

# ► Knowledge intensive business services (KIBS) gaps in environmental management in the textile and garment sector

Project highlights: Bangladesh

February 2022

## ► Introduction

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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. The project focuses, in part, on environmental sustainability with the overall objective that industry stakeholders can more effectively apply knowledge and tools to promote environmental sustainability across the sector.

As part of this, the ILO organized a consultation in Bangladesh on knowledge and skills gaps on environmental management in the textile and garment sector. The activity was conducted in partnership with Associate Professor Samantha Sharpe from the University of Technology Sydney's Institute of Sustainable Futures; Professor Ian Miles, Emeritus Professor (Technological Innovation and Social Change) at the University of Manchester (Manchester Institute of Innovation Research, Alliance Manchester Business School); and the ILO and Better Work country office in Bangladesh.

The activity used a combination of stakeholder mapping, interviews, and a facilitated workshop with knowledge intensive business services (KIBS) to better characterise technical skill deficits and learning processes for environmental impact assessment and management. This highlight note summarises the activity and key findings, as well as proposes recommendations for future interventions.

## ► Background

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The report *Effective regulations? Environmental impact assessment in the textile and garment sector in Bangladesh, Cambodia, Indonesia, and Viet Nam*, which was written under the Decent Work in Garment Supply Chains Asia project, focused on one of the critical mechanisms of environmental regulation – Environmental Impact Assessment (EIA). The report found that while there were varying strengths and weaknesses in environmental impact assessment in each of the four countries analysed, each of the EIA systems was supported by a strong legal framework with clear delineation of EIA processes and decision-making. Further the report highlighted that weakness in EIA systems were more evident in:

- access to the professionals with technical skills and experience required for the conduct and approval of EIA;
- 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 high level, technical expertise and services in environmental impact assessment and 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 and are discussed further in section 3.

KIBS help other organizations access needed external knowledge sources, and they are important conduits of knowledge in both developed and emerging economies. KIBS have been shown as important in environmental innovation, as they help client organizations 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. The lack of KIBS, or the lack of quality KIBS can impede progress towards sustainability in these economies by not bringing and circulating relevant knowledge into the economy, and in the case of this project, into the sector.

The *Investigating KIBS in environmental management in the textile and garment sector* project was initiated in Bangladesh, Cambodia, Indonesia, and Viet Nam to further investigate and understand the presence and the role of KIBS in enhancing environmental management in the textile and garment sectors. This report provides project highlights of the work undertaken in Bangladesh.

The project used a mixed method approach involving desk-based research to map relevant organizations that could be defined by KIBS, and further organizations that provide training, skills development, and accreditation for KIBS. After this initial mapping, a series of scoping interviews with both KIBS and KIBS users was undertaken. The purpose of these interviews was to map the current involvement of KIBS in

providing environmental management services for the textile and garment sector, the quality, and outcomes of interactions with KIBS and their client firms, as well as an understanding of how skill and expertise is developed within KIBS and if and how this expertise is transferred to client firms.

## Overview of environmental impacts of the textile and garment sector

Environmental 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 growth and sustainability of the sector is highly dependent on how resources are managed. 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 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 6–8 per cent of total global emissions (Niinimäki et al. 2020). In 2015 this equated to emissions of 1.7 billion tons of carbon dioxide (United Kingdom 2019), which is more than all international flights and maritime shipping combined (Sumner 2019). The numbers are not surprising given the fact that over 60 per cent of textiles are used in the apparel industry and a large proportion of apparel manufacturing occurs in China and India. India relies heavily on hard coal and natural gas for electricity and heat production, sharply increasing the footprint of each apparel product. Switching to renewable energy, such as solar, hydro or wind power, can significantly reduce emissions and improve sustainability linked to textile production.

## Importance of environmental management activities

Environmental management is one of the ways we manage resources for sustainable development. Environmental management activities usually consist of two main sets of activities: impact assessment, assessing how a new activity 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 and so on. There is also a third group of activities - how we rehabilitate

sites or change land use patterns – these activities are not often considered with the same level of attention and usually become the concerns of generations in the future. Climate change and the need to achieve the sustainable development goals – 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.

