NOURISHING THE WORKFORCE

NUTRITION INTEGRATION IN OCCUPATIONAL SAFETY AND HEALTH REGULATIONS

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EXECUTIVE SUMMARY

According to the International Labour Organisation's (ILO) 2024 estimate, the global labour force has a 60% participation rate[1]. This equates to around 4.8 billion people in employment today. These numbers will grow rapidly in coming years, especially in the Global South. This is due to population growth and the demographic transition which increases the share of the population that is of working age. The percentage of these populations that are suffering from malnutrition is increasing as low-income and middle-income countries continue to face a double burden of malnutrition, where overnutrition and undernutrition coexist within the same population[2]. Conditions such as obesity, diabetes and hypertension are on the rise[3], adding to existing diet-related adult health burdens such as anaemia.

In addition to the human suffering these conditions cause, scientific evidence underscores the critical link between nutrition and worker productivity and accident prevention. A poor diet on the job and inadequate nourishment is costing countries around the world up to 20% in lost productivity, due to malnutrition and associated diseases[4]. The same study also shows that tackling obesity is also linked to a reduction in sick days and accidents.

A case-controlled study in Brazil showed that there is a direct link between poor nutritional aspects and the risk of work-related accidents and injuries[5]. The timing is right to identify opportunities for integrating stronger nutrition interventions into Occupational Safety and Health (OSH) standards in global labour laws. By doing so, we can address these emerging challenges and create a healthier, happier, and more productive workforce.

OSH represents the primary opportunity to include nutrition in labour standards. It refers to the prevention of work-related accidents and diseases, by assessing and managing risks in the working environment. Traditionally, OSH has not included significant considerations for worker nutrition, rather focusing more on the physical working environments. This is despite evidence showing that improvements in nutrition can enhance worker productivity and wellbeing. Employers have incentives to invest in nutrition as it has a strong business case in reducing absenteeism and accidents, boosting workplace morale, and enhancing brand reputation and image. Over 60% of the working population spends one-third of their adult lives at work where they take at least one major meal of the day[6]. Having employers provide healthy foods or having options to access healthy foods during the week is essential for long-term health and wellbeing. Future developments around OSH legislation, guidance, tools, and other activities should focus not just on doing no harm to human health but actively striving to promote health including nutrition.

Workforce Nutrition (WFN) is a programme which strives to improve access to and demand for healthier diets in the workplace. This analysis examines how strongly nutrition is currently integrated into international and national labour laws. The intention is to highlight opportunities for integrating nutrition within OSH, explain why this is important, and signpost for lawmakers and key stakeholders how they could execute these strategies.

[1] ILO, 2024
[2] Seferidi et al., 2022
[3] Popkin and Ng, 2022
[4] ILO, 2024
[5] De Medeiros et al., 2024
[6] Nyhus Dhillon and Ortenzi, 2023

Four main labour domains were reviewed in this analysis. This includes: 1) international instruments on OSH - which are legally binding agreements established by the International Labour Conference (ILC), the ILO's primary decision-making body which set the agenda for international labour standards, 2) national legislations on OSH covering 17 countries - which include labour and employment laws, 3) Collective Bargaining Agreements (CBAs) – which are legally binding contracts negotiated between employers and employees, and 4) Codes of Practice for OSH – which are sector-specific non-legally binding guidelines. In this study, analysis on national legislation is divided into those recorded on the ILO's database and those external to the ILO's database. This is for clarity and accountability of the sources. The Codes of Practice are developed by the ILO tripartite constituency made up of governments, employers and workers.

Nutrition integration was assessed using a 4-level nutrition integration framework, ranging from level 1 at no intentional integration of nutrition objectives; level 2 at some intention to integrate nutrition objectives; level 3 at intention to take action to integrate nutrition objectives; to level 4 at commitment to take action to integrate nutrition objectives. There are low levels of nutrition integration across most of the labour domains.

Table 1: Summary of Findings Across All Labour Domains, Classified Under the 4-Level Nutrition Integration Framework

Labour Domain	Percentage of documents classified under:				Total %
	Level 1: No intentional integration of nutrition objectives	Level 2: Some objectives to integrate nutrition objectives	Level 3: Intention to take action to integrate nutrition objectives	Level 4: Commitment to take action to integration Nutrition Objectives	
International Instruments (N = 52)	71	21	4	4	100
National Legislation on the ILO Database (N = 44)	86	7	7	0	100
National Legislation External to the ILO Database (N = 15)	87	0	13	0	100
CBAs (N = 76)	99	1	0	0	100
ILO Codes of Practice (N = 3)	0	67	33	0	100

Firstly, out of all 52 international instruments tagged under OSH on the ILO database, dating back to 1919, only 4% had clear commitment to integrate nutrition objectives (level 4). 71% did not include nutrition considerations at all (level 1).

Secondly, for 44 national OSH legislations on the ILO's database, none were committed to integrating nutrition objectives (level 4). 86% showed no link to nutrition (level 1). Similarly for 15 national legislations external to the ILO's database, none showed commitment to integration nutrition objectives (level 4) with 87% showing no link to nutrition.

Only 29% of international instruments and 14% of national legislation available on the ILO's databases[7] considered nutrition (level 2 and above). For national legislation external to the ILO's database, this was only 13%. One-third of international instruments and one-sixth of national legislations do refer to complementary concepts such as clean or safe drinking water, hygiene and sanitation, canteens, food, or eating, and medical examinations and health checks. But with no intentional link to nutrition. This is a missed opportunity to advocate for nutrition. The ILO's databases are not regularly updated and there is a lack of central databases elsewhere which makes data collection a challenge.

Thirdly, for CBAs, after a comprehensive open-source search only two publicly available databases were found, for the Netherlands and the United States. This speaks to the lack of data availability on CBAs. A lighter touch review of 15 CBAs from the Netherlands and 60 CBAs from the US was conducted. An additional CBA from Tanzania found through open-source search was also reviewed. None provided good examples of integrating nutrition with the commitment to take action. There may be a wider available dataset not captured due to language barriers or data collection difficulties. These may include good examples for nutrition integration. Further studies could be done in this area.

Finally, for the Codes of Practice, 3 guidelines were examined in the construction, mining and shipping sectors. These sectors were chosen due to the higher likelihood of employers having to provide food for workers. Food availability and choice is often restricted due to being in remote or onsite living situations. Transportation was also a chosen sector but is not analysed here due to not having a relevant Code Practice. Sectoral-specific regulations were found to show greater consideration for nutrition. The Code of Practice for construction showed an intention to take action on nutrition objectives. This can be a useful case study that sets an example for how nutrition standards could be incorporated into national legislations more succinctly. The Codes of Practice on mining and shipping showed some intention to integrate nutrition objectives. Codes of Practice are non-legally binding, but we encourage OSH lawmakers to use them to feed into legislative process.

This report presents objective findings on the current levels of nutrition integration in international instruments and guidelines, and national legislations, regulations and procedures. Nutrition is only integrated in a few examples. Many laws, instruments and codes were developed before worker malnutrition was as prominent an issue and before newer scientific evidence emerged linking worker performance to improved nutrition. This new context, married with the evidence in this report, highlights the enormous opportunity presented to future labour standard setting for employees and employers.

[7] NORMLEX for international instruments and NATLEX for national legislations.

By incorporating nutrition considerations into new and revised instruments, legislation, CBAs, support tools and codes, policymakers can open a new dimension in worker wellbeing and employer performance.

INTRODUCTION

Occupational safety and health (OSH) is the discipline of dealing with the prevention of work-related injuries and diseases and protecting and promoting workers' health[8]. Social, political, technological, and economic changes over the past decades have begun to shift the global perception on OSH, leading to calls for a revitalisation in how we think about human health and safety. The lens we use in our examination must transcend purely looking at the physical working environments to also include the psychosocial aspects of work and must move from a reactive to a proactive and preventative approach.

This new approach must also encompass the full spectrum of human health, including nutrition. Nutrition plays an important role in the workplace. Many people eat at least one of their daily meals in the workplace, making food a very important component of working life[9]. Comprehensive workforce nutrition programmes (EXPLAIN WHAT THIS MEANS) have the potential to improve nutrition, health, and business outcomes[10]. This could include enhanced productivity, improved mental and physical health, boosts in morale, and long-term generation of lower healthcare costs and positive public images of the company in question.

For example, a nutritious and balanced diet can help improve brain function, such as with working memory and cognitive function[11]. This may lead to improved performance in the workplace. A pilot study in the US showed that nutrition interventions could help improve sleep quality, depressive symptoms, and overall quality of life[12]. Another study showed that irregular working hours and shift work increases the likelihood of eating unhealthy foods and can have negative impacts on health risks[13] because employees may be restricted to eating from canteens, company-provided meals, or vending machines. Better OSH regulations that promote nutrition can be a win-win strategy that reduces malnutrition and boosts productivity and company profits.

Around 60% of the global population will spend one-third of their adult lives at work, making workplaces an unexploited opportunity to tackle malnutrition in all its forms[14]. The workplace is an important connector of people, food, and holistic socioeconomic development. Currently, it is an ideal time to intervene on nutrition. There is growing awareness on health and wellness in the workplace, most prominently in high-income countries. This includes improvements to mental and physical wellness, promotion of physical activity, and the associated benefits in preventing non-communicable diseases. Companies are responding to demands from both employees and consumers to provide more nutritious foods, streamlined by corporate social responsibility and other welfare initiatives. This could also signal a response from policy and lawmakers in stronger nutrition and health integration in OSH practices.

Access to good food and nutrition should be a fundamental human right regardless of social status, class, race or background. Safeguarding nutrition for workers is critical to

[8] ILO, n.d.
[9] Melián-Fleitas et al., 2021
[10] Nyhus Dhillon and Ortenzi, 2023
[11] Puri et al., 2023
[12] Sutliffe et al., 2018
[13] Gupta et al., 2019
[14] Nyhus Dhillon and Ortenzi, 2023

protecting marginalized and vulnerable communities who are required to work long hours under difficult conditions. Now is the time to improve workplace nutrition.

