



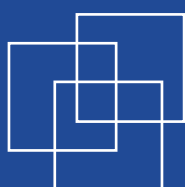
International
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**Food and agriculture
global value chains:
Drivers and constraints
for occupational safety
and health improvement**

Volume One

Perspectives from
relevant research areas





Food and agriculture
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and health improvement

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First published 2017

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Food and agriculture global value chains: Drivers and constraints for occupational safety and health improvement. Volume 1 - Perspectives from relevant research areas / International Labour Office, GOVERNANCE Department. – Geneva: ILO, 2017.

ISBN: 978-92-2-330284-1 (print)

ISBN: 978-92-2-330285-8 (web pdf)

GOVERNANCE Department

Occupational Safety and Health / Global Supply Chains / Health / Safety / Labour Inspection / Colombia / Indonesia / Madagascar / Value Chains / Agriculture / Rural Economy / Social Protection

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Printed in Switzerland

| Foreword

Prevention gained political attention in recent years, and was added to the agenda of the G20 in 2014. In the Melbourne Declaration, Ministers of Labour and Employment from member and invited economies committed to implement the G20 Statement on Safer and Healthier Workplaces. This commitment of the G20 members was reaffirmed at the meeting from Labour and Employment Ministers in Ankara in 2015. In particular, in the Ministerial Declaration, G20 members “reiterate[d] [their] strong determination to improve occupational safety and health (OSH) in [their] countries and throughout the world”, and indicated that they will “maintain [their] efforts to foster safer workplaces also within sustainable global supply chains (GSCs).”

In 2014, the European Commission adopted a Communication on “A Strategic Framework on Health and Safety at Work 2014-2020” which further tasks the European Commission to “address, notably jointly with the International Labour Organization (ILO), OSH deficits in global supply chains and contribute to G20 initiatives on safer workplaces”.

In 2016, the International Labour Conference (ILC) adopted a Resolution on decent work in global supply chains. In its conclusions, the Resolution calls for the International Labour Office to “Carry out further research and analysis to better understand how supply chains work in practice, how they vary by industry, and what their impact is on decent work and fundamental rights”. The Governing Body of the ILO subsequently adopted a Programme of Action on Decent in Global Supply Chains 2017-2021 which contributes to the achievement of the Sustainable Development Goals (SDGs), particularly SDG 8 to “Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”. The first action area of the Programme of Action is on *Knowledge generation and dissemination*.

The *Joint ILO – European Union (EU) project to improve knowledge base and safety and health in global supply chains to support G20 work on safer workplaces* which results are presented in this report, is a contribution to this global effort under the ILO OSH Global Action for Prevention Flagship Programme and is aligned with the actions developed under the Vision Zero Fund initiative.

A better understanding of the necessary conditions for achieving safe and healthy workplaces and improved knowledge on effective initiatives to achieve those conditions is needed. This first step can allow multiple stakeholders, including workers and employers at the various stages of production as well as governments and the civil society, to identify opportunities and benefit from synergies among their various capabilities. We wish for the present publication to support those stakeholders in this endeavour.

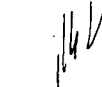
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| Acknowledgement

The authors would like to thank the Directorate General - Employment, Social Affairs and Inclusion of the European Commission, and in particular Rudi Delarue, Deputy Head of Unit - International Issues, Directorate D - Labour Mobility, for their support.

The authors gratefully acknowledge the continued guidance and insight provided by Nancy Leppink, Chief of the Labour Administration, Labour Inspection and Occupational Safety and Health Branch of the ILO and wish to thank the team members of the Branch for their inputs. The authors would also like to thank the ILO Office for the European Union and the Benelux countries, the ILO Office for France, the ILO staff from other Units, Branches and Departments who collaborated with the project as well as Alice Faudot-Miguet, Joanne Land-Kazlauskas, Doris Niragire and all those who contributed to this publication.

This publication is a product of the *Joint ILO-EU project to improve knowledge base and safety and health in global supply chains to support G20 work on safer workplaces*. The authors are solely responsible for the content and any opinions expressed within this publication, which do not reflect any official position of the EU or the ILO.



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| Acronyms

CAC	Codex Alimentarius Commission
CPSHA	Code of Practice on Safety and Health in Agriculture
EC	European Commission
EFSA	European Food Safety Authority
EU	European Union
FAO	Food and Agriculture Organization
FDA	Food and Drug Administration
FDI	Foreign Direct Investment
FSMA	Food Safety Modernization Act
GRI	Global Reporting Initiative
GSC	Global Supply Chain
GVC	Global Value Chain
IFA	International Framework Agreements
ILC	International Labour Conference
ILO	International Labour Organization
ISO	Organization of Standards
ISPO	Indonesian Sustainable Palm Oil
MNEs	Multinational Enterprises
NGO	Non-Governmental Organization
OH	Occupational Health
OSH	Occupational Safety and Health
OSH GAP	OSH Global Action for Prevention
PCI	Private Compliance Initiative
RSPO	Roundtable on Sustainable Palm Oil
SPS	Agreement on Sanitary and Phytosanitary Measures
SDG	Sustainable Development Goals
TBT	Technical Barriers to Trade
UN	United Nations
WHO	World Health Organization
WTO	World Trade Organization





| Introduction

Context

The new global estimate announced by the ILO indicates that 2.78 million fatal work-related injuries and illnesses occur each year, which sharply acknowledges the human costs of failing to make sufficient investments in occupational safety and health at the international, national and enterprise levels (ILO, 2017). This human cost also carries with it a significant economic impact. New global estimates of work-related fatal and non-fatal injuries and illnesses amounts to 3.94 percent of the global Gross Domestic Product, or 2.99 trillion US dollars (ILO, 2017). The demand for safe and healthy working conditions for women and men at work has grown significantly in the past decade, driven in part by well publicized occupational accidents, from which no country is immune, and the growing body of evidence connecting occupational safety and health with sustainable development. In response, governments, workers' and employers' organizations, international organizations and civil society, have made renewed commitments to improving occupational safety and health and to creating a culture of prevention.

In September 2014, the G20 in its Melbourne Declaration, committed to implementing the “Statement on Safer and Healthier Workplaces” (G20, 2014). This commitment was reaffirmed in September 2015 by the Ankara Ministerial Declaration, in which G20 members “*reiterate[d] [their] strong determination to improve occupational safety and health in [their] countries and throughout the world*”, and “*welcome[d] the establishment of a G20 OSH Experts Network and the ILO’s new “OSH Global Action for Prevention” program*” (G20, 2015).

In September 2016, in the Hangzhou communiqué, the G20 leaders adopted policies and actions to forge “*strong, sustainable, balanced and inclusive growth*” “*to ensure that economic growth serves the needs of everyone and benefits all countries and all people including in particular women, youth and disadvantaged groups, generating more quality jobs*”. They further endorsed “*the strategies, action plans and initiatives developed by G20 labor and employment ministers to*

enhance the growth and development agenda by taking effective actions to ... foster decent work, ... ensure safer workplaces including within global supply chains” (G20, 2016).

The Hamburg Declaration further encourages initiatives to improve occupational safety and health across global supply chains and supports the Vision Zero Fund created in 2015 by the G7, which aims to prevent workplace accidents that cause serious injuries and death in sectors operating in or aspiring to join global supply chains (G20, 2017).

In 2014, the European Commission (EC) also adopted a Communication on “A Strategic Framework on Health and Safety at Work 2014-2020”, which underlines that “*risk prevention of safer and healthier conditions in the workplace are key not just to improving job quality and working conditions, but also to promoting competitiveness*” (European Commission, 2014). As a consequence, one of the key strategic objectives of the EU is to “*raise labour standards and improve their effective global application by taking multilateral action in cooperation with the competent international bodies*” to contribute to “*reducing work accidents and occupational diseases worldwide*” (European Commission, 2014).

In September of 2015, the United Nations (UN) adopted the 2030 Agenda for Sustainable Development global plan of action comprised of 17 goals to end poverty, protect the planet, and ensure prosperity for all (United Nations, 2015). The process leading to the formulation of these goals has fostered an understanding that strategic coalitions are required for their successful implementation. Goal 8 of the 2030 Agenda for Sustainable Development establishes the aim of “inclusive and sustainable economic growth, full and productive employment and decent work for all”. Target 8.8 of Goal 8, focuses on the “protection of labour rights and promotion of safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment”. To monitor global efforts related to Target 8.8, countries have been asked to report on the: “Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status”. This target and indicator has made occupational safety and health a sustainable development priority and calls for concerted action.

The present publication is the result of a joint project between the ILO and the EU under the ILO’s OSH

GAP flagship programme (more details available in the last section of this volume). The development of this joint ILO- EU project followed the G20 meeting in Ankara and began in March 2016, during the ILO’s preparations for the ILC general discussion on Decent Work in GSCs. The project is a contribution to filling existing gaps in knowledge related to drivers and constraints for OSH improvement in GSCs. As interest has grown related to the impact of GSCs or transnational networks of production on decent work, OSH was identified as a possible entry point for adapting interventions to new and future business models that may have an impact on decent work (Leamon, 2001).

Objective

The objective of this joint ILO-EU project on OSH in GSCs was to generate evidence on ways to approach OSH within the decent work in GSC discussion and on possible entry points for building intervention models to improve OSH outcomes in GSCs and beyond. To achieve that objective, the project sought to understand the dynamics at work in GSCs and to identify drivers and constraints for OSH improvement that may result from specific business relationships in the supply chain or within the institutional and policy environment in sourcing and consumer countries.

The decision to focus on food and agriculture was made based on an analysis during the inception phase of the project which revealed that i) most of the existing literature on OSH in GSCs was concentrated on manufacturing at the first tier of suppliers within sourcing countries, and ii) a number of ILO initiatives had longstanding engagement in manufacturing export sectors and had already generated substantial data and evidence on OSH and the success and failures of existing intervention models (see in particular the impact evaluation of the Better Work Programme, Brown, 2016).

Definitions

Occupational safety and health is defined as the science of the anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environ-

ment (Alli, 2008). Governance of OSH is understood to be “the operation of the internal intra-organizational structures and processes involved in managing and monitoring arrangements for OSH” (Walters and James see section below). Governance is not a synonym for regulation in this context, and value chain governance is addressed in the first section of this publication.

The ILO has not yet adopted a set definition for the terms “global supply chains” and “global value chains” (GVCs). In its recent report on “World Employment and Social Outlook”, the ILO published an estimate of the number of jobs included in GSCs from 1995-2013 for 40 countries (ILO, 2015b). To make this estimate, the definition of GSC used by the research team was “demand-supply relationships that arise from the fragmentation of production across borders, where different tasks of a production process are performed in two or more countries”.¹ The ILO has also used the following definition of value chain. The term value chain “describes the full range of activities that are required to bring a product or service from conception, through the intermediary phases of production and delivery to final consumers, and final disposal after use” (Kaplinsky, 2004). The range of activities required may include design, production, marketing, distribution and support services. The activities that comprise a value chain can be performed “within a single firm or divided among different firms, within a single geographical location or spread over wider areas” (ILO, 2015a). A World Trade Organization (WTO) publication further asserts that “[t]he idiom might vary – referring to trade in value-added, production sharing, supply chains, outsourcing, offshoring, vertical integration, or fragmented production instead of GVCs – but the core notion of internationally joined-up production is the same” (WTO, 2013). During the research conducted as part of this joint ILO-EU project on OSH in GSCs and for purposes of this report, the two terms were used interchangeably.

Approach and limitations

The joint ILO-EU project was structured around the elaboration of three case studies, a developed over a 22 months period, which provide an in-depth understanding of three specific value chains integrated in the global economy from three different sourcing countries. For the three case studies, qualitative research approach was selected that focused understanding drivers and constraints for OSH in each given GVC, and the extent to which those could be leveraged to improve OSH. Gathering experiences of the different types of actors involved in each value chain as well as its market and institutional environment was paramount. Consequently, the findings of the research conducted by the joint project are qualitative and cannot be used for quantitative purposes.² Quantitative data on OSH, when referenced in the report, was collected from secondary sources and national and international databases. Referenced quantitative data is subject to the limitations of the methodologies used by each database in terms of both primary data collection and methodology of aggregation. Lastly, the research was conducted over a limited period of time and does not capture possible differences in OSH perceptions, practices and outcomes that may occur over time.

Overview of the outline of the publication

The joint project is premised on the belief that an in-depth understanding of the global value chain and the institutional environment in which it operates coupled with an in-depth understanding of the market actors’ perceptions of occupational risks and their management of those occupational risks is an essential first step to identifying appropriate entry points for interventions that would improve OSH outcomes within and beyond a given value

1 A definition similar to Krugman (1995) and Antras and Chor (2013).

2 For more details on the methodological approach used for the research conducted by the project, please refer to the introduction and methodological note of the second volume of the present publication.

chain. This publication presents the main findings of the project and is articulated in two volumes. The first volume introduces the topic of OSH in food and agriculture GVCs and presents conclusions based on the three case studies conducted by the project (from a cross-case study perspective) and an analysis of the existing body of research on the topic. The second volume sets out the findings of the three case studies and a methodological note which presents the research design.

The aim of the first volume is twofold: i) contextualize the findings of the three case studies within the overall framework of existing evidence from pertinent areas of research (i.e. global value chains, agriculture and trade and OSH management and standards); and ii) articulate how the existing body of research as well as the results from the case studies conducted can inform ILO strategies and programmatic responses

intended to improve OSH including in global supply chains.

For both volumes one and two of the publication, unless specified otherwise “the project” designates the “Joint ILO-EU project to improve knowledge base and safety and health in global supply chains to support G20 work on safer workplaces” and the “case studies” refer to the three case studies conducted by the project and presented in volume two:

- A Case Study of Drivers and Constraints for OSH in the Coffee Global Value Chain from Three Producing Regions of Colombia;
- A Case Study of Drivers and Constraints for OSH in the Palm Oil Global Value Chain from Two Producing Provinces in Indonesia;
- A Case Study of Drivers and Constraints for OSH in the Lychee Global Value Chain from Madagascar.



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Drivers and constraints
for OSH improvement
in global value chains
- the perspective of
research on global
value chains

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Introduction

Globalization has made it possible for firms to cooperate (as well as compete) with each other within and between countries by outsourcing production via GVC,³ which have contributed to the creation of employment and growth. Nevertheless, this openness has also caused pressures on businesses to be globally competitive with regards to prices and this often leads to cost reduction practices which may affect workers, including in key areas such as health and safety in factories and farms. The early GVC literature was concerned with manufacturing sectors such as Garments and Electronics as they were the first representatives of this globalized way of working (see, for instance, the seminal contributions by Gereffi in 1994 and 1999), but the focus was on economic upgrading from the point of view of the firm, particularly suppliers from developing countries (see the works of Humphrey and Schmitz, 2000 and 2002, Kaplinsky and Morris, 2001).

In recent years, a greater interest in workers and labour standards permeated the GVC literature and the contribution of the ILO (sponsoring the first meetings of what was to become the Capturing the Gains network⁴) was key to encourage researchers in this regard. Again, it was Garments and Electronics that became two of the most studied sectors in the GVC literature and this time it was because of their labour-intensive nature and the effects that a potential 'race to the bottom' could have for the wellbeing of workers (see, for instance Pickles and Godfrey, 2013 for Garments and Raj-Reichert, 2013 for Electronics).

However, food and agricultural GVCs have been less studied from the point of view of OSH even if they are also known to require labour-intensive work, where the cost of wages matters to produce high quantities of items at low prices. Perhaps the focus of OSH being originally aimed at factories made the transition

to analyzing OSH in farms a later concern of the GVC literature.

Just like in the manufacturing sector, suppliers to food and agricultural GVCs, aiming to meet international demands for speed and competitive (lower) prices, started hiring seasonal and informal workers, in order to reduce costs and become more nimble. The usage of these more precarious labour arrangements has been expanding even more due to the larger role played by supermarkets in GVCs. Temporary workers have been the worst affected by the consequences of this flexibility and informality (ILO, 2015).

GVC researchers have pointed out that international buyers, particularly those with well-known brands to protect, have tried to promote better labour practices, including those that promote adequate provisions for OSH for workers involved in GVC. However, these efforts have been deemed as slow or not going far enough, particularly for temporary workers (Barrientos and Smith, 2007).

The purpose of this chapter is to identify the supporting as well as hindering factors with regards to the promotion and upgrading of OSH programmes and policies in three food and agriculture value chains. In order to achieve this, the next section will explain the relationship between the insertion of developing country suppliers in GVC and their possibilities to upgrade both in the economic as well as the social arena. This first section will present the potential link between economic upgrading trajectories and social upgrading and where is OSH nested in the GVC literature. Section 2 will explain how two different concepts - Product Traceability and Process Traceability - could help improve monitoring sustainable practices in agro-food GVCs and can be complementary in promoting and enhancing OSH practices. Section 3 will analyze evidence from the case studies with regards to the opportunities and challenges faced when promoting and implementing OSH practices in agro-food GVCs.

3 Range of activities that are divided among multiple firms, located in different geographic spaces, to bring a product from its conception to its end use and beyond. The activities carried out by firms and workers include: design, production, marketing, distribution and support to the final consumer (Global Value Chain Initiative, 2016).

4 See: <http://www.capturingthegains.org/>

1. Global Value Chains as conduits for Upgrading in developing countries

The spread of global value chains as structures led by international buyers sourcing from locations all over the world created expectations of improving labour conditions for workers employed by developing country suppliers and subcontractors. From the point of view of GVC research, those expectations were grounded in the assumption that suppliers from developing countries would upgrade their activities thanks to the instructions and guidance from their international buyers. Nowadays we find that these expectations have been partially fulfilled, particularly for first tier suppliers, but this may mean that decent work deficits have yet to be addressed in second and third tier suppliers (Navas-Aleman and Guerrero, 2016).

GVC governance and why it matters for upgrading

The coordination of all the sequential processes needed to integrate the different stages of the value chain (from raw materials, going through the processing and manufacturing stages as well as its commercialization) constitutes its governance (refer to the Introduction section). Early GVC research identified the role that some firms had in determining which activities were to be undertaken by other companies in the value chain. Those firms that had the clout to perform that role were called lead firms (Gereffi 1994, 1999). These lead firms were usually large and could be buyers or suppliers.

