenting the highest risks (Construction)



Regarding the groups of workers (in terms of employment relationships) the construction sector, temporary workers were identified as those mostly exposed to risks. The respondents were able to choose more than one group. The distribution of the groups of workers is presented in Figure 17.

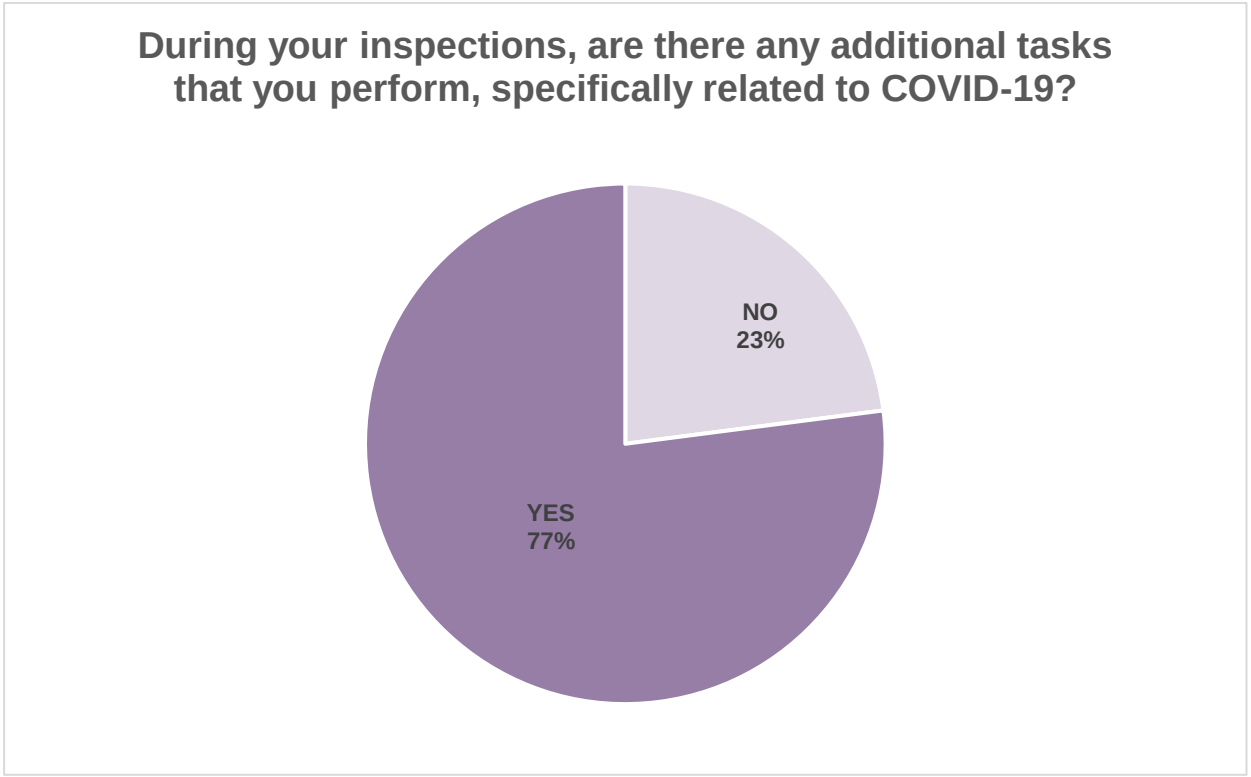
Figure 17. Groups of workers, in terms of employment relationships, exposed to risks, for the sector presenting the highest risks (Construction)



In addition, undeclared workers were identified as a high-risk group by 37.88% of the respondents, while mobile workers (those workers whose workplace is not a single place and due to the nature of their work they need to move, even between countries) were identified as a high-risk group by 6.82% of the inspectors. Furthermore, 61% reported that during their inspections there are no additional provisions that they consider (e.g. accommodation, living conditions) for seasonal workers / posted workers / mobile workers.

With regard to COVID-19, the preventive actions of OSH labour inspectors during the pandemic and their consequent support to public health, the majority of the respondents (77%) reported that during their inspection there were additional tasks they performed, that were specifically related to COVID-19.

Figure 18. Additional tasks performed during inspections, related to COVID-19



4 Discussion

This survey provides a great opportunity to exploit the experience and expertise of labour inspectors and compare perceived high-risk sectors and occupations to those indicated by the literature, previous research or previously collected data. In this way, areas of interest or inefficiencies can be highlighted. The view of labour inspectors provides a clear sight of the actual workplaces and allows a better understanding of OSH status and practices, complementing findings of scientific research. To that end, the labour inspectors' view is highly appreciated while this is the first survey of this type at EU level. The selected topic is simple and straightforward and on top of data collection it acts as a pilot, demonstrating that in future other important OSH topics could be covered by similar surveys. Understanding which occupations are perceived as high-risk or are often associated to injury or ill-health and what sectors comprise the highest risks can help in identifying measures that can reduce such risks to workers. In addition, allows an effective targeting of inspections and focused information campaigns, which would increase awareness among all involved stakeholders. This research work could thus highlight discrepancies and allow fine-tuning of competencies, strategies and campaigns. Based on the responses collected, labour inspectors consider as high-risk occupations:

- building frame and related trades workers,
- stationary plant and machine operators,
- labourers in mining, construction, manufacturing and transport,
- skilled agricultural, forestry and fishery workers,

and related sectors, such as:

- construction,
- manufacturing,
- agriculture, forestry and fishing.

