Reducing uses and releases of chemicals of concern, including POPs, in the textiles sector

Part I: Project Information

GEF ID

Project Type
FSP

Type of Trust Fund
GET

CBIT/NGI
- ☐ CBIT
- ☐ NGI

Project Title
Reducing uses and releases of chemicals of concern, including POPs, in the textiles sector

Countries
Regional, Asia/Pacific, Bangladesh, Indonesia, Pakistan, Viet Nam

Agency(ies)
UNEP

Other Executing Partner(s)
BCRC-SCRC Indonesia. Vietnam Centre for Cleaner Production; Vietnam Center for Creativity and Sustainability Study and Consultancy

Executing Partner Type
Others

GEF Focal Area

Chemicals and Waste

Taxonomy

Chemicals and Waste, Focal Areas, Persistent Organic Pollutants, New Persistent Organic Pollutants, Eco-Efficiency, Green Chemistry, Industrial Waste, Waste Management, Industrial Emissions, Best Available Technology / Best Environmental Practices, Strengthen institutional capacity and decision-making, Influencing models, Convene multi-stakeholder alliances, Beneficiaries, Stakeholders, Private Sector, SMEs, Large corporations, Civil Society, Non-Governmental Organization, Trade Unions and Workers Unions, Gender Mainstreaming, Gender Equality, Sex-disaggregated indicators, Knowledge Generation, Capacity, Knowledge and Research, Training, Knowledge Exchange, Field Visit

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 1

Climate Change Adaptation

Climate Change Adaptation 0

Duration

60 In Months

Agency Fee($)

840,750

Submission Date

3/20/2020

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount($)	Co-Fin Amount($)
CW-1-1	GET	8,850,000	45,000,000
	Total Project Cost ($)	**8,850,000**	**45,000,000**

B. Indicative Project description summary

Project Objective

Significant and documented reductions in use, releases and exposure to chemicals of concern (CoCs) including POPs in the textiles sector in selected countries

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
Information sharing and eco-innovation pilots on priority CoCs including POPs in textiles facilities	Technical Assistance	Tier 2 and Tier 3 textile companies restrict use, releases, and exposure to priority CoCs including POPs	1.1 Chemical inventories and risk reduction measures for POPs and CoC produced and delivered to at least 500 chemicals suppliers and textile SMEs 1.2 SMEs report use of POPs and CoC via textile value chain chemicals information sharing campaign and tools and provided to clients and regulators 1.3 Company-specific business plans and operational substitution plans developed, and support provided to implement them in at least 10 textile mills 1.4 Compilation of pilot results produced and endorsed by partners	GET	5,500,000	30,000,000

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
Eco-innovative strategies towards a non-toxic circular textiles economy	Technical Assistance	Governments and global textile value chains strengthen policies for phase out of CoC and POPs	2.1 Global eco-innovation and circular economy guidance produced and distributed to regulators and global supply chain actors 2.2 Actions to coordinate and raise ambition of supply chain policies and initiatives are proposed and agreed by global supply chain stakeholders 2.3 National actions to facilitate enabling conditions for textile SMEs developed and agreed by regulators and national stakeholders	GET	1,680,000	10,000,000

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
Knowledge management for scaling up	Technical Assistance	Upscaling of project results to global textile and garment sectors and reporting to MEAs	3.1 National capacity and awareness programmes developed and implemented to increase ability of textile sector and policy makers to control POPs and CoC 3.2. Global Knowledge Exchange and Management tools produced and accessed by users globally 3.3 Gender and Social Action Plan implemented and benefits accrued to women workers	GET	850,000	4,500,000
Monitoring & Evaluation	Technical Assistance	Project delivery is tracked, and lessons are learnt and disseminated	4.1 Monitoring and evaluation of project outcomes and outputs to include quarterly financial reporting by Component 4.2 Mid term and terminal evaluations results shared with stakeholders	GET	400,000	
			Sub Total ($)		**8,430,000**	**44,500,000**
Project Management Cost (PMC)						
				GET	420,000	500,000

Project Management Cost (PMC)			
	Sub Total($)	**420,000**	**500,000**
	Total Project Cost($)	**8,850,000**	**45,000,000**

C. Indicative sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
GEF Agency	UN Environment	Grant	Investment mobilized	10,750,000
Government	Government of Bangladesh	In-kind	Recurrent expenditures	1,000,000
Government	Government of Indonesia	In-kind	Investment mobilized	2,000,000
Government	Government of Pakistan	In-kind	Recurrent expenditures	2,000,000
Government	Government of Vietnam	Grant	Investment mobilized	2,000,000
Others	OECD, International Labor Organization	Grant	Investment mobilized	250,000
Private Sector	Certification and voluntary associations e.g. Outdoor Industry Association, Zero Discharge of Hazardous Chemicals, Ellen MacArthur Foundation, Natural Resources Defense Council and others	Grant	Investment mobilized	25,000,000
Others	Swerea and Green Chemistry and Commerce Council	In-kind	Recurrent expenditures	2,000,000
			Total Project Cost($)	**45,000,000**

Describe how any "Investment Mobilized" was identified

Investment Mobilized has been initially scoped as textile sector, government and NGO projects and initiatives on sustainable development in the textile sector. Such initiatives as were consulted during the PIF development, funded by bilateral donors, companies and other sources, are detailed in the Baseline section of the PIF.