Since not all activities in the value chain are equally remunerated (Kaplinsky, 1998; Humphrey and Schmitz, 2000, 2002), it stands to reason that controlling the allocation of tasks is an important source of power and that it may offer both opportunities and obstacles for the upgrading of those firms that are being 'governed' (Schmitz, 2004; Navas-Aleman, 2011).

From a business perspective, there are two main motives for which value chain governance is needed (Humphrey and Schmitz, 2000; 2002):

- **Product definition:** The more the lead firm pursues a strategy of product differentiation (e.g. through

design and marketing) the greater the need to provide suppliers with precise product specification and to ensure that these specifications are met.

- **Risk of supplier failure:** The increasing importance of non-price competition based on factors such as quality, response time, and reliability of delivery, together with increasing concerns about safety and standards means that lead firms have become more vulnerable to shortcomings in supplier performance.

Mitigating these risks creates the incentive for lead firms to engage in technical assistance (and sometimes financial assistance) with their suppliers and subcontractors and it is this type of support which was theorized to create opportunities for upgrading.

However, it was noted that a combination of the capabilities of the supplier or subcontractor and how critical the risks mentioned above encouraged a tighter (captive governance) or looser (arm's length type of governance) between said supplier/subcontractor and the lead firm (Gereffi et al., 2005). The more competent the supplier/subcontractor, the looser the type of governance and vice versa.

Other researchers noted that different types of GVC governance were associated with different suppliers or subcontractors outcomes. For instance, being exposed to a tighter GVC governance seemed to be a fast-track opportunity for improvements in the area of production and processes for the supplier or subcontractor but attempts to upgrade into higher-value added functions (unsurprisingly, those like design, marketing which the lead firm may consider their core activities) were not encouraged. Conversely, firms that operated in less stringent governance arrangements accessed higher value-added functions (Schmitz and Knorringa, 2000; Bair and Gereffi, 2001; Bazan and Navas-Aleman, 2004).

Humphrey and Schmitz (2000) emphasised three types of upgrading in GVCs: Product, Process and Functional. Kaplinsky (2001) included a fourth type: Interchain upgrading, which implied moving towards more technologically advanced or knowledge-intensive value chains. The typical example being a country's progression from relying on manufacturing garments towards producing electronics (as the 'Asian Tigers' did in the 1970s and 1980s).

Figure 1. Types of Economic Upgrading

Process	Product	Functional
Doing certain tasks better.	Making product that is of better quality, more sophisticated or which simply worth a higher price.	Acquiring skills in a value chain activity that the company did not possess before.
Indicators:	Indicators:	Indicators:
<ul style="list-style-type: none"> ■ Investment in machinery ■ Workforce training ■ Changing layout ■ New management techniques ■ Introduction of total quality programmes ■ Socially and environmentally sound practices 	<ul style="list-style-type: none"> ■ New models ■ New lines ■ Higher prices ■ New material 	<ul style="list-style-type: none"> ■ Product design internalized ■ Launching own brand ■ Coordinating own supply chain ■ Entering new markets ■ Developing marketing activities

Source: author adapted from Humphrey and Schmitz, 2000 and Navas-Aleman, 2011.

Economic upgrading is therefore understood as the movement of suppliers up the value chain, where they undertake higher-value activities (Barrientos et al., 2012). This movement, however, is not guaranteed. There is now a strong consensus that economic upgrading is a possibility, and that it tends to be easier and faster when it is linked to improving processes which is usually the first aspect in which lead firms offer support. Most certifications and standards, including Global GAP (for agricultural value chains) are focused in improving processes and this is linked to the second motivation for GVC governance laid out above: risk of producer failure.

Industries such as agro-food, electronics and apparel, can be dominated by international buyers catering for western markets (Gereffi and Lee, 2016), who are highly skilled in activities such as design, marketing, branding and managing distribution channels. Apart from seeking and nurturing fast and reliable suppliers, these buyers need products that are consistent and of a quality that represents their brand and satisfies the demands of their final costumers. Therefore, the second type of economic upgrading that is most likely to be supported and encouraged within supplier firms is product upgrading, whereby suppliers enhance the physical characteristics of the product. This type of upgrading is linked to the first motivation behind GVC governance: product specification.

Functional upgrading, however, is the type of upgrading that requires the most effort and also tends to be least supported by lead firms particularly if suppliers could become competitors (it could be supported in suppliers that are much smaller or in areas in which the lead firm has no competitive interest). Functional upgrading tends to be elusive in buyer-driven GVCs such as food and agriculture. Fortunately, OSH is linked to process upgrading, as it is the type of upgrading which cannot be distinguished by looking at the physical characteristics of the final product. Since process upgrading is more likely to be supported by lead firms in GVCs, and given there is an established case for the importance of OSH towards sustainability of any business, the logical conclusion would be that there should be plenty of support for OSH in GVCs.

It has also been observed that firms are rarely exposed to one type of GVC governance as most firms in every country are part of multiple value chains (Navas-Aleman, 2011) whether domestic, regional and/or global. Firms that were able to leverage their upgrading in one chain in order to apply it in another were the most successful as they were usually able to upgrade in all three areas: Product, Process and Functionally.

Placing OSH within Economic and Social Upgrading

One of the most frequent critiques of GVC research is that it was devoted to understand the way firms operate globally to identify strategies to upgrade mostly from an economic perspective. However, most recent studies (outside the trade analysis field) are giving more weight to the social impacts that firms and workers might experience particularly those working for 2nd and 3rd tier suppliers in developing countries (Navas-Aleman and Guerrero, 2016).

Following from the discussion above on types of economic upgrading, OSH can be linked to process upgrading. Process upgrading is the type of upgrading which cannot be identified by looking at the physical characteristics of the final product. Like environmental 'friendliness' and Human Rights, OSH achievements are invisible to the naked eye when looking at most final products or services. It is acknowledged, though, that there is a close link between production processes, hence OSH, and product quality. Certifications, audits and assurances like those provided by the supporting documents of a chain of custody can prove that improvements to OSH management have taken place in a factory or farm.

This is good news, as research on GVCs shows that process upgrading is more likely to be supported by lead firms in GVCs. Additionally, given that most firms operate in more than one value chain (Navas-Aleman, 2011), whether OSH practices are acquired via process upgrading in the domestic market (thanks to government regulations and supporting functions for example) or via the GVC (for instance, due to compliance with lead firm's requirements) it opens the possibility in theory to transfer the knowledge to all value chains where the firm operates.

As GVC research moved to study social implications for suppliers and their workers, it became clearer that even if economic upgrading takes place (which is not a foregone conclusion just by joining a GVC as a supplier) it is not necessarily accompanied by social upgrading. After analysing the findings of studies such as those from the *Capturing the Gains* network, it seems that the opposite (social upgrading being associated, albeit not necessarily caused, by economic upgrading) is a much more usual case (Lee et al., 2011).

Bernhardt and Milberg (2013) consider social upgrading as a combination of growth in employment

and rise in real wages, which could lead to other benefits, such as social insurance or better job quality. These benefits are likely to be accrued mainly by formal and stable workers. It could be argued this definition does not take into consideration other social dimensions linked to working conditions. Barrientos et al. (2010), based on Sen's concept of capabilities (Sen, 1989), propose a broader notion, defining social upgrading as the process of improvement in the rights and entitlements of workers as social actors that enhance the quality of their employment. This definition takes into account the pillars of decent work (ILO, 2008): employment, social protection, social dialogue and international labour standards.

Using this definition, Barrientos and Smith (2007) highlight two components of social upgrading: a) measurable standards: aspects that are easier to quantify, such as type of employment, wages, working hours and social protection; and b) enabling rights: factors that are not visible and are therefore more difficult to evaluate, for instance, freedom of association, non-discrimination, voice and empowerment. GVC researchers warn that co-existence of measurable standards and enabling rights must not be taken for granted because improvements in the first component might not guarantee achievements in the second one (Lee et al., 2011).

Following from the discussion above, OSH practices could be arguably embedded within the measurable standards' component of social upgrading. From the evidence gathered in the three case studies being prepared for this project, it would seem that lead firms have found many indicators of OSH in GVCs that are easily monitored and therefore measured/quantified. However as the case studies illustrate, there are still some aspects of OSH that tend to be ignored or under-monitored because they are less visible, not subject to documentation or more challenging to measure and quantify (i.e. well-being at work, OSH outcomes further than accident rates, etc.).

In addition, Barrientos et al. (2010) attempt to explain the link between economic and social trajectories in different typologies of workforce structure, which is relevant since not all workers face the same conditions due to their job category. It has not been possible to achieve consensus with regards to clear pathways between the various types of economic upgrading and social upgrading components. This could be because identifying specific social upgrading improvements linked to each type of economic

upgrading could be a complicated task, since industries have different characteristics, which at the same time vary according to the type of governance within the chain and structural factors in the markets where firms operate, such as commercial agreements, labour legislation, among others. As Pickles and Godfrey state “trajectories of economic and social upgrading are correspondingly diverse, depending on variables such as firm size, capacities, product mix, buyer needs, and labour market conditions” (2013).

2. Addressing OSH: Product Traceability vs Process Traceability in Agro-food GVCs

Agro-food GVCs have particular risks that are not applicable to other industries. This greater level of risk is reflected in the complexity of certifications and standards that regulate the production and consumption of agro-food products in most final markets. Final markets in the Global North are characterised for placing high importance on *product traceability*, this is to say, verifying the origin and quality of the products that are allowed into the country’s market at every stage of their transit through the value chain. This type of consumer pressure, which is supported by government regulation, creates a strong incentive for lead firms in GVCs to set up traceability systems in their Agro-food GVCs. The cost of setting up these processes is high, but the cost to their brand image or the potential loss of their licence to operate is even higher. However, consumers have only recently become aware and interested in the way their food is produced in other (usually developing) countries and the number of countries where this has become a market requirement is still low.

The risk for workers in developing country factories and farms is therefore to be placed in situations where their health and wellbeing are not considered a factor when lead firms are budgeting and planning activities in agro-food GVCs. The only way to track how products are made, grown and/or processed is to establish a *process traceability* system. Processes can be traced, but just like process upgrading (the entry-level type of economic upgrading) and enabling

rights (the more intangible component of social upgrading) processes are more difficult to codify and measure. Some aspects of OSH are clearly easy to codify (e.g. use of protective gear) but others require much more effort such as monitoring injuries and diseases that are caused by repetitive movements, ergonomic hazards or exposure to chemicals, and understanding their causes.

Trends in Product and Process Traceability and Transparency by large agro-food brands

Whereas *product traceability* refers to having full visibility of the origin of all raw materials used in the end products and being able to trace them back to the farm / plantation level, *process traceability* can be used to describe having not only a clear view of the origin of materials, but also under what circumstances the materials used for the end products were grown / farmed /processed etc. When reviewing CSR websites of large agro-food brands it is common to find these terminologies: Transparency, Business and Trading Ethics, Responsible Labour Practices, Human Rights, Environmental Impact, Community & Social Responsibility, and Rural Development practices up their supply chain to the origin.

In theory, if there is close to 100 per cent traceability of products, tracing processes should be easier to achieve because responsible and sustainable practices at the origin could be evaluated. This, however, requires adequate resources. However, even in cases where there is incomplete traceability of products, process traceability can still be pursued, e.g. by working with local NGOs across developing countries where products are sourced, or by collaborating in industry-wide initiatives.

The drivers for process traceability vary from company to company – those that see this as a potential source of growth and improved financial performance have higher levels of compliance activities including certifications. Other companies see this activity as a need in order to meet compliance and consumer / customer expectations and from an internal, ethical principles point of view.

Companies are usually aware that consumers are more interested in content (what is in the product?) than sourcing (where the content came from?) and are more concerned about the quality and safety of ingredients sourced from developing countries.

There is some evidence that the quality and safety aspects of the product are more valued in agro-food compared to other value chains which often emphasize how the product is made (garments). All three case studies from the project apply different process traceability systems depending on differences in their supply chains, mainly because this rests on how far it is possible or not possible to go in their supply chain.

Labour practices and Human rights are mentioned in CSR websites more often than Health and Safety concerns for workers. Arguably OSH is part of labour practices but it tends to be subsumed and ignored in favour of other practices affecting workers. A key trend that is showing in highly fragmented supply chains is for integration at the top to have influence further down the supply chain as well as at the bottom. This practice may be inspired in the success of collective efforts such as ILO's Better Work programme (for garments).

Integration at the Top

No individual branded manufacturer can drive process traceability on its own in fragmented supply chains (e.g. coffee and cocoa for instance) because there are too many suppliers around the world. Hence there is a need for collective action amongst branded manufacturers in order to have leverage on the wide community of farmers, e.g. through industry collaborations in which branded manufacturers work together on a pre-competitive basis to have influence further down the supply chain. For instance, this is illustrated in the case study on palm oil from two producing regions in Indonesia, the risks (as perceived by lead firms) are so high that large investments have been made in OSH and in environmental certifications as well as community-building projects. Branded international buyers are sought to lower their exposure in Palm Oil by concentrating their purchases in a small region and collaborating pre-competitively with other buyers in order to ensure that collectively the costs of compliance will be lower.

Integration at the Bottom

Branded manufacturers are making farmers collectively responsible for the region in which they operate (e.g. only source from areas with low rates of deforestation or good water capture). This brings responsibility for OSH back to the origin and will drive integration at the bottom, which reduces transaction costs for lead firms. Sourcing at a regional level due

to collective good practice is increasing a trend that has been observed in other value chains: garments, footwear and electric appliances. But this is mostly seen for firms that are willing to pay higher prices to their suppliers and that feel confident they can charge higher prices to their customers.

3. Overview of the evidence from the case studies: commonalities and differences with regards to product and process traceability (including OSH)

From the evidence of the three case studies prepared under this project, it becomes clear that there are commonalities, but also differences on how OSH practices are being implemented and monitored.

The case study on coffee from Colombia shows the importance of having a diversified and sophisticated system of support for all types of upgrading in the value chain as well as specific measures for OSH. This chapter has shown how OSH expectations for different products vary according to the structure of the value chain as well as the requirements of final markets. In the case study on coffee from Colombia (and to a lower degree, the one on lychee from Madagascar), local production is being prepared to satisfy the requirements of exacting markets who are willing to pay a premium for responsibly sourced products, which makes investments in OSH clearly a sound strategy. The collective functional upgrading strategy to launch a regional label 'Sustainable Colombian Coffee' is a clear example of how collective functional upgrading can also be linked to process upgrading and in this case include OSH as part of the Code of Conduct accompanying the new label.

OSH seems to matter more to lead firms and producers than consumers, except in a handful of European

markets. If we add this lack of interest to the difficulty and cost to certify a 'process' type of concern we can see why economic incentives alone won't be enough to accelerate the rate of uptake of OSH measures by developing countries. The relative 'invisibility' of OSH and process upgrading in general seems to make funding of initiatives (by lead firms but also local governments) difficult. The case studies show that incremental tightening of regulations alongside marketing awareness (with the support of local and international NGOs) of these issues with final consumers are a way to ensure that OSH issues are taken seriously by the most powerful actors in the GVC.

Engaging lead firms - especially those with highly recognized brands - and communicating that investments in OSH could be part of a strategy of ensuring sustainability performance in their supply chains could be one channel for OSH improvement. This is especially important to MNEs that are growing outside their "home turf." Establishing their sustainability credentials can help establish their brands

and position their companies for future growth in these new markets. Additionally, communicating to lead firms that process traceability of OSH practices should go beyond their first tier supplier would be important.

Across the three case studies, the lack of financial and human resources amongst OSH supporting functions in rural areas is considered an obstacle towards greater upgrading of OSH practices. Remoteness of the producers is another barrier. Seasonality and informality of workers (extreme seasonality in the case of lychee from Madagascar) creates challenges to developing reliable and sustainable OSH practices.

Monitoring (i.e. control and possible sanctions) and finance (incentives) plus stable orders seem to be key to support OSH implementation, which is further supported by the GVC literature, particularly in the work of Anner et al., 2013 which stated that the best practice by lead firms would be to provide: "the trinity of stable orders, fair prices and safe factories".



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Drivers and constraints for OSH improvement in global value chains - the perspective of research on global food and agriculture supply chains

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The importance of standards in international trade, specifically within the agricultural sector, has increased over the last decades. Occupational safety and health (OSH) aspects have emerged as an important issue included in public and private standards in recent years. A necessary requirement for the planning, implementation and verification of standards is the increasing vertical integration of agricultural value chains. The following paper provides an overview of the impact of trade and the role of public food safety regulations as well as private compliance initiatives (PCIs) in OSH from the perspective of research on global food and agricultural supply chains.

Section 1 starts by discussing the impact of trade on agricultural global value chains, followed by a brief differentiation of product from process standards (section 2). An emphasis is then set on public food safety regulations in section 3, i.e. standards in legislative requirements of importing countries. Section 4 focuses on voluntary approaches, i.e. market based, and their specific relevance in the coffee, lychee and palm oil sectors, followed by a discussion on the impact and limitation of private food standards on working conditions and OSH in section 5.

1. Impact of trade on agricultural global value chains

Theoretical frame: value chains as a specific type of governance structure

The globalization of markets and trade has always impacted the world's economy. Over the last decades, a new feature of global markets is observed: A "vertical disintegration of transnational corporations" (Gereffi et al., 2005) is another feature which transforms the world's economy. If the production of commodities and other farm produce is increasingly distributed globally and between firms, then how can these activities be managed? This question is dealt with in the analysis of governance structures of global markets, the global value chains. The concept of "governance structures" refers to the way value chains are organized. Possible governance structures lie on a continuum between "spot market" and complete "vertical integration".

Spot markets refer to a transitory interaction between buyer and seller; "transitory" as they are usually limited to one transaction while the price is determined by supply and demand. In between the two far ends of this continuum lie repeated transactions between stakeholders, including all sorts of contractual arrangements. The other far end, as opposed to spot markets, is occupied by a governance structure called hierarchy in the theory developed by Gereffi et al. (2005), characterized by a vertical integration. If in a global value chain stakeholders integrated upstream suppliers into their business, or else, if single firms own and control all or most of the different stages of the chain, they are vertically integrated.

The analysis of the governance of the global value chain provides information on a set of parameters. Governance structures may be required to transmit information and enforce compliance which makes these structures of particular interest to the overall goals of this study. In short, "governance refers to the inter-firm relationships and institutional mechanisms through which non-market coordination of activities in the chain is achieved" (Humphrey and Schmitz, 2004).