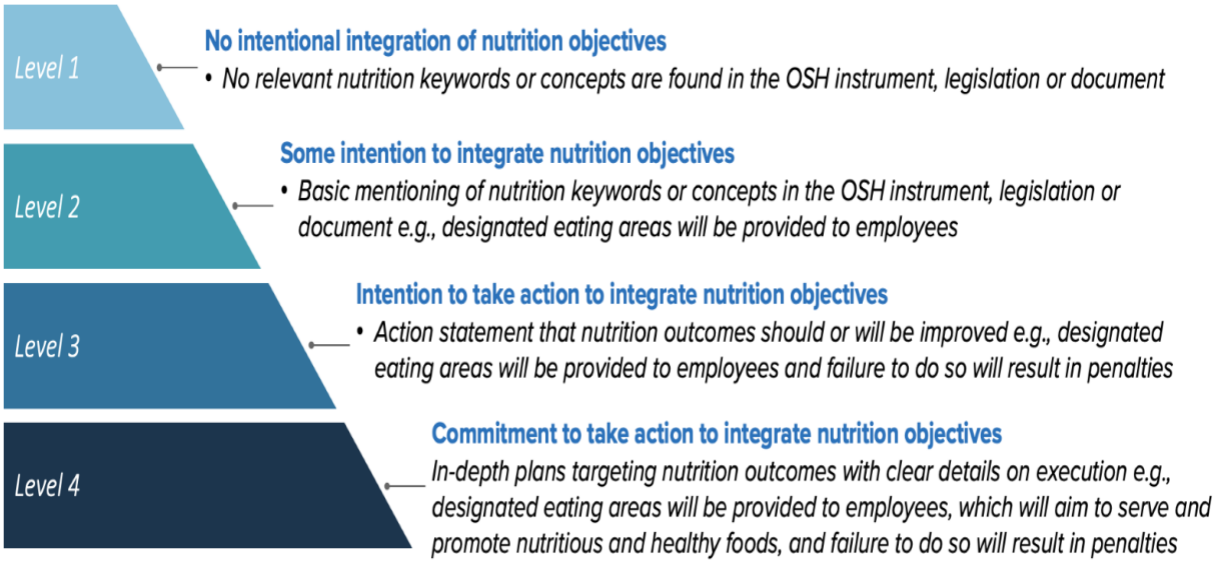
WFN is a programme which aims to improve access to and demand for healthier diets and nutritious foods in workplaces, serving low- and middle-income countries and communities. It is co-convened by the Global Alliance for Improved Nutrition (GAIN) with the goal of reaching ten million workers and farmers by the end of 2030. As of 2024, WFN has already positively impacted six million workers.

This paper strives to understand what current levels of integration are amongst OSH regulations, legislations, standards, and guidelines. Its analysis should be useful in informing lawmakers on how to improve nutrition standards for workers and gauging the potential entry points for nutrition in OSH.

METHODOLOGY

A framework on nutrition integration within XXX was developed for this analysis. It classifies all relevant OSR instruments, legislations, and documents from level 1 (no nutrition integration) to level 4 (strong nutrition integration). The higher levels 3 and 4 are intended to measure action and progress towards intended goals. For level 3, the document could discuss concepts such as food safety or designated eating areas but is not required to reference nutrition directly. For level 4, the document must mention concrete plans for execution on nutrition targets, such as that employee meals must be safe and nutritious.

The framework was modified for this study but is rooted in previous nutrition analyses performed GAIN and endorsed by accredited organisations. It is designed to be replicable and scalable for future versions of this analysis.



This framework was used for all applicable analysis areas, including for all international and national-level reviews (NORMLEX, NATLEX, and additional documents) and the Codes of Practice. They were used to inform the findings on the CBAs but a comprehensive review was not conducted as the intention of the study on the CBAs was to find a good example for nutrition rather than classifying all CBA documents. The review was conducted following these steps:

1. A manual keyword search was performed to examine whether nutrition keywords appear in the documents, and the frequency and manner in which they appear.
2. After all keywords were exhausted, human judgement was used to assign a level using the framework, based on a nuanced understanding of whether the documents authors intended to integrate nutrition and if so, the extent to which the resulting document does.
3. Steps 1 and 2 were repeated by a second reviewer without knowledge of the first reviewer's feedback, to minimise reviewer bias.
4. If the document was in a computer-readable format, the was run through a Python (high-level computer programming language) script, which produced an Excel file listing whether the keyword appears, how many times it appears, the page(s) on which it appears, and a short extract of the sentence or section in which it appears.
5. Both reviewers reviewed the results of the Python scan and decided whether they wanted to change or keep their original classification level, independent of each other.
6. The two reviewers shared and discussed their classification levels for each document. Any disagreements were discussed and resolved. If the two reviewers did not agree, a third reviewer was brought in to break the tie.
7. The final classification levels were agreed and assigned. These were used to inform the writing of this report and for all data visualisations, including graphs and charts.

The keywords used for this analysis are based on the four pillars of the WFN programme: 1) Health Food at Work, 2) Breastfeeding, 3) Health Checks, and 4) Nutrition Education. They were selected based on their relevance to OSH. 136 keywords across the four pillars were used in total for this analysis.

Table 2: Comprehensive List of All Nutrition Keywords Used for this Analysis, Non-Case-Sensitive, N = 136

Workforce Nutrition Pillar	Keywords
Pillar 1: Healthy Food at Work	Cafeteria, cafeterias, canteen, canteens, catering, cook, cooking, dairy, dining, drink, drinks, drinking, eat, eats, eating, food, foods, fridge, fridges, refrigerator, refrigerators, freezer, freezers, healthy, hygiene, hygienic, lunch, meal, meals, sanitation, sanitise, sanitize, sanitiser, sanitizer, unhealthy, wash, washing, WASH
Pillar 2: Breastfeeding	Breast, breastfeed, breastfeeding, feed, feeding, lactation, lactating, mother, mothers, nurse, nursing
Pillar 3: Health Checks[15]	Absenteeism, anemia, anaemia, anemic, anaemic, blood, BMI, body mass index, calorie, caloric, cardiovascular, check, checks, checkup, checkups, check-up, check-ups, cholesterol, diabetes, diabetic, diagnostic, diagnostics, energy, health assessment, health assessments, health consultation, health consultations, health screening, health screenings, healthcare, hypertension, hypoglycemia, hypoglycaemia, hypoglycemic, hypoglycaemic,

[15] Health on its own is not captured as a keyword otherwise there would be too many non-relevant hits that would affect the speed and progression of the Python scan.

	medical, non-communicable disease, non-communicable diseases, NCD, NCDs, obese, obesity, physical, presenteeism, productivity, weight, overweight, underweight, wellness
Pillar 4: Nutrition Education	Diet, diets, dietary, fat, fats, fruit, fruits, grain, grains, malnutrition, overnutrition, undernutrition, micronutrient, mineral, minerals, nutrition, nutritious, nutritional, nutrient, nutrients, portion, portions, protein, proteins, salt, salted, salty, sodium, snack, snacks, sugar, sugars, supplementation, supplementations, vegetable, vegetables, vitamin, vitamins

All documents are analysed at least two times, typically one manual review and one machine review (Python scan) where applicable, by a minimum of two reviewers. All documents sourced from the NORMLEX, NATLEX, the Support Kit, and the Codes of Practice are maintained by the International Labour Organisation (ILO), versions as of July 2024. All documents external to the ILO, including 15 pieces of national-level legislation and that of the CBAs, are cited in the paper.

Twenty-one countries were selected for the analysis, with the intention that their OSH legislations were to be examined in more detail at the country level. This is relevant to all the NATLEX and national-level legislations. These countries were chosen based on a few criteria:

- The size and prominence of the labour force in that country
- Even geographical representation across regions
- Whether the country is part of the WFN programme, is one of the countries in which GAIN operates, or was recommended by the ILO

The final selection of countries was: 1) Australia, 2) Brazil, 3) Bangladesh, 4) Chile, 5) China, 6) Colombia, 7) Egypt, 8) Ethiopia, 9) France, 10) Germany, 11) India, 12) Indonesia, 13) Japan, 14) Kenya, 15) Mexico, 16) Nigeria, 17) Pakistan, 18) Saudi Arabia, 19) Uganda, 20), United Kingdom, and 21) United States. In the final analysis, however, Egypt, Ethiopia, Nigeria, and Saudi Arabia could not be included due to difficulties in accessing files or a lack of data across both ILO and non-ILO databases. No information on OSH was found for Egypt and Saudi Arabia, which could potentially be an indication of OSH not being a top priority in the Middle East and Northern Africa region.

The analysis on the CBAs and the Codes of Practice focuses on four specific sectors: construction, mining, shipping, and transportation. These four sectors were chosen because employees are likely to need to eat meals and drink on site in these types of jobs. Hence, employers have a higher likelihood of being required to provide food or drinks for their employees in these sectors.

All parts of the review were performed in English. If the original document was not in English, the machine translation software DeepL was used to convert the file into English. Any translation issues are noted with justification, and the limitations are acknowledged.

KEY FINDINGS AND THEMES

Low Levels of Nutrition Integration Across the Board

Most of the instruments, pieces of legislation, and other documents analysed do not contain any intentional linkages to nutrition. This indicates that nutrition is not a priority in OSH legislation, which instead focuses on reducing risks in the workplace, such as exposure to hazardous materials, and in preventing accidents and injuries arising from workplace risks. It appears that nutrition is seen as less of a tangible problem compared to these types of risks. Provision of food is not often mandated in the workplace and can be context or sectoral specific. Nutrition is also not a regulated or required focus amongst OSH regulatory bodies, such as the ILO. Both these challenges can lead to a reluctance on the part of the employer (or a lack of pressure on them) to invest resources in nutrition-related programmes and policies. This both reflects and contributes to a lack of understanding of the long-term impacts of healthy food at work on workplace productivity, absenteeism, and employee health both mentally and physically.

Sector-Specific Legislation Shows Higher Nutrition Integration

Sector-specific legislation shows higher nutrition integration compared to the overall sample across all domains, at both the national and global levels. This includes sectors in which employers need to provide food, such as when employees must live onsite or otherwise do not have easy access to food. Sectors investigated on this basis include construction, mining, shipping, and transportation. OSH legislation and guidelines in these sectors tend to at least include some consideration of nutrition objectives, such as meal areas, clean facilities for eating and drinking, and access to safe drinking water.

An exception to this is the CBAs, specific to the United States and Netherlands, which show very low integration overall. One potential reason could be that CBAs result from a negotiation driven largely by the employer, who has less incentive to increase labour costs due to nutrition considerations. A larger sample size of CBAs could be for further clarity.