D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
UNEP	GET	Asia/Pacific	Chemicals and Waste	SAICM	3,500,000	332,500	3,832,500
UNEP	GET	Asia/Pacific	Chemicals and Waste	POPs	5,350,000	508,250	5,858,250
				Total GEF Resources($)	**8,850,000**	**840,750**	**9,690,750**

E. Project Preparation Grant (PPG)

PPG Required

☐

PPG Amount ($)

200,000

PPG Agency Fee ($)

19,000

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
UNEP	GET	Asia/Pacific	Chemicals and Waste	SAICM	79,096	7,514	**86,610**
UNEP	GET	Asia/Pacific	Chemicals and Waste	POPs	120,904	11,486	**132,390**
				Total Project Costs($)	**200,000**	**19,000**	**219,000**

Core Indicators

Indicator 9 Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products (metric tons of toxic chemicals reduced)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
25.00	0.00	0.00	0.00

Indicator 9.1 Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)

POPs type	Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
Select Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride	25.00			

Indicator 9.2 Quantity of mercury reduced (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.3 Hydrochloroflurocarbons (HCFC) Reduced/Phased out (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.4 Number of countries with legislation and policy implemented to control chemicals and waste (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
4			

Indicator 9.5 Number of low-chemical/non-chemical systems implemented, particularly in food production, manufacturing and cities (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
10			

Indicator 9.6 Quantity of POPs/Mercury containing materials and products directly avoided

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
5,500.00			

Indicator 10 Reduction, avoidance of emissions of POP to air from point and non-point sources (grams of toxic equivalent gTEQ)

Grams of toxic equivalent gTEQ (Expected at PIF)	Grams of toxic equivalent gTEQ (Expected at CEO Endorsement)	Grams of toxic equivalent gTEQ (Achieved at MTR)	Grams of toxic equivalent gTEQ (Achieved at TE)
2.30			

Indicator 10.1 Number of countries with legislation and policy implemented to control emissions of POPs to air (Use this sub-indicator in addition to Core Indicator 10 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)

Indicator 10.2 Number of emission control technologies/practices implemented (Use this sub-indicator in addition to Core Indicator 10 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	6,000			
Male	4,000			
Total	10000	0	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

The targets for reduction of POPs and chemicals of concern includes POPs and a number of priority chemicals as initially described in sector tools such as Restricted Substance Lists, e.g. ZDHC and brand lists. The number of countries with legislation and policy to control chemicals and waste includes the four participating countries, where regulators accessing textile sector data on new POPs and other CoC. The number of low-

chemical systems implemented refers to the minimum 10 pilot demonstration projects reducing CoCs in textile production, but is anticipated to be larger as brands will be encouraged to replicate the ecoinnovation approaches widely throughout their value chains. The target for POPs emissions to air is based on the NIP of Pakistan, the only one to quantify emissions from the sector, which calculated 23g/a from the textile sector as a whole. The project target is estimated at 10% reduction of this quantity.

Part II. Project Justification

1a. Project Description

A. SYSTEMS DESCRIPTION

The systems description below (global environmental problem, root causes and barriers) is presented as a Problem Tree (Fig 1), describing the causality pathway that underpins the continued use of POPs and other chemicals of concern by textiles producers. This analysis guides the preparation of the Theory of Change (TOC) included as Annex F.

A i Global environmental problem

The global environmental problem the project addresses is that hazardous chemicals continue to be incorporated in textile product value chains and are released to the local and global environment. These hazardous chemicals include new industrial POPs and uPOPs; and Chemicals of Concern identified as an Emerging Policy Issue (EPI) under the Strategic Approach for International Chemicals Management (SAICM). Exposure and environmental releases occur during production (handling and storage of chemicals), use and disposal or recycling of products. Textiles are a priority for transition to a circular economy, creating almost 17m tonnes of waste per year in the US alone[1][1], but the removal of hazardous chemicals in textile production is a pre-requisite for circular models.

More than 3,500 chemical substances are potentially used in the processing of textiles to provide specific properties amongst which 750 classified as hazardous for human health and 440 as hazardous for the environment[2][2]. Stockholm Convention Risk Profiles for PFOS and PFOA, hexabromobiphenyl (HBB), technical mixtures of tetra- and penta-bromodiphenyl ethers (c-pentaBDE), technical mixtures of hexa-, hepta- and octa-bromdiphenyl ethers (c-octaBDE), decaBDE, hexabromocyclododecane (HBCD) and short-chain chlorinated paraffins (SCCPs) identify past or current use as additives in textiles[3][3]. A comparative overview of commonly restricted chemicals organizes them into six broad classes (amines, dyes, halogenated chemicals, metals, monomers and solvents)[4][4].