The three ensuing case studies show tendencies towards a hierarchy in governing global supply chains, i.e. a growing level of vertical integration. For instance, the palm oil value chain is increasingly dominated by companies (who are not end buyers) in control of entire segments of the supply chain, from the nursery over the mill until exporting (for further reference see the case study on palm oil from two producing regions of Indonesia).

Possible drivers of vertical integration

Increasing volumes of international trade and decrease of transaction costs

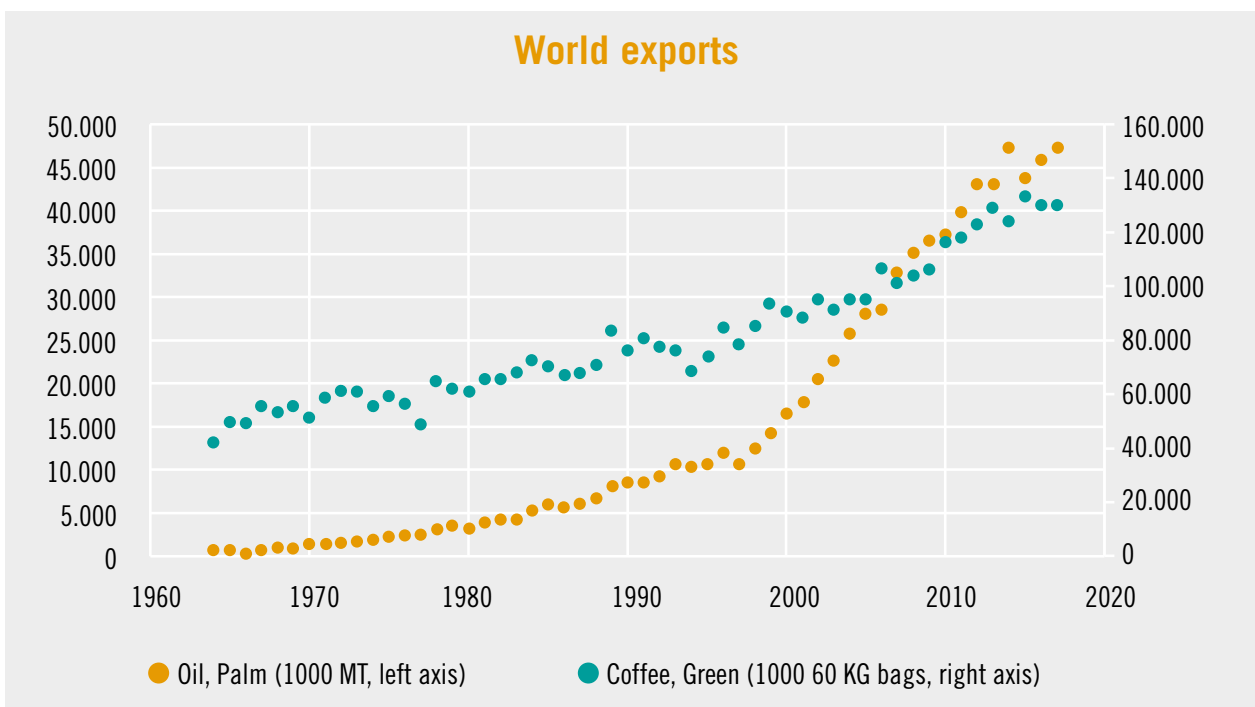
The general increase of global agricultural trade is indicated in the figure below along the example of the palm oil and coffee exports. One key driver of vertical integration is the increased globalization trade in agricultural goods. Within the environment of globalisation, Gereffi et al. (2005) consider the reduction of transaction costs as the main driver of the vertical integration of firms. These include the decrease in costs for transport, easier coordination and better information because of digitalization.

Delgado (1999) considers the increasing focus on production and export of high-value food items by African smallholders as a key driver for vertical integration in the agricultural sector as a whole. Another aspect is the missing of key inputs on local markets which can be easier made accessible via integration (Porter and Phillips-Howard, 1997). Hennessey (1996) asserts the same for market imperfections, such as asymmetric information. These missing information concern unobserved qualities of food and the difficulties associated with assessing quality. Dries and Swinnen (2004) identify foreign direct investment to be associated with vertical integration.

Den Ouden et al. (1996) also acknowledge imperfect markets, as well as conflict of interests as big constraints in agricultural spot-markets fostering integration. However, they argue that vertical coordination is often the preferable solution over integration. This is due to the agricultural sectors' special characteristics compared to other industries, such as the importance of product and process attributes, resulting eventually in a high degree of product differentiation.

One way of overcoming the remaining asymmetric information is by imposing standards and regulation (see subsequent section).

Figure 2: Development of international trade in two agricultural goods over 50 years



Source: Own draft based on data obtained from United States Department of Agriculture: Production, Supply and Distribution (<https://apps.fas.usda.gov/psdonline>)

Demand structure of importers of agricultural goods: regulations and standards

One representation of the peculiarities in the demand structure of an importing country is found in the standards imposed on products and services. These Standards can either be imposed by legislative bodies (public standards) or evolve in the market due to consumers' preferences (private standards). This part of the review focuses on public regulations. Private ones are subject to analysis in section 4 and 5 below.

Distinguishing product standards from process standards

According to the Organization of Standardization (ISO), "[a]n International Standard provides rules, guidelines or characteristics for activities or for their results, aimed at achieving the optimum degree of order in a given context" (ISO, 2017b). Thinking about standardized weight measurements for example, it becomes obvious how standardization facilitates trade and other logistical procedures. Standards, according to this definition also concern

guidelines, therefore we differentiate between product standards and process standards. Product standards are specifications and criteria concerning the characteristics which can be observed in the final products. Process standards are criteria for the way the products are made (FAO, 2002). Social and environmental standards in agriculture are essentially process standards. Standards for agriculture involve all aspects of farming, amongst others sustainable farm management (ISO, 2017a). These process criteria might or might not influence the characteristics of the end products. An example for process standards whose adherence can be observed in the final product are the ones concerning pesticide usage. OSH standards are in the category of non-observable standards. In its nomenclature the FAO divides process further into management system standards and performance standards. The former consists of criteria on the procedures such as documentation, monitoring and evaluation. The actual production processes (on the field or packing stations) are subject to the performance standards regulating issues such as the usage of pesticides, availability of sanitary services, and others (FAO, 2002).

The FAO concludes that “setting international standards has proven to be very difficult due to the variety of circumstances that exist around the world. This is especially true for agricultural practices, which have to respond to differences in climate, soils and ecosystems, and are an integral part of cultural diversity. In response to this diversity, international environmental and social standards are often normative standards, i.e. generic standards or guidelines to be used as a framework by local standard-setting or certification bodies to formulate more specific standards. It has to be noted that environmental and social standards in agriculture usually do not have the purpose of standardization per se, but are developed to improve environmental and social sustainability in the variety of existing farming and agro-trade systems” (FAO, 2002).

The following sections indicate how the importance of both types of standards has increased over the last decades.

2. OSH is influenced via process and product standards

A definition of process standards is given above. ILO codes of practice “[aim] to increase the capacity of member States to prevent occupational accidents and work-related diseases by improving working conditions. [...] These contain practical recommendations, sometimes highly technical and scientifically detailed, to be used as guidance on implementing [...] labour standards or on addressing a particular issue [...] [but are] not legally binding” (Alli, 2001).

Private standards also include process standards, such as standards providing for product certification (for example Fairtrade). These are covered in sections 4 and 5 of this analysis.

A brief definition of product standards is given above. These standards might affect OSH in the desired way indirectly, for example in situations in which food products must not contain agrochemical residue, which leads to a reduced usage, hence OSH risk reduction.

3. Evidence on standards in legislative requirements of importing countries

Overview

Even though standards are designed to facilitate international trade in an environment of increasingly globalized supply chains and to ensure that products are fit for their purpose, product and process specific legislative requirements regarding OSH are difficult to formulate on an international level per se. As outlined above, the reasons for various sets of process and product standards are rooted in context-sensitive



prerequisites. Since all of these standards affect trade and OSH, major legislative requirements developed in countries with high consumer organization and pressure are introduced here.

US: Food Safety Modernization Act

The Food and Drug Administration's (FDA) Food Safety Modernization Act (FSMA) was signed into law under the presidency of Barack Obama in 2011. It is regarded as a reform of food safety laws which, in 2001, experienced their first reform after more than 70 years. The main intention of the FSMA is "to ensure the U.S. food supply is safe by shifting the focus from responding to contamination to preventing it" (FDA, 2017). The standards as outlined by the FDA cover a wide range of criteria for agricultural activities within the US as well as requirements for foreign supplier verification. The general rules on food safety encompass a range of thematic topics, from agricultural water quality, biological soil amendments, and sprout, to topics related to the focus of this work on occupational health and safety, including worker training, health and hygiene, and include equipment, tools and buildings (U.S. Department of Health and Human Services; U.S. Food and Drug Administration, 2015b). In its Rules on Foreign Suppliers, the FDA acknowledges the changing requirements in a changing world by stating that they allow for "flexibility in meeting certain requirements to better reflect modern supply and distribution chains" (U.S. Department of Health and Human Services; U.S. Food and Drug Administration, 2015a). The rule further states that standards, as they apply within the US, must also be imposed on agricultural products being imported to the US. The regulations for foreign supplier additionally evaluate hazards, food risk and supplier performance. The standards have the sole purpose to prevent food from being contaminated rather than ensuring occupational safety and health, even though the issue is marginally mentioned as cited above.

EU: European Food Safety Authority (EFSA)

The European Food Safety Authority (EFSA) was established as an above party lines authority in charge of risk assessment for consumers in the European

Union. The Authority produces scientific knowledge and advises the public. The thematic fields of research are food and feed safety, nutrition, animal health and welfare, as well as plant health. The EFSA works closely with the national governments of the EU member states to ensure that risk assessment work undertaken at the national level is coordinated and consistent with the one done at the European level. Relevant to the agricultural value chain are their publications on pesticides, including bee health and glyphosate as well as their works on plant health including pest categorization and pest assessment. Again, the regulations as formulated by the EFSA do not, in particular, take occupational health and safety standards into consideration but rather focus on the risk for the consumers by assessing process as well as product standards. Their mission statement explicitly mentions consumers, animals and the environment and therefore does not include people directly involved in agricultural production (EFSA, 2017).

EU: Renewable Energy Directive and parliament resolution

While all the aforementioned sets of regulations on standards apply for all three commodities analysed in the ensuing case studies, palm oil has been subject to more pressure from consumer groups and NGOs in the US and Europe and is thus accompanied by specific regulatory attempts of introducing standards. Palm oil is seen as an important commodity due to its tremendous expansion and its massive level of market penetration, being exported to 150 countries (for further reference see the case study on palm oil from two producing regions of Indonesia). Worth mentioning here are the EU Renewable Energy Directive (European Commission, 2017) and the European Parliament resolution of 4 April 2017 on palm oil and deforestation of rainforests (European Parliament, 2017). Both of these reports intend to introduce standards in order to decrease deforestation rates, protect biodiversity as well as human rights and, although may have indirect impacts, do not directly aim at addressing OSH.



Multilateral or bilateral agreements on Technical Barriers to Trade, including Sanitary and Phytosanitary Measures

While technical regulations and standards for agricultural commodities in the US and the EU focus on legislation at the national level (even though with the intention to consolidate them on an EU level), the agreements, as developed by the WTO, take the national level into account. It, however, strongly encourages an international perspective on standards and regulations to the trade of agricultural commodities.

For this reason, with the inauguration of the WTO in 1995, the concept of Technical Barriers to Trade (TBT) gained importance. The TBT related legislation intends to “ensure that regulations, standards, testing and certification procedures do not create unnecessary obstacles. [...] TBT measures can be used to meet requirements related to national security, prevention of deceptive practices, protection of the environment, and protection of human health or safety, or animal or plant life or health” (WTO, 2017). Supplementing the regulation on TBT, an agreement on food safety and animal and plant health standards, the Agreement on Sanitary and Phytosanitary Measures (SPS), concerns predefined specific risks related to human health (mostly about food safety) and animal/plant health or life or protection from pests (Stoler, 2011).

The TBT and SPS agreements set out the basic rules juggling between ensuring safety for consumers by adhering to safety standards while ensuring that countries do not misuse these standards as means of protectionism. As it became clear already in the example of the European Food and Safety Authority, national governments have the agency to define their own standards.

Generally, TBT measures consist of regulations, standards and conformity assessment procedures. The regulation conformity is mandatory for market access and includes product characteristics or their related processes and production methods. Standards, in contrast, are not mandatory and compose of rules, guidelines or characteristics for products or related processes as approved by a recognized body responsible for setting out these standards. Conformity assessment procedures are to determine that relevant requirements in technical regulations or standards are fulfilled such as sampling, testing, inspection, etc.

TBT and SPS set out rules on transparency, conflict dispute etc. The standards itself are based on the Co-

dex Alimentarius Commission (CAC) relating to food additives, veterinary drug and pesticide residues, contaminants and by Secretariat of the International Plant Protection Convention for plant health.

Codex Alimentarius Commission

The CAC or Food Code was established by the FAO and WHO to protect consumer health and promote fair practices in food trade through a collection of standards, guidelines and codes of practices. The CAC sets standards for pesticide residues in food and feed. In a technical manner, lists on allowed pesticide residue are outlined for commodities, subdivided into primary or processed food commodity of animal or plant origin. In 2012, for example, it was decided that lychees shall not exceed a maximum of 15mg Spirotetramat per kg. However, there are currently no Codex Maximum Residue Limits for Crude Palm Oil, while, for example, the maximum residue for more than 30 pesticides can be looked up for coffee (FAO, n.d.).

International Labour Standards

Some ILO instruments are integrated into public and private standards (see the full list in the annex). On a broader discussion on the relevance of OSH to ILO strategies, programmes, and instruments, see the last part of the present volume.

Exporters' standards

There are also standards and regulations issued by the exporting countries for the crops of concern in the ensuing case studies, such as the Indonesian Sustainable Palm Oil (ISPO) standard concerning Indonesian palm oil. They are not listed here in detail as they are nascent and little evidence is available on their overall functioning and impact. Still, it is interesting to note that several governments in sourcing countries are initiating this type of standards with a view to level the playing field in food and agriculture value chains, whether or not integrated in a GSC (see for example the ISPO standard in Indonesia within the case study on palm oil from two producing regions of Indonesia).

Increased role of standards

According to Stoler (2011), countries have adopted a significantly increasing number of technical regulations and standards. Ferro et al. (2014) assert that this is based on the increasing number of high and middle income countries: “as countries grow wealth-

ier on average, they tend to increase the number or intensity of their standards for food and agriculture imports". The United Nations Industrial Development Organization report (UNIDO, 2015), observes that associated with globalization's gaining momentum during the last decades, the importance of standardization increased in "technological progress, quality improvement, productivity and trade". Buyers in both the Global South and the North ask for services and products that "meet rigorous and advanced requirements for performance, safety, health and quality". This is due to a) increasing expectations of consumers, b) increasing number of technical regulations of import countries, and c) "products have to interconnect seamlessly with others in supply chains that span the globe" (UNIDO, 2015).

Categorization of these standards

The regulations and standards all cover the following categories: food safety and plant health regulations, environmental regulations, processing methods, marketing standards and labelling regulations as well as regulations for organic products (European Commission, 2013). The food safety standards are product standards and regulate the level of pesticide, medicine and hormone residuals a product is allowed to contain. While environmental regulations and processing methods fall under process standards, they are less tangible in terms of data on compliance and non-compliance as the testing and sampling methods are not as straightforward. Rejections of imports to certain countries give indications on product standards in the importing countries, and also "reflect prevailing levels of compliance capacity in the exporting country" (UNIDO, 2015).

Effects of these standards on OSH

FSMA

As laid out above, the FSMA standards have the sole purpose to prevent food from being contaminated rather than ensuring occupational safety and health, even though the issue is marginally mentioned.

EFSA

Similar to the FSMA, the regulations as formulated by the European Food Safety Authority do not, in particular, take occupational health and safety standards into consideration but rather focus on the risk for consumers by assessing process as well as product

standards. Their mission statement explicitly mentions consumers, animals and the environments hence not including people involved in the agricultural production (EFSA, 2017).

Codex Alimentarius Commission

As this codex is concerned with maximum levels of pesticides, medicines, etc. it eventually also touches upon OSH issues.

Possible impacts are that a rising number of public standards on products and processes also lead to an increase in private and voluntary certification schemes. The private standards seem more often concerned with OSH in a broader sense even if they might not label it with this term (see section 4 below).

Summary of effects

While not being put into practice in many legislative environments yet, a growing awareness of the importance of the topic can be found in the literature. For instance, the ILO Code of Practice on Safety and Health in Agriculture from 2011 (CPSHA). They are a set of technical standards that give practical guidance for the agricultural sector, complementing existing ILO standards. However, unlike ILO conventions, they are not subject to ratification by Member States and thus non-binding. The CPSHA provides "detailed technical advice about the hazards and risks associated with the agricultural sector, and how such hazards/risks can be effectively managed and controlled so as to prevent occupational accidents and diseases" (International Labour Organization, 2011, p. 1).

While the binding Safety and Health in Agriculture Convention, 2001 (No.184) in a broad manner outlines that agricultural workers have a right to OSH, standards and regulations have not been defined here and point instead towards national regulations, standards and certificates. It has been observed that especially the ILO is active on the topic of health and safety issues associated with the agricultural sectors, with over 20 conventions and recommendations. Pyykkönen and Aherin (2003) point out that "only five countries have so far ratified ILO Convention 184, published in 2001, on Safety and Health in Agriculture". Until the time of this analysis (2017), the number has increased to 16. From the ILO member countries' perspective there is potential for improvement in focusing on workers' health and safety regulations in the agricultural sector. The convention on Labour Inspection in Agriculture (1969) has a greater impact, being ratified by 53 members.

New evidence shows that the vertical integration of value chains might be beneficial for workers' health and occupational safety. The case study on palm oil from two producing regions of Indonesia finds that "vertically integrated companies and state owned enterprises generally have a written OSH policy". They find "a correlation between the level of integration of the GSC and the level of awareness on OSH, the existence of OSH management systems and the effective allocation of resources for OSH at the first and second tier supplier level (mill and refinery levels especially). Several business models (vertical integration, certification) have the potential for lead firms⁵ to positively influence OSH within their supply chains" (for further reference see the case study on palm oil from two producing regions of Indonesia).

