



International  
Labour  
Organization

# ► **Knowledge Intensive Business Services - gaps in environmental management in the textile and garment sector: Synthesis report**

December 2022

## Key points

- ▶ A critical weakness in the environmental management systems in the textile and garment sector is the lack of business services to provide high level, technical expertise, and services in environmental management. These types of knowledge activities and services are referred to as knowledge intensive business services (KIBS) and are critical in supporting innovation and new knowledge acquisition in workplaces and sectors.
- ▶ KIBS are important conduits for knowledge and innovation in emerging economies, although in these economies they may not be as prevalent as in developed economies. Developing markets for KIBS can be an important avenue for increasing innovation (including eco-innovation) and knowledge intensity in sectors and economies.
- ▶ Analysis and mapping of KIBS access and availability in four countries – Bangladesh, Cambodia, Indonesia, and Viet Nam highlights access to these services is hampering enhanced environmental sustainability in the sector. This Brief summarises the comparative analysis of these four country studies.

Recommendations emerging from cross country analysis for sector stakeholders include:

- 1. Developing sector specific regulatory and environmental guidance in each of the countries where the sector is prominent.** Increasing demands by international brands and buyers for increased environmental performance provides some opportunity for harmonising this guidance across the region.
- 2. Encourage and reward beyond minimum compliance practices** – the current system's focus on minimum environmental performance does not provide incentives for continuing improvement over time. Such incentives would reward eco-innovations but would also create more demand for KIBS in the domestic market.
- 3. Ensure international trade agreements also build capacity for environmental sustainability practices** – Trade agreements are increasingly shaping purchasing practices across the sector, but sourcing countries, in implementing these agreements need to ensure that there is domestic capacity to comply with these standards, otherwise these agreements will contribute to increasing inequality and power asymmetries in the sector, which can have unintended consequences for environmental and social sustainability ambitions.
- 4. Undertake collaborative analysis of environmental skills needs across the region and identify best practice environmental KIBS accreditation** – demand for environmental skills will increase rapidly over the next decade – to prepare for this mapping and planning for how skills needs will be met and ensuring quality environmental management services and KIBS provides an opportunity to collaboratively identify best practice.

## ► About the project

---

The Decent Work in the Garment Supply Chains in Asia (DWGSCA) project funded by the Swedish International Development Corporation Agency (SIDA) aims to support decent work and sustainability in the garment sector. In Outcome 4 environmental sustainability is the focus with the overall objective that industry stakeholders can more effectively apply knowledge and tools to promote environmental sustainability across the sector. Outcome 4 activities are focused in four target countries: Bangladesh, Cambodia, Indonesia, and Vietnam.

Outcome 4 has four sub areas of focus – one of which is the role of environmental regulatory systems in supporting environmental sustainability. The *Effective Regulations project* investigates gaps and weaknesses in national environmental regulation in the four focus countries (Bangladesh, Cambodia, Indonesia, and Viet Nam) and provide examples of best practice. Research findings highlighted that while there were varying strengths and weaknesses in environmental management systems in each of the four countries analysed, each system was supported by a strong legal framework with clear delineation of environmental management processes and decision-making (ILO, 2021). Further the report highlighted that weakness in environmental regulatory systems were more evident in:

- access to the professionals with technical skills and experience required for the conduct and approval of environmental management activities
- the availability and quality of baseline data to identify and quantify environmental impacts
- the lack of awareness and experience of industrial proponents on the importance of EIA and the need to mitigate environmental impacts, and how this links to sustainable development
- enforcement activities and enforcement systems; and
- the overall knowledge sharing and learning systems to support the improvement of practices based on past experiences.

These weakness highlight capacity gaps in specific occupations and business services to support increasingly sophisticated environmental management activities. These types of knowledge activities and services are referred to as knowledge intensive business services (KIBS) and are critical in supporting innovation and new knowledge acquisition in workplaces and sectors.

Knowledge intensive business services or KIBS are businesses that provide knowledge and innovation inputs into the business processes of other organisations – such as computer services, research and development services, engineering, and technical services, legal and accounting (Miles 2005). KIBS help other organisations access needed external knowledge sources. KIBS have been shown to be highly important in environmental innovation, as they help client organisations access and integrate complex new knowledge associated with eco-innovations, that is often outside the bounds of the organisation's own internal knowledge base (Pace and Miles, 2020).

KIBS are important conduits for knowledge and innovation in emerging economies, although in these economies they may not be as prevalent as in developed economies. Developing markets for KIBS can be an important avenue for increasing innovation (including eco-innovation) and knowledge intensity in sectors and economies.