The Global Chemicals Outlook summarizes chemical use and trends in the textiles sector, noting a doubling of production in the last 15 years and still growing, with the annual retail value of apparel and footwear is expected to increase by 30 per cent between 2017 and 2030. A key driver is a phenomenon known as “fast fashion”, characterized by quick

turn-arounds of new styles, a larger number of collections offered per year, and lower prices coupled with a lower cloth utilization rate. A growing textile industry leads to an increase in the chemicals used in textile processing, the market value of which is estimated to be US dollars 31.8 billion by the end of 2026. The Asia-Pacific chemicals industry is expected to experience the fastest growth[5][5].

Demand is also rising for technical textiles used in various sectors such as construction, building, automobile, protective equipment, furniture, medical, hygiene, or sporting. Large and growing volumes of chemicals are used in the production of such textiles to confer their required properties, among which POPs and other CoC (see Table 1).

Table 1: Non-exhaustive information on new POPs use in textiles sector

Substance	**Property**	**Annual production of chemical** **Evidence on use or presence in textiles**
PFOS (Perfluorooctane sulfonic acid, its salts and PFOS fluoride) Listed in Annex B, CoP4 Restrictions in force from 2010 **PFOA** (Perfluorooctanoic acid, its salts and PFOA-related compounds) Listed in Annex A,	Surface treatment Impregnating agent to impart durable water- and stain-repellence to textiles Oil and water repellency. Still including for the protection of workers from dangerous liquids, outdoor applications and jackets, treated home textiles and upholstery such as carpets	China produced 250 tonnes of PFOS in 2008, most of which was used in textile finishes[6][6]. This is being addressed by a GEF project to phase out PFOS production. PFOS at concentrations of 0.02 to 3.2 µg/m2 in 9 out of the 49 outdoor clothing samples recently bought in the European market[7][7] The PFOS amount used by Vietnam in textile and upholstery during the period 1998-2013 ranged from 0.11- 3.45 tonnes/year[8][8] See also Fig 1

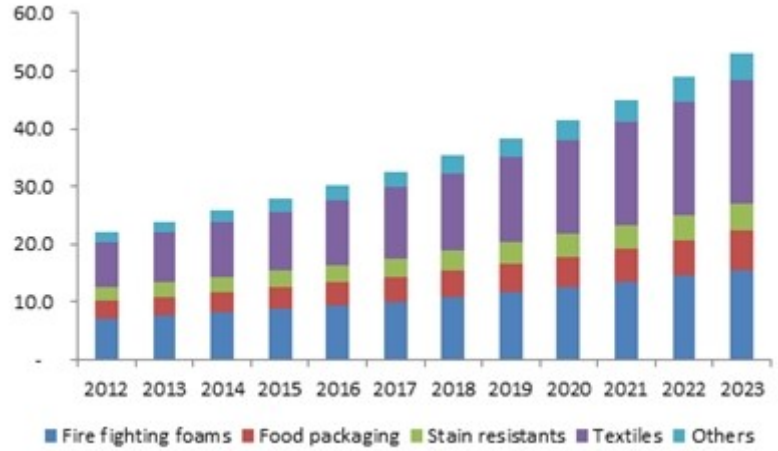
c-decaBDE (Decabromodiphenyl ether) Listed in Annex A CoP8 Restrictions enter into force in 2019	Flame retardant Exemptions for vehicle textiles, curtains and mattresses in public occupancy spaces, and military, but excluding clothing and toys	20,500 t produced in China, 2011[9] Average historical global use shows that about 10% of decaBDE produced ends up in coated textiles, upholstered furniture and mattresses[10] decaBDE detected in the range of 24.4–107 µg/cm2 in 4 out of 11 tent fabric samples, including for tents produced in Bangladesh and Indonesia and imported into the US[11].
HBCD (Hexabromocyclododecane) Listed in Annex A in May 2013 Exemptions for polystyrene in buildings.	Flame retardant Secondary uses in upholstered furniture, automobile interior textiles, car cushions	18,000 tonnes of HBCD produced annually in China (2010 data);
SCCP (Short chained chlorinated paraffins)	Plasticizers and flame retardants Uses in furniture and vehicle upholstery; military tenting, sail clothes and industrial protective clothing and tarpaulins	Annual production of 1 million tonnes of chlorinated paraffins (including SCCPs, 2009)

•

Although these chemicals are restricted by the Stockholm Convention, exemptions do exist and are still in force in the project countries. For example, although an exemption for C-pentaBDE expired in 2015, and an exemption registered by Viet Nam for PFOS in textiles expired in 2015, perfluorinated compounds in general are still commonly used in the textile industry as fabric protectors. In its updated National Implementation Plan for the Stockholm Convention (February 2020), Pakistan indicated that some PBDEs were likely to be found in textiles, with some possible stocks of flame retardants in the industry or that certain synthetic carpets/textiles produced or imported after 2002 might contain PFOA and related substances. The report acknowledges a number of information gaps, which would be further investigated. Furthermore, some Parties, such as Bangladesh, do not automatically ratify amendments to the Convention annexes, meaning that use of these newly added POPs may still occur and influence the presence of these substances in products traded around the world.