Although environmental management is the product of all these interactions and activities by different actors – the output is a system, and the outcome is also holistic – environments are managed well or not. And weaknesses in any part of the system can weakened 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.

## Overview of environmental regulations including environmental impact assessment in Bangladesh

The legislative base for EIA in Bangladesh is the Environmental Conservation Act 1995 and the Environmental Conservation Rules (1997). The Department of Environment (DOE) under the Ministry of Environment and Forestry is the regulatory body responsible for enforcing both the Act and the Rules (Momtaz 2002). Section 12 of the Act states “no industrial unit or project shall be established or undertaken without obtaining environmental clearance from the Director General [of the DOE]”, further Section 20 requires rules be created to “evaluate, review EIA of various projects and activities, and procedures be established for approval”.

The Environmental Conservation Rules include responsibilities for project proponents to conduct EIA for development proposals, and for the DOE to review and assess the EIA and approve the proposal via issuance of an Environmental Clearance Certificate (ECC) (Momtaz 2002). All projects, even if they are government- or donor-funded are required to follow the Act and Rules. The Rules were revised and updated in 2010 (Kabir and Khan 2020), the Act was amended in 2000 and 2002, and several circulars and amendments have also been introduced (Bahauddin 2013).

Proposals are divided into four categories – Green, Amber A, Amber B and Red – according to the likely environmental significance and location of the proposal. Green category projects do not require EIA. Green category projects are so nominated when no objections to the project are received from the local jurisdiction where the project is proposed. In the textile and garment sector, weaving and handloom, cardboard box and printed paper packaging factories are classed as Amber-A. Spinning mills, garment production, fabric washing and power loom activities are categorized as Amber B. Factories that utilize chemical dyes, polish, varnish, or enamel, or that engage in fabric dyeing and chemical processing are categorized as Red (Selim 2018).

The full EIA process includes scoping and preliminary analysis in terms of site selection, stakeholders, sources of funding, timeframe for the project, and types and sources of data required. Baseline data collection also commences and could include:

- weather conditions, water, air, ecosystems and land use activities at or near the project site;
- the physical and chemical properties of the soil, air and nearby water bodies may also be surveyed;
- demographic data on local communities understand the characteristics of the local population and potential vulnerabilities; and
- information on the existence of heritage or cultural assets.

EIA presumes that industries will install waste/pollutant treatment plants, conform to environmental standards, report incidents and have plans for remedial actions in place if these are required. However, the lack of monitoring mechanisms and provisions for their enforcement is seen as a crucial weakness in environmental management and linked to the significant environmental degradation that the country is suffering from (Bahauddin 2013).

EIA in Bangladesh also requires public and/or community participation. There is a diversity of practices regarding integrating community participation into EIA processes. There is, for example, a stronger emphasis on multiple layers of consultation with donor-funded projects. However, the methods of participation are not always locally contextualized, and these requirements have been criticized for not being fit-for-purpose, as they largely copy Western style stakeholder participation, which is sometimes difficult to implement in Bangladesh, particularly in rural areas where community members may not have enough knowledge of environmental impacts to be able to meaningfully contribute to the processes (Momtaz 2002).

EIA are conducted by professional EIA consultants hired and paid for by the proponent. There is great variety in the experience and resources of the professionals who conduct EIA in Bangladesh. A local market of consultants exists, as well as international consultants who are usually used in proposals that involve donor funding and/or international investors. In the domestic market in Bangladesh there is evidence of constraint on the capacity, skills, and expertise of these consultants (Momtaz 2002; 2005). The KIBS discussions with stakeholders presented in this Highlights document confirm this constraint.

EIA is not a large enough field to attract specialized consultants or KIBS (knowledge-intensive business services) or to offer a secure career path for these professional; so many consultants only conduct EIA on an ad hoc basis. Basic training in EIA is available with a one-week course, and there are no codes of conduct or accreditation governing professionals undertaking EIAs.

## ► The role of knowledge intensive business services (KIBS) in environmental management and eco-innovation

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### What are KIBS?