One positive example is the Maritime Labour Convention of 2006, which included specific requirements to provide nutritious foods and nutrition information to employees. Considering that this sector's workers will be out at sea with no access to food, the responsibility of procuring adequate food lies with the employer. In this case, high nutrition integration reflects both the needs of the workers and the employer's responsibility to provide healthy food for productive work.

Many Complementary Pathways for Nutrition Integration

Despite most legislation showing limited consideration of nutrition, there are many complementary pathways that present opportunities to increase nutrition integration. Out of 52 international instruments examined, 33% discussed hygiene and sanitation, 23% discussed medical examinations or health checks, 21% discussed clean drinking water, and 17% discussed canteens, food, or eating. The numbers for national legislation are 10%, 13%, 6%, and 10%, respectively (i.e., lower than that at the international level). These presence of these concepts indicates an entry point for nutrition.

These pathways are important because they have the potential to build stronger integration and institutionalisation of nutrition standards in OSH regulations. Sanitation and hygiene are linked closely to food safety. Clean drinking water is essential for human health and helps distribute nutrients throughout the body. Canteens, food, and eating are directly relevant to nutrition and provide a steppingstone for employers to consider providing safe, accessible, affordable, and nutritious foods. Medical examinations and

health checks can be supplemented with monitoring of diet-related non-communicable diseases, such as cardiovascular diseases, diabetes, obesity, or hypertension. This is related to workplace productivity and reducing absenteeism. It also provides a platform for healthcare providers to deliver nutrition education.

OSH is a gateway for nutrition to be represented more across all ILO categories. Almost 80% of all ILO standards and instruments contain an OSH-related component[16]. Improving nutrition considerations within OSH will have far-reaching benefits. Lawmakers could be better educated on the potential for nutrition integration that these pathways provide.

Timeline of Legislation Not Highly Relevant to Nutrition Integration

The date on which legislation is drafted or established does not have a strong correlation with the overall strength of nutrition integration. This is an interesting finding as typically when conducting policy analysis, nutrition tends to be more strongly integrated over time as a reflection of rising global normative standards on human health, mental and physical wellness, and food and nutrition. In this case, there is no relationship between the year in which legislation is drafted and nutrition integration.

This may reflect the nature of legislation compared to policies. Policies tend to cover a specific duration, for example 5 or 10 years, and are renewed when that period elapses. Legislation, however, is intended to be permanently legally binding and does not expire after a certain date, and there is no consistent framework that supports the drafting, review, monitoring, and evaluation of legislation. Unless the original intention of the legislation including improved nutrition or an amendment is ratified to include it, it is difficult to integrate higher standards of nutrition. Increasing the prominence of nutrition on political agendas (e.g., through nutrition advocacy and education for lawmakers) could be one way to mitigate this

Difficulties in Data Availability and Maintenance

With any large-scale database, a key challenge is to ensure that data is regularly maintained, comprehensive, and up to date. Two of the main databases used in this analysis are hosted by the ILO, including the Information System on International Labour Standards (NORMLEX) and the Database of National Labour, Social Security and Related Human Rights Legislation (NATLEX). The NORMLEX tends to be up to date, with all International Labour Standards (ILS) and ratifications reflected on the database soon after implementation. The NATLEX has grater challenges with data availability. Some legislation available on open-source search is not available on the NATLEX, which is intended to keep records on national employment and labour laws. For example, India's most recent OSH legislation from 2020 is not on the NATLEX. Data availability can be improved by strengthening communication channels and information sharing between domestic ministries responsible for OSH laws and international organisations in charge of record keeping.

Another main challenge was the lack of a comprehensive database on CBAs. The ILO does not maintain a collection of CBAs, and after a comprehensive open-source search, only two central CBA databases were found. Both were from high-income countries and maintained by the respective domestic government departments of labour. One reason for the low

[16] Alli, 2008

data availability is that it is not legally required to make CBAs publicly accessible. Often, it could be in the interest of the employer to not release this information. Availability of CBAs reflects domestic standards on transparency and accountability, which varies greatly also between the high-income and low- and middle-income countries. Greater awareness of OSH standards at the global level will be beneficial for overall improvements in data collection, availability, and maintenance of CBAs.

INTERNATIONAL LEVEL ANALYSIS - ILO DATABASE

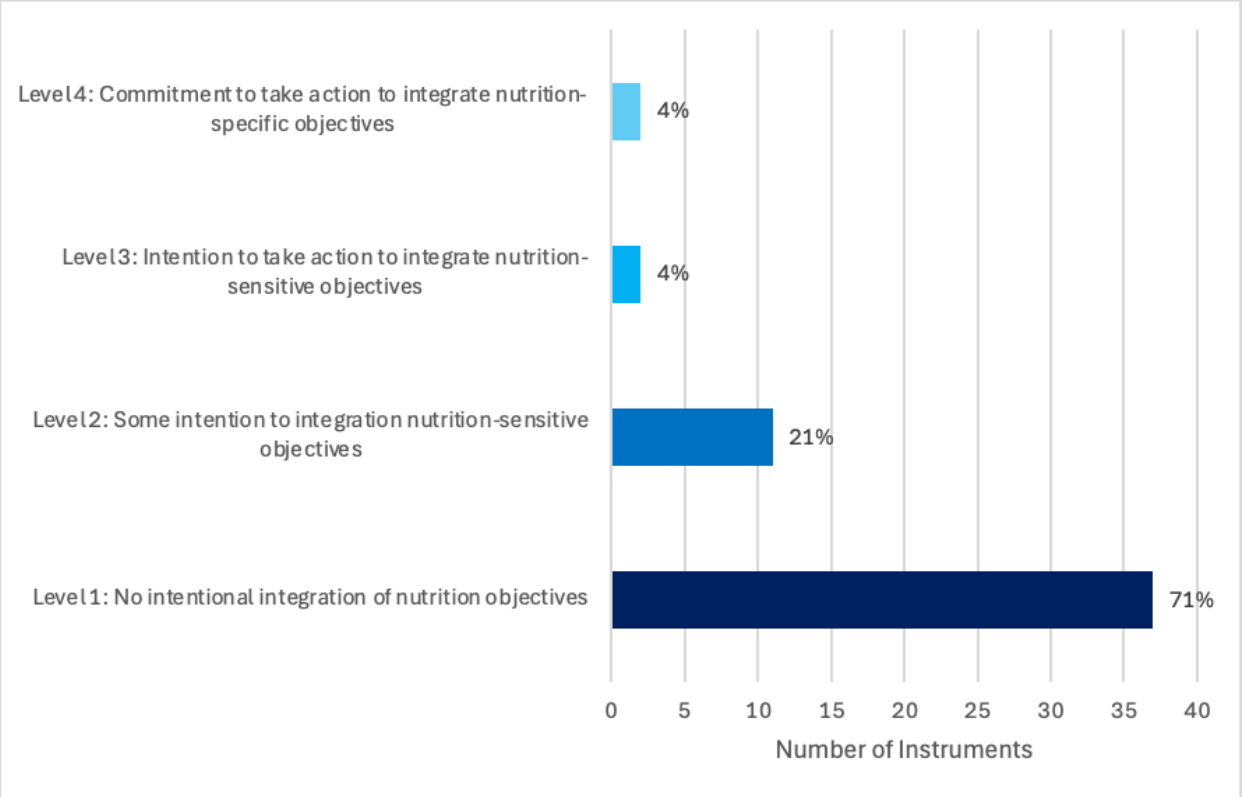
NORMLEX stands for the Information System on International Labour Standards. It is a database maintained by the ILO containing information on international and national labour standards and social security laws[17]. As of 2024, all 187 ILO member states are covered by the NORMLEX, with a total of 405 instruments. The database provides comprehensive and publicly accessible information on the ratification of laws, reporting requirements, and comments from the ILO's supervisory bodies.

The NORMLEX covers all ILS, which are all the standards adopted by the ILC, who is responsible for setting the standards and broad policies of the ILO. The ILC consists of representatives from governments, employers, and workers from member states. There are three types of instruments covered by the NORMLEX. Firstly, there are conventions. Once ratified by member states, conventions become legally binding national laws. Secondly, there are protocols, which are amendments or supplements to existing conventions. They usually reflect emerging issues or scope expansions in response to socioeconomic and technical developments. Protocols are less common, with only 6 out of 405 instruments being protocols. They require separate ratification by member states to become legally binding. Lastly, there are recommendations which are non-legally binding instruments adopted by the ILC. They provide guidance on implementation and member states are encouraged to consider them within national contexts.

In this analysis, 52 international instruments relevant to OSH were examined, all available on the NORMLEX. Out of these, all instruments tagged under the OSH category on the NORMLEX were analysed, which included 43 instruments. 4 instruments were not tagged under OSH but analysed as they contained either 'Occupational Safety and Health', or 'Safe(ty) and Health(y)' in the title. This calls into question why they were not listed under OSH. 5 instruments were identified through the ILO Codes of Practice for OSH as being recommended instruments under the shipping, mining, and transportation sectors. The full list of all 52 instruments analysed can be found under Annex 1.

Figure 1: Degree of Nutrition Integration in International-Level OSH-Relevant Instruments (including Conventions, Protocols, Recommendations) on the NORMLEX, N = 52[18]

[17] ILO, n.d.
[18] See Annex 1 for individual links to each document. Source: ILO, versions as of July 2024.



71% of instruments did not contain any link to nutrition (level 1), with 96% of instruments not at all mentioning the words 'nutrition', 'nutritious', or 'nutritional'. Out of the 21% which had some integration with nutrition objectives (level 2), all only referred to basic concepts related to sanitation and hygiene, safe or clean drinking water, and areas to prepare or eat food. 4% of instruments (2 instruments) showed intention to take action to target nutrition objectives (level 3). One discussed suitable diets, access to food, and feeding facilities for young, employed persons, and the other discussed concrete details for the execution of sanitation and hygiene facilities.

4% of instruments (2 instruments) showed commitment to take action on nutrition objectives (level 4). One was a non-legally binding recommendation dating back to 1956 which discussed welfare facilities. It contained detailed sections on the operations, maintenance, and financing of feeding facilities and canteens, including on the standard of nutrition, nutritional values of food, planned menus, and balanced diets.

The other was a convention on maritime labour from 2006, with amendments made in 2014, 2016 and 2018. The version used in this analysis was most recently updated in 2022. This convention included concrete mandates for the provision of catering services, food, and drinking water, with provisions to include nutritious foods in meals for employees and make nutrition information readily available. Other sections discussed the appropriate time for employee meals, cleaning of cooking equipment, training of cooks, provision of eating areas and facilities such as refrigerators, and food safety and hygiene. This is a good example of how shipping sector work has a high potential for nutrition integration. The maritime labour convention is a much longer document compared to other instruments which are relatively shorter web links. This is acknowledged as a potential bias, but the convention has been included due to the highly relevant nature of the content.