Risk reduction programmes for PFASs across countries are being rolled out[12][12], but despite a gradual phase-out of production in developed regions, many of the PFASs continue to be produced and used in other parts of the world, including in textiles. PFAS is widely used for making textile products water- and stain- resistant, including apparel, footwear, carpets, curtains, backpacks etc. PFAS market research has identified textile sector as the biggest user with an estimate of 36% of the total market of 26,000 tons in 2105 and projected to continue being on the top of the list in the coming years[13][13], (Fig 1). Although PFOA and PFOS as well as their salts are included in the POPs list, many current alternatives that are used to replace PFOA and PFOS could easily change into the regulated PFOA and PFOS during the production or use and become "regrettable substitutions". Thus, it is important to manage and eliminate this whole class of more than 4700 substances at the same time.

Fig 1: MEA fluorotelomers market outlook by application (USD million)



Textile production industries are potential sources of unintentionally produced POPs including dioxins (PCDD) and furans (PCDF). Bangladesh has reported a high level of releases of PCDD/PCDF of 51 g TEQ/a from textile plants in its Stockholm Convention National Implementation Plan (NIP) in 2005. Vietnam estimates the main POPs emitted in the Vietnamese textile industry are PCDD/PCDFs, mainly from fabric dyes, although not quantitative release estimates were done for this source group in the NIP. These emissions are due to several potential sources[14][14]:

- Raw materials may be contaminated with PCDD/PCDF due to treatment with PCDD/PCDF-contaminated pesticides, such as pentachlorophenol;

- Dyes and pigments used on fibers and textiles may be contaminated with PCDD/PCDF, for example, dioxazine dyes produced from chloranil and phthalocyanine-based pigments;
- Finishing processes may include the use of PCDD/PCDF-contaminated chemicals, such as Triclosan, an antimicrobial agent;
- Boilers and heaters may be used for power and heat generation;
- Incinerators may be used for disposal of process residues;
- Large volumes of effluent water are released into the environment.
- Formation of PCDD/PCDF during finishing[15][15].

In addition to POPs, many more chemicals are used in the process of dyeing and finishing textiles. The previously referenced report by KEMI of 3,500 chemicals potentially used in textiles excluded over 1,000 (nearly 30%) from the analysis as they were listed as confidential and the chemical ingredients not disclosed. Of the remaining chemicals, 15% were identified as highly hazardous, yet only about 20% of these are currently regulated under the EU REACH Regulation, which is more comprehensive than regulations in many other regions. Also, many of these regulations only account for active ingredients that are noted in the Materials Safety Data Sheets (MSDS) but do not address impurities or by-products that may occur in the formulations. Chemicals and solvents used in the textile sector include the following known carcinogenic, endocrine disrupting and environmentally persistent and harmful chemicals[16][16]:

- Dyes (metals including chromium, copper, zinc and lead[17][17]; amines and aryl amines which are released by azo dyes)
- Surfactants and detergents (nonylphenol ethoxylate)
- Antimicrobial agents (silver nano particles, triclosan and triclocarban, KEMI)
- Anti-wrinkle additives (formaldehyde)[18][18]
- Printing (phthalates)
- Other halogenated flame retardants

The main environmental impact of the use of these hazardous chemicals is contamination of surface water via discharge of waste water from textile mills and processing facilities. For the manufacturing of textiles, large amounts of water are needed, resulting in large amounts of contaminated waste water. The World Bank has estimated that 20 per cent of industrial wastewater pollution worldwide originates from the textile industry[19][19]. A mill with a production of 2,20,000 m/day, a daily water consumption of 13,870 KL is

estimated, and 8,000 KL of effluent per day[20][20]. The textile sector is one of the major sources of chemicals that are discharged into nearby water bodies often unfiltered (Pulse of the Fashion Report). Many water bodies around factories in Asia are heavily polluted, from where these can be distributed further into the ecosystem, documented in investigations including:

- Greenpeace detected PFCs, amines, chlorinated volatile compounds, polychlorophenols (including new POP pentachlorophenol, PCP), and alkylphenols in the Yangtze River Delta and the Pearl River Delta adjacent to wastewater discharges from two textiles facilities[21][21]
- A study examining the waste water from textile factories in Bangladesh found chemicals massively beyond the allowed concentrations being released without treatment[22][22][23][23]. While the Bangladesh Department of Environment reported that "*535 out of 704 water polluting industries have installed ETPs in their premises as of June 2012*[24][24]", independent analysis of the Buriganga River near Dhaka, a historically important source of fresh water with numerous textile factories located nearby, suggests that few of the local mills have any sort of effluent treatment system, releasing their waste water directly into the Buriganga River[25][25]. The textile industry has been rated the most polluting industry in Bangladesh.
- Media reports on the health effects from polluted rivers on the local human population reveal shocking conditions, for example of children hardly being able to concentrate in schools located near the river bank in Bangladesh, due to toxics in the air arising from the river[26][26].
- In Pakistan, estimates suggest only 1% of industrial waste water is being treated, with overall lax handling of chemicals widespread, even of possible toxic agents, with few regulations and less implementation and control of those that exist. Measurements showed presence of heavy metals in water exceeding WHO standards by far. Further problems are the lack of knowledge as well as financial and human resources to measure water quality and implement steps to improve it[27][27].
- The Citarum River in Indonesia, with more than 200 textile factories along its river bank that discharge their waste water into the river, has been ranked amongst the most polluted rivers in the world[28][28].
- In Viet Nam, the textile industry is seen as the second source of water pollution. The pollution from wastewater from this industry very diverse, depending on the technology stages, the product and its quality. The whole industry produces around 70 million m³ of wastewater/year of which only 45% is treated. Only a small fraction of this wastewater is recycled into fibre material. Solid waste is mostly burned or buried.
- An initial investigation on PFOA/PFOS in Viet Nam was carried out in 2014-2015 by a UN University project '*Monitoring and management of POPs in Asia'*, supported by Shimadzu company. PFOS/PFOA were identified in waste sludge samples from a detergent manufacturing facility (PFOA = 47 ppb; PFOS = 56 ppb);

