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Working Paper

Assessing the impact: Environmental impact assessment in the textile and garment sector in Bangladesh, Cambodia, Indonesia and Viet Nam

ILO Working Paper, No. 51

Provided in Cooperation with:

International Labour Organization (ILO), Geneva

Suggested Citation: Sharpe, Samantha; Retamal, Monique; Martinez-Fernandez, M. Cristina (2022) : Assessing the impact: Environmental impact assessment in the textile and garment sector in Bangladesh, Cambodia, Indonesia and Viet Nam, ILO Working Paper, No. 51, ISBN 978-92-2-035320-2, International Labour Organization (ILO), Geneva, <https://doi.org/10.54394/YCEP9777>

This Version is available at:

<https://hdl.handle.net/10419/263114>

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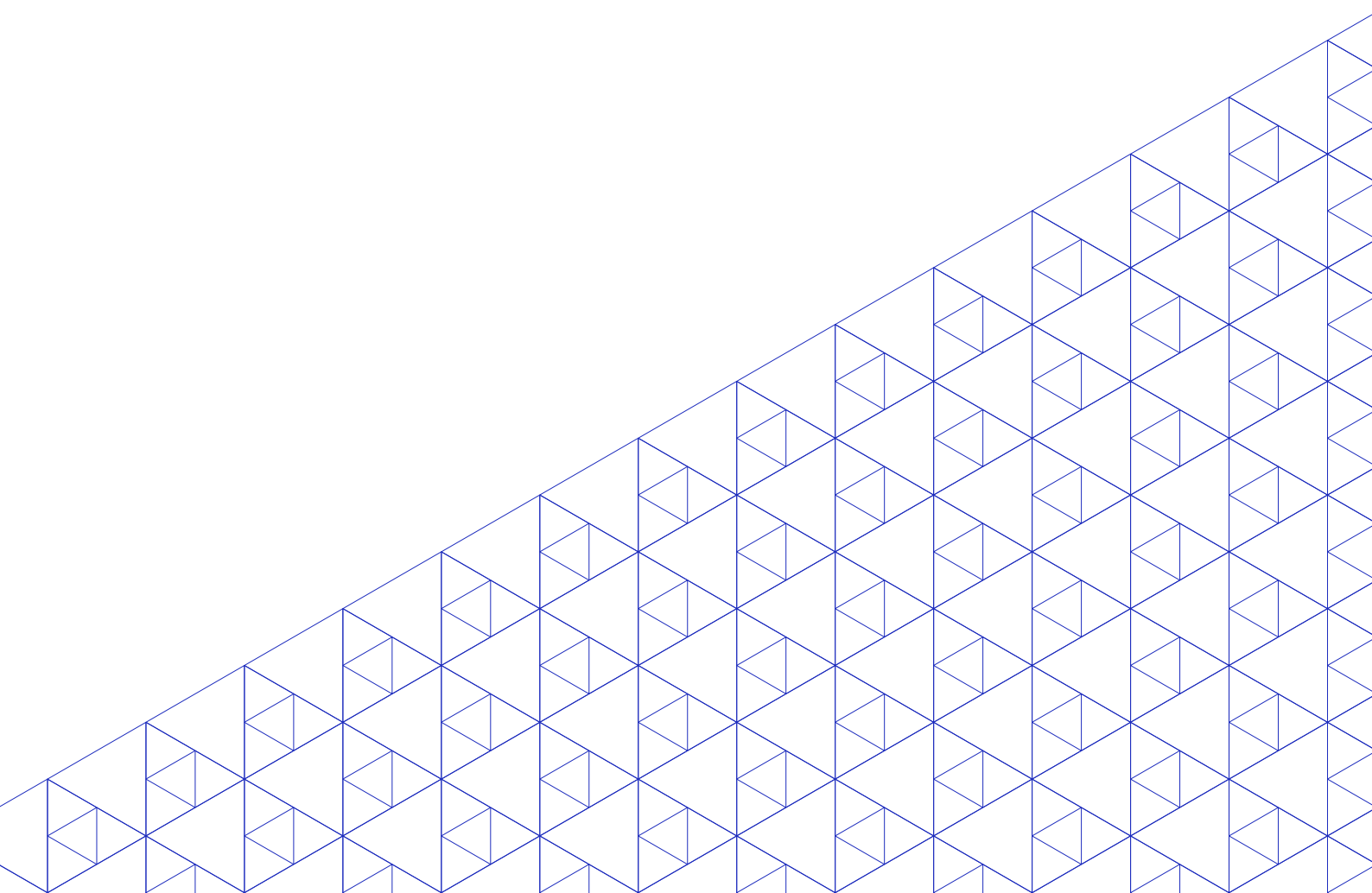
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► **Assessing the impact**

Environmental impact assessment in the textile and garment sector in Bangladesh, Cambodia, Indonesia and Viet Nam

Authors / Samantha Sharpe, Monique Retamal, Maria Cristina Martinez Fernandez





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ISBN: 9789220353196 (print)
ISBN: 9789220353202 (web-pdf)
ISBN: 9789220353219 (epub)
ISBN: 9789220353226 (mobi)
ISBN: 9789220365830 (html)
ISSN: 2708-3446

DOI: 10.54394/YCEP9777

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Authorization for publication: Mr Graeme Buckley, Director for ILO DWT for East and South-East Asia and the Pacific

ILO Working Papers can be found at: www.ilo.org/global/publications/working-papers

Suggested citation:

Sharpe, S., Retamal, M., Martinez Fernandez, M. 2022. *Assessing the impact: Environmental impact assessment in the textile and garment sector in Bangladesh, Cambodia, Indonesia and Viet Nam*, ILO Working Paper 51 (Geneva, ILO).

Abstract

Environmental regulations provide protection for both environmental assets and the livelihoods of communities that depend on these assets. The analysis evaluates the Environmental Impact Assessment (EIA) processes for proponents of industrial projects in Bangladesh, Cambodia, Indonesia and Viet Nam. The paper finds that enhanced environmental outcomes can be achieved by greater awareness among proponents of the links between environmental management (as facilitated by the EIA process) and sustainable development.

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Acronyms

AMDAL	environmental impact assessment [Indonesia] (Analysis Mengenai Dampak Lingkungan)
DOE	Department of Environment [Bangladesh]
ECC	Environmental Clearance Certificate [Bangladesh]
EIA	environmental impact assessment
EIS	environmental impact statement
EMS	environmental management system
EU	European Union
FDI	foreign direct investment
GDP	gross domestic product
KIBS	knowledge-intensive business services
MOE	Ministry of Environment [Cambodia]
OSS	Online Single Submission [Indonesia]
SME	small- and medium-sized enterprise
TERN	Textile & Garment Eco-innovation Research Network
UPK	Environmental Management Measure [Indonesia] (Usaha Pengelolaan Lingkungan)
UPL	Environmental Monitoring Measure [Indonesia] (Usaha Pemantauan Lingkungan)

Executive Summary

Environmental regulations provide protection for both environmental assets and the livelihoods of communities that depend on these assets. Environmental impact assessment (EIA) is one of the central mechanisms for environmental regulation, and a critical tool in planning for and ensuring sustainable development. The purpose of EIA is to ensure the protection and conservation of the environment and natural resources in the process of industrial and infrastructure development. EIA is both a planning tool and a decision-making mechanism.

EIA systems exist in each of the four countries analysed in this paper – Bangladesh, Cambodia, Indonesia and Viet Nam – with the systems in each country having their own strengths and weaknesses. In all four countries, the EIA systems are (or in the case of Cambodia, will be) supported by a strong legal framework with clear delineation of EIA processes and delegated decision-making.

The analysis of the EIA systems in the four countries shows that EIA is seen as a short-term process to achieve development approval, rather than an ongoing commitment to mitigate the environmental impacts of industrial activities. The presence of legal requirements for EIA systems does not necessarily translate into reduced environmental impacts. The effectiveness of EIA systems is dependent on their scope, the capacity of EIA participants, the processes for scrutiny and follow-up monitoring of assessments, and the degree of influence that relevant stakeholders can have in the EIA process and subsequent approval and operations licensing.

This comparative analysis has highlighted weaknesses in the EIA systems of the focus countries concerning the following:

- access to the 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; and
- the overall knowledge sharing and learning systems to support the improvement of practices based on past experiences.

The analysis shows that there is a clear role in the EIA process for proponents of industrial projects, and that enhanced environmental outcomes can be achieved by greater awareness among proponents of the links between environmental management (as facilitated by the EIA process) and sustainable development. A proposed action from this paper is to work with industry stakeholders through the Decent Work in Garment Supply Chains in Asia project to increase the awareness of EIA processes and the link between environmental management and sustainable development.

The paper also highlights opportunities for further skill development of professionals involved in conducting and approving EIAs. There is a gap in knowledge sharing and learning from previous EIAs and a lack of back-casting to compare the actual environmental impacts of industrial projects with the forecasted impacts, and then sharing and using this knowledge to strengthen future EIA activity. Knowledge sharing and learning across the four countries, and indeed across the region, within this group of professionals (that is, knowledge-intensive business service consultants/green consultants) would contribute to improved EIA quality.

▶ Introduction

Environmental impact assessment (EIA) is one of the primary environmental regulatory mechanisms used by governments to protect the environment (Joseph, Gunton, and Rutherford 2015). EIA processes ensure that critical information about the likely future impact on the environment of a project or industrial activity is available and considered in the decision-making process for this activity (ADB and UNEP 2019). EIA is a critical planning and management tool for sustainable development.

EIA has been steadily taken up by jurisdictions globally in the last 50 years, gaining momentum at a similar pace with the recognition of issues associated with climate change, biodiversity loss, threats to freshwater sources and quality, changes in marine environmental and other global environmental change (Morgan 2012). However, the presence of EIA systems in countries does not necessarily translate into reduced negative environmental impacts. The effectiveness of EIA systems is dependent on their scope, the capacity of EIA participants, the processes for scrutiny and follow-up monitoring of assessments, and the degree of influence that relevant stakeholders have in the EIA process and subsequent approval and operations licensing.

In recent years there is growing concern that EIAs are not meeting their key objective – protecting the environment – and this at a time when the social, economic and environmental costs of environmental degradation are rapidly increasing with resource over-use and climate change. This is particularly evident in the globalized textile and garment supply chain, including resource exploitation related to water and land for growing raw fibres for textiles, as well as the water, energy and chemical intensity of production processes leading to water scarcity, water pollution and increasing levels of carbon emissions. The increasing volume of textile and garment production and the resulting pre- and post consumption waste are compounding these issues.

EIA has been adopted within similar timeframe to other private sector/industry-based initiatives to improve environmental sustainability more broadly, and specifically in the textile and garment sector. The adoption and implementation of EIA across the world, including into Asia and the four focus countries for this paper – Bangladesh, Cambodia, Indonesia and Viet Nam – means that analysis of EIAs is a viable pathway for understanding potential mechanisms and intervention points to support enhanced environmental sustainability in the textile and garment sector.

0.1 The Just Transition Toolkit

This paper has been produced as part of the Just Transition Toolkit of the Decent Work in Garment Supply Chains Asia project¹. The Just Transition Toolkit focuses on enhancing the environmental sustainability of the garment supply chain. The Toolkit is built from inputs from constituents, including a mix of knowledge creation, knowledge diffusion and capacity-building activities for key sector actors with the aim of developing an evidence base for how environmental sustainability and the adoption of more sustainable practices in the textile and garment supply chain enhance decent work in the sector.

The Toolkit consists of reports, briefs, highlights, videos, and infographics that provide specific advice for our target audience, industry stakeholders to address gaps and weaknesses in national environmental regulation on country-specific levels, relevant guidance and support to help manufacturers understand and apply environment and decent work principles, and information on eco-innovation and greener production in the garment industry.

¹ This project is funded by the Swedish International Development Cooperation Agency (Sida)

Throughout this paper we use the term “textile and garment sector”, as we are specifically interested in garment production and therefore in the textiles manufactured as inputs into these garments. Textiles are manufactured for other purposes including furniture, automotive accessories and household decoration, and while the environmental impacts of the production of these textiles might be similar to textiles produced for garments, these textiles are not the focus of our work in this project.