It is important to recognise that not all instruments are intended to or need to be relevant to nutrition. Some instruments target specific issues, for example hazardous materials and chemicals such as benzene, anthrax, white phosphorus or lead. Others discuss topic areas such as the maximum weight or guarding of machinery. In such cases, it could perhaps be considered acceptable that nutrition is not a focus area. However, most instruments do cover broader scopes of applicability under OSH practices. This data is meant to present an objective and comprehensive overview on overall nutrition integration in all OSH-relevant instruments on the NORMLEX.

There are no significant trends of nutrition integration based on: 1) instruments which are and are not tagged under OSH on the NORMLEX, 2) whether the instruments are a convention, protocol, or recommendation, and 3) the date in which the instrument was established or enforced. The last finding is interesting as usually in policy analysis, over time nutrition integration tends to increase as a reflection of socioeconomic demands for healthier foods and greater awareness on human health.

One limitation to be acknowledged is that due to the instruments being web links rather than pdf documents, they were only analysed manually and not run through the Python scan. There are potential human errors, but the possibility of the results being affected is low as each instrument was reviewed by two reviewers at least two times and was reviewed with high consistency and attention to detail.

NATIONAL LEVEL ANALYSIS – ILO DATABASE

NATLEX stands for the database of national labour, social security and related human rights legislation[19]. It contains more than 100,000 records covering 196 countries and provides public access to national legislation on labour and employment.

A total of 44 national legislations were examined, all available on the NATLEX, covering 11 countries: 1) Australia, 2) Brazil, 3) Chile, 4) China, 5) Colombia, 6) France, 7) Germany, 8) Japan, 9) Mexico, 10) Pakistan, and 11) the United Kingdom. All legislations are classified under OSH on the NATLEX. A 10-year scope of 2013-2023 was set for this analysis intended to provide a snapshot into the current state of nutrition integration in recent legislation. Out of the 21 pre-selected countries for this analysis, 8 countries were omitted as they only had available legislations on the NATLEX pre-2013. The limitations to the timeline are acknowledged and future expansions on this are encouraged. 2 countries, including India and Indonesia, were omitted as they only had 1 legislation within the 10-year scope, but which discussed topics not related to OSH. Both were related to the prevention and treatment of Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS). The full list of all 44 legislations analysed can be found under Annex 2.

A total of 3 legislations within the 10-year scope were omitted from the analysis despite being classified under OSH, as the title and contents discussed specific areas not relevant to OSH and would bias the results. 2 of these were the aforementioned legislations from India and Indonesia on HIV and AIDS. 1 legislation was from Pakistan on environmental protection. The legislations for both India and Pakistan were both found to have no link to nutrition (level 1). The legislation from Indonesia was found to be at the highest level of integration (level 4), with concrete plans to integrate nutrition objectives. It discussed HIV

[19] ILO, n.d.

testing and counselling for children who suffer from malnutrition, nutritional improvement as part of supportive treatment for HIV and AIDS, and breastfeeding, supplementary feeding, and supporting treatment for newborns.

Within the 10-year scope, 5 legislations from the United Kingdom were omitted which are not from the mainland because the nature of the content is not relevant to OSH. This includes 4 legislations from Jersey on Covid-19 and 1 legislation from Gibraltar on workplace bullying. For France, we have shortened the timeline to a 5-year scope from 2018-2023. This is because France had a much greater number of legislations than other countries which would skew the results of the study, with 39 legislations between 2013-2023. Out of these 39, 4 were on non-OSH relevant issues outside of the French mainland, from New Caledonia and Mayotte. These 4 samples were omitted from the analysis.

One key finding is the significant polarity in the data availability. For example, whilst France had 39 legislations tagged under OSH from 2013-2023, Bangladesh only had 1 legislation under OSH on the entire NATLEX database, dating back to 1935. It is unlikely that Bangladesh has not enacted any new legislations relevant to OSH in the past 89 years. The same logic is applicable in all 8 countries omitted from this analysis due to being outside the 10-year scope, which apart from Bangladesh include: Egypt, with the most recent legislation from 2008; Ethiopia, with only 2 legislations from 1995 and 2009; Kenya, with the most recent legislation from 2007; Nigeria, with the most recent legislation from 1992; Saudi Arabia, with only 2 legislations both from 2009; Uganda, with only 1 legislation from 2006; and the United States, with the most recent legislation from 2007. This suggests data availability issues on the NATLEX.

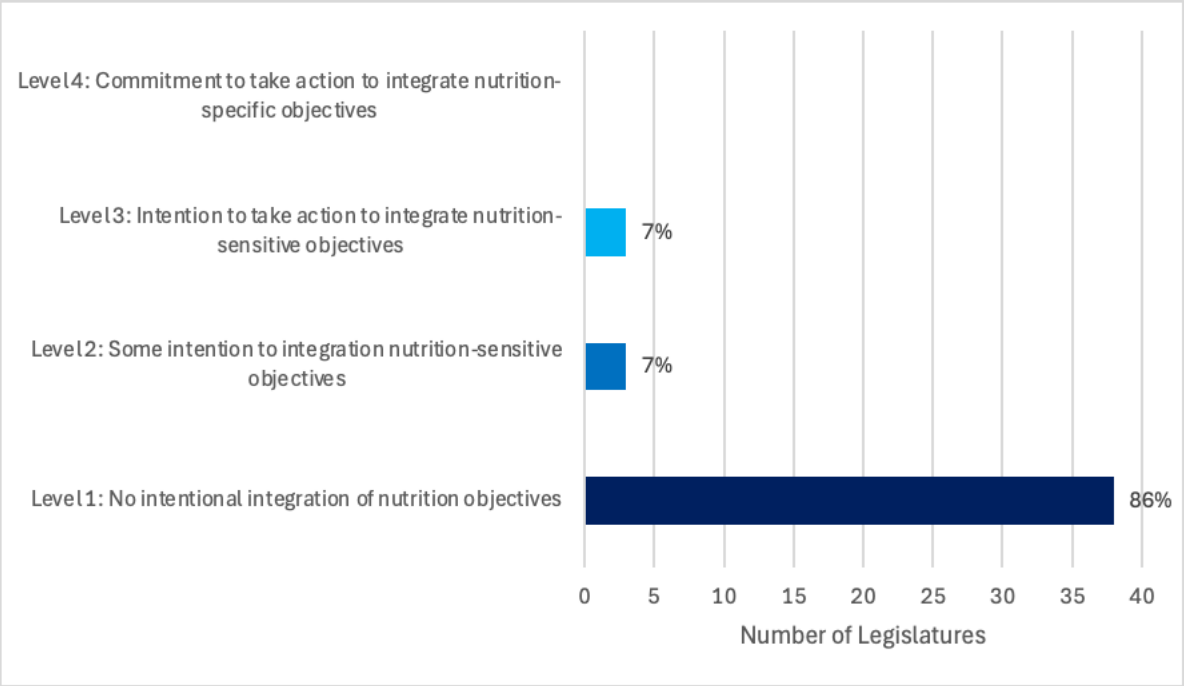
A main limitation is that the NATLEX is not regularly updated and maintained. It is fully acknowledged that there could be a larger scope of legislations relevant to OSH outside the NATLEX. For example, India was omitted from this section of the analysis due to the lack of relevant data, but there is a different study conducted by the WFN which analysed India's OSH Code from 2020, which is not available on the NATLEX. This 2020 OSH Code was developed drawing from 13 labour laws from 1948 – 1981. Whereas there were no direct nutrition interventions, it expands on the protection of health and safety for workers[20]. This includes annual free medical examinations, breastfeeding support in factories where more than fifty workers are ordinarily employed, provisions of canteens and mess rooms, and expansion of coverage to unorganized, gig and platform workers. A more comprehensive picture of India's OSH standards is presented within this code compared to only what is in the NATLEX. The same may be true for other countries.

Another limitation is that the length of a legislation (whether for the original or an amendment can vary greatly between individual legislation and country. Some legislations could only be one page whilst others are much longer. However, all relevant OSH legislations within the 10-year scope is included in this analysis as: 1) like any other legislation, law or policy, countries have the free will to dictate the length and content of that document and it is our role as researchers to analyse this objectively, and 2) if we omitted all legislations we viewed as short in length, this would indicate reviewer bias and also a significant portion of the legislations would have to be discarded.

[20] Mansharamani and Shah, 2024

For this analysis, an open-source search was not conducted. It is difficult to fully capture all relevant existing legislation comprehensively in this manner, in the absence of a central database. It would bias the results if some legislations were included for some countries but not others. We encourage authorities to improve on efforts to maintain central databases, such as the NATLEX.

Figure 2. Degree of Nutrition Integration in National-Level OSH-Relevant Legislations on the NATLEX for 11 countries, N = 44[21]



86% of legislation showed no links to nutrition (level 1), which is 38 out of the 44 total legislations. No legislation showed commitment to take action to integrate nutrition objectives (level 4). 7% of legislations (3 legislations) showed some intention to integrate nutrition objectives (level 2). 2 of these legislations discussed feeding areas and food consumption and the other discussed breastfeeding. Due to being generic mentions rather than action-specific interventions they have all been classified as a level 2. 7% of legislations (3 legislations) showed the intention to take action on nutrition objectives (level 3).

One legislation referred to a Food Act dating back to the 1980s which mandates the sale of food that is safe and suitable for human consumption in workplaces. It also contained sections on the classification of mixtures on reproductive toxicants and the effects on lactation. Another legislation talked about technical standards and provisions for eating areas and that must comply with standards issued by public authorities.

The last legislation discussed wholesome drinking water and the provision of welfare facilities including canteens which provide food, and penalties and punishments for not abiding by these procedures. Overall, there were low levels of integration. Nutrition awareness could be improved with relevant OSH ministries and stakeholders at the national level.

[21] See Annex 2 for individual links to each document. Source: ILO, versions as of July 2024.