PFOA/PFOS were also found in other local areas such as dumpling sites, urban areas, Textile & Dye facilities and plastic recycling site. The highest levels of PFCs were observed in surface water collected from a site in a village for textile dyeing products in Bac Ninh province. PFOA/PFOS inventory and analysis guidelines were developed to support further investigation activities.

In recent years, plastic microfibers from the washing of plastic-based textiles have been identified as a major contributor to microplastics in the ocean. Each year, around half a million tons of plastic microfibers (equivalent to more than 50 billion plastic bottles) resulting from washing of textiles are estimated to be released in to the oceans[29][29]. According to IUCN, clothes and textiles are the number one source of primary microplastics to the oceans, accounting for 35% of the global total[30][30]. Plastic micro-fibers also enter the oceans during the disposal stage of the textile supply chain. Of the total fiber input used for clothing, 87% is landfilled or incinerated, with less than 1% of materials used to produce clothing recycled into new clothing, representing a loss of more than USD 100 billion worth of materials each year. Under a Business as Usual scenario, the growth in material volume of textiles would see an increasing amount of non-renewable inputs, up to 300 million tonnes per year by 2050. On current trends, over 22 million tonnes of plastic microfibers could enter the ocean between 2015 and 2050 - about two thirds of the plastic-based fibers currently used to produce garments annually.

In 2012, Greenpeace analyzed clothing articles in 27 countries, detecting a range of hazardous chemicals present in branded and non-branded garments. Nonylphenol ethoxylates were present in all samples, while many articles also contained carcinogenic amines which are released from azo dyes, and phthalates in plastisol prints. The persistence and toxicity of the chemicals routinely used in manufacture therefore may also expose consumers, including to highly carcinogenic products[31][31].

The global textiles and garments sector relies on items produced for a shorter lifespan, and on larger quantities, notably in fast fashion when it comes to garments but also home textiles and technical textiles in products with shorter lifetime. Therefore, quantities of chemicals used and released are rising, further waste is generated, and the production of the textile fibers is using a growing amount of resources. Taking the example of clothing, 87% of the total fibre input is landfilled or incinerated. During the period 2010 to 2015, the volume of sales has doubled from around 50 bn units to more than 100 bn units. This ‘take-make-dispose’ system is not only extremely wasteful on resources, but also very polluting. The presence of new POPs at measurable concentrations in final products leads to air pollution during burning, and unsound recycling and production of new articles from contaminated recyclates. For example, the use of chlorinated chemicals, especially pentachlorophenol and chloronitrofen, to protect the raw material (e.g. cotton, wool or other fibres, leather); and use of dioxin contaminated dyestuffs (e.g. dioxazines or phthalocyanines) poses issues in case of incineration of textiles at end of life[32][32].