Concerning palm oil, the Free and Fair Labour Principles and corresponding Implementation Guidance were published by Humanity United. They do not represent a new code of conduct, but rather build on existing standards, based on a) the core conventions of the ILO, b) the UN Guiding Principles on Business and Human Rights, and c) the standards established by the Roundtable on Sustainable Palm Oil (RSPO) (Humanity United et al., 2015). These principles are intended "as a resource to provide concrete and practical guidance on implementing responsible palm oil production" (Humanity United et al., 2015, p. 2).

4. Product certifications and private compliance initiatives relevant for Coffee, Lychee and palm oil

Market overview

As discussed in section 3, public food safety regulations are in their nature broad standard schemes that cover nearly all agricultural products. However, the

demand for more product and context specific standards increased over the last two decades and led to the development of more stringent PCIs (Fulponi, 2006). They may include specifications concerning the environment, social targets, food-safety, and ethical considerations. Because they are not enforced by law, private standards are considered "voluntary", yet they may restrict de facto market access (WTO, 2015). PCIs' aim is to reduce asymmetric information along supply chains and to signal food quality to consumers. In addition, PCIs established by retailers, such as GlobalGAP try to decrease transaction costs and facilitate supply chain management (Hobbs, 2010). The land area subject to PCI certification has increased threefold over the last decade, with the coffee and palm oil sectors witnessing the biggest increase in certified land area (Lernoud et al., 2015). This is above all attributed to the creation of many *single-commodity* standards that exclusively focus on coffee, cotton, sugarcane, soybeans or palm oil. But also within *multiple-commodity* standard setting schemes. Some of the sectors such as coffee, cotton or soybeans form a large share.

The main multiple-commodity standard schemes that include coffee, palm oil and lychee are: GlobalGAP, Fairtrade International, UTZ, IFOAM – organic, and Rainforest Alliance/SAN. The latter two include all three commodities of interest; Fairtrade certifies coffee and lychee, GlobalGAP only includes lychee, and UTZ only includes coffee. In 2015, IFOAM – organic with 50.9 million hectares was the leading certification scheme in terms of total certified land area, of which 905,000 hectares were coffee and 124.51 hectares were lychee (Willer and Lernoud, 2017).

Since the demand for certified coffee and palm oil increased a lot over the last decade, private certification initiatives focusing only on these products have proliferated. In the coffee sector, the largest single-commodity standards are Nespresso AAA Sustainable Quality, Starbucks Coffee and Farmer Equity (C.A.F.E.) Practices and 4C – Global Coffee Platform (GCP). In the case of palm oil, it is the Round table on Sustainable Palm Oil (RSPO).⁶

In 2013, the 4C - GCP certified 2,360.000 metric tons of coffee making it by far the largest PCI in this sector, followed by UTZ (727,000 metric tons) and

5 Not defined as end buyers in this context (for further reference see the case study on palm oil from two producing regions of Indonesia).

6 For additional information on the above mentioned schemes and certifications, see the second volume of the present publication.

Rainforest Alliance (455 metric tons). Likewise, in Colombia, the 4C - GCP is the leading certification scheme. However, Rainforest Alliance only holds 6.9 per cent of the certified hectares right after UTZ (7.1 per cent) and Fairtrade (24 per cent). In the case of oil palm, RSPO is by far the largest certification scheme with 2,830,355 hectares in 2016 (RSPO, 2016). It is followed by Rainforest Alliance (63,574 hectares) and IFOAM (2013: 3,600 hectares) (Lernoud et al., 2016; Sustainable Agriculture Network, 2016). In 2016, 1,157,241 hectares of Indonesian palm oil were certified by RSPO and 6,042 hectares of land area by Rainforest Alliance (RSPO, 2016; Sustainable Agriculture Network, 2016).⁷ With respect to Lychee, IFOAM certified 124.51 hectares and Rainforest Alliance 155 hectares in 2015. For GlobalGAP and Fairtrade International, there are currently no publicly available data for the certified lychee area, nevertheless, they, together with IFOAM, are the most important PCIs in Madagascar in this sector (for further reference see the case study on lychee from Madagascar).

Focus / provisions on working conditions and OSH

Main focus by standard

Key foci of private standards are social, environmental and/or economic issues. To compare the sustainability performance of different PCIs in each of these fields, Potts et al. (2014) developed the State of Sustainability Initiatives (SSI) criteria. They check whether a certain private standard requires indicators such as “Safety at work” or “Written contracts of employees” and calculate the overall coverage of indicators in the social, environmental and economic dimension.

According to Potts et al. (2014), Rainforest Alliance/SAN with a total average of 84 per cent has the best performance over all social indices. Fairtrade, UTZ, IFOAM and RSPO cover more than 50 per cent of the social indices, especially labour rights, and health and safety. Furthermore, employment benefits and gender related issues are additional core areas for Fairtrade. The latter applies also to IFOAM. On the contrary, GlobalGAP and 4C - GCP perform below average across all social indices. Since these are PCIs founded by a narrower scope of actors (mostly driven by retail-

ers and other private companies at the buyer end of supply chains), their main focus is on facilitating the supply chain management and reducing transaction costs.

Potts et al. (2014) observe that with respect to environmental provisions, IFOAM takes the lead. The other standards perform above average except for UTZ and 4C - GCP. Nevertheless, they all include requirements on synthetic inputs and agro-chemicals in general such as integrated pest management, enforcement of a prohibited list or complete prohibition of synthetics.

The highest economic criteria coverage has Fairtrade followed by IFOAM and RSPO. All other standards perform below average, but they all have requirements on minimum wages and UTZ and Fairtrade even on price premiums.

The different foci of the standards discussed above can be partially explained by the founding stakeholders. IFOAM, SAN/RA and Fairtrade were founded by a scope of actors that included civil society, whereas for GlobalGAP, its outset was mostly driven by retailers. In the case of UTZ, RSPO and 4C - GCP multiple stakeholder were engaged. The founding members of UTZ were producers as well as global buyers, this also applies to RSPO with the civil society as an additional actor. 4C - GCP is the only initiative that was initiated by a public-private partnership. Furthermore, the 4C - GCP only verifies producers, but does not manage a certification scheme. It aims to prepare producers to achieve certification by more demanding PCIs (Kuit et al., 2016). All other initiatives covered here do manage certification schemes, but only Fairtrade has its own certification body “Flo-Cert” (Fairtrade International, 2014). All other PCIs carry out their certification through accredited third party certification bodies (ITC, 2017).

Provisions on working conditions and OSH by standard

As mentioned in section 4, most of the private standards include some provisions on working conditions and OSH. This is due to changing consumer preferences mostly in western markets (Disdier and Marette, 2012). But not all standards cover these criteria comprehensively. To analyse the potential effects of sustainability standards on OSH, Schuster

⁷ Other PCIs active in certifying palm oil in Indonesia are International Sustainability and Carbon Certification (ISCC) and Roundtable on Sustainable Biomaterials (RSB). They are excluded from the analysis, because of their relatively low shares of certified area.

and Maertens (2016) group them into three categories: 1) labour standards, 2) quasi-labour standards and 3) non-labour standards. The first category includes all standards that primarily focus on ILO core workers' rights and at least 40 requirements on good employment conditions, such as minimum wage, written contracts, decent living or living wages and referring to national legislations. In comparison, quasi-labour standards do not explicitly require the above mentioned employment conditions, but they at least mention the importance of e.g. health and safety trainings or worker's well-being. Finally, non-labour standards neither include requirements on OSH nor working conditions. According to this categorization, all PCIs discussed here are labour standards except for GlobalGAP and IFOAM that fall into the category of quasi-labour standards. Most quasi-labour standards were established by private companies at the buyers' end of supply chains, such as GlobalGAP, that focus more on environmental than social requirements. Though GlobalGAP developed the Risk Assessment on Social Practice (GRASP) module which is progressively introducing some labour compliance criteria. Whereas PCIs with labour-standards tend to be initiated by civil society actors (e.g. Rainforest Alliance or Fairtrade) that also involve labour unions and thus have the clear aim to improve employment conditions (Potts et al., 2014).

5. Impact and limitation of private food standards on working conditions and OSH

Direct and indirect effects on working conditions and OSH

To analyse the impact of private standards on working conditions and OSH it is important to distinguish between direct and indirect effects. On the one hand, direct effects can be achieved by most of the SSI social indicators discussed in section 4, such as labour rights, healthy work conditions, health and safety trainings or written contracts for workers. Furthermore,

voluntary sustainability standards can have a direct impact on working conditions and OSH if they cover the SSI economic indicators, minimum wage or living wage. On the other hand, voluntary sustainability standards can have indirect effects on OSH, for example, due to a prohibited list of synthetic inputs or complete prohibition of synthetics. Hence, workers are not subject to these synthetics that can be hazardous to their health. In addition, the SSI economic indicator "price premia" can indirectly lead to better working conditions if a share of the price premium is reflected on workers' and farmers' remuneration.

Impact evaluation methods and their limitations

In this context, the "Result Chain" (Gertler et al., 2010) is a helpful instrument to identify direct and indirect effects. First, inputs, activities and outputs are specified. Those are determined by the project administrators. Second, these implementation characteristics are used to analyse the outcomes (short-to-medium term achievements) and final outcomes (long-term goals) of the intervention.

The most often used methods to conduct an impact evaluation in the context of private standards are Difference-in-Differences and Matching techniques. The Difference-in-Differences method, e.g. used by Subervie and Vagneron (2013), allows comparing "... changes in outcomes over time between the [...] treatment group and [...] the comparison group." While this method does not require knowledge of all characteristics of the treatment, it is less robust than the other methods since it does not control for external factors that might have affected the groups differently during the time of the intervention.

In contrast, Asfaw et al. (2010) use a matching method. Matching as well as Difference-in-Differences allows evaluating the impact of an intervention without knowing the exact rules of this intervention. In the matching method, an artificial control group is constructed by using statistical techniques and large data sets. This is done by "matching" individuals that have similar characteristics as the treatment group but are not subject to the intervention. This method has two limitations: first, it requires a large data set that often is unavailable and second, it assumes that there are no unobserved characteristics between the control and treatment group (Gertler et al., 2010).



Not only do the methods limit the interpretation of results from impact evaluations, they are also often based on case studies that only analyse one specific country and / or producers of one specific agricultural product with indicators on OSH that tend to lack a comprehensive understanding of awareness, practices and outcomes. Here, meta analyses have an increasing relevance because they compare different case studies and thus can give more comprehensive insights into the impact of interventions such as the adoption of private standards.

Empirical evidence

Impact of private standards on working conditions and OSH

There is overall little impact evaluation done on PCIs (except for Fairtrade and IFOAM) and when they are conducted, OSH is usually not the main focus (for an example of study focused on OSH, see Oya, C. et al. 2017). Schuster and Maertens (2016) find that PCI standards, which include comprehensive provisions on working conditions and OSH do have a positive direct impact on those. Thus, they increase the probability of workers getting paid the minimum wage, having a written contract and receiving health and safety trainings. In addition, quasi-labour standards do have a positive effect on workers receiving trainings, even though the likelihood is lower. Finally, also non-labour standards do increase the probability of getting the minimum wage up to a certain level.

Most studies find that voluntary sustainability standards have indirect positive impact on working conditions and OSH. For instance, Subervie and Vagneron (2013) who explicitly study the effect of GlobalGAP certification on lychee small-holder farmers in Madagascar, show that being certified can have a positive effect on farmers' income due to the received price premium and higher quantity sold. Nevertheless, in this case it mostly benefits farmers that are able to transport the lychees to treatment plants in the city.

Furthermore, Okello and Swinton (2010) argue that even if pesticide use is not considerably decreased by certified farmers compared to non-certified farmers, their workers face better health conditions because they are aware of the poisonous effect of pesticides due to safety and health trainings. Asfaw et al. (2010) confirm that the adoption of GlobalGAP and the associated reduction of pesticide use can lead to less incidences of acute illness.

By studying the effect of GlobalGAP certification on mango and bean companies in Senegal, Colen et al. (2012) estimate longer employment periods and higher wages for workers in certified firms. However, GlobalGAP does not include any requirements regarding the wage level for instance.

Limitations of private standards on working conditions and OSH

In contrast to the positive impacts of standards imposed by PCIs mentioned above, they also face limitations. For instance, while GlobalGAP may have positive effects on the length of employment periods and wages, it does not necessarily ensure better contract conditions (Colen et al., 2012). Schuster and Maertens (2016) point out that voluntary sustainability standards should explicitly state labour requirements in their code of conduct because indirect positive effects on working conditions through spillovers from increased farm revenues are unlikely.

The effectiveness of the impact of labour standards on working conditions and OSH in certified establishments and farms highly depends on the strength of national labour regulations and their enforceability. The existence and power of labour unions play a crucial role. However, in developing countries these institutions are often less developed. This is one of the reasons that led some authors such as Reynolds (2014) to suggest that private standards should not only refer to national labour regulations but could go beyond them. Other issues that are influencing the positive effect of private standards on employment conditions are the structure and imperfections of local labour markets (Colen et al., 2012).

Finally, the fast growing number of certified producers and land area makes it difficult for the PCIs to conduct comprehensive audits to monitor whether producers meet the requirements (Trauger, 2014), and they use sampling methods to certify groups of

farmers and growers, as illustrated in the three case studies conducted within the OSH in GSCs project. The quality of the audits conducted is often questioned in relation to the level of training of auditors on specific labour issues as well as the timing constraints under which they tend to operate.

Conclusion

This review of existing public food safety regulations and PCIs has shown that public and private bodies have reacted to increasing consumer concerns for food safety by introducing standards. In addition, the global expansion of agricultural supply chains led actors to develop standards to decrease asymmetric information, facilitate management and increase reliability along the chain. While most importers' food legislative requirements focus on domestic food safety and health rather than on producers' OSH, multi-lateral food safety regulations such as the SPS agreement or the Codex Alimentarius include provisions

that affect OSH of workers in exporting countries. Nevertheless, these are often general provisions and are not adjusted to the context or product to which they apply. This is one of the reasons why PCIs gained in importance in recent decades; because they try to fill this gap. Most PCIs include explicit provisions on OSH and working conditions, where the governance arrangements of PCIs influence how comprehensively they cover those criteria. They refer to ILO conventions, require minimum wages, and health and safety trainings. However, the impact of food safety standards on OSH is limited when national labour legislations of sourcing countries are not comprehensive and when inadequate monitoring is performed by the auditors accredited by PCIs. As such, food safety standards could become even more effective by going beyond legislation and control and be accompanied by incentives, services and infrastructure that constitute an enabling environment for OSH. This requires further collaboration between private and public actors.





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Drivers and constraints for OSH improvement in global value chains - the perspective of research on OSH management and standards

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Introduction

Paradoxes of Supply Chain Influence

As already highlighted in this report, problems related to OSH in GSCs are among the acknowledged features of global economic development (ILO, 2016). At their heart lies the way in which global business models create situations where strategies to outsource risk, reduce labour costs and retain control over production and delivery requirements, combine in ways that act to promote weak arrangements for safety and health for many workers at the supplier end of GSCs in developing countries (Locke et al., 2009). Weak regulatory infrastructures and limited resources are already a feature of these countries and OSH outcomes are not simply the result of local companies being integrated in a GSC. Rather they are also influenced by pre-existing poverty, limited regulation and regulatory administration, weakly organized labour, a substantial informal economy, poorly developed and immature institutions and procedures for labour relations and so on (see for example, Rodriguez-Garavito, 2005). However, a reason why multinational enterprises and consumer markets in advanced economies have outsourced production to countries that do not have strong regulatory structures or organized labour is because price and profit margins dictate that it is necessary in order to compete on the global market. Such outsourcing can serve to perpetuate poor health and safety outcomes for the increasing number of workers at the ends of supply chains (Quinlan et al., 2001).

Paradoxically, however, while evidence indicates that supply relations can negatively impact or maintain poor OSH outcomes, it also suggests that they can create opportunities to ameliorate these effects and contribute to supporting improvement in arrangements and outcomes for safety and health for workers. Research and policy developments in recent years in relation to a number of sectors and chains have highlighted ways to leverage influence upon the outcomes of these supply relations through the use of private compliance initiatives (PCIs) and private/public regulatory mixes (Locke, 2013). At the same time, as many studies also show, the effectiveness of such opportunities is dependent on the presence of key determinants both within value chains and in the wider social, economic and regulatory contexts in which they are situated (Short and Toffel, 2010).

In this section, the research evidence of the impact of supply chain relations and the wider contexts in which they occur on arrangements and outcomes for the health, safety and welfare of workers who labour at their distal ends, is reviewed. It begins with the evidence of OSH outcomes and identifies some problems with sources of information and the quality of current knowledge. Concerning, for example, the nature of OSH risks, who is at risk and with what outcomes in GSCs, and with which products and labour sourced in developing countries that possess weak infrastructures for occupational safety and health. It then goes on to explore what studies suggest to be good prevention practice in workplaces in such scenarios, and here again, serious limitations to the extent of knowledge and the quality of evidence are seen. In doing so, the assumptions made concerning the value of systems for managing OSH in enterprises are questioned, and it is pointed out that many, and probably the majority, of workplaces in which production occurs at the end of GSCs do not meet the basic determinants of effectiveness of such systems identified by both research and corporate strategies.

Acknowledging the constraints imposed by the need for better data, the section continues by exploring what recent research indicates to be key determinants of preventive strategies for OSH in GSCs. This involves two main strands. The first of these concerns factors that cause organizations with global business interests to adopt strategies to support the improvement of OSH arrangements and outcomes among suppliers – that is, the determinants that motivate strategic action. While the second concern is what makes such strategic action effective in terms of arrangements and their outcomes for the workers of suppliers. Exploring this second element involves gaining an understanding of supports and constraints on the operation of the internal intra-organizational structures and processes involved in managing and monitoring arrangements for OSH. While at the same time, accounting for the influence of features of the external social, economic and regulatory contexts in which organizations are embedded and which help determine both the use and outcomes of supply chain influences and potential leverage on OSH. That is to say, what determines the translation of motivation into effective action? And finally, there is a further need to account for the interaction between the motivators and their translation.