Out of the 44 total legislations analysed, 11 were amendments or supplements to original legislations which pre-date 2013. 6 out of these 11 texts referred to individual original legislations. Only 1 out of these 6 original legislations was available on the NATLEX, with 2 out of these 6 legislations not found through open search. None of these 6 original legislations were examined due to the limited data availability and inconsistency of the data source. 5 of the 11 texts referred to a General Health Law from Mexico, which is not available on the NATLEX and is from 1984. 4 are amendments and 1 is a reform to an existing section. Mexico's General Health Law is not included as part of the analysis above but is presented below as a case study of strong nutrition integration.

Mexico's General Health Law[22] was found to be at the strongest level of nutrition integration (level 4), with concrete plans to implement nutrition objectives. Multiple articles mandated targets for nutrition, including on:

- Health and Nutrition Education Programmes: The Ministry of Health and the Ministry of Public Education, in coordination with federal authorities, will develop education programmes towards nutritious, sufficient and quality foods, with emphasis on physical exercise. Good eating habits are promoted with education on the consumption of minimum nutrients, especially for vulnerable groups. Multi-sectoral approaches are laid out including partnerships with organisations at both the national and international levels, including the private sector.
- Public Policies on Nutrition: Mandates for policies such as dietary guidelines on recommended nutrient intakes for the general population and nutritional value labelling on food packaging. Institutional training and promotion of breastfeeding practices, encouraging breast milk to be exclusive food for six months and complementary until the second year of life and, where appropriate, direct food aid aimed at improving the nutritional status of the maternal and infant group, including installation of lactators in workplaces in the public and private sectors.
- Medical Checks and Nutrition Surveillance: Surveillance, guidance, prevention, and control on nutrition, including for non-communicable diseases such as being overweight, obesity, eating disorders and cardiovascular diseases. Complementary with nutrition education programmes. Height, weight, and body mass index monitoring, with the promotion of physical activity in basic education schools.

It is worth noting that this is a long document with over 200 pages, which provides more room to go in-depth about nutrition targets. However, the level of detail and length of content dedicated to nutrition shows that it was a priority in the drafting of this legislation. Given that this is a document from 1984, the level of detail regarding nutrition is quite high, as even in recent health policies we often see nutrition being neglected.

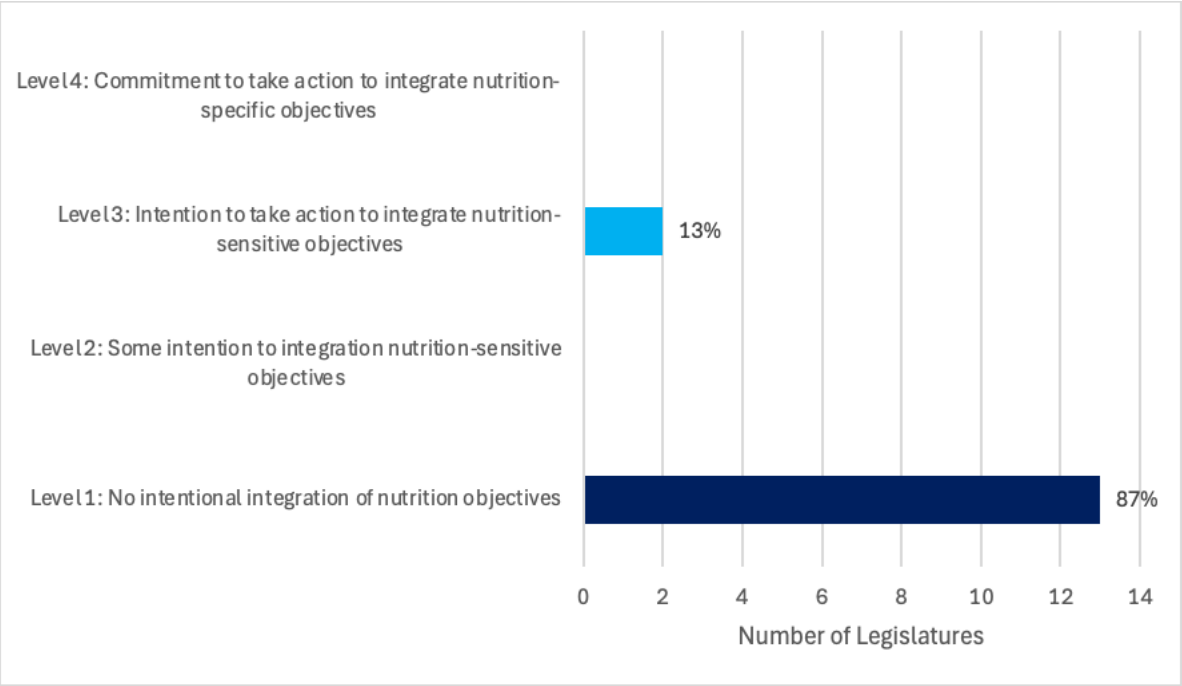
NATIONAL LEVEL ANALYSIS – EXTERNAL SOURCES

An additional 23 legislations not covered under the NATLEX were suggested for review by the ILO. These are all publicly accessible documents. 8 legislations were omitted due to difficulties in accessing, translating, or scanning the files. 15 legislations for 12 countries were analysed at the country level, including for: 1) Australia, 2) Bangladesh, 3) Brazil, 4) Chile, 5)

[22] Ley General de Salud, 1984

Colombia, 6) France, 7) Germany, 8) India, 9) Japan, 10) Kenya, 11) Uganda, and 12) the United Kingdom. The full list of all 15 legislations analysed can be found under Annex 3.

Figure 3. Degree of Nutrition Integration in National-Level OSH-Relevant Legislations not on the NATLEX, for 12 countries, N = 15[23]



Similarly to the analysis for the NATLEX legislations, there are low levels of nutrition integration for the 15 legislations analysed here. 87% of legislation showed no links to nutrition (level 1). 13% of legislations (2 legislations) showed the intention to target nutrition objectives (level 3), but with none at the highest level of integration with nutrition objectives (level 4).

Out of the 2 legislations at level 3, one legislation mentions nutrition and exercise programmes as part of national advocacy for OSH, led by the Ministry of Health and regional hospitals. Care for exposed or injured health workers also includes nutrition counseling and supplements, provided free of charge. This legislation did not meet the criteria for a level 4 due to a lack of sufficient detail on execution of intended actions.

The other legislation talks about the role of the Ministry of Labour and Employment in planning, coordinating and guiding the implementation of the Workers' Food Program. This is not described in detail in the legislation, but it refers to a programme launched in the 1970s (still in effect) targeting companies to provide workers with healthy and nutritious foods in exchange for tax relief. The goal is to boost productivity and wellbeing at work. This legislation cannot be justified at the highest level of integration (level 4) given the lack of detail in analysis and execution.

COLLECTIVE BARGAINING AGREEMENTS (CBAS)

CBAs, sometimes known as Collective Labour Agreements, are legally binding agreements negotiated between employers (or employer associations) and labour or worker

[23] See Annex 3 for individual links to each document, versions as of July 2024.

representative unions. They govern the terms and conditions of employment for workers covered under the agreement. CBAs cover a specific duration, at the end of which they can be renegotiated. All CBAs are at the national level and reflect domestic legal requirements. It is important for OSH and nutrition to be covered by CBAs as this gives workers legally binding protection and shows employer commitment to improve nutrition standards.

4 sectors were chosen for analysis for the CBAs: 1) shipping, 2) mining, 3) construction, and 4) transportation. These were chosen due to being likely sectors where employers are required to provide food. This includes on-site locations where employees must live and work, such as mining sites or on cargo ships.

Analysis on CBAs is meant to be a light touch review rather than a comprehensive scan, given: 1) the broad scope of CBAs, and 2) most CBAs are not public access and lack a central database, making data collection difficult. The focus here is to look for CBAs with strong links to nutrition as prime case studies.

After a comprehensive open-source search, public access CBAs databases were only found for 2 countries. One is from the Netherlands, managed by the Ministry of Economic and Social Affairs[24]. 15 CBAs from 5 companies (across different years) from the shipping and transportation industries were analysed. None qualified as a good nutrition example. 6 CBAs were omitted due to difficulties with accessing and reading the files. Construction sector CBAs were omited due to translation difficulties (specifically with the word construction in Dutch). No mining sector CBAs were available. The other database was from the United States, managed by the Department of Labour[25]. 60 CBAs were reviewed, also with none qualifying as a case study. 6 CBAs were omitted due to file difficulties. This indicates that nutrition is low on the agenda of employer priorities, at least in those two countries. Further thought should be given to raising nutrition awareness in CBAs.

1 independent CBA from Tanzania[26] was analysed, found through open-source search. Similarly, this had no links to nutrition or even to food or water.

Limitations to the lack of data availability is acknowledged. Overall, it is not common practice for CBAs to be available for public access or on a central database. There may be databases and CBAs that we have not been able to find for this analysis, especially given language barriers for open-source search methods. Future expansions to this work are encouraged to research this in more detail.

OSH CODES OF PRACTICE

The ILO Codes of Practice[27] are non-legally binding instruments which set out guidelines for public authorities, employers, workers, enterprises and bodies on OSH practices. They address specific economics sectors or issues, hazards, and health and safety measures.

3 codes of practice were examined in total. One each from construction, mining and shipping sectors, from 2022, 2006 and 2003, respectively. Transportation sector was omitted due to there being only 2 codes of practice not highly relevant to food and nutrition – one on HIV and AIDs, and the other on workplace violence.

[24] Versions as of July 2024.
[25] Versions as of July 2024.
[26] Tanzania Union of Industrial and Commercial Workers Field Branch of TPCC and Tanzania Portland Cement Company, 2012
[27] Source: ILO. Versions as of July 2024.

For the code of practice on construction, there was the intention to take action on nutrition objectives (level 3). Under welfare provisions, facilities for eating and drinking are to be provided and should be safe and hygienic. Facilities for nursing and storing milk should also be available. Sufficient time for meals is to be allowed. At sites where food is served, the food should be nutritious, balanced and hygienic. Highest integration level is not achieved due to lack of detail on execution.

For the codes of practice on mining and shipping, both were found to have some intention to integrate nutrition objectives (level 2). In mining, it is recommended to drink sufficient quantities of a suitable liquid providing intake of salt, potassium and other elements depleted due to sweating. Enough drinking water with the proper electrolytes should be maintained. If necessary to prohibit eating or drinking in the workplace due to hazardous materials, facilities should be set aside in a convenient and uncontaminated location. Safe drinking water should be readily accessible and provided to all workers. Places where food is consumed should be hygienic with sufficient time for meals.