The Decent Work in the Garment Supply Chains in Asia project is a regional project with coverage of all countries across the Asian region, but activities and evidence are drawn from four target countries: Bangladesh, Cambodia, Indonesia and Viet Nam

0.2 Purpose of this paper

Environmental sustainability is achieved with a mix of public and private actions and investment. Environmental regulations provide protection for environmental assets and the livelihoods of communities that depend on these assets. Environmental policy and regulations provide an important foundation for private actors to innovate and develop, by providing minimum standards for all, and a system and incentives to encourage the adoption of practices that go beyond these minimum standards.

This paper analyses the composition and comparative strengths of EIA and subsequent environmental management regimes in the four focus countries: Bangladesh, Cambodia, Indonesia and Viet Nam.

The aim of this comparative analysis is to understand the various strengths and weaknesses of different EIA systems in various production countries of the textile and garment sector, and identify opportunities for learning and strengthening of effectiveness of EIAs. Although this report specifically deals with Environmental Impact Assessment, other comparative work in the Decent Work in the Garment Supply Chains in Asia project is also using this comparative analysis to investigate how the interactions with national and other forms of regulation (including private regulation) and industry initiatives can enhance environmental and social sustainability.

0.3 Methodology

This paper is based on desktop research. The four focus countries were selected in consultation with project stakeholders with the aim of analysing multiple links of the global textile and garment supply chain across Asia. An initial literature review developed a set of core criteria for comparative analysis of EIA mechanisms (see table 1 in section 4.1 below). These elements were then used to analyse the specific EIA instruments in the four focus countries. Sources for this analysis include the environmental legislation, regulations and guidelines for EIA in each of the countries, as well as academic and industry literature.

A comparative analysis was then completed across the four countries. Adjusting to the COVID-19 situation, a preliminary e-discussion with the Textile & Garment Eco-innovation Research Network (TERN) on 28th April 2020 provided further inputs for the paper.

0.4 Structure of the paper

Section 1 of this paper provides an overview of the paper purpose and methodology. Sections 2 and 3 provide background context to the analysis of EIA instruments in the four countries. The effectiveness of EIA is strongly influenced by the social, economic, and political context of its application (Clausen 2011). The background context in Sections 2 and 3 is high-level, but highlights the various historical path dependencies that have influenced the specific industrial composition of the textile and garment sector in each of the countries, as well as how this relates to the main environmental issues of the sector in each of the four countries. Section 2 provides an overview of the environmental impacts of the sector, and Section 3

provides an overview of the development and characteristics of the sector in each country. Section 4 presents the framework for the comparative analysis of national EIA instruments and a commentary on each of the individual country's EIA systems, before applying the framework to compare the four countries' systems. Section 5 presents the implications and conclusions of this analysis.

▶ 1 Environmental impacts of the textile and garment sector

Asia accounts for more than 60 per cent of global exports of garments and textiles. The industry has rapidly grown over the past two decades, employing more than 40 million workers across the region, the majority being women (Sharpe 2017). 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). As textile production is located in some countries that already have insecure water supplies, water crises are forecast in textile producing countries, including Bangladesh, Cambodia, India, Indonesia and Viet Nam.

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.

Moreover, the increase of fast fashion has stimulated demand for fast, cheap and low-quality goods. It is both the growing volume of garment production and how these garments are used and disposed of that has meant climate change impacts from the sector are increasing. Between 2005 to 2016, the climate impact of various production stages in the apparel sector increased by 35 per cent and is projected to continue to increase under a business-as-usual scenario (Quantis 2018).

The current COVID-19 pandemic is causing immense humanitarian and economic consequences for the businesses and workers of the textile and garment supply chain. The precarious nature of the employment

in the sector – with competitive advantage based on low cost, high volume and just in time production – means there is little margin to absorb any unforeseen shocks. Order cancellations for factories across the region have broken the payment chains of the industry, leaving many enterprises and workers unpaid and struggling to survive.

A green COVID-19 recovery should include the strengthening and resourcing of regulatory systems and measures to enhance the environmental sustainability of the sector. The negative environmental impacts of the sector and the need to address climate change and global resource constraints have not diminished. In fact, prioritizing environmental sustainability is critical, as after the COVID-19 pandemic and the associated economic crisis, adequate fiscal resources will not be available for climate change adaptation and mitigation measures (Sharpe, Veem, and Martinez, 2022).

▶ 2 Overview of political economy and history context of the sector

The creation and implementation of environmental impact assessment (EIA) and subsequent environmental management systems are heavily shaped by the socio-economic and political context in which these regimes exist (Clausen 2011). This context includes development drivers and the institutional composition and characteristics of the main actors involved in environmental management. This section provides a brief overview of the industrial development context for the textile and garment sector in each of the focus countries as a precursor for the comparative analysis of EIA and management systems in these countries.

2.1 Bangladesh

Bangladesh became an independent country in 1971 and implemented a strategy of industrialization for economic development, employment and poverty alleviation. Economic growth in the country accelerated in the 1990s and has remained above 6 per cent per annum for much of the 2000s (ADB 2016). In 2018 the country graduated from a least developed country to a lower middle-income country (Kabir and Khan 2020). One of the sectors to best illustrate this rapid industrialization is the textile and garment sector, often referred to as the “ready-made garment sector” in Bangladesh.

Currently Bangladesh is the world’s second-largest exporter of garments after China, with the sector providing more than 80 per cent of the country’s export income, 10 per cent of gross national product, and employing some 4 million people, the majority of whom are women (Better Work 2019). Garment exports are mostly to the European Union (EU) (56 per cent) the United States of America (21 per cent), and are divided between knitted and non-knitted apparel (Balchin and Calabrese 2019). Garment production relies heavily on imported textiles. Broadly, there are three types of manufacturers in Bangladesh:

- fully integrated manufacturing with factories importing cotton and then completing the rest of the garment manufacturing processes (including yarn and fabric manufacturing);
- factories importing yarn and completing the rest of the garment manufacturing process; and
- factories importing fabric and assembling into garments (otherwise known as cut-make-trim) (Fernandez-Stark, Frederick, and Gereffi 2011).

The industry has experienced rapid growth – in the early 1980s there were only 12 garment businesses in Bangladesh, whereas in 2015 this had grown to 4,482 (BGMEA 2018). The rapid development of the Bangladesh ready-made garment sector is attributed to a number of factors: the introduction of the Multi Fibre Arrangement quota system, the availability of low-cost labour and the existence of a small domestic garment sector on which to build (Balchin and Calabrese 2019).

The introduction of the Multi Fibre Arrangement led the Republic of Korea, which was approaching quota limits for garment exports to the United States under the Arrangement, to look for other opportunities for exporting to the United States, and decided to work with Bangladesh. A partnership between a domestic Bangladesh company (Desh Garments) and the Korean conglomerate Daewoo emerged in the late 1970s. The partnership was a collaboration agreement rather than a joint venture, and Daewoo invested capital, but more importantly also invested in training and market development for Desh Garments. Under this agreement 130 Bangladesh workers received training in the Republic of Korea in factory management, international procurement and marketing, as well as train-the-trainer activities so that these workers could pass on their skills when they returned to Bangladesh (Rhee 1990).

Labour mobility in the developing garment clusters in Bangladesh ensured that these new skills circulated and developed the industry further; within a few years of returning to Bangladesh the original 130 Dosh employees that had taken part in the training had left the company either to start their own businesses or to be employed as factory managers in other businesses (Rhee 1990).

The Government of Bangladesh also took an active role in supporting the development of the ready made garment sector with selective use of international investment licences, duty free concessions for importing machinery and equipment, and the creation of a number of Export Processing Zones in Chittagong and Dhaka in the 1980 and 1990s (Balchin and Calabrese 2019). Businesses in these zones have access to further tax holidays and tax concessions, including duty free imports, expedited customs processing and access to finance (Moazzem and Sehrin 2016).

The development of the sector relied on international investment, however the majority of the sector is domestically owned. Foreign-direct investment (FDI) was only encouraged in areas where domestic production was not considered competitive (Yang and Mlachila 2007).

The ready-made garment sector has been a significant source of formal employment (although a large proportion of the sector is still in informal employment) and poverty alleviation; however, this development has not come without costs. Labour standards and worker safety are prominent issues, particularly after the 2013 Rana Plaza fire disaster, which killed more than 1,136 garment workers and injured many others – one of many examples of workers being killed or injured in the garment sector.

The environmental impacts of the sector are increasingly costly too. Water pollution is particularly severe in the delta-based country. In the capital of Dhaka, the Government of Bangladesh has declared three rivers biologically “dead” due to the untreated effluent entering into them. Other rivers are classified as highly contaminated with no dissolved oxygen (JamRenew News 2020). Industrial pollution is responsible for some 60 per cent of pollution in the Dhaka watershed, and garment factories are the second-largest contributor (NRDC 2012).

2.2 Cambodia

The Cambodian economy is very reliant on the garment industry, as it is the largest employer in the country, employing around 1 million people, 80 per cent of whom are women (ILO 2018). The industry accounted for 16 per cent of GDP in 2018 and 80 per cent of Cambodia's exports. The EU is the largest market, followed by the United States (Rastogi 2018). Garments and shoes from Cambodia account for 1.2 per cent of the global market (Clean Clothes Campaign 2015).

The industry is focused on the cut-make-trim business model, which is the lowest-value segment of the supply chain, as raw materials, equipment and designs are imported. As such, the sector remains low-skilled and labour-intensive and is driven by low wages. Only the Lao People's Democratic Republic and Myanmar have lower wages (Rastogi 2018). The cut-make-trim model has weak linkages with other productive activities in Cambodia, and there have been few opportunities for increasing value-adding in Cambodian operations (Heintz 2007). The majority of the sewing factories operate in special economic zones, and 60 per cent of these are close to Phnom Penh. In 2016 there were 589 garment-making factories in Cambodia (Rastogi 2018).

FDI has played an important role in the garment industry in Cambodia, which began around 1993; even now the sector is 90 per cent foreign owned, predominantly by investors from mainland China and Taiwan, China (Clean Clothes Campaign 2015). A significant portion of the profits from the sector are repatriated to investor countries (Ear 2013).

Challenges for the Cambodian garment sector include: a high dependence on imported inputs; limits to wage-based competition; and a lack of domestic economic linkages, which limits supply-chain efficiency

(Heintz 2007). The lack of domestic linkages has also limited the potential for value-adding; for example, Cambodia does not produce textiles, thread or buttons (Ear 2013). Small- and medium-sized enterprises (SMEs) in the sector also struggle to gain access to finance, as a majority are not registered (Ung and Hay 2011).

The growth of the Cambodian garment industry has been enabled by a number of trade agreements. In 1999, Cambodia and the United States negotiated a bilateral trade agreement that allowed Cambodia to avoid import duties of 16 per cent when exporting to the United States if garment producers complied with a set of labour standards. This agreement was significant for Cambodia in gaining a competitive edge (Heintz 2007). It also led to the development of the ILO's Better Factories Cambodia programme, which was implemented to improve working conditions, to undertake independent monitoring and to provide management, training and advice (Ear 2009).

Cambodia is also a member of the ASEAN Free Trade Area, and therefore benefits from the lack of tariffs on manufactured goods traded between ASEAN Member States. Under the EU's "Everything but Arms" scheme, Cambodia has been able to export to the EU duty free. However, in 2018 this was being withdrawn due to a poor human rights record (Rastogi 2018). The Cambodian Government has introduced a number of policies to encourage growth in the sector, including generous tax holidays (Ear 2009), 100 per cent foreign equity ownership, no import duties on equipment and machinery, and the ability for investors to repatriate their profits easily (Rastogi 2018).

2.3 Indonesia

Garment-making factories were established in Indonesia in the mid-1970s, and from the mid-1980s to the late 1990s the sector grew into an important export industry. While the weaving industry had a long history prior to this in Indonesia, it was quickly surpassed in size by the garment industry, which is now the dominant sector within the textile supply chain (Thee 2009). In 2019, textile and apparel exports from Indonesia were valued at approximately US\$14 billion, and were expected to reach US\$15 billion in 2020 prior to the global pandemic. The textiles and garment manufacturing industry is growing rapidly in Indonesia and represents a significant driver of economic growth (Ishaque 2019). Textiles are one of two priority industries in the Indonesian National Industrial Development Plan 2015–2035 (Prihandono and Religi 2019).