The section concludes by drawing together the key themes to emerge from the offered analysis and their implications for the focus and methodological nature of future research. In particular, it is argued here that the research reviewed in the following pages on ‘what works, for whom and in what contexts’ in GSCs indicates three main areas on which further investigation needs to focus to better utilise the potential of supply chain leverage to improve OSH arrangements and outcomes. These are:

- business relations and processes that support improved OSH outcomes within enterprises in the supply chain;
- underlying contextual constraints within and around supply chains that prevent improvement/compliance on OSH within the supply chain (systemic constraints);
- scenarios leading to incentives and capacities for private and public actors to contribute to improvement/compliance on OSH (successful experiences/possible points of entry for change).

Safety and Health in GSCs: Current Knowledge and its Limitations

A feature of the research literature, which addresses safety and health in GSCs that is immediately striking is the relative paucity of robust studies of OSH arrangements and outcomes at the points of production and services in these chains. There are several reasons for this — as outlined in the previous section. Infrastructures for reporting OSH outcomes to public authorities in developing countries are well-known to be often weakly developed. Private company data seldom extend reliably beyond first tier suppliers and even then are well known to be subject to socially determined bias and under-reporting (see for example Mustard et al., 2012; Dong et al., 2011; Rosenman et al., 2006; Leigh et al., 2004; ILO 2012). Many of the studies that claim to address ‘health and safety’ in GSCs in fact focus mostly on working conditions and use fairly generic, anecdotal or unsubstantiated evidence of OSH outcomes and the reasons for them. This is not to say that these studies are necessarily inaccurate in their portrayal of OSH, but rather that their level of scientifically corroborated detail on OSH arrangements and outcomes is usually insufficient as a basis around which to build informed prevention strategies. Such studies also tend to point to the

weak infrastructures in place in countries in which GSC production is sourced as one obvious reason for anticipating negative OSH outcomes.

Existing aggregate statistics, moreover, add weight to such conclusions. For example, ILO global estimates strongly suggest that there is a huge global burden of preventable, serious work-related injuries, fatalities, ill health and premature death that it is proportionately much higher in developing countries than in more advanced economies. Both the ILO and WHO reach similar estimates of 5 to 7 per cent of global fatalities attributable to work-related illnesses and occupational injuries (ILO 2006; Murray et al., 1996). Takala et al. (2012) provided an overview of data on employment and occupational mortality and morbidity, using publically available literature and reports on the occupational burden of disease. They estimated that globally there were 2.3 million occupationally-related deaths each year attributable to work, with the majority, 2.0 million, being due to occupational diseases. Overall, cancer formed the largest component (32 per cent), followed by work-related circulatory diseases (23 per cent), communicable diseases (17 per cent) and occupational accidents (18 per cent), with the latter two being far more prevalent in developing and rapidly industrialising countries. For cancer, this translates to 660,000 deaths, with asbestos being the exposure contributing the largest proportion (Takala, 2015). Another ILO publication estimated that there were over 313 million non-fatal occupational accidents (with at least 4 days absence) in 2010, and over 666,000 fatal occupationally-related cancers, with again the burden being proportionally far greater in developing countries (Nenonen et al., 2014), while a study by Barrientos et al. (2005) on occupational injuries comes to similar conclusions.

Since the ILO has further estimated that more than 20 per cent of global production is associated with GSCs, it is clear that a substantial problem exists in relation to OSH outcomes in these chains (ILO, 2015). Despite this acknowledgement at the macro-level, the important practical point that emerges from a review of the existing literature is that data and analysis concerning the reasons for these effects is limited. Beyond the highly fragmented literature addressing practices and outcomes in relation to risks in specific workplaces, sectors and countries, there is a paucity of reliable information.

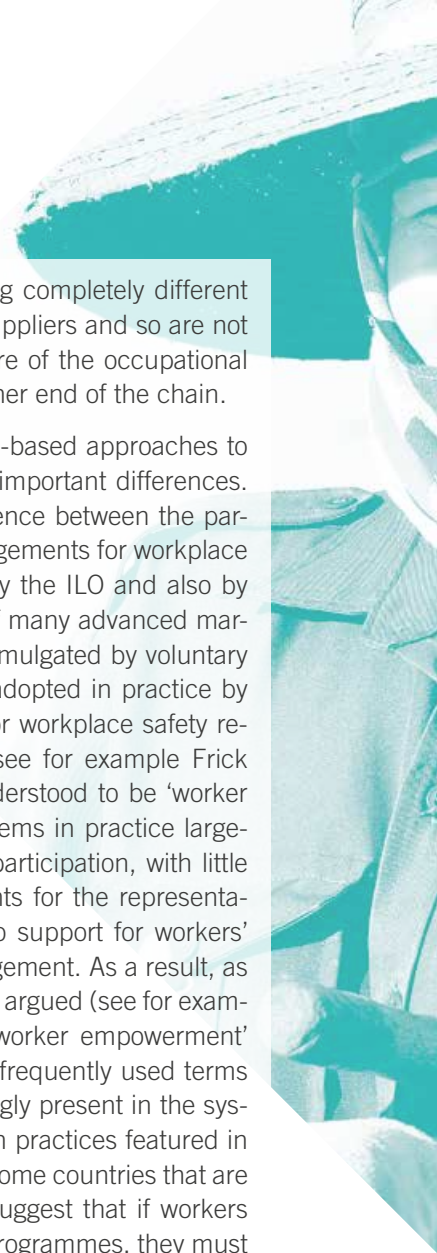
In contrast, another branch of the research and policy literature takes a rather different point of de-


parture and explores strategies to improve OSH arrangements within workplaces located at the host country ends of GSCs from the perspective of global standards of good practice relating to OSH management. Private compliance initiatives employed by many multinational enterprises (MNEs) are essentially informed by this approach and have resulted in demands for quite detailed and elaborate systems for OSH that are aimed at their suppliers. Such approaches mainly rely on the use of certified OSH management standards and systems being put in place to implement them. There is a substantial literature that, albeit indirectly, identifies several problems with this strategy. It suggests, for example, that OSH management standards are generally implemented by the adoption of certified OSH management systems which, usually with the aid of auditing, try to ensure that structures and procedures are in place to support safe working practices (see for example Robson et al. 2007; Frick 2011). The problems of effectiveness thus encountered in what MNEs consider to be ‘good practice’ include these arrangements usually being developed in relation to experience in large organizations that possess both the resources and competencies to implement them — resources and competencies that are known to be absent from the majority of workplaces at the ends of GSCs. Moreover, the extensive body of research that exists concerning the challenges to OSH in small and micro firms, even in advanced market economies, indicates that such firms do not have the capacity to implement such systems themselves (see EU-OSHA, 2016; ILO, 2013 for recent reviews). Furthermore, research on cascading good practices to lower levels in supply chains, determined through sub-contracting arrangements and the like, shows quite clearly that such transfer is not likely to be successful without strong infrastructural support from within the wider economic and regulatory contexts in which firms are embedded — support which is often underdeveloped or even entirely absent in middle and low income countries.

Additional issues with these systems are seldom acknowledged at the global level. Firstly, in keeping with the regulatory requirements prevalent in most advanced market economies as well as with the ethos of what constitutes good practice in these countries, the OSH requirements laid down by lead firms are almost always process-based and generic. There are two main reasons for this: a) this constitutes what is regarded as good practice and b) these compa-

nies are, in essence, operating completely different businesses to those of their suppliers and so are not necessarily aware of the nature of the occupational risks and constraints at the other end of the chain.

Secondly, even within process-based approaches to OSH management, there are important differences. For example, there is a difference between the participatory approaches to arrangements for workplace safety and health promoted by the ILO and also by the regulatory requirements of many advanced market economies, and those promulgated by voluntary standards organizations and adopted in practice by many MNEs in the systems for workplace safety required from their suppliers (see for example Frick and Wren 2000). What is understood to be ‘worker participation’ in the latter systems in practice largely involves a focus on direct participation, with little attention given to arrangements for the representation of workers’ interests or to support for workers’ autonomy in their direct engagement. As a result, as Brown (2015) and others have argued (see for example Anner, 2015), although ‘worker empowerment’ and ‘worker participation’ are frequently used terms in OSH, they are seldom strongly present in the systems used to manage safety in practices featured in factories of low and middle income countries that are part of GSCs. These writers suggest that if workers are to play a key role in OSH programmes, they must have training, knowledge and information to be able to speak and act in their own name in order to protect their own health and safety. This conclusion is also supported by a large body of international research on representing workers in OSH (see EU-OSHA, 2017 for a recent review of this literature). But such provision is seldom part of the systems that result from PCIs to improve OSH management among supplier organizations in GSCs. Instead what is much more commonly found are behaviour-based approaches that focus on rule following, such as the wearing of personal protective equipment (PPE) by workers, and on feedback systems mainly designed to identify deviant, non-compliant behaviour on the part of workers and among the contractors and sub-contractors for whom they work. Critiques of such systems in advanced market economies have made plain their significant and substantial limitations in protecting especially the work-related health of workers, their contribution to employment insecurity and their little concern with workers’ dignity (Frick, 2011; Hopkins, 2005). Therefore, while these systems may be derived from process-orientated thinking among





senior management of global firms, their results at the level of the workplaces of their suppliers are often paradoxically highly prescriptive in their operational demands on workers without much evidence on their impact on OSH outcomes.

In short, there would seem to be two approaches to understanding the experience of OSH at the ends of GSCs and currently something of a cognitive dissonance between them. On the one hand, applied research and policy in OSH, as well as much professional training for OSH practitioners globally, addresses ways of managing occupational safety and health and advocates the use of safety management standards, systems and their certification and auditing. On the other, a large body of sociologically and ethnographically informed research and policy advice blurs the distinction between labour standards, working conditions and occupational safety and health, but nevertheless suggests that there are significant problems with the application of these advocated strategies for ameliorating conditions at the ends of GSCs.

This last strand of work, in placing poor OSH arrangements and outcomes among the wider poor conditions of work in sourcing countries at the ends of GSCs, suggests that improvements might be secured if mechanisms to implement good practice (including those on OSH) were more participatory in both involving workers at the enterprise level and engaging with suppliers in a way which enables OSH management to be reflective of surrounding contexts. Instead, rather than merely as a matter of compliance with the procedural requirements of some global buyers evolving on markets with strong consumer demands. Such reasoning further argues that approaches of this type would give an opportunity for wider knowledge transfer on conditions of work, including OSH, within supply chains. Without such participation, engagement and reflection, this literature therefore views it as questionable whether GSC initiatives have sufficient capacity to effect real and sustainable behaviour change (which would presuppose workers are convinced that it is in their interest to adopt new practice), as opposed to mechanistic compliance with their requirements generated by a desire on the part of suppliers to meet buyers' requirement. Unfortunately, there is little evidence of an effective balance being struck in which the most useful elements of both these approaches are effectively combined.

These evidential and policy gaps are problematic since they suggest that many current attempts to leverage GSCs to improve OSH standards are likely to be sub-optimally designed in relation to the workplace and societal contexts in which they are being applied. As will be further discussed later, there is consequently a need for more informed, comprehensive and comparative study of the nature of OSH risks and who is exposed to them in sourcing countries. Better measures of OSH outcomes are needed, along with better sources of information concerning the nature of the risks to workers, the circumstances in which they occur and the efficacy of the means to ameliorate them. At the same time, more detailed understandings of the national and local social, economic and regulatory relations in which these risks occur and which act to define their seriousness or determine the methods used to ameliorate them, is also required. Clearly, a closer connection between these two bodies of knowledge is desirable if it is to inform effective interventions to improve OSH at all levels in global supply chains. In this way, means of prevention may be made more relevant to the contexts in which they are applied to move away from procedural OSH and effectively create change at a systemic level, leading to improvement of outcomes.

Explaining OSH Dynamics in GSCs

A host of studies shed light on the factors that influence whether, and to what extent, the dynamics within supply chains, both global and national, positively or negatively impact on working conditions within supplier workplaces. While only a minority of these focus specifically on the issue of workplace OSH, their findings are argued to be broadly applicable given the similarity of findings obtained from studies focused specifically on it and more widely based ones. It does nevertheless need to be borne in mind that there is some evidence to suggest that, compared to other labour issues, health and safety is accorded a relatively high importance as an issue meriting public and private regulatory attention within supply chains (Williams et al., 2015). In addition, it must be noted that existing research has almost exclusively focused attention on the 'first tier' relationships between those at the head of supply chains and their immediate suppliers, with the result that it has to be largely assumed, albeit alongside some supporting evidence, that similar dynamics are to be found in lower tier ones (Scarborough, 2000).

With these limitations in mind, the available evidence highlights that the health and safety effects within supply chains are driven by factors influencing two inter-related issues:

- a. The degree to which powerful supply chain buyers are motivated to influence health and safety standards in supplier organizations
- b. The extent to which such motivations succeed in engendering actions which positively influence how suppliers manage workplace health and safety

Below what the evidence tells us about these two sources of influence is reviewed.

Motivators of Buyer Action

It is well established that supply chain relationships vary considerably with regard to how far they depart from purely transactional (and distant) market based ones (see e.g. Adler, 2001; Dore, 1983; Powell, 1990). Sako (1992), for example, in an influential and widely quoted work, highlighted the ‘multidimensional spectrum of trading relationships that can exist between manufacturing buyers and suppliers’. In doing so, she drew a distinction between transactional based relationships and ‘obligational contractual’ ones characterized by relatively lengthy and ongoing links, a substantial degree of mutual dependence, an emphasis on objectives extending beyond issues of cost, and the presence of trust-based relationships which are supportive of open communications and joint problem-solving behaviour. More recently, in relation to global value chains, a more nuanced five-fold classification of governance arrangements has been developed which distinguishes between ‘market’, ‘relational’, ‘modular’, ‘captive’ and ‘hierarchy’ forms of governance that vary in their degree of explicit coordination and power asymmetry (Gereffi et al., 2005). The first two of these broadly align with those identified by Sako (1992), while the other three can be argued to differentially encompass their central features. It has further been argued that these different governance forms, along with the variations in the degree of buyer coordination they embody, have differing implications for employment arrangements in supplier organization; although much more research is needed to confirm their extent and nature (Lakhani et al., 2013).

The nature of the purchasing objectives of buyers, as well as the capabilities of suppliers to support

them, are argued to exert a major influence over the types of governance arrangements that buyers seek to establish, including the extent to which they seek the creation of close and collaborative relationships (Gereffi et al., 2005). More particularly, the evidence suggests that sourcing strategies centred on gaining cost or price advantages are not supportive of such relationships (Cousins and Lawson 2007). In contrast, it would seem that buyers are more likely to seek closer buyer-supplier relations where they embody reputational risks, are seen to involve high supply and/or profit risks, and encompass the provision of complex goods and services that create difficulties in codifying supply requirements and ensuring they are complied with (Heide and John, 1990). It has been argued, for example, that the rigorous auditing by oil majors of health and safety management on board petrochemical tankers is primarily undertaken because of fears that ship incidents involving oil spills will damage public image and indirectly harm profits (Walters et al., 2012).

The available evidence suggests that proactive attempts on the part of buyers to protect and enhance health and safety standards and performance in supplier organization are most likely where the issue is viewed as being intimately connected to the business objectives underlying their outsourcing strategies and policies. Moreover, it also indicates that even where such attempts are made, they at times exist alongside downward cost pressures that have potentially harmful implications for OSH and may be accorded less weight than what are perceived to be more business critical considerations (and therefore policies) (Equality and Human Rights Commission, 2010; James and Lloyd, 2008). As a result, they do not necessarily lead to the avoidance of the earlier highlighted paradox concerning how supply chains impact workplace health and safety within supplier organizations.

The overall picture to emerge from existing studies consequently indicates that only relatively rarely will market-based considerations alone prompt buyers to seek to directly and meaningfully influence supplier OSH management processes (Walters et al., 2012). Instead, their findings indicate that buyer attempts to positively influence them largely reflect the influence of non-market forces operating at the levels of both the home countries of the buyers and internationally. In the case of the former, for example, there is some evidence that the corporate social responsibility pol-

icies of multinationals are shaped by aspects of the social and economic contexts of their home countries, while another study has shown how the varying approaches adopted by Walmart and IKEA towards global labour standards reflect differences in their home country business and regulatory contexts (Gjoberg, 2009; Christopherson and Lillie, 2005). In a similar vein, it appears that the failure of many U.S. major brands to sign The Accord, a legally-binding agreement concluded between global unions and a host of brands to improve safety in the Bangladesh garment industry following the Rana Plaza disaster in April 2013, reflected concerns about their potential domestic legal liabilities.

Meanwhile, internationally, it has been found that the individual and collective actions of NGOs, trade unions, and consumer groups, as well as international employment standards, notably those promulgated by the ILO, can prompt positive action on the part of global buyers (Rodriguez-Garavito, 2005). Indeed, it is clear that such sources of pressure have, both directly and indirectly, been central to the growth of PCIs aimed at improving labour conditions at the end of GSCs. For example, the development of The Accord was facilitated by pressures on brands generated by a coalition bringing together the complementary capacities of global unions and consumer-based social movement organizations (Reinecke and Donaghey, 2015). An example that in turn adds weight to the argument that such coalitions between unions and consumer-based social movements are more likely to develop in the case of GSCs that are driven by retailers (Rissgaard and Hammer, 2011).

The Implementation of Buyer Policies

A very mixed picture exists concerning the effectiveness of PCIs aimed at improving labour conditions in GSCs. With reference to the apparel sector, in which a significant proportion of the relevant research has been conducted, it has been observed, for example, that despite concerted efforts 'private compliance programmes appear largely unable to deliver on their promise of sustained improvements in labour standards in the new centers of global production' (Locke 2013). A variety of explanations have been put forward for these outcomes. These can be usefully be discussed under two broad headings which respectively focus attention on the institutional features of the initiatives themselves and the domestic legal and market contexts prevailing in sourcing countries.

Institutional Features of Initiatives

The nature of the employment standards laid down in the PCI attempts of multinational buyers to influence working conditions in supplier organizations will, in logic, have potentially important implications for the nature and extent of their impact. It is further clear that another crucial factor influencing their impact is the arrangements developed to monitor and enforce compliance with them. This, for example, emerges clearly in studies of the implementation of ethical trading codes in north-south supply chains (O'Rourke, 2002; Esbenshade, 2001).