Knowledge-Intensive Business Services firms, KIBS, 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. While practically all types of KIBS have shown steady growth in terms of employment and value-added in Western economies over the last fifty years, it is the more technology-oriented KIBS that have displayed rapid growth in recent years. KIBS are also rapidly developing in prevalence and importance in the global south (Andersen et al, 2018).

Unlike some other knowledge-intensive services, such as telecommunications, financial or insurance services, most KIBS have few individual consumers and households as customers. (Legal services are the main exception here, since many lawyers and notaries serve individuals, though the sector has a large business orientation in many countries.) KIBS firms’ workforce features very high shares of professional employees, typically with higher education credentials and in receipt of relatively high wages. (In contrast, other knowledge-intensive private sector services also frequently employ large numbers of less skilled operational and sales staff.)

KIBS firms are mostly located in large urban centres, near to their clients’ head offices. (The exceptions are mainly 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 (such as R&D services). KIBS firms are often microbusinesses of one or very few professionals supported by a small office staff; sometimes these are supplying some extremely specialised or novel service, but more often they are mainly offering more basic knowledge intensive service activities (KISA) inputs 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 here and put effort into keeping up-to-date and aware of emerging trends. Transnational KIBS are active even in areas where the problems confronted vary a great deal according to national circumstances (such as where they have to do with local laws and regulations, with distinct cultures and languages, and so on).

## Why Use KIBS?

The professionals that constitute large shares of KIBS firms' 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. (The term KISA is used to describe knowledge-intensive service activities, that can be purchased from KIBS or supplied in-house.) This can be undertaken purely for efficiency reasons, outsourcing KISAs to KIBS in order to save costs - such as 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 legitimation is required (as in auditing company accounts). Often, too, 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 thus help clients deal with their evolving operating environments. As economies and technologies undergo rapid change, demand for such specialized knowledge can 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 (ranging from the general public to representatives of different branches of a large organization).

## How are KIBS Used?

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 more or less 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 innovative 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.



## ► Empirical findings from Bangladesh

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### Mapping the role of KIBS in the current system: identifying barriers and enablers in the current system

A series of interviews were undertaken with key stakeholder in RMG and KIBS sector to assess the current state of activity of external service providers for environmental management services in the RMG sector. A workshop with relevant stakeholders and ILO constituents on the 24 November 2021.

These are the high-level findings of the interviews and workshop.

- KIBS in the Bangladeshi RMG industry play a crucial role by providing a variety of environmental services, including conducting Environmental Impact Assessments (EIA), producing Environmental Management Plans (EMP), conducting Initial Environmental Examinations (IEE), and 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 RMG industry, the number of KIBS has also increased in the industry, and there are supply constraints in the availability of KIBS. Also, the availability of quality KIBS, as currently there is no effective restriction or independent quality assurance for KIBS providing environmental services<sup>1</sup>. The regulatory body for environmental management services and activities (Department of Environment) does not monitor by whom and how different environmental services are being provided, both accredited, and non-accredited KIBS are providing environmental services in the Bangladeshi RMG industry.
- The cost of non-accredited KIBS is comparatively lower. However, their quality of service is particularly questionable. Yet, the demand for the environmental service of these non-accredited KIBS is higher as a section of RMG enterprises do not want to spend additional money for quality service also because although the environmental services are of low quality, these are adequate to achieve their purpose and ensure environmental compliance related clearance from the DoE or relevant garment buyers and brands. Accredited KIBS also offer are low-cost service to the sector to survive. As a result, overall, the service of the KIBS of the RMG industry remains of minimal quality.
- Gaps in the available skills and knowledge of the KIBS is reflected across the sector. The reasons for these skills and knowledge gaps can be categorized into five areas. These include:
  - *Lack of accountability of the KIBS* – as there is no accountability mechanism exist from the regulatory body for the KIBS in providing low quality or wrong services, and hence KIBS are not required to obtain a relevant standard of skills and knowledge to providing environmental management services.
  - *Lack of specialisation within the RMG sector*– the various environmental service of KIBS are highly demanded in non-RMG industries. Consequently, KIBS do not get an opportunity to intensify their skills in the garment sector.
  - *Gaps in the training and skill development for practical/ empirical environmental assessment* – currently university training in Bangladesh is not sufficient to adequately skill students in practical environmental assessment due to shortage of lab facilities.