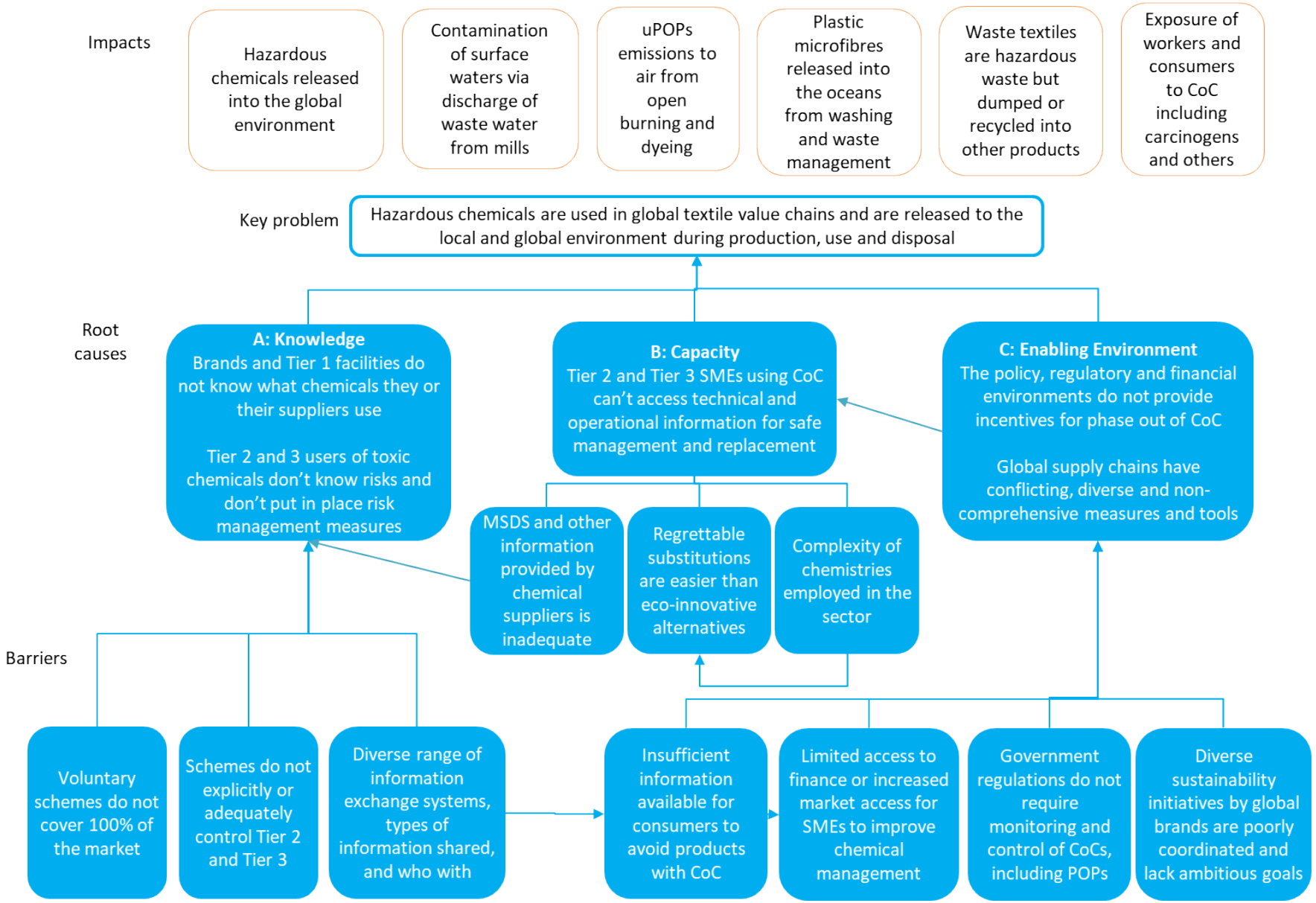
As well as environmental impacts, there may also be direct health impacts on workers, communities and consumers. While research indicates that “*workers under varied job categories in textile industries are at a higher risk of developing cancer as various chemicals used in the textile industry are toxic and can act as potential health risk in inducing*

cancer[33][33]" there is limited data systematically available on the nature and extent of chemical exposures and impacts from occupational exposure to hazardous chemicals. Eliminating the negative health impacts emanating from poor chemicals management in the textile industry would yield an economic benefit of around US dollars 8 billion per year in 2030[34][34].

A ii Root causes and barriers

The problem tree (Figure 2) highlights the following key root causes/ barriers to addressing the problem. The project design (see alternative scenario section 1c) is structured around mitigation of these three key root causes.

Figure 2. Problem tree - causes and effects of the use of chemicals of concern in textiles


Impacts
Hazardous chemicals released into the global environment
Contamination of surface waters via discharge of waste water from mills
uPOPs emissions to air from open burning and dyeing
Plastic microfibres released into the oceans from washing and waste management
Waste textiles are hazardous waste but dumped or recycled into other products
Exposure of workers and consumers to CoC including carcinogens and others
Key problem
Hazardous chemicals are used in global textile value chains and are released to the local and global environment during production, use and disposal
Root causes
A: Knowledge
Brands and Tier 1 facilities do not know what chemicals they or their suppliers use
Tier 2 and 3 users of toxic chemicals don't know risks and don't put in place risk management measures
B: Capacity
Tier 2 and Tier 3 SMEs using CoC can't access technical and operational information for safe management and replacement
C: Enabling Environment
The policy, regulatory and financial environments do not provide incentives for phase out of CoC
Global supply chains have conflicting, diverse and non-comprehensive measures and tools
MSDS and other information provided by chemical suppliers is inadequate
Regrettable substitutions are easier than eco-innovative alternatives
Complexity of chemistries employed in the sector
Barriers
Voluntary schemes do not cover 100% of the market
Schemes do not explicitly or adequately control Tier 2 and Tier 3
Diverse range of information exchange systems, types of information shared, and who with
Insufficient information available for consumers to avoid products with CoC
Limited access to finance or increased market access for SMEs to improve chemical management
Government regulations do not require monitoring and control of CoCs, including POPs
Diverse sustainability initiatives by global brands are poorly coordinated and lack ambitious goals

Root Cause A: Lack of knowledge of chemicals used prevents Tier 2 and 3 facilities putting appropriate management measures in place, including appropriate handling and storage which can reduce risks of fire or worker exposure even without phase out of the use of toxic chemicals. They also miss opportunities to increase efficiency by applying the principles of Green Chemistry and Resource Efficient and Cleaner Production. At higher value chain levels, retailers and brands do not know what their suppliers are using, exposing them to reputation, regulatory and economic risks as they are not able to certify clean production, and missing opportunities to design safer products