## Environmental impacts of the sector

The textile and garment sector has many environmental impacts. These impacts are concentrated at certain points in the supply chain, particularly in four areas:

- the weaving, dyeing, and finishing processes in textile manufacturing
- energy use

- textile waste associated with garment assembly, and
- the transport emissions throughout the supply chain as materials and then final products are shipped globally.

The most significant impacts, however, are within the first two areas, with the main impacts stemming from the use intensity of water resources, chemical use including toxic chemicals, wastewater discharges and lack of treatment processes, and energy use and high carbon intensity of electricity.

Textile manufacturing is very water- and chemical- intensive. The textile industry in general has an enormous water footprint ranging from agricultural water consumption for cotton farming, to water consumption in textile printing, dyeing, and finishing. The sector is one of the largest users of fresh water in the world, consuming an estimated 79 billion cubic meters of fresh water annually across the entire value chain (United Kingdom 2019). The sector is also responsible for severe water pollution by discharging large volumes of waste water, often containing hazardous substances into rivers and water courses without appropriate treatment. It is reported that 20 per cent of industrial water pollution globally is attributable to the dyeing and treatment of textiles (EMF 2017).

The carbon footprint from the sector is also significant, accounting for more than 8 per cent of total global emissions (Quantis, 2018). The adequate availability of environmental management services is critical in managing and mitigating the environmental impacts of the sector.

## Importance of environmental management activities

Environmental management encompasses the ways to manage natural resources for sustainable development. Environmental management activities usually consist of two main sets of activities: impact assessment, which includes assessing how a new activity is going to affect the environment; and ongoing monitoring and performance improvement, assessing how an ongoing activity or industrial process impacts the environment, in terms of the resources it uses and the products it creates both physical commercial products but also waste products – waste water, emissions, solid waste etc. Environmental management seeks to reduce the impacts of these processes over time. Climate change and the need to achieve sustainable development – are further emphasising the critical need for effective environmental assessment and management.

Environmental management involves many actors. In the textile and garment sector there are a range of actors involved – government departments and agencies responsible for setting up the laws and regulations for environmental impact and monitoring assessment; industrial enterprises that develop their proposal for sites, and must understand how they will impact the environment, and then develop strategies to mitigate and monitor these impacts. Other actors include civil society actors and citizens who play a role in identifying whether existing rules and regulations are strong enough and include all the relevant facets needed for effective environmental management.

KIBS also play an important role in this system – providing technical expertise in environmental management, identifying solutions and innovations that help us mitigate environmental impacts and improve performance.

Weaknesses in any part of the environmental management system can weaken the whole system. This makes it critical to understand the role of KIBS in the textile and garment sector and how KIBS and the environmental management services provided by professionals within KIBS businesses can be strengthened to support the wider adoption of enhanced environmental sustainability in enterprises across the sector.

## ► Knowledge Intensive Business Services

---

### What are knowledge Intensive Business Services?

Knowledge-Intensive Business Services firms are private businesses, whose main function is to apply their expertise to help with problems that other firms (and, often, organizations in the public sector and charitable foundations) encounter in their business processes. National accounts and similar statistical systems place most KIBS firms within the category of - *professional, scientific, and technical services*.

This category includes classical professional services such as legal and accountancy services, along with relative newcomers such as management consultancy, advertising, and marketing services. It also includes other KIBS with much more emphasis on sciences and technologies such as engineering, technical testing, industrial design, computer, and R&D services. Within these broad categories, there are usually some KIBS firms offering a wide spectrum of relevant services, while other specialize in one or a few activities.

The people working in KIBS firms usually include high shares of professional employees, typically with higher education credentials and in receipt of relatively high wages. KIBS firms are mostly located in large urban centres, near to their clients' head offices. The exceptions are those based in regions where a particular client industry is active, or smaller KIBS firms providing routine services to local markets. Most KIBS are fairly small businesses, with the exception of subsectors requiring extensive and expensive equipment (e.g. R&D services).

KIBS firms are often microbusinesses of one or a few professionals supported by a small office staff; sometimes these businesses are supplying some very specialised or novel services, but more often they are mainly offering knowledge intensive service activities to local markets. Clients will often prefer to use a local service supplier, for reasons of convenience, cost, and trust. However, a small number of KIBS are large firms, and these may make up a large share of KIBS' employment. Most KIBS sectors feature a few very large firms, and these are often transnational businesses. These large KIBS firms mainly service large business clients.