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<sup>1</sup> Although there is a rule of DoE in case of “Energy Auditing” – has to be audited by a certified auditor– there is no such rule in case acceptance of EIA by DoE between accredited and non-accredited KIBS

- *Limited profitability of KIBS firms providing environmental services to the RMG sector* – the profit margin of KIBS is limited due to the downward pressure of low-quality services providers participating in the market. This limits the financial ability of KIBS to provide quality services and invest in skill and knowledge development. The 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.
- *Lack of available relevant training for the KIBS* – the existing ongoing professional training available for KIBS in developing their skills is inadequate and focused mostly on academic knowledge rather than practical knowledge. KIBS in the RMG industry have limited options in enhancing their skills and knowledge through training.

Overall, most of the RMG enterprises in Bangladesh have been involved with the KIBS to a different extent. Several barriers were identified from the conducted interviews regarding RMG enterprises getting the service of KIBS.

- A critical barrier RMG enterprises in procuring quality environmental services is in having information to select the suitable service providers. Many RMG enterprises do not have a dedicated department or human resources to look after the issue of environmental compliance, and therefore lack internal absorptive capacity to be able to state their requirements for environmental services and then assess the quality of the proposals and services they receive. Peer recommendation is the primary source of identifying relevant KIBS, although if the recommending firm has similar absorptive capacity issues for environmental management activities this can result in both firms procuring suboptimal providers. Interviewees commented that the environmental compliance practice was better in RMG enterprises where there are dedicated and skilled human resources for environmental compliance activities. Such internal resources are only possible in larger firms, therefore there is a large difference in internal capability for environmental management between large and small firms and in most cases this translates into a similar difference for environmental performance.
- RMG enterprises commented that KIBS firms engaged to conduct environmental management services for the firm offer little opportunities for knowledge development or education for the client firm. From the perspective of the interviewed enterprises, their view was that KIBS firms were not interested in educating their clients mainly from the concern of maintaining access losing their significance to the enterprises and reduction of profit margin thereby. However, from the perspective of KIBS, their limited profit margin does allow them to undertake significant measures in improving the understanding of their clients.
- The scope of KIBS in contributing the environmental sustainability in the Bangladeshi RMG industry is still limited mainly due to the absence of proper environmental management by RMG enterprises and weak monitoring and governance of the regulator authority. The EIA is document-based assessment and there is little emphasis on requirements and validating ongoing monitoring and reporting. No special skills are required for preparing EIA reports. Sometimes, the KIBS in Bangladesh do not prepare the EIA report by themselves; rather, some government officials- with the experience of EIA activities - prepare the report for them. Therefore, while it is the case that the KIBS and enterprises have a lack of knowledge and skills required for effective environmental management and compliance, without the improvement of the governance and accountability mechanisms, this barrier to enhance environmental sustainability may not be considered as a significant one for Bangladeshi RMG industry.
- Overall, from all stakeholders there was a view that all sector participants - Government and firms, service suppliers and manufacturers, require different sets of capabilities to improve environmental management and regulatory compliance. And that all these stakeholders need to be involved in developing new systems to ensure this increased environmental sustainability.

## ► Emerging Issues from the workshops

During the workshop, participants were asked to list down all the various drivers of change that could be expected to drive change for environmental services in the textile and garment sector over the coming decade. These change drivers were categorised using the PESTLE matrix, where PESTLE stands for Political, Economic, Social/ Organisational, Legal and Regulatory and Environmental. The full list of drivers of change are listed in the Figure 1 drawn from the workshop results.