Such studies have paid much attention to the extent to which the systems in place to ensure compliance are adequately resourced. Research has also drawn attention to how effectiveness is potentially affected by the degree of fit between these systems and the structural configuration of the GSCs concerned and the manner, or style, with which audits and the like are carried out. In particular, in a series of publications, Locke and colleagues have argued that the adoption of a 'compliance' orientated approach is problematically based on three faulty assumptions, namely a belief that asymmetrical power relationships invariably exist between buyers and suppliers; an assumption that audits can generate reliable information about labour conditions within factories; and a view that deterrence forms an effective motivation towards compliance (Locke, 2013; Locke et al 2009). They consequently argue that an alternative, commitment-based approach might offer a potentially more productive means of securing improved working conditions. That is, one in which the causes of labour standard non-compliance are addressed through buyers and suppliers working to improve work processes, and associated labour practices, via joint, mutuality-based, problem solving processes.

The doubts expressed by Locke and colleagues about the validity of auditing are arguably very much applicable to OSH given the difficulties that exist in terms of assessing workplace behaviours, measuring OSH outcomes and identifying the presence of preventative cultures. It has nevertheless been argued that the failure of existing approaches to eliminate, or even substantially reduce, decent work deficits in GSCs cannot be meaningfully addressed through the commitment-based approach advocated by Locke and colleagues or via enhanced systems of audit/

inspection or increased ethical consumer pressures alone. This is because while current initiatives are informed by an acknowledgement of the central role of buyers in creating conditions that encourage labour violations, they 'leave this root cause unaddressed' (Anner et al., 2013). A more effective way forward it is argued would be to directly regulate the market behaviours of buyers that drive labour conditions in supplier factories through the establishment of frameworks akin to the collectively bargained contracts in the U.S. apparel industry, which prompted a dramatic decline in sweatshop conditions during the middle part of the twentieth century. Some support for this view would moreover appear to be provided by the apparent effectiveness of the safety inspection programme of The Accord: an initiative that the same authors argue reflects the core principles of these contracts, such as providing some contractual and financial security to suppliers, providing an industry-wide regulatory framework, involving unions in its governance, and imposing legally binding commitments on signatories.

The challenges of putting in place regulatory frameworks of this type cannot be overstated; notwithstanding that in the build up to the July 2017 G20 summit in Hamburg a number of global unions called on participants to look to The Accord as a model for promoting sustainable business practices. In the case of OSH, the logic of doing so though seems a strong one given the evidence referred to earlier about how cost pressures within supply chains can both provide suppliers with incentives to cut corners in worker protection and limit their ability to invest in appropriate equipment and preventive infrastructure more generally.

Domestic, Legal and Market Contexts

At root, systems of private supply chain regulation developed by global buyers are intended to address the inability of locally-based public ones to ensure the maintenance of adequate labour standards (Graham and Woods, 2006). At the same time, it has been long acknowledged how local, host country institutional contexts can require multinationals to adjust their employment policies and/or face barriers to their implementation. Research on supply chains points in the same direction (Zhu and Morgan, 2017).

Private regulatory systems, such as those governing labour conditions in GSCs, do not transcend local contexts. Rather, they are necessarily and thickly intertwined with domestic laws, codes and practices, and resources to implement them (Bartley 2011; Berliner and Prakesh, 2014; Trubek and Trubek, 2007). To understand their impact, it is therefore important to understand how they interact with public forms of regulation (Eberlein et al., 2014). This is especially important in relation to OSH, since regulation plays such an important role in creating and enforcing OSH standards in virtually all jurisdictions globally. Yet there is not only enormous variation in the quality of regulatory requirements between countries, but also, and perhaps far more importantly, in the style and extent of the enforcement of such measures at the level of the workplace. Against this background, three rather different perspectives have been articulated on how private and public regulatory systems can productively combine together. One of these emphasises the general virtues of some form of mutually supportive complementarity between them (Locke and Romis, 2010; Locke et al., 2013). A second embodies the view that the state must remain a key actor in labour regulation because there is no substitute for the effective exercise of government authority. To be effective, private regulation must, from this perspective, therefore operate within an environment in which regulation is effectively enforced (Esbenshade 2004; Vogel 2010). Finally, a third builds on this view and argues that, instead of displacing the state as regulator, PCIs need to play an important role in developing and strengthening the capacity of the state (Kolben 2007; Kolben 2011). A key element here concerns the style and extent of local level public regulation and the resources that are deployed in its enforcement. A consistent pattern in relation to the arrangements of states for achieving compliance with public regulation on OSH is that there are seldom sufficient inspectors to inspect more than a very small proportion of the workplaces in which compliance with regulatory standards is required. At the same time, the resourcing of most such inspectorates is declining rather than increasing (ILO, 2006). Ways of addressing this problem are the subject of much policy and strategic planning among inspectorates internationally, but it remains widely recognized that OSH inspection in developing countries is considerably less well provided for than its equivalent in most advanced market economies, and all too often concentrated more on heavy industries within urban environments.

Analyses of the interactions between public and private forms of regulation indicate how they can be productively mutually reinforcing, while also suggesting that the effectiveness of the latter can be enhanced if it encompasses action to enhance the former. Indeed, the points made earlier about how the capacity of suppliers to comply with the OSH systems demanded by MNEs is often limited by the lack of surrounding supportive infrastructures further suggest that the effectiveness of such PCIs would be enhanced if they encompassed or would be accompanied with attempts to improve these infrastructures. Such attempts could, for example, include increasing access to occupational health services and professionals able to effectively identify, assess, control and monitor risks, and the development of systems to encourage investment in prevention, as well as the compensation and rehabilitation of ill and injured workers. From this perspective, it can therefore be argued that much current private regulation of OSH is too narrowly focused and partnerships with the broader institutional supporting functions on OSH are needed.

The actions of supplier organizations provide another potentially important way in which local contexts can influence the operationalization of the PCIs of multinational buyers. The argument of Locke that it is wrong to assume that asymmetrical power relationships invariably exist between buyers and suppliers usefully highlights how the balance of power between buyers and local suppliers may be such that the latter is in a position to either resist or, alternatively, oppose buyer attempts to improve health and safety standards. In fact, evidence relating to the operation of supply chains more generally indicates that the balance of dependency and hence power between buyers and suppliers can encompass situations of supplier, and buyer, dominance, as well as ones of mutual dependency (Cousins and Crone, 2003). It further indicates that it is situations of the last type that are most supportive of collaborative, problem solving relationships between buyers and suppliers (Dore, 1983).

These differences in dependency point to the fact that not only does the nature of buyer-supplier relationships vary considerably, but that they can do so within particular economies and sectors as a re-

sult of the varying capacities of buyers and suppliers to pursue their own market-driven interests. What may work in one part of a sector, for example, may not work in another part because of the differing configurations of market competition and actors in them. Such variations in dependency also usefully reinforce the point that the OSH dynamics within GSCs cannot be fully understood without taking into account the distribution of risks and power between the various actors, as well as how they are shaped by their respective business objectives and market locations. In doing so, they therefore additionally draw attention to the way in which such factors shape – both positively and negatively – the capacity of multinational buyers (or for that matter other types of actors) to influence them.⁸

Conclusions and the Implications for Knowledge

The evidence reviewed in this chapter indicates, as suggested at its outset, that a paradox surrounds the issue of OSH within GSCs. Such chains can simultaneously generate business models that maintain or enhance OSH deficits and yet frequently embody the potential to improve existing standards in the workplaces located at the end of them, with global buyers' requirements sometimes higher than public regulatory ones in sourcing countries. At the same time, there is good reason to believe that this potential has for the most part been, at best, only partially realized. In large part, this chapter has therefore been concerned with exploring the factors that, in influencing 'when' and 'with what effect' attempts are made to improve OSH standards in such chains, explain this situation. This exploration has identified a range of such influential factors as well as important limitations in what is known about them.

At the most basic level, weaknesses in knowledge are apparent in terms of the concrete OSH outcomes achieved when GSCs are used to try and protect and improve the OSH of often highly vulnerable workers labouring at the end of them. As outlined in the first section of this chapter, there is a substantial problem of poor data on virtually all of the indicators of OSH ar-

8 It has, for example, been observed that while a highly driven chain 'opens avenues for labour (as well as other social movements) to target strategic actor(s)', 'such leverage is more implausible where value chain strands are characterized by relatively loose market-based, trading relationships' (Risgaard and Hammer, 2011).

rangements and outcomes, as well as the factors that influence them. In particular, not only do more rigorous measures of OSH performance need to be utilized in future studies, but measures of the different dimensions of the relations between actors and processes are also required in order that the effects of these relations may be taken into account. For example, not only is it important to have information on indicators of such things as OSH standards, OSH awareness, OSH practices, social dialogue on OSH and so on, but sufficient information also needs to be obtained to link these dimensions to the wider economic and work status of all types of workers. This includes those working in farming contexts of the type examined in the case studies reported later. Consequently, if the effects of work at the ends of global supply chains and the means to improve it are to be properly understood, data are required to enable the analysis of the effects of such issues as contractual status, working hours, pay structure and incentives, levels of training/education, access to care outside of work, and access to sickness and maternity benefits.

Meanwhile, another basic weakness of existing research is that our lack of knowledge about OSH within GSCs becomes more pronounced if attention is focused on second, third and even lower tier levels of supply chains. As a result, while there is sometimes reasonably good data on what occurs at the first tier levels in supply chains, there is far less reliable information available concerning OSH in workplaces located lower down them. It is at these points where work engaged has been the subject of further contracting and sub-contracting arrangements, beyond a general understanding that as a result of a multifaceted lack of resources in sourcing countries, OSH conditions at these levels are most likely to become progressively poorer.

Existing evidence nevertheless indicates clearly, although not always in sufficient detail and with sufficient depth, that to understand why attempts on the part of multinational buyers are made to influence OSH standards in GSCs and with what success, there is a need to understand in a contextually informed way what 'motivates' such actions and what influences how these actions are 'translated' into operational policies and behaviours. In doing so, the evidence makes clear that the gaining of such understandings requires identifying key players and processes in the chains that can influence OSH arrangements and outcomes, and paying detailed attention to the factors that internally and

externally influence their actions and interactions. The foregoing analysis has detailed what existing evidence tells us about these factors and hence those that could potentially be harnessed by policy-makers to improve OSH standards in GSCs and beyond. For example, it highlights how, in many of the countries in which production originates, external pressure and support for improved OSH arrangements is often not only limited by weak infrastructures but also largely unexplored and unaccounted for in relation to lower tiers of the supply chain. One unfortunate outcome of this is that even if interventions are found to have some degree of success at higher levels in a chain, it simply cannot be assumed on the basis of existing knowledge that these positive effects will be transferred to lower tiers or even to actors and processes that lie outside the remit of a particular chain.

More widely, in examining current knowledge concerning the main influences that impact on OSH outcomes at each level within global chains, the chapter has revealed the extensive nature of the data needed to both understand the OSH related dynamics within GSCs and the potential points of leverage that can be utilized to improve them. Knowledge, for example, is shown to be needed on the structure and organization of work and employment within supply chains, including, among others, the nature of work remuneration, rights to freedom of association, and the roles of unions and collective bargaining. It is also needed on the nature of inter-firm relationships, such as the identity of main buyers, the purposes for which they purchase, the extent to which they seek to understand and influence OSH, as well as the methods they use to do so, and the balances of power subsisting between them and their suppliers. These issues in turn beg still further questions concerning, for example, the use made of certification, strengths and weaknesses in the use of auditing to ensure compliance, and what happens when non-compliance is identified.

Attention has similarly been drawn to the influence of national and local contexts on supply chain relations, including the constellations of institutional actors outside the immediate business relations within the supply chain that are relevant to the ways in which OSH is experienced and to the drivers and constraints for the improvement of this experience. While knowledge on the extent and effectiveness of these wider influences is often both limited and hard to obtain, these difficulties need as far as possible to be addressed since the evidence demonstrates that such factors are

critical in determining the outcomes of interventions higher up supply chains aimed at promoting good practice at the point of production. The role of national and local social protection and regulatory systems, including regulatory arrangements and their supervision, OSH prevention and treatment services, social insurance based services and so on, all exert influence over how OSH is managed at the enterprise level and it is therefore important to understand the strengths and limitations of these systems.

A further issue of importance identified in the preceding pages concerns the quality of what is being attempted by identifying leverage points in GSCs to improve the standard of OSH arrangements. That is, what is meant by such 'standards' in this context? This account has tried to be clear that, in keeping with the findings of research on OSH in small firms and the fissured and fragmented scenarios of the modern economies of developed as well as developing countries, conventional approaches to OSH management adopted by standards bodies globally and frequently implemented as requirements on their suppliers by global MNEs have serious limitations when applied to the realities of the production of goods and services within GSCs. If no account is taken of this knowledge in the development of strategies to support improvement, their effects will at best be limited by the contexts in which they are applied, and at worst be of little use in helping workers experiencing poor OSH arrangements in sourcing countries.

Finally, the preceding analysis carries important implications for the nature of future research. Conventional research methods within the field of OSH are often framed within natural science and medical paradigms in which quantitative approaches, survey design and representative power are key issues in the collection of evidence. However to understand the nature of influence in supply chain relations, the role of power and the socially and economically determined contexts in which relations take place and important influence on outcomes occurs, a different paradigm is required. While it is acknowledged that there is an important role for further quantitative research on OSH to help plug the gaps in knowledge concerning outcomes identified here, this type of research will not on its own provide the critical analysis of the quality of relations that determine these outcomes, or the wider economic, political and regulatory contexts that affect them. Research that is focused on OSH, but which is informed by qualitative social science methods, is consequently necessary

if our understandings of what works, for whom and in which contexts are to be best improved. Furthermore, in research focused on the relations of production and their OSH outcomes in developing countries, there is some merit in undertaking qualitative assessments first so that more quantitative and medical based research can then be used to explore and substantiate the findings emerging from such assessments. This is not least because in scenarios in which there are very few resources available for research, it is a more useful strategy to first scope where data and evidence on exposure and OSH outcomes are most needed in order to allocate resources efficiently and meaningfully. Bearing in mind that for large sections of human activities — such as in agriculture for example — there is little documentation in terms of OSH, the use of qualitative methods in this way is argued to be very much defensible.

It follows that the way forward in terms of improving understandings in relation to OSH at the points of global production involves the development of a set of organizing principles for a mixed method approach to research that can be tested, at the individual and collective levels, though triangulating data collected in specific case studies of practice and using them to provide a bridge between material already collected in a wider analysis of the value chain in question. In this way, it becomes possible to identify the drivers and bottlenecks that are acting to facilitate or constrain the effective management and control of occupational risks factors in a supply chain, which in turn can be used to identify possible interventions aimed at reducing the risks that workers face. In undertaking such an analysis, a primarily qualitative research methodology helps provide explanatory relationships (or inter-connections) that are not necessarily of a statistically verifiable nature, since the approach is not centrally concerned with testing hypotheses but rather with identifying and understanding inter-relationships. Such understandings may be multi- as opposed to uni-dimensional. In such a methodological approach it is widely accepted that the process of triangulation is a powerful means through which reliable understandings of the nature and strength of inter-connections can be obtained. This is the thinking that has informed the design of the empirical research that is the subject of the present report. As the next chapter will make clear, the research has produced robust and substantiated findings that, in keeping with the discipline of realist evaluation (see Pawson, 2006), form a solid, evidenced basis for policy and strategic intervention.



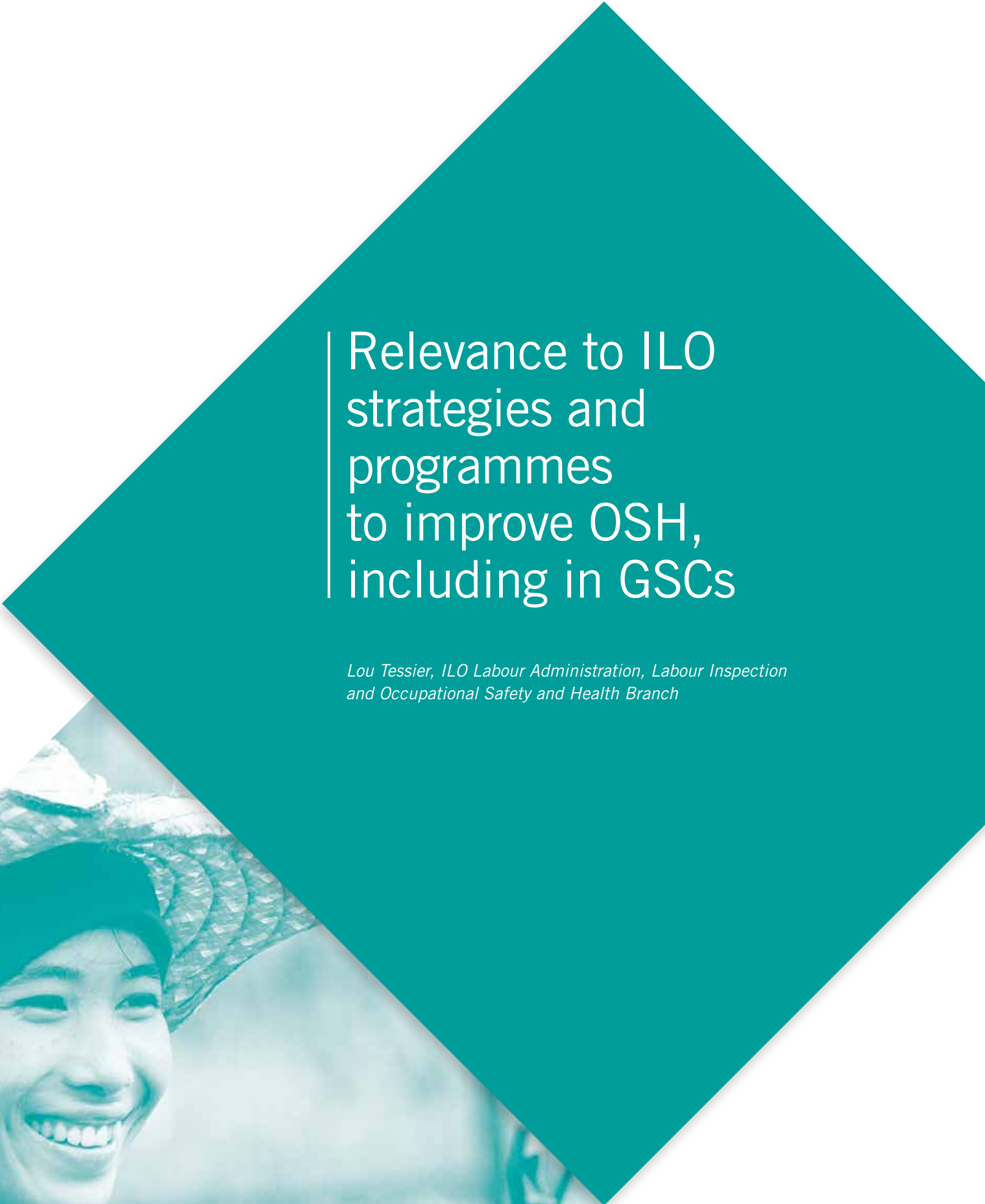
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Relevance to ILO strategies and programmes to improve OSH, including in GSCs

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The present section draws on the state of global evidence presented from three relevant research areas in the preceding sections, as well as from the three case studies conducted by the project. Both elements are relevant to ILO strategies and programmes to improve OSH as are the lessons learned by the project for suggestions on the way forward.