KIBS in general can be valuable agents disseminating knowledge of best practices and new approaches across the economy. Transnational KIBS can play a global role in keeping up-to-date and aware of emerging trends and disseminating this knowledge to both local and international clients. Transnational KIBS are active in areas where the problems confronted vary a great deal according to national circumstances (e.g., where they have to do with local laws and regulations, with distinct cultures and languages, and so on).

### Why businesses use KIBS?

The professionals that constitute large shares of KIBS workforce are experts in management, accounting, engineering, marketing, environmental management, computing, and other specialist services. Of course, such skills also exist within all sectors of the economy including government and public services. All but the smallest businesses have managers, and larger firms can feature several levels of management. Many firms employ their accountants and engineers, their own marketing and computer staff, and so on. These personnel provide knowledge-intensive services on an in-house basis for their employers. But when problems require external inputs, organizations become clients of KIBS firms, who are specialised in these service activities. This can be undertaken purely for efficiency reasons, outsourcing in order to save costs - e.g. when services are required infrequently, there is less logic in having relevant employees on a full-time basis. The "outsourcing" of business processes often reflects clients deciding that they can get better, or cheaper, or more flexible services from external sources than from their in-house staff. They may also use KIBS to complement existing in-house capabilities, for example when there is a

sudden intensification of a problem, or when external validation is required (as in auditing company accounts). Often, too, when there are new challenges confronting clients, which they cannot tackle solely with in-house expertise. KIBS can provide clients with help in dealing with new or rapidly evolving problems – for example, in how to make effective use of new technologies. KIBS may be more familiar with rapidly evolving bodies of knowledge and have experience of emerging best practice across other organizations.

In complex and/or rapidly changing economic circumstances, new knowledge is required by many organizations, to enable them to confront new challenges and opportunities. KIBS can help clients deal with their evolving operating environments. As economies and technologies undergo rapid change aligned with achieving sustainability and decarbonisation, demand for such specialized knowledge will only grow. Furthermore, as already noted, KIBS may also be enlisted where external inputs are required as providing independent viewpoints and assessments. Such external inputs may be needed to meet regulatory requirements, or to satisfy stakeholders.



A weaver operates a loom to produce a rug. © ILO/Byamba-ochir Byambasuren

## What are the impacts of these services?

KIBS produce their service outputs for their clients in a process; their contact with clients extends over the course of this process. This contact varies across the process (often it is greater near the beginning and end of the process) and may be intense for different types of service. Some KIBS can provide services with relatively little input other than the supply of data from the client; they process this data (and relate it to material derived from other sources) and prepare a report or complete a standard template for the client's use. Such relatively hands-off activity, with limited interaction between KIBS and client, is common in areas where the problem is a standard one, and one which the client confronts in a fairly standard way – for example, an accountancy service prepares a set of annual tax returns, or verifies the company accounts, for the firm to provide these to authorities or shareholders.

Where problems are more complex and unique, KIBS and the client firm can work extensively together. In these cases, significant knowledge generation and transfer can occur between the two businesses and personnel involved. These interactions can be innovation intensive and can generate new novel solutions – whether processes, products, and services, that can have value beyond the initial project/ problem the KIBS were engaged to address.

## ► Country level findings

---

### Bangladesh

In Bangladesh KIBS play a crucial role in providing a variety of environmental services to the sector including conducting environmental impact assessments, producing environmental management plans and examinations, as well as testing and monitoring for greenhouse gas, and other emissions such as dissolved organic carbon (DOC) and, ozone depleting substances (ODS).

With the expansion of the garment industry in Bangladesh the number of KIBS has also increased, although there are supply constraints in the availability of these services. The ability to identify quality service providers is also an issue for clients, as there is currently no effective restriction or independent quality assurance for KIBS providing these environmental management services.

Gaps in the available skills and knowledge of the KIBS is reflected across the sector. The reasons for these skills and knowledge gaps include overall mixed performance of KIBS, with some high quality, but also many low-quality service providers.

The limited profitability of KIBS firms is also an issue, with high-quality specialist environmental management services not well recognised and demanded in the market. This difficult business environment means there are few well-established and long-standing firms providing environmental services. This leads to high turnover in KIBS firms and personnel, further limiting the development of specialist skills and experience. This also leads to an inability to specialise on garment sector issues, which together with a lack of training and knowledge sharing activities, limits the avenues for KIBS to build and share specialist environmental management knowledge.