In 2015, there were nearly 5,000 large and medium enterprises involved in textile and garment production, in addition to more than 500,000 small and micro enterprises. The industry employed 4.2 million workers in 2016, which accounted for 27 per cent of employment in the manufacturing sector. Of all textile and garment workers, two-thirds are employed in small and micro enterprises (Fairwear Foundation 2018). The textile and garment industry in Indonesia include all aspects of production: from natural and synthetic fibre making; to textile spinning, weaving, knitting and dyeing/printing; to production of garments, carpets and other textile products. Traditional textile production is still in operation, and provides some textiles for the domestic market, using locally obtained yarns and dyes (Kuncoro 2013). However, the modern garment industry is dominated by synthetic yarns and has been described as "low-end, large scale" (Greenpeace 2013).

Growth in the garment sector in the 1980s was facilitated by low labour costs and the Multi Fibre Arrangement, which set export quotas for garment-producing countries. The quota system enabled growth while Indonesia still had a quota to fill. The Indonesian Government also adopted deregulation measures to facilitate foreign investment, particularly from East Asia. From the late 1990s onwards the industry was hampered by the Asian Economic Crisis and strong competition from other Asian countries, such as China and Viet Nam. Competition was strong both when the Multi Fibre Arrangement expired in 2004 and subsequently when other free trade agreements were established (Thee 2009).

Free trade agreements with manufacturing competitors, such as Viet Nam and Malaysia, as well as with export destinations intensified competition for Indonesia (Prihandono and Religi 2019). The China–ASEAN free trade agreement in 2010 resulted in a 70 per cent increase in Chinese fibre, textile and garment imports into Indonesia. Other challenges faced by the sector include a lack of investment, technology and expertise;

high electricity and gas prices; and ageing machinery. A third of textile factories in Indonesia are using machinery that is more than 30 years old. The Government introduced a textile machinery restructuring programme in 2007 to provide discounts on machinery, exemptions from customs duties and low interest rates on loans. However, there has been insufficient funding to shift the entire industry (GBG 2012; 2018).

There are several large vertically integrated textile and garment producers in Indonesia; however, there are major challenges for businesses in upstream industries. As Indonesia produces minimal cotton, manufacturers must buy all of their raw cotton on the international market. Most cotton is sourced from the United States, Brazil and Australia. As Indonesia is dependent on imports for raw materials and early-stage intermediate goods, upstream businesses are particularly exposed to international commodity price fluctuations (GBG 2015).

In Indonesia, the Citarum River basin in West Java houses 60 per cent of the country's textile factories, and the river is one of the most polluted in the world (Greenpeace 2013). Among the 2,000 industries situated in the Citarum River basin, 447 are textile manufacturers. Indonesia is ranked as having the second-highest level of water pollution caused by the textile industry among the G20 countries (Prihandono and Religi 2019). Industrial wastewater treatment plants were constructed along the Citarum in the late 1980s, but these failed to improve water quality (Greenpeace 2013).

2.4 Viet Nam

The textile and garment sector is a major sector for the Vietnamese economy, in terms of industrial output, exports and employment. Exports from Viet Nam in textile, clothing and footwear categories have almost doubled over the past five years (Finn 2019). Viet Nam is now the fifth-largest exporter of textiles and clothing in terms of gross domestic product (GDP) after China, India, Italy and Germany. Since 2011, Viet Nam's garment exports have increased by 32 per cent, the highest of any nation in the world, and more than double the increase experienced in China over the same period (Greer and Hook 2014). In 2018 the total value of exported textile product increased by 16.7 per cent (from 2017 levels), accounting for approximately US\$30 billion of value, or 12.5 per cent of national export turnover (General Department of Viet Nam Customs, 2018).

Viet Nam has a long history of participating in the textile and garment sector and has developed unique characteristics to the industry that set it apart from other Asian region competitors. Viet Nam's history as a French colony has embedded in the country a strong tradition for tailoring and made to order clothing, rather than the ready-to-wear clothing that dominates in other countries within the region (Finn 2019). Before the economic liberalization and increasing expansion of international trade in the 1990s, the textile and garment sector included mainly state-owned enterprises producing for the domestic market and a small number of other countries in the Soviet Union and Eastern Europe. Free trade agreements with the European Union in 1992, and the normalization of trade relationships between Viet Nam and the United States from 1995 provided significant demand for garment exporters from Viet Nam, indeed these two markets still dominate Viet Nam garment exports.

This long history in the sector means Viet Nam has strong skills and institutions to support much of the supply chain, including clothing design and localized design-make-sell capabilities. Although these capabilities are weakening as the sector in Viet Nam focusses predominantly on sew-cut-trim/ garment assembly activities.

Garment assembly activities are labour-intensive, using mainly low-skilled labour, but have relatively minor impacts on the environment compared with other parts of the supply chain. There is some textile manufacturing in Viet Nam, although currently these textiles are mostly only for the domestic market.

Three types of textile and garment firms exist in Viet Nam: investor-owned companies (or FDI companies), state-owned corporations and private (non-state owned) enterprises (Hossain 2010). Most Tier 1 suppliers are East Asian firms – from the Republic of Korea, Taiwan (China), Hong Kong (China) and mainland China

(Hossain 2010). Most Vietnamese firms sub-contract to these larger internationally facing firms that take orders directly from international buyers and brands. FDI enterprises dominate export activities. Although these firms only account for 15 per cent of the total number of factories in Viet Nam, in 2017 they accounted for 62 per cent of Viet Nam's textile and garment exports (WWF 2018).

The concentration of Viet Nam industry in the sew-cut activities means a focus on low-skill employment and low value-add production. Significant investments in upstream (fibre manufacturing) and midstream (fabric production and dyeing) activities have been made in recent years. This focus on developing backward linkages into fibre manufacturing, fabric production and wet processing activities are rapidly increasing the environmental impacts of the sector in Viet Nam (Greer and Hook 2014). These production processes require major investments in technology, clean industrial processes and regulation to manage the environmental impacts and risks, especially to Viet Nam's sensitive and over-utilized water resources.

Water pollution is a significant issue, and Viet Nam is struggling to control its industrial pollution. In the Red River Delta around Hanoi, which accounts for over a quarter of the country's industrial output, only 30 per cent of industrial waste water is treated (Ortmann 2017). Some estimates show that air and water pollution alone have resulted in economic losses of 12 per cent of GDP in Viet Nam, even with an official policy framework emphasizing environmental protection and sustainable development (Tran and Nguyen 2014).

The Vietnamese Government has made significant efforts in establishing a regime of environmental protection and regulation. However, to date, this environmental regulatory system has been unable to slow or stem the levels and impacts of environmental damage from industrial activities. It is estimated that 60 per cent of industrial waste water enters water resources without any treatment (T.P.L. Nguyen 2012), and as much as 75 percent of industrial estates do not have any central wastewater treatment system (Dao and Ofori 2010).

There is limited capacity within the domestic sector for environmental upgrading and eco-innovation. The majority of the domestic sector are SMEs with limited capacity and awareness of environmental regulation and compliance, limited access to capital for eco-innovation investments, and limited capacity to make return on investments and innovations due to the structures of the global supply chain, given Viet Nam's dominant position in low value-add cut-and-sew activities (Nguyen, Beeton, and Halog 2015).

2.5 Water pollution and water security

In each of the four countries investigated, a common and critical environmental impact of the textile and garment sector is on water use and water pollution. 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. In a recent UK House of Commons report (2019) on the fashion industry, it was highlighted as one of the major freshwater consumers of the world. Globally, the fashion industry consumes an estimated 79 billion cubic meters of fresh water annually across the entire value chain. Growing water demand from the textile sector will intensify the competition with other water uses, such as domestic and agricultural water use, driven by population growth and demands placed on food supply. The expected growth of the textile sector will further exacerbate the current gap between water supply and demand and contribute to declining water quality.

Water pollution also disproportionately affects countries that are production centres for textile manufacturing. A recent ADB (2018) report on forecasting industrial pollution highlights that industrial pollution in the Greater Mekong subregion as one of the most under-recognized global problems. The report highlights that most industrial pollution is generated by a small number of industrial activities (including textile manufacturing), and that polluting facilities are usually geographically clustered. The ADB recommends stronger regulation, including provisions for detailed and timely monitoring of current pollution and for projecting future pollution, as well as intervening with mitigating technologies and processes to prevent industrial pollution. As EIA is established, these monitoring activities are designed to be part of assessment

processes; however, as the following sections on EIA in each of the countries under investigation show, monitoring, collection and analysis of data and the enforcement of mitigating measures are weaknesses in EIA systems in the four countries.

In each of the four study countries the textile and garment sectors are located near to major river systems, as follows:

- Bangladesh – the Meghna, Padma and Dhaleshwari river systems surrounding Dhaka;
- Cambodia – the Mekong river system;
- Indonesia – the Citarum river basin in West Java; and
- Viet Nam – the Soai Rap and Van Co Dong river systems around Ho Chi Minh City, and the Red and Duong river systems around Hanoi.

These river systems are vital to the environmental, economic and social health of the communities in which they are located, and highlight the need to work with local stakeholders to build their awareness and capacity in order to increase the effectiveness of both EIA and the overall environmental sustainability of industrial activities associated with the garment sector.

▶ **Figure 1: BANGLADESH, with major river systems surrounding Dhaka**



► **Figure 2: INDONESIA, Citarum river basin, outside Jakarta in West Java**



► **Figure 3: VIET NAM, Ho Chi Minh City and river systems**



► **Figure 4: CAMBODIA, Mekong River system**



▶ 3 Comparative analysis of EIA systems in the four countries

3.1 Comparative assessment method

Environmental impact assessment is the most commonly known and used environmental planning and management tool. EIA processes include six main steps:

1. screening;
2. scoping and impact analysis – presented in an EIA report or an environmental impact statement (EIS);
3. review of the EIA/EIS report;
4. decision-making;
5. follow-up and adaptive management; and
6. public participation (as a cross-cutting activity).

EIA is a complex and interdependent process, such that weakness in one part of the process can limit the effectiveness of the whole process (Joseph, Gunton, and Rutherford 2015). Through the evolution of EIA instruments there is an increasing focus on follow-up and monitoring over time, but the predecision stage and the initial EIA report are still generally the focus and emphasis of EIA – with the widely held perception that the EIA report is the end product rather than an ongoing commitment to a certain (mitigated) level of environmental impact (ADB and UNEP 2019).

Sector-based procedures and guidelines are highly usefully for establishing a robust EIA that deals with the specific challenges and environmental impacts of industrial activity in a given sector – such as water use and wastewater pollution in the textile and garment sector. Sector guidelines allow for the inclusion of more context-specific requirement and actions, and can often result in the helpful byproduct of helping to circulate knowledge and information about EIA within the jurisdiction (Kabir and Khan 2020). The practice of developing sector guidelines for EIA and environmental management systems (EMSs) is still emerging in many countries across Asia.

When considering EIA best practice, two dimensions are useful: (i) institutional and governance qualities of EIA processes; and (ii) technical and supporting tools and aspects (Arnold and Hanna 2017). Table 1 provides a summary of the criteria of EIA mechanisms and the elements of best practice for each of these criteria.