The political drivers of change identified include increasing importance of environmental issues in political debate, both at the national and international levels, driven by an increasing focus in emissions reduction activity. Supply and demand factors were identified in the economic drivers including increasing process of raw material and supplies, but also increased willingness by brand and consumers to pay more for environmentally sustainable garment production. Social and organisational drivers of change were clustered around increased awareness and action on environmental sustainability by key decision makers, including factory managers. Key technology drivers were in more access to renewable energy and energy efficiency equipment and recycling services and recycled content in materials. Legal and regulatory drivers were focused on increasing the quality and availability of environmental service providers and developing new forms of environmental regulation such as a pollution taxes and an Accord -like structure to oversee environmental management capacity building and compliance. For environmental drivers a number were identified – including major disaster events such as an industrial accident or natural disaster which triggers major change in environmental management in the sector. Increasing sustainability reporting and other activities such as environmental stewardship and emissions reduction were also identified. Sector stakeholders coming together to create and share knowledge and information for environmental management was also seen as a driver, as to the increasingly influential role of environmental groups and NGOs in informing public debate.

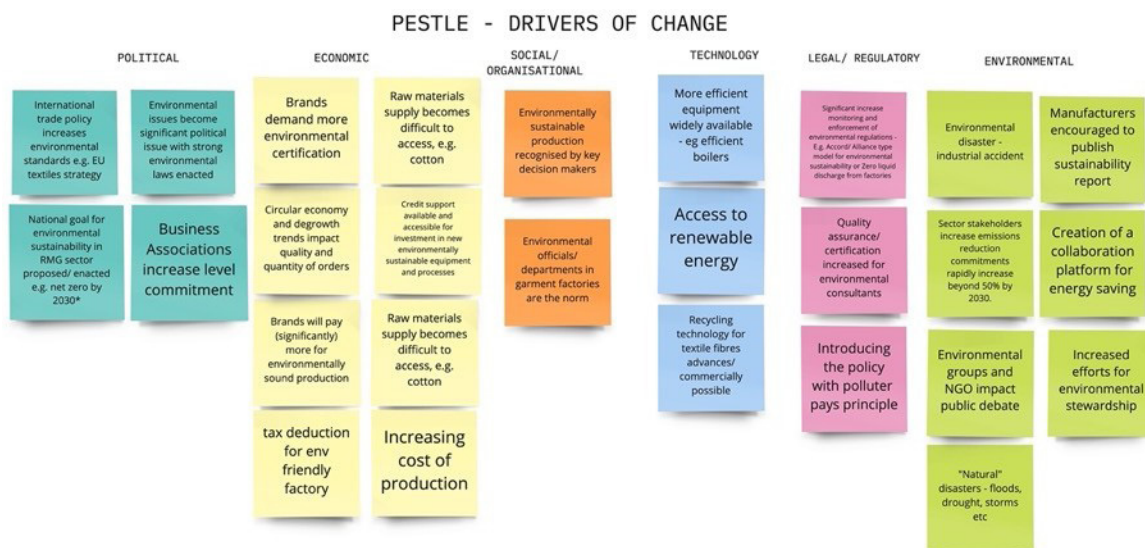


Figure 1. Drivers of change for environmental management services as identified by workshop participants

Workshop participants were then asked to categorise these drivers of change into a quadrant that considered the likelihood of the driver occurring (high likelihood vs low likelihood) and the impact of the driver on the demand for environmental management services (high impact vs low impact). Some new drivers were added or augmented in this process. Figure 2 provides a summary of this categorisation by stakeholder participants.