Most garment enterprises in Bangladesh have used KIBS in one form or another. A critical barrier for garment enterprises in accessing these services is being able to brief adequately and correctly for the required services. Many garment enterprises do not have a dedicated department or staff focused on environmental compliance and management, and therefore lack internal capacity to be able to state their requirements for environmental services and then assess the quality of the proposals and services they receive.

Garment enterprises commented that KIBS firms engaged to conduct environmental management services for the firm offer little opportunities for sharing the knowledge they develop through these interactions with their client firms. Although the limited profitability of KIBS contributes to their reluctance or inability to take on this knowledge sharing role.

Overall, all sector participants - Government and firms, service suppliers and manufacturers, require assistance in developing different sets of capabilities to improve environmental management and regulatory compliance, and KIBS have an active role to play in developing this capacity both as businesses and service providers, but also as groups of skilled professionals who operate in the sector and may shift in employment from the private to the public sector over their careers. KIBS along with their clients and other sector stakeholders (including government environment agencies) should be involved in developing new systems and strategies to ensure these services are available and can contribute to increased environmental sustainability in the sector.

## Cambodia

The Government of Cambodia has a significant environmental regulation agenda, and ensuring this agenda is well supported by access to high quality and locally provided environmental management services will be critical in the successful implementation of this agenda broadly within the country and specifically within the garment sector.

Most Cambodian garment factories are foreign owned, and most knowledge intensive service providers to the sector are also foreign owned and/or based. This is because many FDI garment factories seek KIBS services from overseas/ home-based countries, but also because there is limited availability of these services domestically in Cambodia.

The lack of a domestic market for KIBS in the sector and more broadly throughout the economy is a limiting factor in implementing environmentally sustainable practices in the sector, because locally contextualized environmental knowledge is not readily available, for example energy audits and recommendations relevant for the local conditions.

The focus of production in Cambodia is on high volume, low margin, cut and sew garment assembly. The tight margins make the investment case for environmental sustainability challenging, with the high up-front costs of energy efficiency and renewable energy equipment. This in turn impacts demand for KIBS in the sector.

International actors, including international brands and buyers can play an important role in increasing interest in environmental management and demand for KIBS. Brands are increasingly requiring higher environmental management standards in production activities from their suppliers. These international actors can help bring knowledge of international best practice, as well as help coordinate within the country to locate and publicize examples of good practice both in terms of environmental management and monitoring and reporting of environmental performance and transition towards more sustainable activities.



Figure 1: Stakeholder workshop. © ILO/Samantha Sharpe 2022

International trade agreements are also providing pressure for increased environmental performance, and the continuing international competitiveness of the sector with international buyers will depend on enabling increased environmental management and demonstrating increased environmental performance over time. This capacity is not well developed at the moment, and it is difficult for individual firms to make significant progress on their own. Collaboration across the sector is needed, to build the ecosystem that ensures skills, know-how and best practices are widely shared, regulatory compliance is mainstreamed, and appropriate incentives and encouragement are offered for enterprises and professionals to go beyond compliance. Building domestic KIBS will be a critical component for this supportive ecosystem.



## Indonesia

Indonesia has a comprehensive suite of regulations to promote environmental management practices in the sector and there are an emerging range of initiatives and support activities from government and development partners in piloting good environmental management practices. These regulations provide a good minimum standard, but performance that goes beyond minimum standards is not encouraged or incentivised.

Regulatory compliance (including obtaining relevant environmental impact assessments) in the sector is high for accessing permits, but less so for ongoing reporting and monitoring, including assessing implementation of mitigation activities that are set out during the environmental impact assessment approval process.

Stakeholders noted that some aspects of the regulation are highly complex and would benefit from the provision of further sector specific guidance (especially targeted to small and medium sized enterprises) and in the case of newer regulations - the provision of either fiscal or non- fiscal incentives to encourage compliance and innovation. Current regulation and policy directives such as the promotion of circular economy, environmental and social reporting requirements, and green financing highlight the level of ambition for the sector, but they are complicated at the implementation level and benefit mainly large enterprises who have the resources to understand and operationalise activities to meet these requirements.

The Indonesian garment sector includes both textile manufacturing and garment assembly activities and there is a strong divide between the two supply chain links.

Wastewater management is the most critical issue in the environmental management in Indonesia's textile sector. Waste water is a by-product of textile manufacturing and finishing activities including colouring agents and additive components, used mainly in the dyeing process. There is ongoing evidence of water pollution incidents from industry activities polluting water ways and watersheds, are having consequent impacts on the livelihoods of local communities that depend on the healthy functioning of these waterways.