1. Strategic fit and relevant ILO instruments

1.1. Strategic fit

The protection of workers against sickness, disease, and injury arising out of work has been a priority area of action for the ILO since its creation⁹ and remains relevant today. The ILO fundamental principles on occupational safety and health (OSH) are embodied in the Occupational Safety and Health Convention, 1981 (No. 155), the Occupational Health Service Convention, 1985 (No.161), and the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187). The 2003 Global Strategy on OSH calls for an integrated approach that combines ILO standards with other means of action such as advocacy, awareness raising, knowledge development, information dissemination, and technical cooperation in order to maximize their impact and usefulness.

The importance of occupational safety and health is embedded in the programmatic priorities of the ILO. The ILO OSH GAP Flagship Programme is one of the five Flagship Programmes of the ILO, and seeks to foster the creation of a global culture of prevention with the objective of achieving reductions in the incidence of work-related deaths, injuries and diseases. The OSH-GAP defines specific areas that require attention, including:

- Small and Medium Enterprises (SMEs);
- Prevention of OSH hazards and risks in GSCs;
- OSH prevention in sectors such as agriculture and

construction, which require focused attention due to their persistent and significant hazards and risks, their contribution to economic development both at national and global levels, and the share and composition of the workforce in these areas;

- Especially vulnerable groups, such as young workers who suffer work-related injury at a much higher rate than older workers.

In relation to second area of intervention, the Flagship programme developed the Joint ILO-EU project to improve knowledge base and safety and health in global supply chains to support G20 work on safer workplaces, and also hosts the Vision Zero Fund initiative,¹⁰ which is a development cooperation initiative focused on reducing serious work-related accidents and illnesses in sectors linked to GSCs.

The OSH-GAP Flagship Programme seeks to achieve the overall objectives laid out above by:

- Strengthening national capacities to implement proactive systems-based approaches to safety and health using an outcome-oriented intervention framework;
- Building knowledge through the development of OSH indicators that drive preventive action, methodologies for collecting OSH data, and the undertaking of research to better understand the challenges to effective OSH prevention and potential drivers, notably in Global Supply Chains (GSCs);
- Supporting OSH professionals, institutions and networks at national, regional and global levels, which are key to the effective development and exchange of knowledge, information and data and development of scalable and sustainable interventions;
- Promoting demand for safe and healthy workplaces.

Through these interventions, the OSH GAP Flagship Programme seeks to make a significant contribution to the 2030 Sustainable Development Agenda, and in particular to Goal 8 on decent work and economic growth. The programme's work similarly strengthens Goal 3 on good health and well-being.

For the biennium 2018-2019, the ILO adopted within its programme ten outcomes, one of which will focus

9 It is in the Preamble of the ILO Constitution, 1919 and was further reaffirmed in the Philadelphia Declaration in 1944, and later in the Seoul Declaration in 2008, where the right to a safe and healthy working environment is recognized as a fundamental human right, not only as a labour right.

10 More details on this initiative available at: http://www.ilo.org/safework/projects/WCMS_517539/lang--en/index.htm (ILO, 2016c).

specifically on safe work, including in GSCs (*Outcome 7: Promoting safe work and workplace compliance including in global supply chains*). The inclusion of this outcome was driven in part by the ILC discussion on Decent Work in Global Supply Chains which took place in June 2016. The formulation of the outcome recognizes the need to understand market dynamics at play in workplaces linked to global supply chains as they may influence working conditions and OSH.

As underlined in the Resolution adopted in June 2016 by the ILC,¹¹ GSCs are complex and diverse and their impact on working conditions, including OSH, is poorly documented. In order to respond to this challenges, the ILO adopted a Programme of Action 2017-2021 on Decent Work in GSCs which identifies knowledge generation and sharing as a specific area of focus. The Resolution also emphasizes the opportunity which lies in those business arrangements to promote decent work. This project explores how that opportunity could be operationalized for the promotion of OSH and ultimately the improvement of OSH outcomes within and beyond GSCs.

1.2. Relevant ILO instruments

A large number of ILO instruments are relevant to the present research, which largely underlines the links of causality and correlations between the various components of decent work and OSH outcomes. In light of the findings of the case studies undertaken by the joint ILO-EU project on OSH in GSCs, it is

important to recall key ILO instruments that are of particular relevance to this research.

ILO Declaration on Social Justice for a Fair Globalization¹²

The Declaration sets the pillars of the decent work agenda, which include: employment, social protection, social dialogue, and rights at work. Those objectives are “inseparable, interrelated and mutually supportive”. This is of particular relevance for the present research, which underlines the importance of considering all four dimensions (or pillars) when seeking to understand OSH performance at company or sector level. The case studies also illustrate how the various components of social protection, as defined by the Declaration,¹³ are inter-linked when one seeks to identify the factors that contribute to the safe and healthy status of workers.

ILO Conventions, Recommendations, Protocols and Codes of Practice on OSH

The ILO adopted more than 40 international labour standards dealing directly or indirectly with occupational safety and health and a number of Codes of Practice on the subject. In light of the focus on food and agriculture global value chains, the following instruments are of particular relevance:

- The Safety and Health in Agriculture Convention, 2001 (No. 184) and the Safety and Health in Agriculture Recommendation, 2001 (No. 192) provide the principles and guidance for the establishment and enforcement of a national policy framework on OSH in agriculture.

11 “Global supply chains are complex, diverse and fragmented. Across textile, clothing, retail, footwear, automotive, food and agriculture, seafood, fisheries, electronics, construction, tourism and hospitality, horticulture, transport and other sectors, global supply chains have increased, facilitated by technological development. They have contributed to economic growth, job creation, poverty reduction and entrepreneurship and can contribute to a transition from the informal to the formal economy. They can be an engine of development by promoting technology transfer, adopting new production practices and moving into higher value-added activities, which would enhance skills development, productivity and competitiveness. (...) At the same time, failures at all levels within global supply chains have contributed to decent work deficits for working conditions such as in the areas of occupational safety and health, wages, working time, and which impact on the employment relationship and the protections it can offer.” ILC, 105th Session, 2016, Resolution concerning decent work in global supply chains following the general discussion on the basis of Report IV, Decent work in global supply chains (ILO, 2016a).

12 Adopted by the International Labour Conference at its Ninety-seventh Session, Geneva, 10 June 2008 (ILO, 2008a).

13 “(ii) developing and enhancing measures of social protection – social security and labour protection – which are sustainable and adapted to national circumstances, including:

- the extension of social security to all, including measures to provide basic income to all in need of such protection, and adapting its scope and coverage to meet the new needs and uncertainties generated by the rapidity of technological, societal, demographic and economic changes;
- healthy and safe working conditions; and
- policies in regard to wages and earnings, hours and other conditions of work, designed to ensure a just share of the fruits of progress to all and a minimum living wage to all employed and in need of such protection;” (ILO, 2008a).

- The Labour Inspection (Agriculture) Convention, 1969 (No. 129), and Recommendation (No. 133) provide the principles and guidance for the establishment of a system of labour inspection in agriculture.
- The Employment Injury Benefits Convention, 1964 (No. 121), and Recommendation (No. 121), provide principles and prescribe minimum benefit packages in case of employment injury or diseases. The Convention lays out clearly the role of employment injury schemes in taking measures to prevent accidents (article 26). The provisions of those instruments are further taken on board as part of the Social Security (Minimum Standards) Convention, 1952 (No. 102), and prevention as well as employment injury benefits are further recognized as components of a national social protection floor as part of the Social Protection Floors Recommendation, 2012 (No. 202).
- The Occupational Health Services Convention, 1985 (No. 161), and Recommendation (No. 171), provide principles and guidance for the progressive establishment occupational health services for all workers.
- The Chemicals Convention, 1990 (No. 170) and Recommendation (No. 177), provide principles and guidance for the regulation of chemicals in use at work (classification, labelling, prevention, control, information, workplace cooperation, etc.).
- The Plantations Convention, 1958 (No. 110), and Recommendation (No. 110), cover a limited category of agricultural undertakings on a wide range of working conditions, including OSH.
- The Safety and Health in Agriculture Code of Practice and the Guide to Health and Hygiene in Agricultural Work. The Code of Practice is intended to raise awareness of the hazards and risks associated with agriculture and promote their effective management and control. The Guide provides information on occupational accidents, occupational safety, living conditions, environmental hygiene, pesticide poisoning, occupational diseases, ergonomics problems, organization of occupational health services and medical inspection for agricultural workers.

The above-mentioned instruments are completed by a wide range of instruments on OSH, for which a list is available in the annex.

ILO Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy (1977)

The MNE Declaration is the only ILO instrument that provides direct guidance to enterprises on social policy and inclusive, responsible and sustainable workplace practices.¹⁴ Its principles are addressed to MNEs, governments, and employers' and workers' organizations and cover various areas related to working conditions, including a chapter on OSH. The MNE declaration is of interest to the present research in the sense that within all three value chains of study, multinational companies are involved in one or several stages or steps of production and commercialization. One provision of particular pertinence to the findings of the case studies is the fact that the Declaration underlines that MNEs "should also make available to the representatives of the workers, and upon request, to the competent authorities and the workers' and employers' organizations in all countries in which they operate, information on the safety and health standards relevant to their local operations, which they observe in other countries. In particular, they should make known to those concerned any special hazards and related protective measures associated with new products and processes". The fact that some MNEs are integrated vertically and present in various countries (with different legislation on OSH and level of access to technology), can facilitate the adoption of safe practices across their operations in different countries and accompany technological and functional upgrading.

Another aspect of interest of the Declaration is the following provision: "Where appropriate, matters relating to safety and health should be incorporated in agreements with the representatives of the workers and their organizations." In practice, an increasing number of International Framework Agreements (IFAs) integrate provisions on OSH (ETUC-CES, Syndex, Sustainlabour, 2010). As part of their development, IFAs are growing in scope (topics), coverage (often including provisions on suppliers) and enforcement mechanisms. A large proportion of IFAs mention OSH¹⁵ or include OSH clauses, which is a reflection of the high priority given to the topic. Whereas suppliers are almost always

14 It was adopted close to 40 years ago (amended in 2000 and 2006) and revised in 2017.

15 58 IFAs, representing 85 per cent of the signed IFAs in 2010.

mentioned in the IFAs, they are often not the object of detailed clauses on OSH, as only five agreements have detailed concrete mechanisms to promote OSH through their supply chain.¹⁶ Though IFAs often fail to mention concrete OSH indicators and targets to monitor improvement,¹⁷ the fact that an increasing number of agreements allocate financial resources to the IFA and contain specific monitoring and evaluation arrangements, are indicative of their increasing efficacy.

ILO's work on private compliance initiatives

Private compliance initiatives (PCIs) have proliferated globally since the 1990s and the three case studies illustrate their reach and modus operandi.¹⁸ With origins in North America and Europe, PCIs linked to monitoring compliance with voluntarily undertaken corporate social responsibility (CSR) commitments are active in various regions and economic sectors.¹⁹ All the PCIs that the three case studies came across have provisions on OSH in their principles and compliance points, with various degrees of depth in the indicators they consider. PCIs originally operated in sectors characterized by labour intensive production, in countries (particularly developing countries) lacking labour law compliance mechanisms sufficient to satisfy reputation-sensitive buyers whose consumers were concerned about the environmental or working conditions under which the products were made. The impact of those mechanisms on working conditions and OSH remain poorly documented, and the available evidence tend to focus on specific cases (Schuster and Maertens, 2016). There is a further issue in terms of who defines those standards (Nelson, and Tallontire, 2014), how much public disclosure they require (Oka, 2010) and the assumption that global buyers with demanding consumers always have the power to ensure their implementation (Walters and James, 2011).

The ILO hosted a Meeting of Experts on Labour Inspection and the Role of Private Compliance Ini-

tiatives in Geneva, 10–12 December 2013 (ILO, 2013c). Its purpose was to deepen the knowledge of the ILO, its member States and employers' and workers' organizations on labour inspection and the role of private compliance initiatives and to consider good practices and possible policy responses at the national, regional and international levels. The discussions underlined the various areas of possible complementarity and collaboration as well as the various issues in regards to collaboration between labour administrations, labour inspectorates and PCIs. The case studies illustrate the large diversity of PCIs and that, at the moment, articulations with national labour inspection systems are not yet in place, notwithstanding attempts of collaboration in Indonesia for example between the public compliance initiative and the private one for palm oil.

2. Lessons learned from existing research and the three case studies

2.1. Drivers and constraints for OSH improvement in GVCs

The available scientific literature and impact studies on OSH in the specific context of GSCs remains limited (EU-OSHA, 2012; Walters and James, 2010; White and Benjamin, 2003), and even scarcer is the literature looking at OSH impacts of GSCs outside of the supply chain itself (i.e. possible spillover effects) in sourcing countries (Asfaw et al., 2010). Overall the literature reaches conclusions similar to those of the case studies, underlining that the integration in a

16 EDF, IKEA, Inditex, Italcementi and Rhodia.

17 Seven mention the target of zero accidents.

18 PCIs are defined by their status as private, voluntary mechanisms for monitoring compliance with established public (law or regulations) or private (codes of conduct, etc.) standards. They exist in a variety of types, including self-assessments (management systems), auditing (internal and external), certification and labelling, and public reporting. All PCIs, regardless of their type, aim at displaying levels of transparency, externality to the enterprise, consistency with national law, and advisory services. (ILO, 2013b)

19 See for instance: Maloni and Brown, 2006.

global market is both driving and constraining OSH improvement within workplaces in sourcing countries, depending on the specific market situation (in both sourcing and consuming countries) as well as existing enforcement systems and supporting functions at national level.

As illustrated by the case studies, specificities of global value chains' impacts on OSH are, much like those GVCs themselves, complex and often multi-layered. Examples of contextual, indirect and multi-layered impacts include:

- In supply chains where relationships between buyers and suppliers are highly transactional (Gereffi and Lee, 2012) and product differentiation and visibility is low, more time pressure and less stability of orders for suppliers down the supply chain can result in higher probability of work accidents and diseases (James et al., 2007; Saurin and Ferreira, 2009; Brown, 2002). Some specific examples can be found in the case study on palm oil from two regions in Indonesia where spot transactions were identified by various types of actors as a constraint to promote safe practices as part of sustainability initiatives to the smallest actors in small holdings.
- Integration in the global economy can result in functional upgrading (Sudha, 2014; Chemnitz, 2012). This is often accompanied by the appearance of new risks in evolving workplaces, for which national systems on OSH are not always ready (see for example Marucci-Wellman et al. 2011). An interesting example is given in the case study on the lychee value chain from Madagascar, where sulphur treatment of fresh fruit was introduced as a means to access the global market, with the apparition of a series of risk factors that were new to both management and workers.
- In supply chains where high importance is put on product quality and global buyers' image, new demands for risk management systems throughout the supply chain appear. Various examples can be drawn from the case study on coffee from three producing regions of Colombia, where some global buyers whose market positioning is based on high quality products have invested in supporting coffee producers towards work processes that are safer but also towards overall well-being as a strategy to ensure long-term sustainability of their supply base.
- In supply chains where relationships between buyers and suppliers are collaborative (Gereffi and

Lee, 2012), there are transfers of knowledge and technology for managing occupational risks and improving productivity (ILO, 2008 and Kristjansdottir, 2007). For instance, as illustrated by the case studies, lychee importers and exporters are increasingly engaged in participating directly on work processes improvements at the lychee treatment stage and recently towards producers, notably due to the long-term relationships established between the actors and the stability of the commercial relationship.

- When good practices on safety and health exist in a global supply chain, these are not necessarily widely adopted at producing country level. Good practices spread to non-GSC workplaces only when relevant institutions actively take this mandate forward (see for example Ribeiro et al., 2012). For example, the national federation of coffee growers in Colombia, which not only built on existing PCIs and sustainable sourcing policies to extend their reach to more farmers and partnered with the Ministry of Labour to enhance knowledge on the safety and health risk factors on coffee farms.
- In many GSCs, increasing demands for environmental management and the adoption of greener practices contribute to the elimination or reduction of risks to workers and their communities (Molamohamadi and Ismail, 2014). For instance there are provisions on clean water management within the various PCIs that apply to the three studied GVCs.

When looking closely at the examples of OSH upgrading achieved by certain actors in the three GVCs of study, it is clear that both public and private action is required. From the experiences that were collected, it seems the involvement and collaboration of various actors and the combination of several types of interventions were needed to effectively improve OSH at scale. In this respect, more work could be done on the recognition and coordination of those actions.

In terms of OSH improvement, it comes out clearly from the case studies as well as scientific literature on the topic (Walters and James, 2010; White and Benjamin, 2003) that enforcement needs to go hand in hand with supporting functions if compliance and well-being at work are to be reached. In this respect, several factors pushed governments in sourcing countries to give some attention to the issues of OSH as it relates to GSCs. Among those factors, the signature of trade agreements with labour provisions

spelling out specifics on OSH may have been an influence (Brown, 2005; ILO, 2013). Four important points for the creation of an enabling environment for OSH include:

- The importance of promoting and supporting labour inspection systems that focus on achieving compliance, by shifting the focus from reactive and routine inspections towards the strategic and target utilization of inspections to drive compliance coupled with the engagement of multiple stakeholders who are in a position to influence and sustain compliance in a maximum number of work places (Leppink, 2017).
- The necessity of developing skills on OSH and well-being at work at national level but also within companies (Brown, 2015; Eisenbraun et al. 2015). Indeed, when it is not the case, as illustrated by the case studies, OSH management systems tend to focus on high visibility, immediate severity, low probability risks, often overlooking the importance of risk factors with less visible or long-term consequences (such as occupational diseases).
- The correlated necessity to develop access to Occupational Health (OH) services as an integral part of an enabling environment for promoting health and well-being in value chains operating in developing countries (Salerno, 2004). The lack of needed competencies to implement effective OSH management systems along with the scarcity of reliable data on occupational diseases in developing countries, especially in the rural and informal economy, are linked to the low availability of OH services (poor health surveillance) and feeds the justification not to invest in them at the same time (unavailability of incidence rates and such outcome indicators).
- The linkages between OSH outcomes and the existence of a functioning social protection system as well as the state of related working conditions (especially wage structure and contracting relationships) (see for example, Tadesse et al., 2015). The three case studies illustrate that OSH hazards and risks are not limited to physical, chemical and biological factors and that negative OSH outcomes are particularly correlated with the lack of access to social protection – especially sickness and medical care, maternity protection and employment injury benefits – and specific conditions of work, such as shift work and wages based on

piece work and bonus schemes. Further, workers in temporary or outsourced employment and independent workers are often isolated from the full spectrum of OSH legal provisions, enforcement mechanisms and supporting functions.