► **Table 1: Core criteria of environmental impact assessment mechanisms**

Criteria	Further details and good practice
Integrated into broader planning and management systems	Industrial development is managed within a broader hierarchical decision-making system that includes strategic policymaking, land use planning, tenure, permitting. Broad issues resolved prior to narrow project-specific ones (Joseph, Gunton, and Rutherford 2015)
Legal foundation	Key elements are established in law, legal text is clear, and uses mandatory language (must, shall, etc.).
Projects requiring EIA	There is an established process for reviewing if proposal requires detailed review, as well as the nature of review and focus on key issues. Scope of EIA is formally detailed, including acceptable methods. Good practice includes for a broad range of impacts to be assessed, as well as requirements for data collection and analysis against baseline data.
What is assessed as part of the EIA?	Does this EIA process apply for assessment of project proposals, or does it also include operation and closure/remediation?
Chemicals management and wastewater management - specific to the textile sector	What chemical management activities are being assessed? This should include assessment of the use of listed prohibited and monitored chemicals, modes of control being used (bans, limits, etc.), and how they are to be assessed (for example, using downstream wastewater assessment). Good practice includes identifying specific "issue" chemicals and providing for adequate monitoring in wastewater systems, and providing for regular review processes to ensure limits continue to be appropriate given quickly evolving chemistry.
Conduct of assessment	Who conducts the assessment? Who pays for it? There is a trade-off between independent assessment and optimizing mitigation activities into the project design, with the latter option running the risk of bias by having the proponent being too close to the process (Joseph, Gunton, and Rutherford 2015).
Scrutiny of assessment	Who reviews the assessment, and how is an adequate degree of independence from government ensured? How does one ensure adequate expertise and public accountability? How are risks of fragmented decision-making and information collection across government managed? Is there legal authority to require proponents to address deficiencies?
Mitigation and compensation	Are the conditions for mitigation voluntary or mandatory? What are the minimum thresholds for mitigation – for example, do they involve temporary or permanent changes, or are they geographically bounded? Compensation should potentially be provided, but only as a last resort.
Approval	Final decision made by an independent body or on advice from an independent body with clear legislatively based criteria and stakeholder engagement. Approval should be subject to clear terms and conditions (including for appeals), describe allowable procedures and impact outcomes, and be backed by legal sanctions.
Discretion	Spectrum runs between detailed decision criteria versus board discretion. Best practice is to include discretion within clearly delimited boundaries.
Monitoring and follow-up	EIA supported by compliance monitoring, with remedial action options. Monitoring to be performed by an independent agency. Knowledge from monitoring is transmitted to future EIA processes, and monitoring of environmental impacts is supported by enforcement of requirements in approved environmental reports, statements and approvals.
Stakeholder participation	Stakeholder participation – three models ranging from weak to strong in supporting stakeholder (including public) participation: i. information sharing – informs without seeking input; ii. consultation – seeks input through formal obligation without obligation to take this input into consideration in final decision; and iii. collaboration – engages stakeholders in interactive process that ensures incorporation of stakeholder views in decision (Gunton, Rutherford and Dickenson 2010). How are power imbalances in stakeholder participation mitigated?
Structure of appeals process	Part of legislation. Appeals should be allowed on major decisions for both procedure and substance, and standing should be extended to proponents and others with direct material interests. Who hears appeals?
Process	EIA process is fully described in publicly available documents, with roles and responsibilities clearly outlined, including details of how stakeholders can participate.
Effectiveness	Effectiveness of EIA and associated activities is determined by the degree to which they achieve environmental protection while balancing environmental, social and economic costs and benefits.
Transparency	Availability and awareness of decision-making processes, and of the importance and impact of decisions. Are records of decisions and decision making publicly available?

Source: Compiled by the authors from listed sources.

3.2 Bangladesh

Bangladesh initiated EIA guidelines in 1992 and enacted legislation for EIA in 1995 and 1997. 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 (1997) 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 a number of 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. These projects need to provide general information about the materials and physical products to be used and made on the site in order to obtain an ECC. All other projects require an initial EIA and site clearance.

ECCs for Green proposals need to be renewed after three years; all other project clearances need to be renewed annually. There are fees for the initial granting of an ECC and for its renewal. Fees are scaled by the financial investment of the project, and range from 1,500 Bangladeshi taka to 1,000,000 taka (equivalent of US\$17–\$11,400) for the initial ECC and one-quarter of the initial fee for the renewal (Selim 2018).

The EIA process for Amber A projects involves collation of initial details of the project proposal (materials and finished products), process flow diagrams, and layout and details of effluent disposal systems. Amber-B projects (in addition to the requirements for Amber-A projects) need to complete a feasibility study, present an environmental management plan and a pollution management plan, and outline a relocation plan. Projects categorized as Red need to complete a full EIA (in addition to the requirements for an Amber-B project).

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).

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).

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.

Standards for industrial emissions for air and water are defined and are in the Rules, but these have not been updated since 1997.

After data collection, the next stages include modelling and methods for quantifying impact and analysis of alternatives. These stages highlight the criticality of the availability and quality of baseline data. A major issue hampering EIA in Bangladesh (and indeed across Asia) is insufficient baseline data against which to measure potential environmental impacts at the regional (cross-border), national and local levels. Even when data are available they are not collated, nor are they available in a coordinated manner or in a comparative format. Data gaps for ecological data are the most widespread, although social and physical data gaps are common (Kabir and Momtaz 2013). The ability to identify and quantify environmental impacts is highly difficult without baseline data or extensive and time-consuming studies to establish the before case.

EIA in Bangladesh also requires public and/or community participation. There is a diversity of practices with regard to 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). EIA is not a large enough field to attract specialized consultants or KIBS (knowledge-intensive business services) often linked to innovation activity (Miles 2020), or to offer a secure career path for these professionals; 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 governing professionals undertaking EIAs.

Within EIA there is an acknowledged trade-off around who is responsible for conducting the EIA. In most cases, best practice sees the proponent as being the one with the responsibility – as they have the most information and insight about the project and are therefore in the best position to undertake or commission the work. Since the introduction of EIA there has been support in Bangladesh for an independent body to conduct EIA, with the view that EIA is conducted in Bangladesh not to ensure the sustainability of projects or to develop better management plans, but solely to obtain an ECC – and overall EIA is seen as an impediment to development (Momtaz 2002).

Inadequate budgets are often allocated to EIA; best practice highlights that 1–2.5 per cent of the total project budget should be spent on EIA. In Bangladesh, less than 1 per cent is allocated for EIA activities, and private sector industrial projects are at the lower end of this scale, compared with government funded projects (Kabir and Momtaz 2013).

The effectiveness of the EIA system in Bangladesh has been analysed. An independent study of the quality of 40 EISs found that although the majority of the statements were found to be satisfactory (65 per cent), most of these were assessed as “just satisfactory”, and 35 per cent were assessed as poor to very poor. These results broadly correspond to other studies of the quality and effectiveness of EIA processes in Asia and Africa (Kabir and Momtaz 2013). However, quality varied significantly depending on the sector. The study considered the following sectors: infrastructure (roads, bridges and urban projects); energy (power, gas and mineral resources); water resource management; and industrial (cement factory, textile and leather industries). Among the industrial sector EISs analysed, 80 per cent were found to be of low quality.

Three reasons were given for the overall lower level quality of EIS in the industrial sector:

1. The lack of significant donor involvement and capacity building for sectoral agencies in the preparation and conduct of EIA.
2. The degree of institutional support, capacity (particularly within respective government agencies) and experience with the EIA processes (gathered from donor-funded projects): For example, in the water resource sector EIA quality was consistently high. Whereas in the industrial sector there is less experience and capacity within government agencies to support the EIA process.
3. The attitude of industrial project proponents: Industrial projects are mostly local and privately owned (rather than international), with little in-house knowledge, capacity and skills for environmental management. The proponents of these industrial projects spend less than adequate resources on the preparation of the EIA report, yet approval is often still granted due to the political power/connections of the proponents (Kabir and Momtaz 2013).

This study also found that EIS quality has not improved or changed significantly since Kabir and Momtaz's 2013 study, suggesting that the factors affecting quality – short study timeframes, inadequate baseline data, and lack of EIA expertise – are entrenched. Decision-making is highly centralized and hierarchical, and transparency in decision-making is largely absent.

Some progress has been made in recent years, however. In 2000, the Environmental Court Act established environmental courts in every division in the country to deal with environmental offences. Waterways have now been given legal status in legal efforts to improve the environmental management of these rivers. Environmental issues are now increasingly incorporated into development plans by the National Planning Commission, the central planning authority of the Bangladesh Government. Even so, on the whole, environmental issues continue to be seen as a low priority, with the governance of environmental protection not undertaken by specialist staff and not resourced adequately in terms of defining or enforcing environmental protection.

3.3 Cambodia

The EIA process in Cambodia was established with the Law on Environmental Protection and Natural Resource Management, 1996 (Swangjang 2018). In 1999, a sub-decree was developed regarding environmental and social impact assessment (Chanthy and Grünbühel 2015). While these laws remain in place, environmental law in Cambodia has been under review since 2012. Initially, a new EIA sub decree was being developed; however, efforts were expanded to develop a draft Environment and Natural Resources Code. This code has been under development since 2015, and was in its 11th draft in 2019, following many rounds of consultation (ODC 2019).

Prior to this, Cambodia had gone through a period of major growth and construction of significant infrastructure projects, which had resulted in environmental degradation. The function of the Cambodian Ministry of Environment (MOE) was also hampered by an outdated organizational structure, a lack of human and technical resources, and a lack of guidance and legal principles to facilitate sustainable development (UNDP 2016).

The Environmental Protection and Natural Resource Management Law, 1996, requires that EIA be undertaken for both public and private projects that are likely to have an impact on the environment (ODC 2019). Since the initial law was promulgated, various updates have been issued in the form of subdecrees and prakas (ministerial regulations). The current relevant legislation are the 1999 Sub decree on the Environmental Impact Assessment Process and the 2009 Prakas on General Guidelines for Initial and Final Environmental Impact Assessment Reports. The 1999 sub-decree requires that EIA be conducted for a range of activities impacting the environment, including all textiles projects, but enables exceptions for special projects approved by the Government and “necessary or emergency projects” (ODC 2019).

Current requirements are for proponents to submit an initial EIA to the MOE for review, and depending on whether the project has a “serious impact on natural resource, ecosystems, health or public welfare”, the MOE may request a full EIA (Schulte and Stetser 2014). The initial EIA describes the physical, ecological and socio-environmental resources of the project site, based on existing information. The full EIA assesses impacts; incorporates public consultation results, mitigation measures, and an environmental management plan; and provides an economic analysis.

Within the 2009 prakas, the project proponent may conduct the EIA or employ a qualified consultant, but their qualifications must be approved by the MOE (ODC 2019). There are a limited number of consulting firms registered with the MOE that are able to undertake environmental and social impact assessments. Problems have been identified with this process, as the consulting firms are potentially affected by political influence and local elites, and they generally lack expertise, time, access to data, and financing (Chanthy and Grünbühel 2015).

Due to a lack of clarity concerning the processes for EIA, a guidebook was published in 2012 to clarify aspects such as: public participation, cumulative assessment, transboundary impacts and developing mitigation measures. The guidebook also suggests a length of time that is needed to carry out the relevant studies. For an initial EIA, the proponent or consultant should spend at least three months to conduct studies and collect secondary data. While for an EIA, the guidebook recommends a six-month study and collection of primary data (Cambodia 2012).

In a study of EIA rigour in Cambodia, key informant interviews indicated that more than a year was usually needed for a full assessment, but for most studies one to seven months were spent on fieldwork. Specific knowledge with regards to water, waste, land, air or environmental sciences were often not available for each assessment. Experts also identified the potential for conflicts of interest, as there was an expectation that consultants would receive more work by ensuring the project is approved (Chanthy and Grünbühel 2015). In that same study, 69 per cent of EIA in Cambodia were classified as satisfactory, and it was noted that many EIA reports did not provide adequate information for decision-making, with many reports being incomplete.

Once the completed EIA is submitted, the MOE reviews it and passes recommendations on to the approving organization. The approving institution must take the MOE's findings into consideration (ODC 2014). At present, the MOE does not have approval powers, they can only provide recommendations to the approving institution, and historical cases have shown that their recommendations often do not influence the decision (Schulte and Stetser 2014).

The new draft environmental code gives the MOE the power to review and make decisions on approvals. EIAs will also go through more scrutiny under the new code, with an independent EIA review committee, which includes experts, MOE representatives and representatives of other relevant institutions and ministries (ODC 2019). The committee would be formed for the project and reimbursed by the proponent (Schulte and Stetser 2014). Another problem that the new draft code addresses is the fact that EIAs are often implemented too late – after a project had already started or even finished. Under the new draft code the proponent must not start building until the EIA is approved (Schulte and Stetser 2014).

While the MOE currently lacks approval authority, it is responsible for monitoring and ensuring compliance with the conditions set within the EIA process, including during construction, operation and at the end of the project life (Schulte and Stetser 2014). In the new draft environmental code, the project proponents have greater responsibility for monitoring and reporting (ODC 2019).