The sector has not been able to adequately respond to waste water pollution and increase the performance of environmental management systems that manage and treat waste water. Water treatment plants, especially at industrial park or community scale share infrastructure and would provide a solution for waste water treatment, and there are several examples of where this infrastructure has been installed but the coverage is still limited.

Cost and lack of resources including human resources and KIBS were identified as the main constraints for effective environmental management. For example, wastewater treatment requires significant up-front investments in infrastructure as well as ongoing investment in trained personnel/ availability of service providers to operate and maintain the equipment. The upfront costs and ongoing personnel costs make enterprises especially SMEs reluctant to implement this equipment, especially when a price premium is not currently guaranteed for more sustainably produced textiles and garments.

Most large companies operate in industrial zones that provide wastewater treatment facilities; but SMEs are mostly located in more dispersed areas, near water ways and communities where the same level of treatment facilities are not available. The Government of Indonesia is promoting the development of integrated or community- based facilities (IPAL Komunal) water treatment facilities (IPAL Komunal) – but to date only a small number have been installed.

The lack of skilled environmental personnel in the public sector was identified as another critical barrier to increased environmental performance across the sector. Government-led programs on promoting clean technology use, innovation and technical expertise are emerging but not focused on the garment and textile sector.

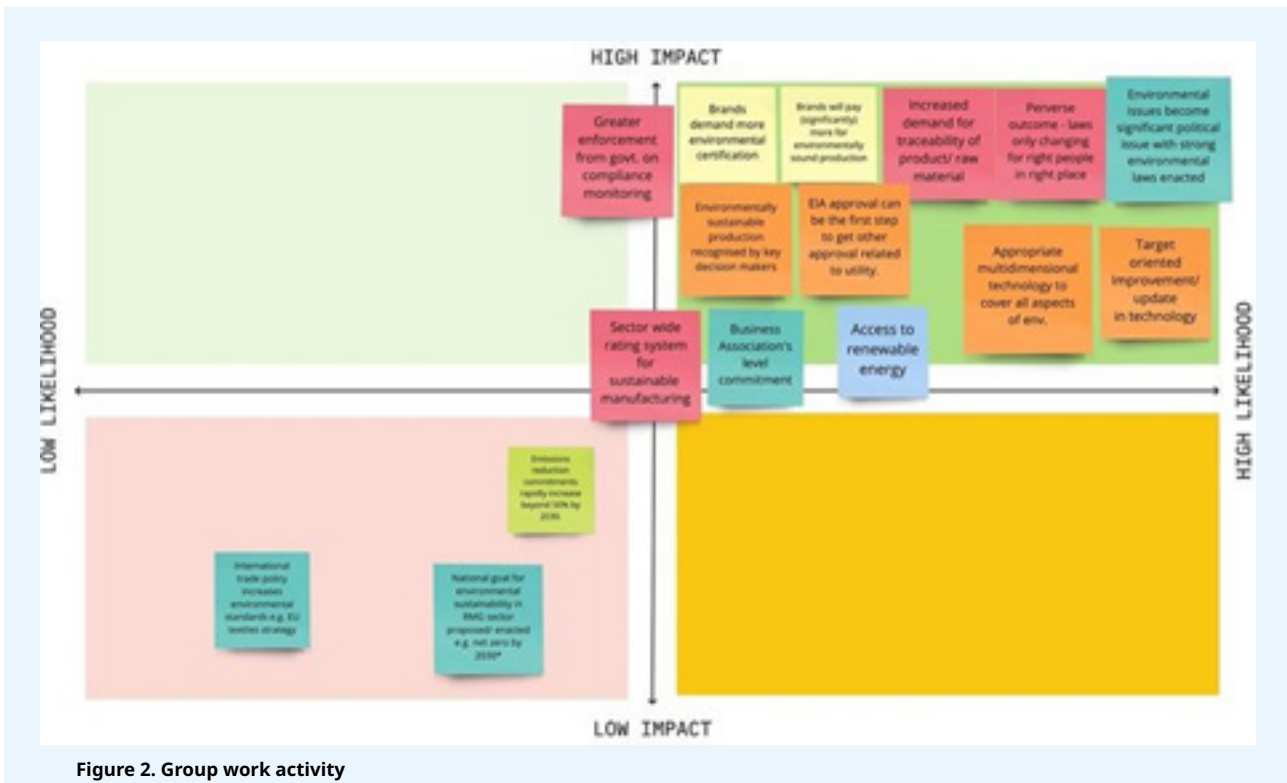


Figure 2. Group work activity

## Viet Nam

The textile and garment sector is a significant sector in Viet Nam in terms of industrial output, exports and employment, and has rapidly grown over the past decade. Vietnam's export volume doubled in the past 5 years. In 2020 it became the world's second largest garment exporter, and export values are rising continuously. The textile and garment sector is one of the major beneficiaries from Viet Nam's free trade agreements (FTAs) with the USA and the EU.