In shipping, welfare facilities such as mess rooms and canteens should be provided for eating and drinking. Facilities for heating food and boiling water and washing and sanitation facilities to be provided. An adequate supply of cool and wholesome drinking water should be readily available. Drinking outlets should be clearly identified and marked with a notice labelled “Drinking Water”. These notices should conform to legal requirements. Consumption of food and drink in areas with hazardous materials should be prohibited.

Analyses on the codes of practice all showed some consideration for nutrition. This indicates that OSH guidelines in these areas are relatively more likely to include provisions on food and nutrition given that the nature of work requires eating and drinking on site.

CONCLUSION

Employers have a compelling reason to prioritize nutrition, as it offers significant business benefits, including lowering absenteeism and workplace accidents, improving employee morale, and strengthening brand reputation. More than 60% of the workforce spends roughly one-third of their adult lives at work, often consuming at least one primary meal there[28]. Providing access to nutritious food or ensuring healthy meal options during the workweek is crucial for maintaining long-term health and well-being. Future advancements in OSH policies, guidelines, tools, and initiatives should go beyond merely avoiding harm to actively promoting health, with a strong emphasis on nutrition.

Nutrition integration within OSH is low across most of the domains examined. This includes for international instruments, national legislations, and CBAs. Reasons for this could be a reflection of both traditional OSH focusing more on the physical working environment and nutrition being a less tangible and perceivable issue. The Codes of Practice showed stronger nutrition integration overall. However, only guidelines in sectors which are often required to provide food for employees were investigated, which may be the reason for higher integration. Overall, many instruments, legislations, guidelines and tools showed complementary concepts for nutrition. This includes clean drinking water, sanitation and

[28] Nyhus Dhillon and Ortenzi, 2023

hygiene, provision of welfare facilities like canteens, and medical examinations. Strong opportunities for nutrition integration exist by building on these pathways.

Good nutrition practices in the workplace are critical for boosting employee productivity, motivation, and reducing absenteeism. As 2030 is fast approaching, it becomes even more important to consider employee nutrition as a cornerstone of achieving SDG targets. This includes SDG 2 on zero hunger, SDG 3 on good health and wellbeing, SDG 5 on gender equality, and SDG 8 on decent work and economic growth. Below are some insights on what strong nutrition integration in OSH instruments, legislations and tools could look like:

- Employer provided meals to include nutritious foods, or sources of nutritious foods for employees to be readily available
- Designated eating and drinking areas, with sufficient time for meals, accounting for food safety and hygiene standards
- Breastfeeding areas for pregnant and lactating women, with education on maternal and infant nutrition and health practices
- Nutrition education for lawmakers, employers and employees
- Nutrition information available and provided to employees, such as nutrition labelling and counselling
- Employee health checks and medical examinations to include nutrition monitoring, such as for anemia, obesity, diabetes etc.

The life cycle of an instrument and legislation is unlike that of a policy. Laws do not expire. Without the absence of political awareness and a dedicated agenda push for nutrition, it is difficult to increase nutrition integration in OSH standards. Lawmakers and relevant stakeholders should take the appropriate measures to learn about nutrition and how improvements to nutrition would create benefits for workforce health and productivity.

Future iterations and extensions of this analysis should consider expanding on national legislations, reaching out to employer associations for access to CBAs, conducting key informant interviews with workers to determine worker demand for nutritious foods – what types of foods they want and how this could be implemented, and completing stakeholder interviews with key parties involved in the establishment of the good examples identified in this study. This research presents useful detail informing future lawmaking on OSH.

This report reveals a limited integration of nutrition in international and national labor standards, despite the growing prevalence of worker malnutrition and emerging evidence linking nutrition to improved worker performance. Key findings outlined in this analysis present the opportunity for future labor standards to incorporate nutrition considerations, creating a new dimension in worker well-being and employer performance.

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ANNEX 1

Table 4: All 52 International-Level Instruments on NORMLEX

Title	Type of Instrument	Year
R003 - Anthrax Prevention Recommendation, 1919 (No. 3)	Recommendation	1919
R004 - Lead Poisoning (Women and Children) Recommendation, 1919 (No. 4)	Recommendation	1919
R006 - White Phosphorus Recommendation, 1919 (No. 6)	Recommendation	1919
C013 - White Lead (Painting) Convention, 1921 (No. 13)	Convention	1921
R097 - Protection of Workers' Health Recommendation, 1953 (No. 97)	Recommendation	1953
R102 - Welfare Facilities Recommendation, 1956 (No. 102)	Recommendation	1956
C115 - Radiation Protection Convention, 1960 (No. 115)	Convention	1960
R114 - Radiation Protection Recommendation, 1960 (No. 114)	Recommendation	1960
C119 - Guarding of Machinery Convention, 1963 (No. 119)	Convention	1963
R118 - Guarding of Machinery Recommendation, 1963 (No. 118)	Recommendation	1963
C120 - Hygiene (Commerce and Offices) Convention, 1964 (No. 120)	Convention	1964
R120 - Hygiene (Commerce and Offices) Recommendation, 1964 (No. 120)	Recommendation	1964
C124 Medical Examination of Young Persons (Underground Work) Convention, 1965	Convention	1965
R125 - Conditions of Employment of Young Persons (Underground Work) Recommendation, 1965 (No. 125)	Recommendation	1965
C127 - Maximum Weight Convention, 1967 (No. 127)	Convention	1967
R128 - Maximum Weight Recommendation, 1967 (No. 128)	Recommendation	1967
C136 - Benzene Convention, 1971 (No. 136)	Convention	1971
R144 - Benzene Recommendation, 1971 (No. 144)	Recommendation	1971
C139 - Occupational Cancer Convention, 1974 (No. 139)	Convention	1974
R147 - Occupational Cancer Recommendation, 1974 (No. 147)	Recommendation	1974
C148 - Working Environment (Air Pollution, Noise and Vibration) Convention, 1977 (No. 148)	Convention	1977
R156 - Working Environment (Air Pollution, Noise and Vibration) Recommendation, 1977 (No. 156)	Recommendation	1977
C152 - Occupational Safety and Health (Dock Work) Convention, 1979 (No. 152)	Convention	1979
R160 - Occupational Safety and Health (Dock Work) Recommendation, 1979 (No. 160)	Recommendation	1979
C153 - Hours of Work and Rest Periods (Road Transport) Convention, 1979 (No. 153)	Convention	1979
R161 - Hours of Work and Rest Periods (Road Transport) Recommendation, 1979 (No. 161)	Recommendation	1979

C155 - Occupational Safety and Health Convention, 1981 (No. 155)	Convention	1981
P155 - Protocol of 2002 to the Occupational Safety and Health Convention, 1981	Protocol	1981
R164 - Occupational Safety and Health Recommendation, 1981 (No. 164)	Recommendation	1981
R171 - Occupational Health Services Recommendation, 1985 (No. 171)	Recommendation	1985
C161 - Occupational Health Services Convention, 1985 (No. 161)	Convention	1985
C162 - Asbestos Convention, 1986 (No. 162)	Convention	1986
R172 - Asbestos Recommendation, 1986 (No. 172)	Recommendation	1986
C164 - Health Protection and Medical Care (Seafarers) Convention, 1987 (No. 164)	Convention	1987
C167 - Safety and Health in Construction Convention, 1988 (No. 167)	Convention	1988
R175 - Safety and Health in Construction Recommendation, 1988 (No. 175)	Recommendation	1988
C170 - Chemicals Convention, 1990 (No. 170)	Convention	1990
R177 - Chemicals Recommendation, 1990 (No. 177)	Recommendation	1990
C174 - Prevention of Major Industrial Accidents Convention, 1993 (No. 174)	Convention	1993
R181 - Prevention of Major Industrial Accidents Recommendation, 1993 (No. 181)	Recommendation	1993
C176 - Safety and Health in Mines Convention, 1995 (No. 176)	Convention	1995
R183 - Safety and Health in Mines Recommendation, 1995 (No. 183)	Recommendation	1995
R191 - Maternity Protection Recommendation, 2000 (No. 191)	Recommendation	2000
C183 - Maternity Protection Convention, 2000 (No. 183)	Convention	2000
C184 - Safety and Health in Agriculture Convention, 2001 (No. 184)	Convention	2001
R192 - Safety and Health in Agriculture Recommendation, 2001 (No. 192)	Recommendation	2001
R194 - List of Occupational Diseases Recommendation, 2002 (No. 194)	Recommendation	2002
C187 - Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187)	Convention	2006
R197 - Promotional Framework for Occupational Safety and Health Recommendation, 2006 (No. 197)	Recommendation	2006
Maritime Labour Convention, 2006, as amended (MLC, 2006)	Convention	2006
C191 - Safe and Healthy Working Environment (Consequential Amendments) Convention, 2023 (No. 191)	Convention	2023
R207 - Safe and Healthy Working Environment (Consequential Amendments) Recommendation, 2023 (No. 207)	Recommendation	2023

ANNEX 2

Table 5: All 44 National-Level Legislations Analysed Under NATLEX

Country	NATLEX Serial Number	Title
Australia	AUS-2021-L-113906	Work Health and Safety Amendment Act 2021 (A2021-19).
Australia	AUS-2017-R-105486	Occupational Health and Safety Regulations 2017 (S.R. No. 22/2017).
Australia	AUS-2014-L-102382	Return to Work Act 2014.
Brazil	BRA-2013-R-92332	Ordinance no. 100 of January 17, 2013, which modifies Regulatory Standard No. 30.
Chile	CHL-2017-L-105865	Law no. 21054, of December 15, 2017, which modifies Law no. 16744, which establishes standards on work accidents and occupational diseases, with the aim of eliminating the distinction between employees and workers
Chile	CHL-2017-L-104908	Law no. 21012, of June 2, 2017, which guarantees the safety of workers in risk and emergency situations
Chile	CHL-2016-R-112458	Decree no. 47, of August 4, 2016, which approves the National Safety and Health at Work Policy
Chile	CHL-2015-R-101227	Decree no. 3, of January 30, 2015, which approves the Regulation for the application of article 2 of Law no. 20773 on the integration, constitution and operation of the Joint Hygiene and Safety Committees of Port Work
Chile	CHL-2013-L-101593	Law no. 20691, of September 30, 2013, which modifies Law no. 16395, Organization and Powers of the Superintendency of Social Security
China	CHN-2023-L-114652	Law no. 2/2023, of March 2, Law on Safety and Health at Work in Civil Construction
China	CHN-2015-R-100276	Executive order no. 39/2015, of July 31, which modifies the Uniform Insurance Policy for Work Accidents and Occupational Diseases, approved by ordinance no. 237/95/M, of August 14, and modified by Executive Order no. 32/2001
China	CHN-2015-R-99042	Regulations of Labor Insurance Health Examination for Prevention of Occupational Disease, 2015.
China	CHN-2014-R-99072	Regulations Governing the Determination Criteria and Inspection of No Harm to Mental and Physical Health in Article 45 of the Labor Standards Act, 2014.
China	CHN-2014-L-98910	Law no. 3/2014, of April 2, which establishes a system for issuing occupational safety cards for the civil construction sector.
Colombia	COL-2022-R-114638	Decree no. 539, of April 8, 2022, which issues the Regulation of Hygiene and Safety in Open Pit Mining Works
Colombia	COL-2016-R-102912	Decree no. 1117 of 2016, of July 11, which modifies Decree no. 1072 of 2015, Single Regulatory Decree of the Labor Sector, regarding the requirements and terms of registration for the exercise of insurance intermediation in the field of occupational risks