Water and wastewater discharges operate on a permit system. Controls include discharge limits in terms of concentration, rather than load, and these limits are not specific to the textiles industry. Monitoring is conducted by the MOE, and this is paid for by the factory owner. The owner is also required to conduct tests and keep records. Breaches are to result in penalties for both the owners and the officials involved.² Under the new draft code, risk assessments for projects need to be conducted to help minimize environmental harm and proponents must ensure that a funding source is available for remediation.³

A key failing of the EIA process in Cambodia has been the widespread lack of compliance. Between 1999 and 2003, EIAs were not conducted for any projects, and from 2004 to 2011 only 5 per cent of major projects in Cambodia conducted an EIA. Aside from compliance, other issues included EIAs that were started too late (after projects had commenced), and poor estimation of social and environmental impacts (Schulte and Stetser 2014).

² See the Sub-decree on Environmental Impact Assessment Process (No. 72/1999) and the Sub-decree on Water Pollution Control (No. 27/2009).

³ See the revised ninth draft (9.1) of the Environment and Natural Resource Code of Cambodia.

The current Sub-decree 72/1999 encourages public participation in the EIA process, but does not set out a process for engaging the public (ODC 2014); a later guideline on public participation was developed in 2016. In the new draft environmental code there are provisions for public participation during project planning, such that proponents are required to document and integrate public opinions into decisionmaking; they also need to provide reasons why any public concerns are being rejected. Under the draft code, the draft environmental monitoring plan should also be open for public comment with regard to the monitoring process and compliance.

Other improvements offered by the new draft environmental code include clarity with regard to: institutional roles and responsibilities, public involvement, transparency, impacts to be considered, monitoring and enforcement. A significant problem has been the lack of power of the MOE and the lack of recognition of the EIA process more broadly across the Cambodian Government (Schulte and Stetser 2014). The new draft code also sets out requirements for strategic environmental assessment, which should be conducted on any proposal that is likely to have a significant impact on the environment, or is within a sector listed by the National Council for Sustainable Development. This is a promising feature of the draft code, but the procedure and criteria for determining which proposals will have a significant impact are yet to be determined.

When the new code is adopted it will offer a much higher level of environmental accountability and protection (Cooper 2019). However, it is currently not known when the new code will be implemented, and there are still a number of challenges to overcome, including enabling funding and extensive capacity building (ODC 2019). Other major issues are institutional attitudes towards the EIA process; as to date EIA has been treated as a mere requirement for initial project approval, not a tool for environmental management. In addition, proponents have also not always been forthcoming with information that will enable consultants to undertake the EIA assessment (Chantry and Grünbühel 2015). There is also a prevailing view in the Government that environmental issues are secondary to development issues (ODC 2019).

3.4 Indonesia

The environmental legal framework in Indonesia relevant to the garment industry consists of a hierarchy of legislation, government regulations, presidential regulations, and ministerial decrees. The principal law for environmental protection in Indonesia is Law No. 32/2009 on Environmental Management and Protection, which is administered by the Ministry of Environment and Forestry. Other laws, regulations and decrees that are relevant to the environmental management of the textiles and garment industry in Indonesia relate to EIA, water resources, water quality control, solid waste, hazardous waste, environmental license holders and green industry.

The requirements in Law No. 32/2009 effectively mean that obtaining an environmental licence is mandatory for many business types. In order to obtain an environmental licence, businesses are required to undertake an EIA, which in Indonesia is known as an AMDAL⁴, or a less intensive process known as a UKL UPL⁵ (Rajah Tann 2012). The AMDAL, or full EIA process, must be undertaken for projects that are likely to have a “substantial impact” on the environment. The potential for a substantial impact is determined according to criteria set out in Law No. 32/2009, including the size of the affected population, the size of the site, the severity and duration of impacts, whether those impacts are reversible or irreversible, and potential cumulative impacts.

The AMDAL process is specified in Ministry of Environment Regulation 5/2012, and applies to most industrial developments, including those that: change the land and landscape; extract natural resources; potentially cause environmental pollution or degrade natural resources that they use; or use any technology that

⁴ AMDAL is an abbreviation of Analisis Mengenai Dampak Lingkungan, which translates to “environmental impact assessment”.

⁵ UKL is an abbreviation of Usaha Pengelolaan Lingkungan (Environmental Management Measure), and UPL is an abbreviation of Usaha Pemantauan Lingkungan (Environmental Monitoring Measure).

has potential to significantly impact the environment. Textile and garment industries have the potential to pollute and are therefore required to undertake the AMDAL process. Once an AMDAL has been prepared, businesses may apply for an environmental licence under Government Regulation 27/2012 (Setiadi 2017). Exemptions for the AMDAL process include proposed activities occurring in areas where a general AMDAL has been issued; where municipal zoning permits operations; or in situations of an emergency. For businesses that are not required to undertake an AMDAL, the UKL-UPL process is followed, which consists of developing an environmental monitoring and management plan on a standard set of forms (Rajah Tann 2012).

In each case, the proponent is responsible for undertaking the AMDAL and any mitigation and monitoring (Gerungan and Titus 2020). If an AMDAL is required, the proponent develops the terms of reference (TOR), which are then reviewed by an AMDAL commission. After the TOR are agreed, the proponent prepares the EIS, management plan and monitoring plan (Purnama 2003). AMDALs are undertaken by assessors who have been certified by the Government (Swangjang 2018). In 2018, the Indonesian Government introduced a simplified means of applying for an environmental permit, called an Online Single Submission (OSS), which serves as the proponents' first notification of their intention to apply for an environmental licence. Once the OSS is completed, proponents make a commitment to prepare the AMDAL document within 115 days. This online process is thought to reduce delays, but may be less rigorous in terms of the quality of assessment required (Kurniawan, Murayama, and Nishikizawa 2019).

The AMDAL must consider the direct, indirect, cumulative impacts and risks to physical, biological, socio-economic and physical cultural resources within the project's area of influence in addition to transboundary and global issues such as climate change. Projects are assessed against alternatives including the "no project" option, and alternative locations, equipment, technical specifications, construction, design and other types of alternatives. The assessment needs to be carried out for each alternative, by analysing the difference between the proposed project and the "no project" and alternative options using the impact prediction method (Setiadi 2017).

Since the late 1990s, EIA implementation and approvals have been decentralized to local provincial governments (Kurniawan, Murayama, and Nishikizawa 2019). However, the central Ministry of Environment and Forestry is involved in technical supervision and setting national standards (Gerungan and Titus 2020). There are AMDAL commissions at each level of government – central, provincial and regency/municipal – and the location of the proposed business determines which commission will evaluate the AMDAL. The commission is responsible for assessing the quality of the assessment and for providing inputs for decision-making. Final approval is given by the relevant level of government, such as the minister, governor, regent or mayor (Rajah Tann 2012). Since 2000 there does not appear to be an appeals process if an assessment is rejected (Purnama 2003).

The AMDAL commissions include the minister at the central level or the governor at the regional level (Swangjang 2018). As such, the AMDAL commissions are not necessarily independent from the final decision-making. Many districts lack environmental auditing expertise; for example, of 514 districts in Indonesia, only half (255) have licenced AMDAL audit commissions. Ministry of Environment and Forestry assessments of AMDAL quality in recent years have shown them to be predominantly of fair to low quality. The new OSS system reduces the number of environmental agency staff involved in the process, and this is anticipated to further reduce the quality and scrutiny of AMDALs (Kurniawan, Murayama, and Nishikizawa 2019).

Once the environmental licence is issued, the proponent is required to submit reports biannually regarding their plans to implement the terms set out in the environmental licence, including physical, biological and socio-economic impacts (Rajah Tann 2012). If reports are not delivered, the environmental agency can enlist a third-party to undertake an environmental audit. Regardless, monitoring data tend to fill archives and have little impact on future decisions (Kurniawan, Murayama, and Nishikizawa 2019).

If environmental licences are breached by industrial facilities, sanctions may be imposed, including potentially revoking the licence, suspending operations or demolishing equipment (Gerungan and Titus 2020). Loss of an environmental licence immediately triggers loss of the business licence (Rajah Tann 2012). Larger

industries in Indonesia have historically given serious attention to these environmental regulations; however, small and medium industries need to develop their awareness and capacity in order to meet these regulations (Damanhuri 2017). Much more enforcement of environmental and labour laws is needed in the textiles industry (Prihandono and Religi 2019).

In 2015, two community groups sued a regional government and three textile factories that had been dumping waste into a tributary of the Citarum River. The groups claimed that waste water from these industries lead to contamination of rice fields with heavy metals, following irrigation with river water. The regional government – the Sumedang Regency Government – was also being sued for failing to monitor factory discharge and for issuing discharge permits without adequate environmental impact assessment. The court agreed and ordered the regional government to revoke the discharge permits of three major textile manufacturers. This decision was upheld through several appeals, but ultimately the court order was not enforced and the three textile companies – PT Kahatex, PT Five Star Textile and PT Insansandang Internusa – continued to discharge highly contaminated effluent into the river (Prihandono and Religi 2019; Price 2017).

Greenpeace reported in 2013 that regulation and enforcement of industrial discharges are very limited in Indonesia. Regulation of wastewater effluent is based on setting discharge limits for a small range of water quality parameters, such as: biological oxygen demand; chemical oxygen demand; total dissolved solids; chromium, phenols, ammonia and sulphides. Other hazardous organic chemicals produced by the textiles industry are not included in the standards (such as phthalates), nor are a number of heavy metals (apart from chromium). This approach, which sets allowable limits for discharging pollutants, also does not prevent the discharge of any particular chemicals. This is particularly problematic given that there are many new and complex chemicals being used in the textiles industry that are not being governed. For example, nonylphenols are classified as a priority hazardous substance in the EU, and while they were identified in wastewater samples taken from a textile facility in Indonesia, they are currently not regulated in Indonesia (Greenpeace International 2013).

In addition to the limitations with regards to the pollutants that are regulated and monitored, there is also a lack of capacity among regional governments to detect breaches of effluent standards and to respond quickly. According to Greenpeace International (2013), discharges are not monitored in a consistent way and breaches are a regular occurrence. There is a major lack of wastewater treatment capacity, with only half of the industrial sites in Bandung, West Java, using a wastewater treatment facility, and less than half of those facilities able to meet the water quality standards. Greenpeace also reports that there is a lack of transparency in the monitoring system, where details of discharge permits, monitoring data and compliance are not readily available to the public.

In Law No. 32/2009, provision is given for an environmental bond scheme, whereby environmental licence holders may be required to post a bond to cover any environmental rehabilitation; however, no such bond scheme has been implemented yet (Rajah Tann 2012). This suggests there are a lack of compensation opportunities for areas negatively affected by environmental damage.

Public participation in the EIA process was established in the late 1990s, with Regulation No. 27/1999 and the EIA guidelines of 2000. The style is consultative, where stakeholder input is sought at various stages in the process, but participation is not collaborative. The public can provide submissions and feedback at several points in the process, when the AMDAL/project is first announced, during public consultations while the TOR are being prepared, and as submissions/feedback while the TOR are being reviewed. The public can then make submissions while the AMDAL is being reviewed (Purnama 2003). Currently, when an application for an environmental licence is submitted, relevant authorities have 125 working days to evaluate and approve an application, which includes ten days for public consultation (Rajah Tann 2012).

In early years, submissions were dominated by educated people, such that local people still did not have a voice with regard to the process (Purnama 2003). There are concerns that the new online OSS process could diminish the role of public participation in the AMDAL process. Primarily consultation occurs through

a public hearing and written submissions. Public hearings are supposed to be announced in local newspapers, however, engagement is often low (Kurniawan, Murayama, and Nishikizawa 2019).

With regard to transparency in the monitoring process, an Indonesian government programme called PROPER has been designed to enable public disclosure of industrial pollution, and to report on compliance with environmental regulations concerning marine pollution, waste, biodiversity, water and air pollution, hazardous waste management and so on. However, the information gathered by PROPER is based on industries self-monitoring and reporting their performance. The Government then rates industry performance with a colour-coded scheme, rather than the actual data. Therefore, the public is unable to readily find information on the details of pollutant loads (Setiadi 2017).