At CoP 26, the Vietnamese Prime Minister announced the country's net zero target by 2050. Vietnam aims to reduce emissions by 9% by 2030 with national effort (domestic resources) and 27% with additional assistance. The move towards net zero will significantly change Viet Nam's environmental policies.

The current environmental regulatory system in Viet Nam has rapidly evolved but it is highly complex, with different types of legal regulations and overlapping license types. In some instances, regulations are fragmentary and unclear, so it takes a long time to work out what are individual enterprises' responsibilities and how they can comply with these regulations.

Environmental management is strongly influenced by the industrial park in which individual enterprises are located, with the ambitions, regulations, and infrastructure available in these industrial parks impacting the sustainability options available for individual firms.

Environmental assessment activities and ongoing monitoring and reporting are seen as critical elements of environmental regulations, but current practices do not yet support continuing improvements/efforts for environmental sustainability but are seen more as a minimum step that businesses are required to take.

In large firms' environmental management activities are largely undertaken by internal employees, with many enterprises having an environmental or Corporate Social Responsibility unit within the business. Where external environmental services were acquired, these were usually for monitoring services, and on an ad hoc or periodic basis. However, in small and medium sized firms there was rarely specialist in-house employees for environmental management, or regular monitoring activities and the availability of these skilled personnel (either internally or externally) to undertake and improve environmental management was identified as a major barrier in enhancing the sustainability in SMEs. Expertise in inputs such as textile chemistry and chemicals management, and materials selection was mentioned as specifically lacking.

Sector actors including government and firms, service suppliers and manufacturers, require different sets of capabilities to communicate and comply with the regulatory and industrial environment and identify future performance improvements.

Building awareness and knowledge of environmental sustainability, as well as the expertise for environmental management will take time, and investments in skill and enterprise development at multiple levels throughout the sector and workforce. Demand for environmental management skills, occupation and KIBS will increase rapidly increase in the short to medium term (5 years) and addressing these skills and knowledge gaps will be important not limiting increased environmental performance.

Brands and customers were seen as key drivers in motivating increased environmental sustainability. Together with other actors, such as NGOs, they play a key role in building awareness of environmental impacts and effectiveness of current environmental regulatory systems.

## ► Implications and recommendations

---

Comparative analysis of KIBS availability across the four countries highlights that while KIBS are important enablers for enhanced environmental management across the sector, their limited availability and accessibility was a barrier to improved environmental performance in each of the countries – but how this constituted a barrier differed slightly in each country. In Bangladesh the focus was on assessing and ensuring KIBS quality and viability, whilst in Cambodia the overall lack of a pool of domestic KIBS providers, with client businesses using overseas KIBS made both accessibility and Cambodian context specific knowledge the primary barriers.

In Indonesia the complexity of environmental regulatory and policy landscape made it difficult for KIBS to build and provide specialist knowledge to sector clients –and this was compounded further by the split in the sector between textile and garment manufacturing in the country, which calls upon different environmental management knowledge needs from KIBS.

For Viet Nam the key KIBS gap was in the availability of KIBS to service SME clients, with many of the larger garment firms being able to hold environmental management expertise internally with CSR or environmental compliance staff. Viet Nam's emission reduction ambitions, as well as increasing brand and international trade agreement pressure for enhanced environmental sustainability in production activities, are driving rapid demand for these services in the short to medium term. Addressing these skills gap will be critical in ensuring and enhancing Viet Nam's international competitiveness in the sector.

Both demand for and the supply of environmental management activities will grow rapidly in the decade ahead. Both climate action - our efforts to reduce carbon emissions across the globe and, the physical impacts of climate change, will result in this significant demand. Climate change and climate action will likely further drive changes in the volume and type of textiles and garments produced globally, as well as how they are produced.

A shift to a more sustainable garment sector offers considerable opportunities as well as creating huge challenges. It is likely that specific firms and industries will find the transition process problematic and will turn to KIBS to help them develop solutions and innovations to address these problems. Some of the problems are associated with uncertainty and lack of clarity, and it is important that regulatory processes evolve to engage with these stakeholders, informing them both of ambitions and of the emerging sequence of rules, regulations, and practical measures.

Based on the findings of the four country studies the following recommendations are made to sector stakeholders to increase the uptake of environmental management activities by developing KIBS availability.