Colombia	COL-2015-R-101710	Decree no. 2509, of December 23, 2015, which modifies Chapter 9 of Title 4 of Part 2 of Book 2 of Decree no. 1072 of 2015, referring to the Monetary Compensation System in the General System of Occupational Risks
Colombia	COL-2015-R-99980	Decree no. 0472, of March 17, 2015, which regulates the criteria for grading fines for violation of the rules of Safety and Health at Work and Occupational Risks, and establishes rules for the application of the order to close the place of work or definitive closure of the company and immediate stoppage or prohibition of work or tasks and other provisions are issued
Colombia	COL-2014-M-101799	Resolution no. 06045 of the Ministry of Labor, of December 30, 2014, by which the Safety and Health at Work Plan 2013-2021 is adopted
France	FRA-2020-R-111589	Ordinance No. 2020-1502 of December 2, 2020 adapting the conditions for carrying out the missions of occupational health services to the health emergency.
France	FRA-2020-R-111526	Decree No. 2020-1131 of September 14, 2020 relating to the recognition as occupational diseases of pathologies linked to SARS-CoV2 infection.
France	FRA-2020-R-111525	Decree No. 2020-1125 of September 10, 2020 revising and supplementing the tables of occupational diseases annexed to Book VII of the Rural and Maritime Fishing Code.
France	FRA-2020-R-111369	Decree No. 2020-549 of May 11, 2020 setting the temporary conditions for prescription and renewal of work stoppages by the occupational physician.
France	FRA-2020-R-111366	Decree No. 2020-508 of May 2, 2020 temporarily adapting the deadlines relating to consultation and information of the social and economic committee in order to deal with the consequences of the spread of the covid-19 epidemic.
France	FRA-2020-R-111353	Ordinance No. 2020-386 of April 1, 2020 adapting the conditions for carrying out the missions of occupational health services to the health emergency and modifying the regime for prior requests for partial activity authorization.
France	FRA-2020-R-111553	Decree No. 2020-39 of January 22, 2020 relating to the health, safety and working conditions committee of the National Agency for Territorial Cohesion.
France	FRA-2018-R-108428	Decree No. 2018-1340 of December 28, 2018 relating to the experiment relating to the carrying out of the information and prevention visit to apprentices by a health professional from community medicine.
France	FRA-2018-R-107547	Order of July 17, 2018 extending an agreement concluded in the sector of temporary employment companies.
Germany	DEU-2016-R-104019	Regulation to implement the EU Directive 2014/27/EU and to amend the Labour Protection Regulation.

Japan	JPN-2014-R-98139	Ordinance concerning the Promotion of the Prevention of Death from Overwork, etc. Council (Ordinance No. 340 of October 17, 2014)
Japan	JPN-2014-L-98140	Death from Overwork, etc. Prevention and Promotion Law (Law No. 100 of June 27, 2014).
Mexico	MEX-2014-RE-101141	Federal Regulation on Safety and Health at Work, of November 6, 2014
Mexico	MEX-2013-R-95699	Decree reforming the General Health Law.
Mexico	MEX-2013-R-95575	Decree reforming the General Health Law.
Mexico	MEX-2013-R-95705	Decree modifying the General Health Law.
Mexico	MEX-2013-R-95707	Decree reforming the General Health Law.
Mexico	MEX-2013-R-95100	Decree reforming the General Health Law.
Pakistan	PAK-2013-L-99245	Khyber Pakhtunkhwa Factories Act, 2013 [Act No. XVI of 2013].
United Kingdom	GBR-2017-R-108017	The Health and Safety (Miscellaneous Amendments and Revocation) Regulations 2017 (2017 No. 304).
United Kingdom	GBR-2014-R-108020	The Health and Safety (Miscellaneous Repeals and Revocations) Regulations 2014 (2014 No. 486).
United Kingdom	GBR-2013-R-108013	The Enterprise and Regulatory Reform Act 2013 (Health and Safety) (Consequential Amendments) Order 2013 (2013 No. 1666).
United Kingdom	GBR-2013-R-94616	The Health and Safety (Miscellaneous Revocations and Amendments) Regulations 2013 (2013 No. 1512).
United Kingdom	GBR-2013-R-94614	The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (2013 No. 1471).
United Kingdom	GBR-2013-R-94615	The Health and Safety (Miscellaneous Repeals, Revocations and Amendments) Regulations 2013 (2013 No. 448).

ANNEX 3

Table 6: All 15 National-Level Legislations Analysed External to the NATLEX

Country	Year	Title
Australia	2011	National compliance and enforcement policy
Australia	2023	Australian Work Health and Safety Strategy 2023–2033
Bangladesh	2021	National Plan of Action on Occupational Safety and Health 2021-2030
Brazil	2011	Política Nacional de Segurança e Saúde no Trabalho - PNSST
Brazil	2012	Plano Nacional de Segurança e Saúde no Trabalho
Chile	2018	Programa nacional de seguridad y salud en el trabajo 2018-2020
Colombia	2022	Plan Nacional de Seguridad y Salud en el Trabajo 2022 - 2031
France	2022	Plan pour la prévention des accidents du travail graves et mortels
France	2021	4e plan santé au travail 2021 – 2025 (PST 4)
Germany	2019	Joint German Occupational Safety and Health Strategy 2019-2025
India	2009	National Policy on Safety, Health and Environment at Workplace (NPSHEW)
Japan	2023-2027	The 14th Occupational Safety & Health Program (Japanese)
Kenya	2012	National Occupational Safety and Health Policy
Uganda	2011	Occupational Safety and Health Implementation Strategy
United Kingdom	2022	Protecting People and Places. Health and Safety Executive (HSE) Strategy 2022 to 2032.

ANNEX 4

Table 7: All 75 CBAs Analysed from the Netherlands (N= 15) and the United States (N =60) from the Construction, Shipping, Mining, and Transportation Sectors

Country	Sector	Expiration Year	Title
Netherlands	Shipping	2019	1137 - EMPLOYMENT SCHEME FOR MARITIME SHIPPING RAZ - 01-01-2018 - 31-12-2019 - Regular - kvo date - 24-01-2018
Netherlands	Shipping	2017	1137 - EMPLOYMENT SCHEME FOR MARITIME SHIPPING RAZ - 01-01-2017 - 31-12-2017 - Regular - kvo date - 18-11-2016
Netherlands	Shipping	2016	1137 - EMPLOYMENT SCHEME FOR MARITIME SHIPPING RAZ - 01-01-2015 - 31-12-2016 - Regular - kvo date - 27-11-2015
Netherlands	Shipping	2013	463 - INLAND WATERWAYS - 01-01-2013 - 31-12-2013 - Regular - kvo date - 03-01-2013
Netherlands	Transportation	2024	1010 - NOORDGASTRANSPORT B.V. - 01-10-2023 - 30-09-2024 - Regular - kvo date - 12-01-2024
Netherlands	Transportation	2023	2043 - BLUE AMIGO WATERBORNE PUBLIC TRANSPORT NETHERLANDS B.V. - 01-01-2023 - 31-12-2023 - Regular - kvo date - 05-06-2023
Netherlands	Transportation	2023	1010 - NOORDGASTRANSPORT B.V. - 01-10-2021 - 30-09-2023 - Regular - kvo date - 25-01-2022
Netherlands	Transportation	2022	2043 - BLUE AMIGO WATERBORNE PUBLIC TRANSPORT NETHERLANDS B.V. - 01-01-2022 - 31-12-2022 - Regular - kvo date - 22-08-2022
Netherlands	Transportation	2021	1010 - NOORDGASTRANSPORT B.V. - 01-07-2020 - 30-09-2021 - Regular - kvo date - 18-01-2021
Netherlands	Transportation	2020	1010 - NOORDGASTRANSPORT B.V. - 01-07-2019 - 30-06-2020 - Regular - kvo date - 04-11-2019
Netherlands	Transportation	2019	1010 - NOORDGASTRANSPORT B.V. - 01-07-2017 - 30-06-2019 - Regular - kvo date - 17-09-2018
Netherlands	Transportation	2017	1010 - NOORDGASTRANSPORT B.V. - 01-07-2016 - 30-06-2017 - Regular - kvo date - 26-09-2016
Netherlands	Transportation	2016	1010 - NOORDGASTRANSPORT B.V. - 01-07-2015 - 30-06-2016 - Regular - kvo Date - 24-09-2015
Netherlands	Transportation	2015	1010 - NOORDGASTRANSPORT B.V. - 01-07-2013 - 30-06-2015 - Regular - kvo date - 10-03-2014
Netherlands	Transportation	2013	3558 - Fairstar Heavy Transport NV - 01-01-2013 - 31-12-2013 - Regular - kvo date - 07-10-2013