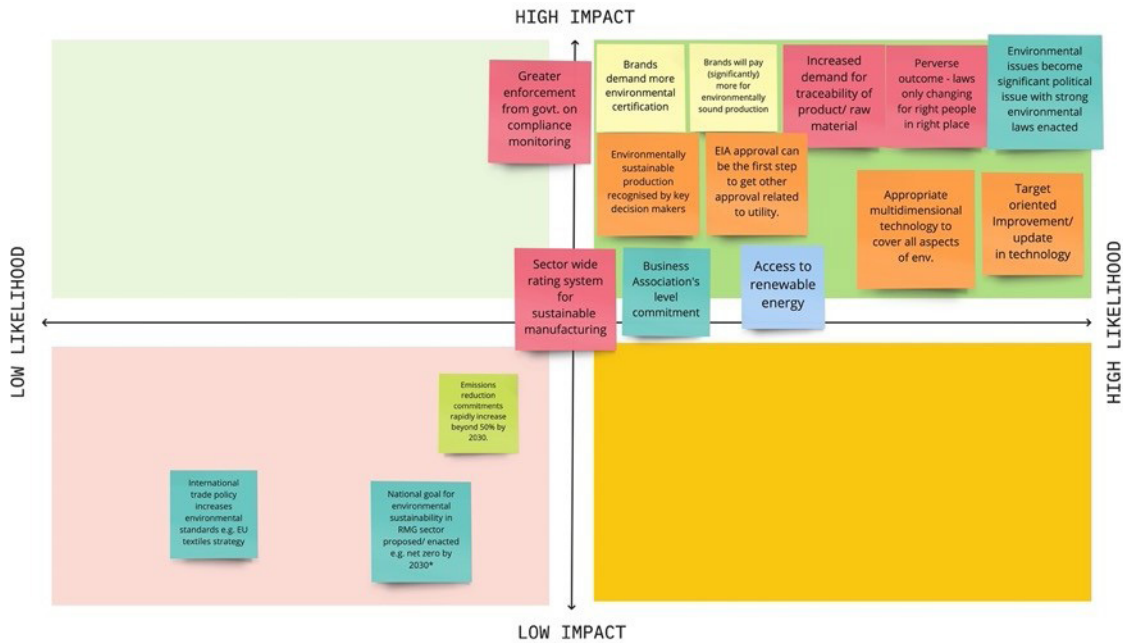


Figure 2: Prioritisation of high likelihood and high impact changes by workshop participants

The drivers of change that workshop participants identified as having the highest impact and highest likelihood of occurring over the coming decade emerge from several sources. Brand-led activities either through requirements for more and more stringent environmental certification and also willingness to pay a price premium for environmentally sustainable product were both identified and likely and high impact drivers of change. An increased focus on strengthening existing environmental regulation and compliance, along with increased awareness of importance and need for compliance by key decision makers was also identified as a significant driver of change. Although this was not without tension, with participants also identify how regulation and the timetable for regulatory can be influenced and manipulated.

Technology drivers were also identified including increased access to renewable energy, and access to other energy efficient and recycling technologies, as well as technology and systems to support enhanced fibre and garment traceability (in line with increasing EU labelling requirements). Incentives for these investments were also discussed including financial incentives but also know-how and knowledge sharing, activities that business associations were seen as critical in providing.

Low impact and low likelihood drivers of change surprisingly include national and sectoral strategies for carbon emissions reduction and other international initiatives to drive environmental sustainability through trade agreements. The discussion around these drivers of change highlighted the impact and likelihood of change in Bangladesh highlighting how international and supply chain strategies need to be coordinated with local context priorities and the tensions of international environmental commitments with the overall growth trajectories of the sector. So, emissions reduction and environmental labelling requirements would impact a small percentage of the market, but not change the overall momentum and growth trends of the market as a whole.

## ► Conclusions and next steps

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This work has highlighted important factors and drivers of change specific to the use and availability of environmental services in the Bangladesh RMG sector. As a next step this work is being replicated in three other Asian textile and garment producing countries – Viet Nam, Cambodia, and Indonesia. This replication will allow us to understand regional and national level drivers and needs and highlight where and how collaborative and context-specific assistance can be provided by ILO, other international organizations, and industry sector actors more broadly in strengthening the environmental management systems and practices of the sector.

It is inevitable that the focus of environmental management activities will change in the decades ahead, and it appears to be quite likely that the pace of change will be greater than has been the case in earlier years. Two factors linked to climate change seem particularly important here: both climate action, our efforts to reduce carbon emissions across the globe and the physical impacts of climate change, will result in significant change in the composition and demand for environmental management services, indeed these two factors will drive change in the volume and type of textiles and garments produced globally, as well as how they are produced.

A shift to more sustainability offers considerable opportunities as well as creating huge challenges. Nevertheless, specific firms and industries will find the transition process problematic. Some of the problems are associated with uncertainty and lack of clarity, and it is important that the regulatory process itself evolves to engage with these stakeholders, informing them both of ambitions and of the emerging sequence of rules, regulations, and practical measures.