With regard to broader strategic planning, Indonesian environmental law stipulates that national and local governments are required to undertake a strategic environmental assessment (known as KLHS⁶) to ensure that sustainable development is a foundational consideration and has been incorporated into regional plans and policies (ADB 2017). Government Regulation No. 82/2001 on Management of Water

Quality and Control over Water Pollution also takes a broader view, by specifying water quality standards for waterways, water quality monitoring requirements and provision of licences to businesses. Regulation 82/2001 considers the water quality needs of downstream water users, by establishing four classes of receiving waters, namely: (1) drinking water; (2) water only suitable for recreation, aquaculture, animal husbandry, agricultural irrigation; (3) water suitable only for aquaculture and agricultural irrigation; and (4) water suitable only for agricultural irrigation.

Indonesia's EIA regulations are considered quite comprehensive, and some progress has been made to improve public participation and transparency (Purnama 2003; Swangjang 2018). For example, the application and decision-making process is clearly explained, EIA documents are made public, and public participation processes have been enabled (Swangjang 2018). However, compliance and law enforcement have been lacking, and the process of obtaining environmental permits is still treated as an administrative requirement rather than a mechanism for control. Local environmental authorities tend to lack capacity and budget for monitoring. Public participation needs to be made more effective, with greater engagement and education of the public, and the quality of reporting and scientific databases need to be improved (Kurniawan, Murayama, and Nishikizawa 2019).

3.5 Viet Nam

Environmental regulation and policy exist at multiple levels of government in Viet Nam and have rapidly evolved in the country over the last 30 years. The 2005 Law on Environmental Protection (No. 52/2005-QH11) and revised version in 2014 (No. 55/2014/QH13) provides for both EIA of planned proposals as well as regulations for environmental management systems (EMSs) for operational stages. The Law is the legislative foundation and central tool for environmental management of industrial development and the impacts of such development on Viet Nam's natural resource base. The 2005 Law represented a significant evolution in the environmental management of industrial development in Viet Nam. The EIA processes under the Law include:

- requirements for public participation;
- increased requirements for environmental management and monitoring activities;
- strengthened definitions of the roles and responsibilities of government agencies; and
- devolved responsibilities to provinces and sector ministries (Better Work 2019).

⁶ KLHS is an abbreviation of *Kajian Lingkungan Hidup Strategis*.

EMS processes include licensing and permits for water allocations and waste management, and ongoing monitoring and reporting.

The Law of Environmental Protection, in summary, requires manufacturing, trade and service enterprises to:

- collect and treat waste water in accordance with environmental standards;
- collect, classify, store, treat and discharge solid waste in accordance with the law;
- minimize, collect, and treat dust and exhaust gases in accordance with the law;
- ensure no leakage and discharge of noxious gases into the environment; and
- limit noise, vibration, light and heat emissions that negatively affect the surrounding environment and employees.

The Law prohibits acts such as:

- discharging untreated waste or waste water into water sources;
- discharging smoke or toxic gases;
- generating noises and vibrations in excess of limits prescribed in technical regulations;
- manufacturing or trading products likely to pose a risk to human beings, creatures and ecology; and
- concealing acts of environmental depletion or misrepresenting information in a manner that can cause negative consequences on the environment.

The Law on Environmental Protection has links to other legislative frameworks and international agreements, including the Law on Water Resources, the Law on Chemicals and Viet Nam's progress in implementing the Basel and Stockholm Conventions⁷.

There are two pathways for considering the environmental impacts of proposed projects and developments in Viet Nam. For projects that are deemed to have high levels of environmental impact or are located in sensitive areas, a comprehensive EIA is required. A full list of projects and activities considered high impact are detailed in Decree No. 19/2015/ND-CP. For smaller projects a simpler process, including the preparation of a Commitment to Environment Protection statement is required. In the textile and garment sector, all wet processing activities and all organizations undertaking washing and bleaching processes are required to complete a full EIA. Larger non-dyeing facilities, such as weaving factories, are also required to complete full EIAs. Although Decree No. 21 is prescriptive in the projects considered high impact, there is not clear guidance on interpreting the criteria in the decree, enabling subjective interpretation by proponents as to whether specific projects fall into these "high risk" categories (Clausen, Vu, and Pedrono 2011).

When required, the EIA is carried out by an independent consultant or KIBS paid for by the proponent. There is a small pool of consultants/KIBS able to complete EIAs, and the fact that the same pool of experts is also drawn upon to be members of the EIA appraisal committee that assess these reports means there is a high risk of conflict of interest in this process, despite being undertaken by independent experts (Clausen, Vu, and Pedrono 2011). There is also a preference for national experts, as opposed to international consultants (who may be able to broaden the field of expertise). Evidence shows that projects not using the recognized pool of experts will not be considered "proper" and will experience delays.

Other stakeholders highlight that EIAs are not undertaken at a stage of project development when they could meaningfully contribute to reducing or mitigating environmental impacts. The EIA comes after land allocation, financing and in-principle agreement for development in a particular type of location. Among

⁷ These are the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1989, and the Stockholm Convention on Persistent Organic Pollutants, 2001.

stakeholders, the capacity and skills of practitioners is also considered an issue in the effective undertaking of EIA. The capacity of practitioners has impacts on the effective scoping of issues for consideration in an EIA, quantitative impact assessment methods, coordination of public participation activities and development of environmental management plans.

An important inclusion to EIA policy in Viet Nam with the introduction of the Law on Environmental Protection in 2005 was the extension of EIA to all stages of industrial activity, from project proposal and pre-construction, through to operation, and then closure (Clausen, Vu, and Pedrono 2011). This represented a strong legislative advance, but available evidence suggests weaknesses in the monitoring and enforcement of this requirement, particularly in the case of retrospective EMS requirements for businesses that are already operating. For example, in a recent study of a number of large factories that are part of the Better Work programme, non-compliance with environmental regulation was as high as 70 per cent (Better Work 2019).

Scrutiny and assessment of EIAs is carried out in a two-step process. First, the EIA is submitted to the relevant authority; this authority is likely to be the provincial or commune jurisdiction. This first review makes sure all documentation is complete and seeks further clarification on any missing or questioned information. When the relevant authority is satisfied the EIA meets legislative requirements, the second step begins. An EIA appraisal committee is convened to appraise and make a recommendation on approval. As noted above, the appraisal committee draws on members from the same pool of independent experts who undertake the EIAs, leaving opportunities for potential conflicts of interest.

Previous studies have raised issues concerning the capacity of Ministry of Natural Resources and Environment staff as well as the staff involved in assessing and approving EIAs within the decentralized and expanded role of provincial governments. These provincial governments do not have the same access to skills as ministry staff, but the capacity found at the national level is constrained by the demand for and scale of assessment for industrial activity.

Public participation is required in the EIA process, but with limited guidance on where and when this should occur in the process, in many cases public participation is provided for only in a limited way, and usually at the end of the project with no impact on the EIA or the development of mitigation measures. All industrial establishments, including textile and garment facilities, are required to collect and treat their waste water in accordance with national environmental standards. Businesses must either treat their waste water on site with wastewater treatment systems or transfer the waste water to a centralized wastewater treatment system in an industrial park or trade village. In both cases two minimum criteria must also be met:

- Waste water must be treated so that on discharge it meets technical environmental standards.
- The business/industrial park has a permit to discharge the water.

Establishments with higher wastewater volume flows have further requirements, including for automatic monitoring activities with appropriate equipment and staff investments.

In addition to permits, businesses also need to pay environmental protection fees for industrial wastewater discharges (except those businesses using centralized water treatment facilities, where this levy is already included in costs). The fee is calculated on the basis of the total content of various pollutants in the effluent, including chemical oxygen, suspended solids, mercury, lead, arsenic and cadmium, and then the addition of fixed processing fee.

Compliance with EIA commitments and appraisal conclusions are weak, and are not monitored and followed up. Legislation only requires proponents to seek confirmation of EIA compliance at one undefined point during the project construction prior to operation. There are no requirements for ongoing monitoring and inspection during project operation.

In the case of violations of the Law of Environmental Protection, businesses are responsible for the remediation of any damage to the environment, the payment of compensating damages, as well as other

penalties. Environmental damage is defined as deterioration in environmental function and usefulness, and/or loss of human life and health, properties, and legal interests due to these environmental deteriorations. Penalties and fines are also levied, up to 1 billion Vietnamese dong (US\$43,000) for individuals and up to 2 billion dong (US\$86,000) for businesses.

Without enhanced regulation, including monitoring and evaluation of existing regulations, as well as oversight of manufacturing standards and processes, chemicals from existing textile dyeing and finishing processes are – and will continue to be – discharged into local rivers (Greer and Hook 2014). The lack of monitoring and enforcement of existing water and wastewater permits and policies is a significant issue and will be further exacerbated by increased numbers of wet processing facilities in Viet Nam. As the textile and garment sector increases the intensity of these activities in the future, so too will we see increased environmental impacts from untreated waste water entering the water system, and overutilization of finite and very sensitive water resources in Viet Nam.

The Viet Nam Law on Environment Protection includes a number of requirements and subsequent amendments to address environmental regulation of private sector industries, including an intervention to charge fees for wastewater pollution from the most polluting industries.

Available results show environmental laws and associated regulations have not produced significant progress, and additional approaches, capacity-building activities, and clear delineation of roles, responsibilities and resources for monitoring and enforcement (through various levels of government) are required. Additional and expanded requirements for textile and garment factories should include automatic, continuous monitoring of wastewater discharges with remote reporting to government offices could assist in monitoring activities (Greer and Hook 2014). Public disclosure of these monitoring activities should also be included.

An implicit acknowledgement of the limitations of the 2014 environmental regulatory framework is the June 2019 decision of the National Assembly to revise the Law on Environmental Protection (Partnership on Transparency in the Paris Agreement 2019). The Ministry of Natural Resources and Environment led this review, with a revised Law on Environmental Protection passed in May 2020, to commence on 1 Jan 2022. The revised Law strengthens requirements for factory owners to use best available technology to control pollution and limit environmental impacts, including for adjacent residential communities. The revised Law also provides communities with an enhanced role in monitoring and supervision of pollution and emissions, and promotes resource efficiency through the reclassification of certain wastes as inputs to industry processes. Critics highlight that the law does not provide for adequate monitoring and supervision to ensure environmental impacts are minimised (Whong 2020).

Knowledge deficits of environmental regulations also exist in businesses, and this is not just restricted to SMEs. Better Work Viet Nam conducted a pilot project with member businesses to investigate compliance with national environmental regulations. Despite Better Work factories being large-scale facilities, the pilot project found low levels of awareness of the regulations that applied to these businesses; a lack of human resources within the businesses to manage compliance with environmental standards; and a lack of availability of skilled consultants and KIBS to provide these services if they were not available in house. The lack of skills and knowledge also manifested in infrastructure gaps, most significantly in wastewater treatment and air emissions. Through the pilot the majority of businesses involved undertook corrective actions to address non-compliance (including applying for requisite permits and updating dossier documentation) at relatively low cost, which shows there is a need for awareness raising and capacity building within the industry with regard to environmental regulatory compliance (Better Work 2019b).

3.6 Comparative analysis of the four focus countries

The commentaries presented above on each of the focus countries – Bangladesh, Cambodia, Indonesia and Viet Nam – show that environmental conservation and management regulations in each country have adopted EIA systems. These systems (with the exception of Cambodia's) have been in place for a number

of decades, and therefore we can also see the development of the associated institutional capacities and experiences in undertaking EIA.

EIA, and indeed broader environmental management, is now much more integrated into the broader planning and development activities in each of the countries, and this has occurred with the growing awareness of the importance of sustainable development and the need to balance short-term poverty alleviation, employment and industrial development alongside protection of ecological systems. However, in all four countries this awareness has not translated into systems able to adequately balance environmental sustainability with industrial and economic development. In each of the countries significant environmental degradation, particularly to water resources, has occurred over the same time period as the emergence and strengthening of environmental management systems.