US	Construction	2028	CHICAGO AREA CONSTRUCTION, TESTING, DRILLING, AND INSPECTION (DRILLERS AND FIELD TECHNICIANS))/MILLENNIA PROFESSIONAL SERVICES OF ILLINOIS, LTD
US	Construction	2027	WEAR CONSTRUCTION MANAGEMENT, INC.
US	Construction	2026	METROPOLITAN AIRPORTS COMMISSION (CARPENTER, MAINTENANCE, AND CONSTRUCTION)
US	Construction	2026	METROPOLITAN AIRPORTS COMMISSION (ELECTRICAL, MAINTENANCE, AND CONSTRUCTION)
US	Construction	2026	METROPOLITAN AIRPORTS COMMISSION (PAINTER, MAINTENANCE, AND CONSTRUCTION)
US	Construction	2025	UNDERGROUND CONSTRUCTION COMPANY, INC
US	Construction	2024	COMBS CONSTRUCTION COMPANY, INC./COMBS, NESBITT, PAVECO, TIFFANY AND VASTCO/TIFFANY CONSTRUCTION COMPANY
US	Construction	2024	WOLF CONSTRUCTION, INC.
US	Construction	2023	COMBS CONSTRUCTION COMPANY, INC./COMBS, NESBITT, PAVECO, TIFFANY AND VASTCO/TIFFANY CONSTRUCTION COMPANY
US	Construction	2023	D&P CONSTRUCTION COMPANY. INC.
US	Construction	2022	INDUSTRIAL AND ENVIRONMENTAL CLEANING SERVICES (HOERR CONSTRUCTION, INC.)
US	Construction	2022	DYER CONSTRUCTION COMPANY, INC.
US	Construction	2022	CALACCI CONSTRUCTION CO., INC.
US	Construction	2021	CEMEX CONSTRUCTION MATERIALS SOUTH LLC
US	Construction	2021	PEPPER CONSTRUCTION COMPANY
US	Construction	2021	CEMEX CONSTRUCTION MATERIALS SOUTH LLC
US	Construction	2021	CEMEX CONSTRUCTION MATERIALS ATLANTIC LLC
US	Construction	2020	BROWN COUNTY CONSTRUCTION CO. INC.
US	Construction	2020	LABORERS' DISTRICT COUNCIL CONSTRUCTION INDUSTRY PENSION FUND
US	Construction	2020	CEDAR BROOK CONSTRUCTION, LLC
US	Construction	2020	CONSTRUCTION EMPLOYERS ASSOCIATION OF CLEVELAND OHIO
US	Construction	2020	HIGHWAY, RAILROAD AND HEAVY CONSTRUCTION CONTRACTORS (MINNESOTA)
US	Construction	2020	HEAVY, HIGHWAY, UTILITY AND/OR RAILROAD CONSTRUCTION

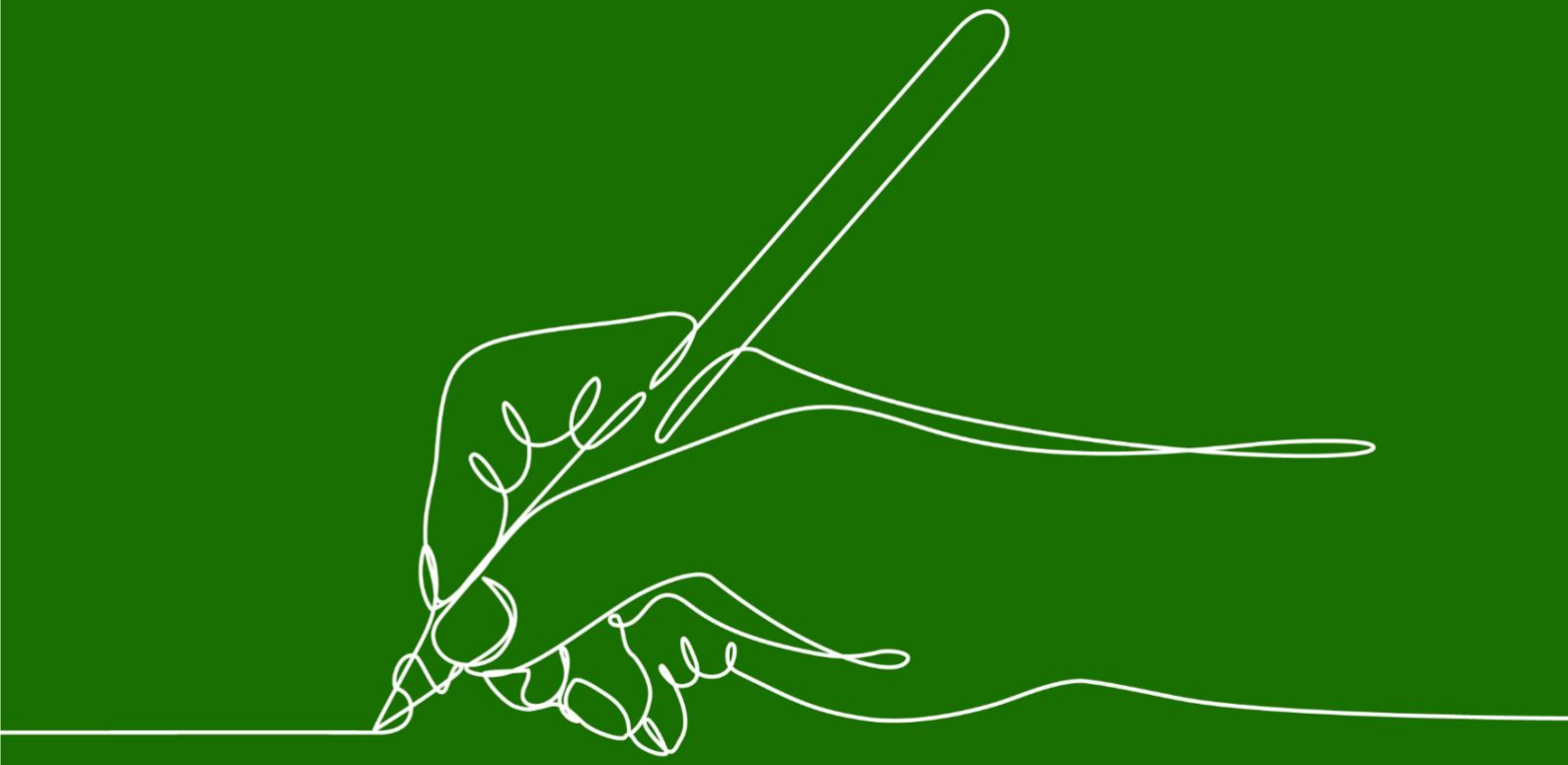
US	Construction	2020	INDEPENDENT HEAVY, HIGHWAY, UTILITY AND/OR RAILROAD CONSTRUCTION
US	Construction	2020	HIGHWAY, RAILROAD AND HEAVY CONSTRUCTION CONTRACTORS (NORTH DAKOTA)
US	Construction	2020	BARRETT INDUSTRIES CORPORATION DBA IA CONSTRUCTION CORPORATION
US	Construction	2019	RESIDENTIAL CONSTRUCTION EMPLOYERS COUNCIL (RCEC)
US	Construction	2019	KNUDSEN CONSTRUCTION INC. MILLWORK DIVISION
US	Construction	2019	CS CONSTRUCTION, INC.
US	Construction	2019	RESIDENTIAL CONSTRUCTION EMPLOYERS
US	Construction	2019	RESIDENTIAL CONSTRUCTION EMPLOYERS
US	Construction	2019	CEMEX CONSTRUCTION MATERIALS SOUTH, LLC (CAMP VERDE AND PRESCOTT)
US	Construction	2018	AGC, WA SEATTLE & TACOMA CHAPTERS (HVY CONSTRUCTION)
US	Construction	2017	CEMEX CONSTRUCTION MATERIALS SOUTH, LLC - CENTRAL DISTRICT
US	Construction	2017	ALLIED CONSTRUCTION EMPLOYERS ASSOCIATION
US	Construction	2017	ALLIED CONSTRUCTION EMPLOYERS ASSOC INC & AGC OF GREATER MILWAUKEE
US	Construction	2017	NORTHERN PIPELINE CONSTRUCTION COMPANY
US	Construction	2017	UNDERGROUND CONSTRUCTION COMPANY
US	Construction	2016	AGC, WI - MILW & ALLIED CONSTRUCTION EMPLOYRS (AREA 1)
US	Construction	2015	MINNESOTA, UNIVERSITY OF (BUILDING AND CONSTRUCTION TRADE)
US	Construction	2015	MASS ELECTRIC CONSTRUCTION CO.
US	Construction	2015	MASS ELECTRIC CONSTRUCTION CO.
US	Construction	2015	GREAT PLAINS LABORERS ARTIC OF AGREE COVERING HWY-HEAVY CONSTRUCTION
US	Construction	2014	ALLIED CONSTRUCTION EMPLOYERS ASSOCIATION
US	Construction	2014	RESIDENTIAL CONSTRUCTION EMPLOYERS
US	Construction	2014	RESIDENTIAL CONSTRUCTION EMPLOYERS
US	Construction	2014	CONNECTICUT CONSTRUCTION INDUSTRIES ASSOCIATION, INC.
US	Mining	2022	PINTO VALLEY MINING CORP.
US	Shipping	2018	BOSTON SHIPPING ASSOCIATION, INC.
US	Transportation	2026	POZZI BROTHERS TRANSPORT, INC.
US	Transportation	2025	CAPISTRANO UNIFIED SCHOOL DISTRICT (TRANSPORTATION)
US	Transportation	2025	BATTLE'S TRANSPORTATION, INC.

US	Transportation	2024	HEAVY AND HIGHWAY CONSTRUCTION (ENTIRE STATE OF WISCONSIN)/WISCONSIN TRANSPORTATION EMPLOYERS COUNCIL
US	Transportation	2021	SPRINGFIELD SCHOOL DISTRICT - R-12 (TRANSPORTATION DEPARTMENT)
US	Transportation	2019	RUAN TRANSPORT CORPORATION (JOHNSON CONTROLS, INC. ACCOUNT)
US	Transportation	2018	TRANSERVICE LOGISTICS INC. (LIQUID TRANSPORT DIVISION)
US	Transportation	2018	PIERCE COUNTY PUBLIC TRANSPORTATION
US	Transportation	2016	VEOLIA TRANSPORTATION
US	Transportation	2014	CSX TRANSPORTATION, INC
US	Transportation	2014	SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY

ANNEX 5

Table 8: All 3 Codes of Practice Analysed under the ILO's Database

Sector	Year	Title
Construction	2022	Safety and health in construction
Mining	2006	Safety and health in underground coalmines
Shipping/Transport	2003	Safety and health in ports



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ABOUT GAIN

The Global Alliance for Improved Nutrition (GAIN) is a Swiss-based foundation launched at the UN in 2002 to tackle the human suffering caused by malnutrition. Working with governments, businesses and civil society, we aim to transform food systems so that they deliver more nutritious food for all people, especially the most vulnerable.

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