This root cause also leads to governments not being able to access information from their industries to meet their information provision obligations under the Stockholm Convention. These include NIP updates and the inventories of industrial POPs used; periodic reporting on use and management of these POPs; and one-off requests for information to be submitted by Parties either to the Secretariat or the POP Review Committee (POPRC). Few countries have submitted information during the listing process (Risk Profiles and Risk Management Evaluations by POPRC) and very little information is available. As of September 2019, the status of submission of Stockholm convention national reports by participating countries is as follows[35][35]:

	Date of report submission for the first cycle (due on 30/12/2006)	Date of report submission for the second cycle (due on 31/10/2010)	Date of report submission for the third cycle (due on 31/08/2014)	Date of report submission for the fourth cycle (due on 31/08/2018)	Total
Bangladesh					0
Indonesia		07/11/2011	18/05/2015	01/09/2018	3
Pakistan			22/01/2016		1
Viet Nam		22/11/2010	21/04/2017		2
	0	2	3	1	

Finally, consumers have limited ability to verify and make informed decisions on the sustainability of the textiles products they purchase. Access to relevant and reliable information can also help government agencies and consumer and civil society organizations to better defend the public interest and to monitor, track and acknowledge progress by the sector.

The barriers faced by different textile industry actors in addressing information gaps include:

- Although voluntary schemes (including ZDHC, brand schemes, bluesign and others) have partly overcome information gaps, gaps remain particularly in compliance with such standards and adequate control of Tier 2 and Tier 3 suppliers (wet processing facilities who actually use hazardous chemicals), which may not be subject to the same stringent monitoring or auditing as Tier 1 members.
- A second barrier is that voluntary schemes do not represent all companies in the sector. The ZDHC Gateway programmes includes about 3200 facilities. While ZDHC is proactively expanding this network, with a target to reach about 8-10,000 facilities worldwide and particularly in the project countries, this process is too slow and requires appropriate incentives to be established (see also Root Cause 3, Enabling Environment). In Vietnam initiatives such as Race to the Top only involve a limited number of companies and that are vendors for big brands: no Tier 2 companies or SMEs are yet participating, while the total number of textile SMEs in Vietnam is about 7000 companies. In addition, it is unlikely that all companies will ever join voluntary schemes, so a complementary, universal system is also needed – however expertise in establishing effective information sharing systems is concentrated in the voluntary (and non-universal) schemes. Confidentiality is a barrier to establishing transparent, wider schemes, while the long-term competitiveness of existing, often commercially-based, schemes should not be undermined.
- For Tier 2 and Tier 3 facilities, often SMEs, there is a lack of reliable information provided from chemicals suppliers. MSDS may not accompany all chemicals; they may be out of date, incomplete, or wrong. Chemicals traded under commercial names and as formulations, and generic or fake products also hinder the flow of information since the active ingredient or CAS number may not be available to users. A survey on textile companies in Vietnam indicated that chemical information is not sufficient for manufacturers to understand the chemical risks; as MSDS often contain only general information, commercial names. This is particularly relevant for SMEs which generally do not have access to expertise on chemistry.

Root Cause B: Lack of technical capacity to implement alternatives to the use of CoC and POPs, particularly among SMEs but also among a significant number of exporting businesses that supply international value chains**.**

Lack of adequate technical capacity leads either to business as usual, or "regrettable substitutions", when one chemical from a group of structurally similar chemicals was removed from the market and replaced by other chemicals from the same group, requiring substantial effort but yielding little benefit in reducing overall risk[36][36]. For example, PFOS-related chemicals have been largely replaced by structurally similar chemicals derived from long-chain fluorotelomers, which often contain perfluorooctanoic acid (PFOA), a fluorochemical which was listed as a POP in 2019[37][37]. The most difficult use cases for the textile industry are flame retardants and PFC-based water and stain repellency where the replacement chemicals do not yet provide the legally required performance on products such as home furnishings, protective work wear or tents

The main barriers to overcoming this root cause are:

- the complexity of chemistries employed in the sector, including chemical identities and environmental and human health related impact and risk information. SME manufacturers in developing countries lack in-house chemical expertise resources that larger companies can afford, and even if they are aware of hazardous substances used in their processes, many lack the expertise needed for the chemical alternatives assessment. For example, to assess and identify safer alternatives to hazardous chemicals, expertise and knowledge in a wide range of fields is needed including: data on physicochemical properties; environmental fate and transport; toxicokinetics and toxicodynamics; performance chemistry; chemical process design; chemical engineering; life-cycle assessment; and socio-economic analysis. Even when the alternatives assessment has already been conducted at global level, developing countries lack the expertise needed to select and implement the most cost-effective ones for their cases.
- The previously-mentioned weaknesses in chemical information provided by MSDS also prevents SMEs identifying problematic chemicals and potential alternatives.
- Alternatives focus on direct chemical replacements rather than eco-innovative approaches can help identify ways of designing textile products that are novel and do no longer require the function that the POP was providing in the first place. Such approaches are hampered at facility level and at systemic level in the design of products and the requirements for different functionalities.
- The tools available to (some) SMEs to identify problem chemicals and feasible alternatives are numerous and confusing[38][38]. Clean by Design has addressed this by including trainings for facilities to understand the what are the similarities and differences among the existing tools and platforms, Both ZDHC and Clean by Design also provide tools for facilities to review their inventory and identify if there are CoCs regulated in different government regulations and client policies, screen screen the chemical products and wastewaters to ensure that CoCs are not occurring in the production as by products or impurities. Additional practical tools are also proposed, for example MSDS information checker, excess chemical usage identifier, CoC reduction estimator, manufacturing process checker etc. However these trainings are not universally available or shared.