The comparative analysis shows that having environmental regulations with legal requirements for EIA is not sufficient for assuring environmental standards. Also needed are:

- the availability and technical skills of specialist professionals and KIBS to undertake EIA and assess and approve the environmental impact of projects;
- the availability and quality of baseline data, particularly for ecological systems. This baseline data should include the physical and chemical properties of the soil, air and water, and also social and demographic data on local communities that will allow for assessment of impact on the local population and potential vulnerabilities.

The lack of baseline data limits the impact analysis, as it is very hard to determine the impact of a new activity when there are no data on the current status of water, soil, etc. Impact analysis is also limited by the lack of technical skills in personnel undertaking and assessing environmental impacts. EIA requires likely environmental impacts to be identified in the scoping phase; in each of the countries analysed this impact scoping is defined narrowly, and time constraints limit further exploration. There is little knowledge sharing and learning at the institutional level from previous EIAs, nor is there much backcasting to compare the actual environmental impacts with the forecasted impacts, and then using this knowledge in future EIAs.

The lack of follow-up and monitoring was evident in each of the countries. Although EIA needs to be considered as the first part of an ongoing commitment to environmental management, in each of the countries the set up and institutional focus on EIA is on the initial impact assessment and the associated report. Follow-up on whether mitigation actions agreed to as part of the development consent or certification process actually took place is rare. Monitoring systems for ecological quality are not established, monitored or enforced systematically.

In each of the focus countries the transparency and accountability of decision-making is an issue. The need for accountability exists at multiple levels throughout the process – accountability for the quality of the EIA process, its assessment and approval (involving specialist professionals and elected officials), and monitoring and enforcement of approval conditions. Transparency of decision-making allows for some degree of public accountability, but this transparency has to come with knowledge and awareness of the impacts established by the EIA process and why and how these impacts are quantified.

The industrial development of each of the countries has shaped the specific focus of textile and garment sector activities (for example, focus on cut-make-trim, yarn and fabric weaving, dyeing and wet processing, etc.) and the locations of the sector. Across all four countries, textile and garment sector projects are usually classified as high risk and as requiring the most extensive versions of EIA – particularly if they are engaged in activities involving dyeing and wet processing. Quality EIAs of this sort require skilled professionals/KIBS to undertake and assess them, adequate time to undertake the assessment, financial resources for baseline data collection and analysis, and institutional support and resources to ensure monitoring and enforcement of mitigation activities that are attached to any approvals.

As a further step in synthesizing this comparative analysis, table 2 below contains our conclusions from the analysis of the EIA systems in each of the countries, using EIA elements drawn from table 1 above (section 4.1) and the two dimensions of best practice – (i) institutional and governance qualities, and (ii) technical and supporting tools (Arnold and Hanna 2017). The purpose of this table is to highlight where opportunities exist for further activities by and for capacity development.

In the table below:

- green cells illustrate where elements of best practice currently exist;
- red cells illustrate areas where the criterion is present but with weaknesses;
- purple cells represent areas where the criterion is missing from the EIA system; and
- white cells represent n.a. insufficient information publicly available from desktop review to make an assessment.

These red, purple and white cells are areas where further attention should be focused to improve the effectiveness of EIA, and therefore environmental management, in the focus countries.

► **Table 2: Status of the EIA systems in the four focus countries**

Criteria	Bangladesh	Cambodia ¹	Indonesia	Viet Nam
Int				
Integrated into broader planning and management systems	Criterion is present, but with weaknesses	Criterion is present, but with weaknesses	Elements of best practice already present	Elements of best practice already present
Legal foundation	Elements of best practice already present	Elements of best practice already present	Elements of best practice already present	Elements of best practice already present
Procedures (flow diagram) EIA steps and requirements	Elements of best practice already present	Elements of best practice already present	Elements of best practice already present	Elements of best practice already present
Standards for industrial emissions specified ²	Elements of best practice already present	Elements of best practice already present	Elements of best practice already present	Elements of best practice already present
Requirements for stakeholder/ community participation ³	Elements of best practice already present	Criterion is present, but with weaknesses	Criterion is present, but with weaknesses	Elements of best practice already present
Appeals process available	Elements of best practice already present	N.A. Insufficient information available from desktop review for assessment	Criterion is present, but with weaknesses	Elements of best practice already present
Requirements for specialist professionals involved in EIA and approval ⁴	Criterion is present, but with weaknesses	N.A. Insufficient information available from desktop review for assessment	Criterion is present, but with weaknesses	Elements of best practice already present
Industry awareness and attitudes to importance of EIA (linked to sustainable development)	Criterion not present	Criterion not present	Criterion not present	Criterion not present
Follow-up and monitoring activities resourced ⁵	Criterion not present	Criterion not present	Criterion not present	Criterion not present
Transparency in approval processes	Criterion not present	Criterion not present	Criterion is present, but with weaknesses	Criterion is present, but with weaknesses
Technical and supporting tools and aspects				
Sector specific and local guidance available	Criterion is present, but with weaknesses	N.A. Insufficient information available from desktop review for assessment	N.A. Insufficient information available from desktop review for assessment	Elements of best practice already present
Pool of skilled specialists to undertake and assess EIA available	Criterion is present, but with weaknesses	Criterion not present	Criterion is present, but with weaknesses	Criterion is present, but with weaknesses
Adequate baseline data available for impact assessment EIA	Criterion not present	Criterion not present	N.A. Insufficient information available from desktop review for assessment	Criterion not present
Knowledge sharing and learning from previous EIA	Criterion not present	Criterion not present	Criterion not present	Criterion not present

■ Elements of best practice already present
 ■ Criterion is present, but with weaknesses
 ■ Criterion not present
 N.A. Insufficient information available from desktop review for assessment

¹ Environmental law and regulation in Cambodia have been under review and revision since 2012. Significant changes are expected with new legislation, but to date this has not been enacted. Analysis is based on existing law.

² This criterion is based on whether standards exist and are specified. The adequacy of standards including specific limits on industrial emissions (including chemicals associated with textile processing) is a deficit in each country, especially given the complex and rapidly evolving chemistry in dyeing and textile manufacturing.

³ Community participation is part of the EIA process in all countries, yet in each case there are deficiencies in how and when this participation takes place that seriously limit the influence and impact public participation can make in the EIA process.

⁴ Professionals/KIBS are required to conduct and assess EIA in each of the countries. This criterion refers to the quality assurances associated with these professionals – registration, minimum qualifications, codes of conduct, etc.

⁵ In all four countries some form of follow-up of monitoring is stipulated in regulations, but this is rarely resourced and enforced. This criterion highlights the actual “effective” monitoring and follow-up, rather than the legal requirement for it.

Source: Compiled by the authors.

▶ Conclusion and implications for further actions

Environmental impact assessment is a critical tool in planning for and ensuring sustainable development. As this paper shows, the regulatory environment has a strong influence on the practices of industry stakeholders, although much more could be done to strengthen this role.

Environmental sustainability is achieved with a mix of public and private actions and investments. Environmental regulations provide both protection for environmental assets and the livelihoods of communities that depend on these assets. They also lay an important foundation for private actors to innovate and develop by providing minimum standards for all, and by providing a system and incentives that can encourage the adoption of practices that go beyond these minimum standards.

As detailed in this paper, EIA typically involves six main steps:

1. screening;
2. scoping and impact analysis – presented in an EIA report or EIS;
3. review of the EIA/EIS report;
4. decision-making;
5. follow-up and adaptive management; and
6. public participation.

Environmental assessment is a complex and interdependent process, such that weakness in one part of the process can limit the effectiveness of the whole process (Joseph, Gunton, and Rutherford 2015). EIA systems exist in each of the four countries analysed in this paper, each with their own strengths and weaknesses. In all four countries, EIA is supported (or in the case of Cambodia, will be supported) by a strong legal framework with clear delineation of EIA processes and delegated decision-making. However, the analysis of EIA systems in the four countries shows that EIA is seen as the process to gain approval for industrial projects rather than an ongoing commitment by these industrial projects to a certain (mitigated) level of environmental impact.

The comparative analysis highlighted weaknesses in the EIA systems of the focus countries concerning the following:

- access to the 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; and
- the overall knowledge sharing and learning systems to support the improvement of practices based on past experiences.

The paper highlights examples of where increased attention and resources for capacity building and developing experience in institutions has led to better EIA practice and outcomes (for example, donor funded projects in Bangladesh). Even so, standardized, across-the-board practices for EIA imposed at the regional level would not be useful, as they would not adequately take into consideration the local industrial and environmental contexts.

The analysis shows there is a clear role for proponents of industrial projects in improving the outcomes of EIA processes. Furthermore, greater awareness among proponents of the links between environmental management (as facilitated by the EIA process) and sustainable development would work to enhance

environmental sustainability. A proposal for action from this paper is to work with industry stakeholders through the Decent Work in Garment Supply Chains in Asia project to increase awareness of EIA processes and the link between environmental management and sustainable development.

The paper also highlights opportunities for further skill development for professionals and businesses providing knowledge-intensive business services (KIBS) involved in conducting and approving EIAs. There is a gap in knowledge sharing and learning from previous EIAs and a lack of back-casting to compare the actual environmental impacts with the forecasted impacts, and then sharing and using this knowledge to strengthen future EIA activity. Knowledge sharing and learning across the four countries, and indeed across the region, within this group of professionals would contribute to improved EIA quality.

These conclusions suggest a number of recommendations for further actions for the ILO and other international organisations:

- Provide further validation of the findings of this study through a series of interviews with professionals/stakeholders involved in EIA processes in each country.
- In addition, use these interviews to identify the scope and form of potential capacity-building and knowledge-sharing activities that can be undertaken with EIA professionals.
- Develop learning materials and knowledge network opportunities to support the development of a knowledge-intensive business services (KIBS) market/specialized EIA professionals in the four countries.
- Work with industry stakeholders, including tripartite partners and ILO programmes (Better Work, SCORE), to increase awareness of the importance of EIA processes for enterprises in the garment sector, including identification and creation of relevant learning materials suitable for the four countries.
- Work with other project partners, regional stakeholders and knowledge partners to diffuse learning materials across the region.

References

ADB (Asian Development Bank). 2016. *Bangladesh: Looking beyond Garments – Employment Diagnostic Study*.

———. 2018. *Projecting Industrial Pollution in the Greater Mekong Subregion*.

ADB (Asian Development Bank) and UNEP (United Nations Environment Programme). 2019. *Strengthening the Environmental Dimensions of the Sustainable Development Goals in the Asia Pacific Region*.

Arnold, Lauren, and Kevin Hanna. 2017. *Best Practices in Environmental Assessment: Case Studies and Application to Mining*.

Bahauddin, Khalid M., and Nayma Iftakhar. 2013. "Prospect and Potential of Green Jobs Towards Green Economy in Bangladesh: A Situation Analysis and Way Forward." *International Journal of Social and Economic Research* 3 (3): 284–297.

Balchin, Neil, and Linda Calabrese. 2019. *Comparative Country Study of the Development of Textile and Garment Sectors: Lessons for Tanzania*. ODI.

Better Work. 2019. *An Industry and Compliance Review: Bangladesh*. ILO and IFC

Better Work. 2019b. *Guide to Vietnamese Environment Law for the Garment Sector*. ILO and IFC.

Cambodia, Ministry of Environment. 2012. *Guidebook on Environmental Impact Assessment in the Kingdom of Cambodia*.

Chanthy, Sam, and Clemens M. Grünbühel. 2015. "Critical Challenges to Consultants in Pursuing Quality of Environmental and Social Impact Assessments (ESIA) in Cambodia." *Impact Assessment and Project Appraisal* 33 (3): 226–232.

Clausen, Alison, Hoang Hoa Vu, and Miguel Pedrono. 2011. "An Evaluation of the Environmental Impact Assessment System in Viet Nam: The Gap Between Theory and Practice." *Environmental Impact Assessment Review* 31(2): 136–143.

Clean Clothes Campaign. 2015. "Facts on Cambodia's Garment Industry", Clean Clothes Campaign Cambodia Factsheet, February 2015.

Cooper, George. 2019. "Review, Comments and Recommendations on the Draft Environment and Natural Resources Code (Version 11) of Cambodia", Mekong Region Land Governance Discussion Note, March.

Damanhuri, Enri. 2017. *Country Chapter: State of the 3Rs in Asia and the Pacific – The Republic of Indonesia*. UNCRD.