**Recommendation 1. Developing sector specific regulatory and environmental guidance in each of the countries where the sector is prominent.** Increasing demands by international brands and buyers for increased environmental performance provides some opportunity for harmonising this guidance across the region. Government will need to empower regulators to define and enforce standards, to communicate these standards to industries, and to be able to ensure substantive rather than superficial compliance, but these requirements must be readily understandable and communicated in a way that supports compliance. KIBS will play an active role in disseminating this regulatory knowledge and ensuring compliance – guidelines will help them in providing both standardized and high-quality services to their clients. Over time this will also enable the development of more sophisticated analysis of impacts and mitigations of environmental impacts in the sector, allowing for incentives to be provided for those sector participants who develop, implement, and can demonstrate solutions that go beyond minimum compliance.

**Recommendation 2. Encourage and reward beyond minimum compliance practices** – the current system focus on minimum environmental performance does not provide incentives for continuing improvement over time. Developing a pool of high performing KIBS offers the opportunity to collect and share information on successful solutions and develop appetite for implementing solutions that can demonstrate benefits (both environmental and other such as financial, or social) from further environmental management activities above minimum standards.

**Recommendation 3. Ensure international trade agreements build capacity for environmental sustainability practices** – Trade agreements are increasingly shaping purchasing practices across the sector, but in implementing these agreements sourcing countries need to ensure that the capacity to comply with these standards is widely available in the sector; otherwise this could contribute to increasing inequality and power asymmetries in the sector which can have unintended consequences for environmental and social sustainability ambitions. Analysing and developing the local KIBS market for the sector is one way of ensuring this domestic capacity exists.

**Recommendation 4. Undertake collaborative analysis of environmental skills needs across the region and identify best practice environmental KIBS accreditation** – demand for environmental skills will increase rapidly over the next decade, and mapping, and planning for how these skill needs will be met and ensuring quality environmental management services and KIBS provides an opportunity to collaborative identification of best practice.

Environmental skills will be required in a range of contexts; both within the textile and garment sector businesses, and in the external consultancies (KIBS) servicing them and helping them transition to greener production, but also similar skills will be required among regulatory bodies, as well as basic knowledge of tools as environmental impact assessment among a widening range of managers and policymakers.

## ► Methodology

---

The objective of the four country level studies was to better characterise technical skill deficits and learning processes for environmental impact assessment and management in the four countries. This project utilised two qualitative assessment methodologies –

- key informant interviews (up to 10) in each country with relevant stakeholders engaged in either the supply or purchase of environmental management activities and services. The purpose of these interviews were to characterise the presence and role of KIBS in providing environmental management services in the textile and garment sector.
- Facilitated workshops – one in each country with relevant constituents and stakeholders to map technical skills needs, and avenues of supply for these skills (potential through KIBS).

Study participants included textile and garment enterprises, KIBS, environmental and industry ministries and agencies, workers and employers' organisations in the sector, NGOs and other relevant civil society actors in each of the countries.

A snowball sampling technique was administered in which initial contact was made from individuals who met study criteria. All research activities were undertaken from October 2021 to October 2022.

## ► References

---

ILO. 2021 c. [Effective regulations? Environmental impact assessment in the textile and garment sector in Bangladesh, Cambodia, Indonesia, and Viet Nam](#) ILO Asia-Pacific report, ILO: Bangkok.

Martinez-Fernandez, C.; I. Miles and T. Weyman eds. 2011. *The Knowledge Economy at Work: Skills and Innovation in Knowledge Intensive Service Activities*. Edward Elgar: UK.

Miles, Ian. 2005. "Knowledge intensive business services: prospects and policies." *Foresight*.

OECD. 2006. *Innovation and Knowledge-Intensive Service Activities*. Paris. <https://www.oecd.org/innovation/inno/innovationandknowledge-intensiveserviceactivities.htm>

Pace, Lisa A., and Ian Miles. 2019. "The influence of KIBS-client interactions on absorptive capacity-building for environmental innovation." *European Journal of Innovation Management*.