Creating and sustaining the capacities that are of critical importance to build an enabling environment for OSH in value chains (whether or not integrated in GSCs) requires a high level of coordination among systems and functions, which in practice are often dispersed among multiple actors. This dispersal of necessary systems and functions among multiple actors also presents challenges related to ownership of responsibility and provision of needed financial resources not only at the national level but also at the sector and workplace level.

2.2. Existing evidence and gaps

Few tools and research tracing supply chains and addressing OSH issues specifically

As mentioned, the academic literature underlines the knowledge deficit that exists on OSH in GSCs and on the spillover effect from GSCs to value chains directed at the domestic market (EU-OSHA, 2012; Walters and James, 2010; White and Benjamin, 2003). The available research tends to have the following characteristics:

- Adopting a top-down approach, trying to trace GSCs from the global buyer in a consuming country upstream. This approach tends to be limitative as those top-of-the-chain actors often have limited visibility and traceability on the first stages of production in the value chain. As a consequence, most of the available literature and evidence tends to focus on first tier suppliers in sourcing countries.
- Focusing on manufacturing, hence does not consider the impact of environmental factors on workplace hazards and risks and often overlooks key constraints for enforcement and supporting functions that are particularly acute in rural settings (see for example International Conference on Chemicals Management Secretariat, 2015).

The same phenomenon is apparent within the major programmes and initiatives addressing decent work

in GSCs. There is a lack of tools to i) trace global value chains from beginning to end; ii) evaluate OSH hazards and risks at the different stages of production and assess their root causes; and iii) understand the specific conditions in which the value chain operates. Having this information is key to formulate interventions that are pertinent to the context (i.e. may use existing leverage points in the value chain) and will effectively improve OSH outcomes (i.e. are result-based and may involve actors that do not traditionally work on OSH).

GSCs: an untapped potential for knowledge sharing on OSH

There is a need to establish innovative means to improve working conditions and OSH in supply chains that also contribute to improvements in the OSH governance (in the sense of governing processes) in developing countries. Fostering synergies among all actors would improve compliance and strengthen national capacity to protect the health and safety of workers in a sustainable way. Gaining a better understanding of working conditions and OSH throughout the supply chain (including both formal and informal suppliers) can be an entry point for the protection of the most vulnerable workers, and ultimately contribute to benefiting all workers in producing countries.

In all three case studies, four entry points are identified to realize this potential:

- Institutional capacity building through engagement of support functions with GVCs in sourcing countries. Indeed, as noted throughout the case studies, GVCs in food and agriculture, because of specific requirements of end market, often have more resources (the international market may remunerate better, especially if part of a PCI scheme), are at least partly integrated in the formal economy, and have acknowledged links and structure between actors. For supporting functions in sourcing countries that have limited institutional capacity, those characteristics may create an easier bridge to build their capacity and replicate the good practices that they developed in one supply chain to other sectors and progressively to the entire economy.
- Knowledge sharing horizontally at each step of the supply chain that reaches the most vulnerable workers. When OSH vulnerabilities are identified at a specific stage of the value chain, downstream actors may be mobilized to tackle the issue. In this

respect, downstream actors, often with established OSH management systems, trained professionals and monitoring systems would have the potential to support smaller actors who are further removed from the formal sector.

- Knowledge sharing horizontally at each step of the supply chain towards the most vulnerable workers. If and when OSH vulnerabilities have been identified, at each stage of production actors could share experiences on best OSH practices. As illustrated by the case studies, some actors (who for instance may have access to higher-value markets or may be part of a Foreign Direct Investment - FDI) have developed advanced systems to control risk factors and benefit from synergies between OSH and productivity at their stage of production. This wealth of knowledge and experience could be shared across the rest of the sector, including to those actors who may supply only the domestic market, so as to avoid the creation of two tiered sectors (i.e. those with good OSH practices and those without them).
- Knowledge sharing across different sourcing countries on prevention measures within supply chains of the same product. This last opportunity is of particular interest to OSH. Hazards and risk factors are highly contextual and dependent on work processes. Consequently, innovations on OSH developed for specific value chains in one sourcing country could potentially benefit others. In terms of possibilities to further leverage some market influence, global buyers may source from different countries a single product and may be willing to engage more easily on safer practices that would benefit their entire supply base.

Data gaps on OSH outcomes in GSCs

To prevent accidents and diseases, it is important to be able to detect them and understand their causes. The availability of data on occupational accidents and diseases is thus central to an effective OSH management system at company, sector and national levels. As illustrated by the case studies, the availability of data on OSH indicators in GSCs joins the overall issue of availability of reliable data on OSH outlined within existing research (synthesized in ILO, 2012 as well as the World Day for Safety and Health at Work 2017 “Optimize the collection and use of OSH data”, ILO, 2017b).

The Resolution concerning statistics of occupational injuries (resulting from occupational accidents), adopted by the Sixteenth International Conference of Labour Statisticians (ILO, 1998) defines three types of indicators for OSH: indicators of outcome (i.e. number of occupational injuries and diseases, number of workers involved and workdays lost), indicators of capacity and capability (i.e. number of inspectors or health professionals dealing with occupational safety and health) and indicators of activities (i.e. number of trainee days, number of inspections). Those indicators are meant to capture the state of occupational safety and health of the working population (outcomes) as well as the capacities available and efforts effectively put in place to improve those conditions (capacity, capability and activities). The main sources²⁰ for the collection of those indicators are as follow as well as their limitations and challenges in terms of coverage, accuracy and comparability (ILO, 2017c):

- Labour inspection statistics:²¹ the record of notification of occupational accidents and diseases to the Labour Inspectorate is often based on legal requirements for employers to declare such accidents and diseases, though under-reporting remains an issue in the formal economy and those requirements usually do not reach the informal economy. Additional labour inspection statistics can provide a range of capacities, capabilities and activities indicators.
- Records of claims to employment injury insurance schemes: the claims for compensation in case of an occupational accident or disease under statutory social insurance represent the incidence of compensable injuries and diseases for the covered population. In low and middle income countries, the covered population represents often only a small part of the workforce, leaving out the informal economy and often workers outside of permanent employment in the formal economy (ILO, 2015a).
- Health surveillance data: morbidity and mortality related to occupational accidents and diseases is seldom available in developing countries,

often because the health system is not equipped to produce this type of data (i.e. little availability of skilled personnel able to detect morbidity and mortality related to exposure to occupational risk factors, limited availability and geographical and financial accessibility of OH services and general health services, lack of monitoring system in place, lack of centralized database with disaggregated data, etc.). Those challenges explain that an occupational burden of diseases at national level is seldom available. Those challenges also explain why data on occupational diseases remains scarce, even when data on accidents is available.

- Sustainability reporting: Some enterprises, public authorities and NGO's worldwide currently publish sustainability reports including the economic, environmental and social impacts caused by their everyday activities. Many of these reports contain disclosures of OSH data, such as the reports that conform to the Global Reporting Initiative (GRI). Still, the published data concerns specific establishments or companies and are not aggregated in a way that would allow for it to be comprehensive and comparable across establishments, sectors and countries.

The three first above-mentioned sources of data are usually compiled at the national level and disaggregation is seldom available by sector, let alone by specific supply chain. Within the three case studies developed as part of the ILO-EU project on OSH in GSCs, the case of coffee in Colombia stands out in the joint effort from the National Federation of Coffee growers and the Ministry of Labour in gathering OSH data specifically on the supply base of the chain.²² The lack of compiled, comprehensive and reliable OSH data at the various stages of production of supply chains creates a barrier to raising awareness and building consensus on priority prevention actions. It creates a further disincentive to invest in issues that tend to be seen as intangible, especially by actors who may be disconnected from an institutional supporting environment on OSH (i.e. as illustrated by the case study interviews conducted with farmers and their families in rural and remote areas).

20 Additional sources may include incident reporting schemes, survey of workers and employers, social protection (encompassing social insurance and assistance) institution records, emergency services records, etc. The ILO recommends establishing a coordinating committee at national level comprising representatives of government, other producers of statistics on occupational injuries and employers and workers' organizations.

21 For further reference and guidelines see: ILO Convention on Labour Inspection, 1947 (No. 81) as well as ILO, 2016b and ILO, 2017a.

22 The two institutions partnered to conduct a survey on occupational safety and health among coffee growers in 2013 and 2014.

3. Suggestions for the way forward

The research conducted as part of the Joint ILO-EU project to improve knowledge base and safety and health in global supply chains to support G20 work on safer workplaces can inform the way forward for the ILO's promotion of OSH as well as the Programme of Action 2017-2021 on Decent Work in GSCs. In particular, the project evidenced three key findings: i) the importance of understanding how GVCs operate in their entirety in order to propose interventions that would effectively improve OSH within and beyond those GVCs; ii) the importance of the role of national OSH systems (in which GVCs operate) and the need to bridge significant data and evidence gaps on OSH outcomes in sourcing countries; and iii) the need for a wide range of actors to be mobilized on the topic of OSH and well-being at work across production networks and enforcement and supporting functions, which supposes sustained political commitment in that direction.

As it relates to the first point, the project developed a research approach adapted from the Markets Systems for Decent Work framework (ILO, 2015). This approach can become a tool to scope interventions that would effectively improve OSH within GVCs and beyond. Indeed, the methodology developed by the project (detailed in the second volume of the present publication) allows identification of:

- i) Main risks and vulnerabilities at different tiers of supply chains;
- ii) Commercial practices and institutional gaps in which vulnerabilities are rooted;
- iii) Actors, incentives and capacities to contribute to OSH improvement;
- iv) A mix of public and private interventions that can improve OSH outcomes.

Based on a thorough understanding of the dynamics of the value chain as well as the market and institutional system in which it operates, entry points for OSH improvement within and beyond the value chain can be identified and further developed into intervention models. A future area of work could be

the refinement of this methodology through its application to other value chains and countries in order to reinforce its robustness and standardize its various tools for their easy adaptation to a variety of contexts.

Since the methodology developed by the project is based on the review of existing data and evidence on a given market and institutional system and then on further qualitative research, it outlined clearly within the three case studies that a data gap on OSH needed to be bridged in a number of countries and sectors of the economy. The case studies illustrate to a large extent the observation made by ILO constituents over time and which led the ILO OSH GAP Flagship Programme to put forward OSH data as a priority area of work. Based on the project's experience in conducting the case studies, the following elements may be of particular importance: i) the investment needed in data and evidence on occupational diseases and long-term health effects of exposure to occupational risk factors, in general, in developing countries and more specifically in rural settings, as the existing systems for data collection and indicators largely focus on safety and accidents and on urban activities; ii) the investment needed in documenting the business case for OSH at company and farm level, as there is an untapped potential to advocate for OSH from a productivity perspective (which would also be more organic than the current focus on compliance for legal or market requirements of third parties – often perceived as external pressures); iii) the importance of coordination and consistency in gathering data on OSH, which may come from various sources, some of them seldom looked at (i.e. records of health facilities, annual reporting of companies, etc.), in this respect some countries such as Brazil²³ are experimenting with new systems of data analysis for OSH that have the potential to greatly influence interventions for OSH improvement.

As underlined throughout the research led by the project, coordination and wide mobilization of actors in GVCs as well as their market and institutional environment is paramount to achieving improvements in OSH outcomes within and beyond GVCs. This requires sustained political commitment over time and effective coordination towards improved OSH outcomes. The current political momentum on prevention, which is high on the G7 and G20 agenda,

23 See "World Safe Day 2017: new and innovative partnership launched in Brazil Brasilia, 28 April 2017" accessible at: www.ilo.org/wcmsp5/groups/public/---ed.../---lab_admin/.../wcms_551554.pdf

must be sustained and mobilized to benefit the most vulnerable workers and sectors, notably in developing countries, including in countries that face challenges to benefit fully from global trade, partly due to deficiencies in their legal enforcement systems, and

supporting functions to foster decent work. In this perspective OSH is a fertile entry point, as it mobilizes improvement of work processes, with spill overs on productivity and requires collaboration between workers, employers and governments.



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Annex

ILO Instruments on Occupational Safety and Health

General provisions

Up to date instruments

- C155 - Occupational Safety and Health Convention, 1981 (No. 155)
- P155 - Protocol of 2002 to the Occupational Safety and Health Convention, 1981
- R164 - Occupational Safety and Health Recommendation, 1981 (No. 164)
- C161 - Occupational Health Services Convention, 1985 (No. 161)
- R171 - Occupational Health Services Recommendation, 1985 (No. 171)
- C187 - Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187)
- R197 - Promotional Framework for Occupational Safety and Health Recommendation, 2006 (No. 197)
- R097 - Protection of Workers' Health Recommendation, 1953 (No. 97)
- R102 - Welfare Facilities Recommendation, 1956 (No. 102)
- R194 - List of Occupational Diseases Recommendation, 2002 (No. 194)
 - Instrument with interim status
 - R031 - Prevention of Industrial Accidents Recommendation, 1929 (No. 31)

Replaced Recommendation

- R112 - Occupational Health Services Recommendation, 1959 (No. 112)

Protection against specific risks

Up-to-date instrument

- C115 - Radiation Protection Convention, 1960 (No. 115)
- R114 - Radiation Protection Recommendation, 1960 (No. 114)
- C139 - Occupational Cancer Convention, 1974 (No. 139)
- R147 - Occupational Cancer Recommendation, 1974 (No. 147)
- C148 - Working Environment (Air Pollution, Noise and Vibration) Convention, 1977 (No. 148)
- R156 - Working Environment (Air Pollution, Noise and Vibration) Recommendation, 1977 (No. 156)
- C162 - Asbestos Convention, 1986 (No. 162)
- R172 - Asbestos Recommendation, 1986 (No. 172)
- C170 - Chemicals Convention, 1990 (No. 170)
- R177 - Chemicals Recommendation, 1990 (No. 177)
- C174 - Prevention of Major Industrial Accidents Convention, 1993 (No. 174)
- R181 - Prevention of Major Industrial Accidents Recommendation, 1993 (No. 181)

Instrument to be revised

- C013 - White Lead (Painting) Convention, 1921 (No. 13)
- C119 - Guarding of Machinery Convention, 1963 (No. 119)
- R118 - Guarding of Machinery Recommendation, 1963 (No. 118)
- C127 - Maximum Weight Convention, 1967 (No. 127)
- R128 - Maximum Weight Recommendation, 1967 (No. 128)
- C136 - Benzene Convention, 1971 (No. 136)
- R144 - Benzene Recommendation, 1971 (No. 144)
- R003 - Anthrax Prevention Recommendation, 1919 (No. 3)
- R004 - Lead Poisoning (Women and Children) Recommendation, 1919 (No. 4)
- R006 - White Phosphorus Recommendation, 1919 (No. 6)

Withdrawn instrument

- R032 - Power-driven Machinery Recommendation, 1929 (No. 32)

Protection in specific branches of activity

Up-to-date instrument

- C120 - Hygiene (Commerce and Offices) Convention, 1964 (No. 120)
- R120 - Hygiene (Commerce and Offices) Recommendation, 1964 (No. 120)
- C167 - Safety and Health in Construction Convention, 1988 (No. 167)
- R175 - Safety and Health in Construction Recommendation, 1988 (No. 175)
- C176 - Safety and Health in Mines Convention, 1995 (No. 176)
- R183 - Safety and Health in Mines Recommendation, 1995 (No. 183)
- C184 - Safety and Health in Agriculture Convention, 2001 (No. 184)
- R192 - Safety and Health in Agriculture Recommendation, 2001 (No. 192)

Instrument with interim status

- C045 - Underground Work (Women) Convention, 1935 (No. 45)

Outdated instrument

- C062 - Safety Provisions (Building) Convention, 1937 (No. 62)

Replaced Recommendation

- R053 - Safety Provisions (Building) Recommendation, 1937 (No. 53)
- R055 - Co-operation in Accident Prevention (Building) Recommendation, 1937 (No. 55)

All the instruments are available in the Normlex database of the ILO at: www.ilo.org/dyn/normlex/en

Additional information on OSH national legislations can be found on LEGOSH, the Global database on occupational safety and health legislation, available at: www.ilo.org/dyn/legosh/en

Codes of practice on OSH

Occupational exposure to airborne substances harmful to health, 1980.

Safety in the use of asbestos, 1984.

Safety and health in coal mines, 1986.

Radiation protection of workers (ionizing radiation), 1987.

Safety, health and working conditions in the transfer of technology to developing countries, 1988.

Safety and health in opencast mines, 1991.

Prevention of major industrial accidents, 1991.

Safety and health in construction, 1992.

Technical and ethical guidelines for workers' health surveillance, 1992.

Safety in the use of chemicals at work, 1993.

Recording and notification of occupational accidents and diseases, 1995.

Management of alcohol- and drug-related issues in the workplace, 1996.

Protection of workers' personal data, 1997.

Safety and health in forestry work, 1998.

Use of synthetic vitreous fibre insulation wools (glass wool, rock wool, slag wool), 2000.

Guidelines on occupational safety and health management systems, 2001.

Ambient factors in the workplace, 2001.

HIV/AIDS and the world of work, 2001.

Safety and health in the non-ferrous metals industries, 2003.



This publication
benefited from
funding from the



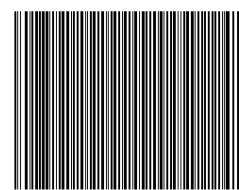
This project was implemented in the framework of the ILO's Global Action for Prevention on Occupational Safety and Health (OSH GAP) flagship programme.



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978-92-2-330285-8