Dao, Mai Anh, and George Ofori. 2010. "Determinants of Firm Compliance to Environmental Laws – A Case Study of Viet Nam." *Asia Europe Journal* 8(1): 91–112.

Ear, Sophal. 2009. "Sowing and Sewing Growth: The Political Economy of Rice and Garments in Cambodia", Stanford Center for International Development Working Paper No. 384.

———. 2013. "Cambodia's Garment Industry: A Case Study in Governance." *Journal of Southeast Asian Economies* 30 (1): 91–105.

EMF (Ellen Macarthur Foundation). 2017. *A New Textiles Economy: Redesigning Fashion's Future*.

Fairwear Foundation. 2018. *Indonesia Country Study 2018*.

Fernandez-Stark, Karina, Stacey Frederick, and Gary Gereffi. 2011. *The Apparel Global Value Chain: Economic Upgrading and Workforce Development*. Duke Center on Globalization, Governance & Competitiveness.

Finn, Angela. 2019. "Producing Sustainable Fashion: Made in Viet Nam." In *Global Perspectives on Sustainable Fashion*, edited by Alison Gwilt, Alice Payne, and Evelise A. Ruthschilling. 194–204. London: Bloomsbury Publishing.

GBG (*Global Business Guide Indonesia*). 2012. "Challenges in Indonesia's FTG Industry", available at: http://www.gbgingonesia.com/en/manufacturing/article/2011/challenges_in_indonesia_s_ftg_industry.php.

———. 2015. "Indonesia's Textile Industry – Testing Times Upstream", available at: http://www.gbgingonesia.com/en/manufacturing/article/2015/indonesia_s_textile_industry_testing_times_upstream_11119.php.

———. 2018. "Indonesia's Garment and Textile Sector: Remain Optimistic Amid Mounting Pressure", available at: http://www.gbgingonesia.com/en/manufacturing/article/2018/indonesia_s_garment_and_textile_sector_remain_optimistic_amid_mounting_pressure_11879.php.

General Department of Viet Nam Customs 2018. *Final assessment of statistics of main exports in 2018*. Table 2- overview of Top 10 exported commodities, available in English at <https://www.customs.gov.vn/Lists/EnglishStatistics/Default.aspx?language=en-US&Group=Customs%20Trade%20Statistics>

Gerungan, Alexandra, and Raditya Anugerah Titus. 2020. *Indonesia: Environment and Climate Change Law 2020*.

Greenpeace International. 2013. *Toxic Threads: Polluting Paradise – A Story of Big Brands and Water Pollution in Indonesia*.

Greer, Linda, and Lisa Hook. 2014. "Made (Green) in Viet Nam." *Asia Foundation InAsia blog*, 16 April.

Gunton Thomas, Murray Rutherford, and Megan Dickinson. 2010. "Stakeholder analysis in marine planning". *Environments*. 37:95–110

Heintz, James. 2007. "Human Development and Clothing Manufacturing in Cambodia: Challenges and Strategies for the Garment Industry".

Hofste, Rutger Willem, Paul Reig, and Leah Schleifer. 2019. "17 Countries, Home to One-Quarter of the World's Population Face Extremely High Water Stress". *World Resources Institute blog*, 6 August.

Hossain, M. Zakir. 2010. *Report on Viet Nam Textile and Garment Industry*. ACTIF.

IamRenew News. 2019. "Bangladesh's polluted waters: Dying due to Dyeing" 2 July 2019. available online at <https://www.iamrenew.com/environment/bangladeshs-polluted-waters-rivers-dyingdue-to-dyeing/>

ILO. 2018. "Living Conditions of Garment and Footwear Sector Workers in Cambodia", Cambodia Garment and Footwear Sector Bulletin No. 8.

Ishaque, Mohammad. 2019. "Indonesian Textile Industry." *Textile Focus*, 19 October.

Joseph, Chris, Thomas Gunton, and Murray Rutherford. 2015. "Good Practices for Environmental Assessment." *Impact Assessment and Project Appraisal* 33 (4): 238–254.

Kabir, Zobaidul, and Imran Khan. 2020. "Environmental Impact Assessment of Waste to Energy Projects in Developing Countries: General Guidelines in the Context of Bangladesh." *Sustainable Energy Technologies and Assessments* 37: 100619.

Kabir, Zobaidul, and Salim Momtaz. 2012. "The Quality of Environmental Impact Statements and Environmental Impact Assessment Practice in Bangladesh." *Impact Assessment and Final Project Appraisal* 30 (2): 94–99.

Kabir, Zobaidul, and Salim Momtaz. 2013. "Fifteen years of environmental impact assessment system in Bangladesh: current practice, challenges and future directions." *Journal of environmental assessment policy and management* 15, (4) (2013): 1-30.

Kuncoro, M., (2013), "Indonesia's Textile and its Products Industry: Recent Development and Challenges", *International Journal of Business and Economic Development*, Vol. 1, No. 3 November 2013.

Kurniawan, Ali Rahmat, Takehiko Murayama, and Shigeo Nishikizawa. 2019. "Reforming EIA System: What Should Indonesia do?", paper presented at the 39th Annual Conference of the International Association for Impact Assessment, Brisbane, 29 April – 2 May.

———. 2013. "Fifteen Years of Environmental Impact Assessment System in Bangladesh: Current Practice, Challenges and Future Directions." *Journal of Environmental Assessment Policy and Management* 15 (4): 1350018.

Miles, Ian. 2000. *Services Innovation: A Reconfiguration of Innovation Studies*. London: Edward Elgar.

Moazzem, Khondaker Golam, and Farzana Sehrin. 2016. "Economic Upgrading in Bangladesh's Apparel Value Chain During the Post-MFA Period: An Exploratory Analysis." *South Asia Economic Journal* 17 (1): 73–93.

Momtaz, Salim. 2002. "Environmental Impact Assessment in Bangladesh: A Critical Review." *Environmental Impact Assessment Reports* 22 (2): 163–179.

———. 2005. "Institutionalizing Social Impact Assessment in Bangladesh Resource Management: Limitations and Opportunities." *Environmental Impact Assessment Review* 25 (1): 33–45.

Morgan, Richard K. 2012. "Environmental Impact Assessment: The State of the Art." *Impact Assessment and Project Appraisal* 30 (1): 5–14.

Nguyen, Nga, Robert J.S. Beeton, and Anthony Halog. 2015. "A Systems Thinking Approach for Enhancing Adaptive Capacity in Small- and Medium-Sized Enterprises: Causal Mapping of Factors Influencing Environmental Adaptation in Viet Nam's Textile and Garment Industry." *Environment Systems and Decisions* 35 (4): 490–503.

———. 2016. "Firm Characteristics and Its Adaptive Capacity in Response to Environmental Requirements: An Empirical Study of Viet Nam's Textile And Garment SMEs." *International Journal of Environment and Sustainability* 4 (4): 1–18.

Nguyen, Thi Phuong Loan. 2012. "Legal Framework of the Water Sector in Viet Nam: Achievements and Challenges." *Journal of Vietnamese Environment* 2(1): 27–44.

Niinimäki, Kirsi, Greg Peters, Helena Dahlbo, Patsy Perry, Timo Rissanen, and Alison Gwilt. 2020. "The Environmental Price of Fast Fashion." *Nature Reviews: Earth and Environment* 1: 189–200.

NRDC (Natural Resource Defence Council). 2012. "Best Practices for Textile Mills to Save Money and Reduce Pollution in Bangladesh."

ODC (Open Development Cambodia). 2019. "Environmental Impact Assessments", 15 September, available at: <https://opendevelopmentcambodia.net/topics/environmental-impact-assessments/>.

Ortmann, Stephan. 2017. *Environmental Governance in Viet Nam: Institutional Reforms and Failures*. Springer.

Price, Debbie. 2017. "Worse for Wear: Indonesia's Textiles Boom." *Undark*, 23 February.

Prihandono, Iman, and Fajri Hayu Religi. 2019. "Business and Human Rights Concerns in the Indonesian Textile Industry." *Yuridika* 34 (3): 493–526.

Purnama, Dadang. 2003. "Reform of the EIA Process in Indonesia: Improving the Role of Public Involvement." *Environmental Impact Assessment Review* 23 (4): 415–439.

Quantis. 2018. *Measuring Fashion: Environmental Impact of the Global Apparel and Footwear Industries*.

Rajah Tann. 2012. "Environmental Licence as a Pre-Requisite to Indonesian Business Licence for Certain Industries", Rajah Tann Client Update, June.

Rastogi, Vasundhara. 2018. "Cambodia's Garment Manufacturing Industry", *ASEAN Briefing blog*, 1 November.

Rhee, Yung Whee. 1990. "The Catalyst Model of Development: Lessons from Bangladesh's Success with Garment Exports." *World Development* 18 (2): 333–346.

Schulte, William J., and Ashlee Stetser. 2014. "On the Path to Sustainable Development: An Assessment of Cambodia's Draft Environmental Impact Assessment Law." *The Cambodia Law and Policy Journal* 3: 97–126.

Selim, Shahpar. 2018. *Environmental Compliance Opportunities in the Bangladeshi Ready-Made Garments Industry: Lessons from the Green High Achievers*. Adam Smith International.

Setiadi, Tjandra. 2017. "Industrial Wastewater Management in Indonesia", PowerPoint presentation.

Sharpe, Samantha A. 2017. *Environmental Scoping Study: Decent Work in the Garment Sector Supply Chains in Asia*, final report prepared for the ILO, 27 September.

Sharpe, Samantha A., Katarina Veem, and Cristina M. Martinez. Forthcoming. "No Sustainable Recovery in the Textile and Garment Sector in Asia after the COVID-19 Pandemic without Environmental Investment", ILO Working Paper.

Sumner, Mark. 2019. "Written Evidence Submitted by Dr. Mark Sumner, University of Leeds", submission to the UK Parliament Fixing Fashion: Clothing Consumption and Sustainability hearings, available at: <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/environmental-audit-committee/sustainability-of-the-fashion-industry/written/88396.html>.

Swangjang, Kanokporn. 2018. "Comparative Review of EIA in the Association of Southeast Asian Nations." *Environmental Impact Assessment Review* 72: 33–42.

Thee, Kian Wie. 2009. "The Development of Labour-intensive Garment Manufacturing in Indonesia." *Journal of Contemporary Asia* 39 (4): 562–578.

Tran, Khanh Hung, and Nguyen Duc Hung. 2014. "State Financial Transfers in Environmental Protection: The Case of Viet Nam." *Journal of Economics and Development*, vol. 16(2): 93–120.

UNDP (United Nations Development Programme). 2016. "Environmental Governance Reform for Sustainable Development, Project Document", Project Document – Cambodia, available at: https://info.undp.org/docs/pdc/Documents/KHM/EGRP_Podoc_Signed.pdf.

Ung, Luyna, and Sovuthea Hay. 2011. "SMEs Access to Finance in Cambodia." In *Small and Medium Enterprises (SMEs) Access to Finance in Selected East Asian Economies*, ERIA Research Project Report 2010 No. 14, edited by Charles Harvie, Sothea Oum, and Dionisius A. Narjoko. 83–116. ERIA.

United Kingdom, House of Commons, Environmental Audit Committee. 2019. *Fixing Fashion: Clothing Consumption and Sustainability*, HC 1952.

WWF (World Wide Fund for Nature). 2018. *The Textile and Garment Sector in Viet Nam: Water Risks and Solutions*.

Yang, Yongzheng, and Montfort Mlachila. 2007. "The End of Textiles Quotas: A Case Study of the Impact on Bangladesh." *The Journal of Development Studies* 43 (4): 675–699.

Acknowledgements

This paper has been prepared for the ILO's Decent Work in Garment Supply Chains in Asia project with the financial support of the Swedish Development Agency (Sida).

We would like to acknowledge reviewers from the Textile and Garment Eco-Innovation Research Network (TERN); David Williams, Laurel Anderson Hoffner and other colleagues of the Decent Work in Garment Supply Chains in Asia project; Karina Kallio; Sabine De Bruijn; and the ILO's GREEN JOBS programme for their valuable contributions, as well as John Maloy for his editing services.

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ISBN 9789220353196