## ► Other useful resources

---

Find other resources from the project at the Just Transition Toolkit website

[https://www.ilo.org/asia/media-centre/news/WCMS\\_806222/lang--en/index.htm](https://www.ilo.org/asia/media-centre/news/WCMS_806222/lang--en/index.htm)



## Acknowledgements

This policy brief has been prepared for the SIDA funded ILO project Decent Work in the Garment Sector Supply Chains in Asia project. We gratefully acknowledge the funding from SIDA to undertake this project. The report was prepared by Dr Samantha Sharpe under the direction of Dr Cristina Martinez, Senior Specialist Environment and Decent Work of the ILO Regional Office for Asia and the Pacific, building on the input from the project team including, Professor Ian Miles – Manchester University, and inputs from country office and regional teams including Mr. Tamim Ahmed (Bangladesh), Mr. Saroeun Soeung (Cambodia), Ms. Lailly Prihatiningtyas (Indonesia), Mr. Minh-Quang Nguyen (Viet Nam), and Mr. Eric Roeder, Technical Specialist Green Jobs, Climate Change and Resilience through Just Transition, ILO Regional Office for Asia and the Pacific.

We would like to thank colleagues for the guidance and support, including from the ILO Country Offices of Bangladesh, Cambodia, Indonesia, and Viet Nam. Also, Mr David Williams, Project Manager, Ms. Hongye Pei, Mr. Monty Chanthapanya, Ms. Supaporn Runtasevee and Ms Wilawan Wiseschinda for their contributions and support to produce this report.

We would like to also express our appreciation to all of the constituents, KIBS and other stakeholders for their generous support and participation in this project.

## ► About the Decent Work in the Garment Sector Supply Chains project

---

Outcome 4: Improved environmental sustainability capacity of key actors in the garment sector in Asia

This outcome aims to improve the environmental sustainability capacity of key actors in the textile and garment sector in Asia. Asia accounts for some 60 per cent of global exports of garments, textiles and footwear. The industry has rapidly grown over the past two decades, employing more than 40 million workers, in many countries the majority being women.

As identified in the 2017 scoping study for this project (see Annex 1 for expanded executive summary) the sector is contributing to serious negative environmental impacts including high levels of water utilisation, pollution from production processes, chemical use and inappropriate disposal mechanisms, and high GHG emissions associated with wet processing, and to a lesser extent transportation and garment assembly. The ability of the sector to address these issues will also be challenged by the effects of climate change and COVID-19.

Further, as the scoping study identified, these environmental impacts are further exacerbated by: deficits in environmental regulatory and compliance systems; a lack of awareness and knowledge in textiles and garment firms of technologies and processes that will minimise environmental impacts; limited financing and funding options to assist with implementation of eco-innovations; insufficient skills and capacity of stakeholders in the sector to improve and increase opportunities for eco-innovation across the supply chain.

Outcome 4 includes a mix of knowledge creation, diffusion and capacity building activities. The aim of this outcome is to develop an evidence base for how environmental sustainability, the transition to decarbonization, and the adoption of more sustainable practices in the textile and garment supply chain enhances decent work in the sector.

The ILO has a long-standing evidence base that supports interventions for industrial relations (IR), gender and productivity – however the same evidence base for environmental sustainability, and how this evidence is used in the creation of tools, programmes and training, is still emerging. In undertaking this activity, we are not starting from new – the sector already has a number of existing tools and information guides, and contested views about what is best to do, when and by whom. This outcome area is focused on identifying the role of the ILO in enhancing decent work and environmental sustainability in the sector in the context of ‘just transition’; that in transitioning to low-carbon and sustainable practices that employment and labour market impacts are identified and where employees and enterprises are negatively impacted that just transition planning ensure new pathways are created and that no one is left behind.

Knowledge and awareness of environmental issues is emerging across the value chain. The project aims to address knowledge deficits in areas of best practice environmental regulation, policy and regulation to support the greening of jobs, as well as understanding eco-innovation and sustainable transition from an Asian manufacturing perspective. Critical to this will be understanding the extent and potential solutions for SME financing and funding for eco-innovations.

A significant contribution to knowledge creation is the recruitment of two PhD scholars as part of the Outcome 4 activities. Both scholars, through the ISF postgraduate research program will undertake significant research projects within the bounds of the project. The students will be closely involved with data collection from Outcome 4, and where appropriate other outcomes in the project. This contributes new knowledge on the environmental performance of the textile and garment industry in Asia, as well as



the advanced tertiary training of two early career researchers that will have in-depth knowledge and experience of the garment supply chain and the Asian region.

In addition to these specific knowledge gaps there is the need for awareness raising of environmental issues across the supply chain, as well as the codification and translation of existing knowledge materials into guides, training programmes, and other associated capacity building to enable their wider use.



**Contact details**

**International Labour Organization**  
Regional Office for Asia and the Pacific United  
National Building  
Bangkok, Thailand

T: +662 288 1234  
E: [greenjobsap@ilo.org](mailto:greenjobsap@ilo.org)