The textile and garment industries can communicate as to where better information and messaging is required and inform government of the challenges faced by the industry, and policies that could make transition easier to achieve, and more rapid. KIBS can play many roles in working with businesses to develop solutions to the new problems they confront, and it is thus important that the country can access high-quality KIBS professionals.

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. Systemic change is liable to involve not only encouragement of individual actors to fund much more sustainable activities, but also to provide support for infrastructures (energy, telecommunications, and transport systems, and so on.) that are both resilient (not least to extreme weather) and themselves facilitating the transition process. For longer-term progress, research and development activities aimed at improving production and distribution systems will be vital. More immediately, the developments discussed above will require the training of skilled personnel capable of implementing upgraded environmental management systems, both in their technical and organizational dimensions. Such skills will be required both within the RMG sector businesses, and in the external consultancies (KIBS) servicing them and helping them deal with the problems of change. Similar skills will be required among regulatory bodies, and a basic knowledge of such tools as environmental impact assessment will be required among a widening range of managers and policymakers.

External (international) actors may play important roles, too, not least the various “brands” that are major purchasers of products from the RMG businesses, and that are increasingly requiring high environmental management standards on the part of their suppliers. These actors can help bring knowledge of international

best practice to bear; and within the country it may be valuable to locate and publicise examples of good practice both in terms of environmental management and in terms of monitoring and reporting of environmental performance and transition towards more sustainable activities. Similar roles may be played by international organizations, including (but not only) those associated with UN agencies.





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## ► Annex

### ► Participant profiles

	<p><b>Professor Ian Miles</b></p> <p>Ian Miles is Emeritus Professor (Technological Innovation and Social Change) at the University of Manchester (Manchester Institute of Innovation Research, Alliance Manchester Business School). He was trained as a social psychologist, but has worked for some decades on issues of innovation and foresight, conducting numerous research studies and teaching at postgraduate and professional levels. In innovation studies he has focused especially on information technologies, innovation in service activities, and in the social and economic roles of KIBS (knowledge-intensive business services). He has published extensively, both with commercial publishers and academic journals, and much material is available as open source (various public domain reports, and so on.).</p>
	<p><b>Dr Cristina Martinez</b></p> <p>Dr Cristina Martinez is the ILO's Senior Specialist in Environment and Decent Work. She is part of the ILO Global Team on Green Jobs and the Green Initiative. Previously she has worked at the following organizations: (i) the Asian Development Bank (ADB) as an Education Specialist (skills and employment); (ii) the Organisation for Economic Cooperation and Development (OECD) where she held positions as Advisor of the knowledge Sharing Alliance at the Secretary General Office and Senior Policy Analyst at the OECD Centre for Entrepreneurship, SMEs and Local Development (CFE); and (iii) Western Sydney University as an Associate Professor.</p>
	<p><b>Dr Samantha Sharpe</b></p> <p>Dr Samantha Sharpe is a Research Director at the Institute for Sustainable Futures - University of Technology Sydney. She is a highly experienced social scientist and policy analyst. Her research focuses on the intersect of the 'world of work' and climate change. This includes research understanding the process of business and industrial transition to sustainability, at the firm, sector, and labour market levels, as well as industrial and occupational change associated with the green economy.</p>
	<p><b>Ms Laurel Anderson Hoffner</b></p> <p>Ms Laurel Anderson Hoffner is an ILO consultant who focuses on gender equality and environmental sustainability. In her work with the ILO, she provides technical inputs and partnership support for projects and initiatives that support Just Transition, green jobs, and improved sustainability in international supply chains. She has a master's degree in International Development from King's College London. Her background includes roles in non-governmental and international organizations, where she has been responsible for program management, partnerships, research, coordination, and technical review.</p>





### Mr David Williams

David is the project manager for the ILO-Sweden Decent Work in Garment Supply Chains Asia project, a regional initiative launched in 2019 aimed at strengthening industry knowledge and coordination to promote decent work and sustainability in the apparel supply chain.