In general terms, these findings are in line with those identified by previous research and by the analysis of other data sources [10] According to Eurostat, the construction, transportation and storage, manufacturing, and agriculture, forestry and fishing sectors together accounted for around two-thirds (65.6%) of all fatal accidents at work and more than two-fifths (44.3%) of all non-fatal accidents at work in 2018[11]. In 2018, about one-fifth (20.5%) of all fatal accidents at work in the EU-27 took place within the construction sector, while the transportation and storage sector (16.7%) had the next highest share.

However, it seems that there were some occupations and sectors that were not considered to be of high risk. For example, the human health and social work activities sector that account for 10.8% of non-fatal accidents was not highlighted accordingly by this survey. This holds especially if we keep in mind that the survey took place during the pandemic.

Furthermore, the data collected through this study highlighted the fact that traditional risks (e.g. safety risks) are considered as having the highest impact on workers, at least for the high-risk occupations and sectors that were identified (e.g. construction). Psychosocial and biological risks were not ranked high, despite the rising importance placed on them during the last few years through training and campaigns. Moreover, occupational diseases caused by repetitive work or long exposure to workplace-related hazards, which can have not only short-term but also acute or long-term impacts, were also not highlighted accordingly. As regards the groups of workers (in terms of employment relationships) exposed to risks, temporary workers were identified by respondents as those exposed to the highest risks in the construction sector, followed by permanent workers and the self-employed. According to figures produced in 2018, self-employed workers account for 14% of the workforce in Europe, ranging

[10] EU-OSHA - European Agency for Safety and Health at Work, Occupational safety and health in Europe: state and trends 2023, Available at: https://osha.europa.eu/en/publications/occupational-safety-and-health-europe-state-and-trends-2023

[11] Eurostat, Accidents at work statistics (Data extracted in October 2022), Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Accidents_at_work_statistics#Analysis_by_activity

from 30% in Greece to 8% in Luxemburg[12]. Taking into consideration that there is a significant proportion of self-employed workers in agriculture and construction, this finding could be of significant value to consider.

Migrant workers were identified as a high-risk group by 31.73% of the respondents, while mobile workers (those workers whose workplace is not a single place and due to the nature of their work they need to move, even between countries) were identified as a high-risk group by 8.87% of the inspectors. This could be attributed to the fact that mobile work is in general more difficult to locate and reach. Also, we should be kept in mind that these figures refer to EU-27 averages and posting of workers is mainly an issue for the destination countries.

Furthermore, more than half of the respondents reported that during their inspections there are no additional provisions that they consider (e.g. accommodation, living conditions) for seasonal workers / posted workers / mobile workers. This percentage cannot be considered as low, since in many Member States such provisions are subject to other authorities involved with social protection and rights. In many cases, OSH inspections are conducted in collaboration with such authorities or in other cases a formal notification of the involved authorities could follow an inspection.

Undeclared workers were identified as a high-risk group by 37.88% of the respondents, when the high-risk sectors were reported. Those workers usually do not receive appropriate training and do not enjoy social rights or support. Another think to keep in mind, is that in certain sectors and occupations, compliance with OSH rules and regulations has come under even more pressure during the COVID-19 pandemic, along with compliance with tax and social law.

Regarding COVID-19-related activities, three out of four respondents reported that there were additional tasks they were performing during the pandemic, specifically related to COVID-19. This finding is significant, highlighting the important role of labour inspectors and labour inspectorates in the national responses to COVID-19. Through their technical expertise, in addition to their usual OSH-specific tasks, labour inspectors advised employers and workers, assisting them in developing and implementing workplace policies and programmes to prevent and control COVID-19 contagion. In other cases, collaboration with other authorities specific to COVID-19 was also reported. This finding also highlights the interface between occupational and public health as well as the critical role of OSH and prevention for the society as a whole.

Collected data is a valuable source of information that can complement data from other studies, providing a snapshot of labour inspectors' perception on high-risk occupations, sectors, groups and types of risks.

[12] See: https://ec.europa.eu/eurostat/web/products-eurostat-news/-/EDN-20190430-1

5 Conclusion

This study clearly demonstrates that data collected through surveys of labour inspectors can be a valuable new source of OSH information. It provides access to information from inspectors in the field with OSH expertise and as such can help prioritise action and identify emerging issues. Through this study, traditional high-risk sectors and occupations were highlighted, such as construction, manufacturing and agri-forestry. For those sectors and occupations, the workers groups mostly exposed to risks were identified as well as the respective highest risks, which fall into the category of traditional risks. The rapidly changing work environment that may incorporate new technologies such as artificial intelligence, new forms of employment as well as new and emerging risks may require particular consideration from labour inspectorates, that need to be prepared in order to deal with the foreseen challenges. Training, development of new tools, and methods for inspection and promotion of a preventive culture involving all stakeholders are important. Experience gained during the pandemic should also help in future developments and highlights the role of labour inspectorates in the changing world of work.

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