An economist by training, David has almost 15 years' experience in the labour and supply chains field, having worked in a variety of technical and managerial roles for the ILO in Geneva, Bangkok, Phnom Penh and Ho Chi Minh City.

Between 2014 and 2018, David was the Deputy Programme Manager for Better Work Vietnam, a UN-World Bank programme supporting labour standards and trade competitiveness in the apparel sector. Part of a 50-strong team advising more than 500 factories, he oversaw a variety of portfolios including strategic planning, compliance reporting, training services, and organizational sustainability.

David holds an MA in International Politics and Development from the University of Leeds and BSc in Economics from the University of Birmingham.



### Mr Tuomo Poutiainen

Mr Tuomo Poutiainen is the Country Director of the ILO Country Office for Bangladesh. He has worked with the International Labour Organization (ILO) for 21 years in the Philippines, Switzerland, Cambodia, Thailand and Bangladesh. During his time with ILO he has been involved in community-based development, child labour, indigenous people's issues, livelihoods promotion and peace and development initiatives. In recent years Mr. Poutiainen has specialized in developing and running efforts aimed at addressing working conditions, labour rights and managing industry improvement processes in global supply chains.






### Mr George Faller

George is a Chartered Structural and Fire engineer and joined ILO in 2019 to take up the position of Chief Technical Advisor for the ILO 'Improving working conditions in the RMG sector' (RMGPII) programme in Bangladesh. He is responsible for a team assisting government with the remediation of building safety related deficiencies in RMG factories, improving governance and effectiveness of the labour inspectorate and the promotion of good practice on occupational safety and health nationally.

Prior to joining ILO he worked for over 30 years with global consultants Ove Arup & Partners, during which time he collaborated with many internationally renowned architects actively promoting the use of a performance-based approach to safety in the built environment.

He has held a number of management positions and it was as leader of Arup's fire engineering design teams in continental Europe in 2013 that he started focusing on building safety in global supply chains. He has been involved in initiatives with international brands on supply chain safety in Bangladesh, India, Vietnam and Ethiopia, also exploring ways to link safety initiatives with methodologies that address environmental issues in the RMG sector.

	<p><b>Mr Tamim Ahmed</b></p> <p>Tamim Ahmed, an inspired young researcher, working as a Research Associate at Centre for Policy Dialogue (CPD). His research interest includes the areas of industrial and development economics. Ahmed obtained BSS and MSS in Economics from Bangladesh University of Professionals (BUP).</p>
	<p><b>Mr Md. Satil Munzoor Al Mahmud</b></p> <p>Mr Md. Satil Munzoor Al Mahmud is the National Building Safety Officer for ILO RMGP2 project Bangladesh. Coordinating and providing advisory support to DIFE (Department of inspection for factories and establishments)/ RCC (Remediation coordination cell) as the ILO technical representative to capacitate remediation activity, improve remediation tracking system; review &amp; monitor technical operation on better transparency &amp; visibility and RCC transition to ISU (Industrial Safety Unit). He is a structural design engineer for 14 years of his career and before joining ILO, in addition had working experience on Building, Fire &amp; Electrical Safety, design and implementation in different role as the Senior Lead Engineer/Auditor and HOD for more than 5 years. He has a B.Sc. in Civil Engineering and an EMBA (major in finance).</p>
	<p><b>Mr Mohammad Nazmul Kabir</b></p> <p>Mohammad Nazmul Kabir joined Better Work Bangladesh in 2019. Having ten years of experience in the field of Chemical &amp; Environmental Management, Health &amp; Safety, Water &amp; Wastewater Treatment, Resource Efficiency and Social compliance, Nazmul also worked with other reputed organizations including GIZ, DBL Group &amp; Chevron Bangladesh. Nazmul graduated in Chemical Engineering from Bangladesh University of Engineering and Technology (BUET) and attended training courses on Chemical Management and Health &amp; Safety.</p>

<b>Contact details</b>	<b>International Labour Organization</b> Regional Office for Asia and the Pacific United National Building Bangkok, Thailand	T: +662 288 1234 E: <a href="mailto:greenjobsap@ilo.org">greenjobsap@ilo.org</a>
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