Root cause C: Lack of enabling environment for sound management of chemicals: Competition on costs remains a key driver over sustainability. Global supply chains are starting to focus on sustainability but with uncoordinated, unclear or unambitious requirements and limited scope, creating additional entry barriers to SMEs which may not have time, financial or human resources, or inclination to review many different options.

Legal and policy frameworks are insufficiently comprehensive and ambitious to incentivize value chain actors or lack the necessary enforcement mechanisms, despite the fact that regulatory levers are cited by brands as important in driving changes to business practices (and are indeed the only driver for companies outside of global value chains and voluntary standards). For example, national regulations do not explicitly ban POPs. Viet Nam has banned azo dyes but lacks enforcement capacity to deliver this ban. Key regulatory tools such as the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) are not fully implemented yet in many countries in Asia. Even in cases such as Viet Nam where national chemicals regulations do require labelling and MSDS according to the GHS, implementation is still weak.

The key barriers that need to be addressed are:

- Lack of effective coordination among relevant stakeholders and actors throughout and outside the value chain (brands, textile manufacturers, chemical manufacturers, academic scientists, governments and NGOs) leading to fragmented actions with limited impact. Non-coordinated responses have led to multiple solutions being proposed by actors (e.g. negative- vs. positive-list approaches, duplication through requests for similar sets of CiP information) and results in an inefficient or unclear approach.
- There is little political will to adopt and implement national regulations, complicated by the strategic importance of the sector, which is a major generator of employment, national income, exports, and foreign currency in all the project countries. Additional 'red tape' and initiatives which may impact on the competitiveness of the sector are therefore very challenging to introduce and must be developed in a participatory, systematic and effective manner to avoid negative economic consequences. This risk (see Risk Table, section 5) will be addressed by promoting regional cooperation to avoid a 'race to the bottom' and promote higher social and environmental standards in the whole region and throughout entire value chains.
- Labour ministries and inspectorates are only starting to be technically capable of monitoring and controlling chemical management by textile companies, and are in poor coordination with environment ministry counterparts, with unclear allocation of responsibility and mandates. Import data is not systematically used to inform and monitor chemical use in the sector, and databases monitoring the use and sound management of chemicals do not exist.
- Subsidies and financial flows continue to sustain business as usual. Despite growing attention towards sustainability, the lack of strong and ambitious policies from brands at the highest level, as well as of incentives from customers fails to create the required enabling environment.
- A shift in business and regulatory models towards circular economy in textiles and an enabling environment to support this shift is only possible if hazardous substances are eliminated from the supply chain. It is needed to re-think the textile sector's practices, to choose raw materials of quality and redesign for durability, to eliminate the use, discharge and waste of CoCs in production, to reduce the industry waste especially through fast fashion, to increase re-use, repairability of textile products, remanufacturing as well as recycling of fibers, and reduce inputs of resources for an overall lifecycle impact that is lower. A systemic approach considering the full textiles value chain, from the raw material sourcing, design, production, consumption, waste management, including recycling, to the end of life stage, is missing and has not yet involved all stakeholders to rethink the system.

While existing initiatives confirm and demonstrate that hazardous chemicals can be removed from value chains, there are still major gaps considering the voluntary and partial coverage of such initiatives across the sector as a whole. Brands have identified that they need to partner with other stakeholders (i.e., governments, supply chains manufacturers, chemicals suppliers) if they are to achieve their SAICM 2020 goal and scale up experiences to the whole sector. These brands and their supply chain partners are in close contact already with UNEP via the SAICM CiP Steering Group. There is however a need for wider and more inclusive dialogue between leading companies, bringing together more companies particularly from small and medium size firms, to build consensus on appropriate minimum standards for hazardous chemicals and establish stronger incentives for all textile processers to adopt more sustainable chemicals management. Such incentives can include regulatory approaches, enhanced monitoring capabilities, as well as market based and financial incentives.

B. Baseline Scenario

The baseline analysis is presented in terms of the three root causes and barriers presented in the Situation Analysis above. Information on the textile industry (Section 1b, i) underlines the scale of the problem presented above and reinforces the urgency of establishing solutions to a growing issue. Subsequent sections present what the industry (B ii) and government (B iii) have established at a global level. The proposed approach uses a Circular Economy lens which is presented in terms of relevant initiatives around circularity in the textile sector (B iv); and finally, a number of country-specific initiatives that have informed the project design and contribute to the investment and cofinance for this project (B v).

B i Textile industry background and projections

Textiles, clothing and fashion are part of one of the largest industries in the world economy, generating annual revenues of around 3 trillion USD, producing 80 billion garments, and employing 60 to 75 million people with direct jobs worldwide, of which 75% are women[39][39]. Garments and textiles represent about 5% of total manufactured goods exported in the world[40][40]. The textile industries in Bangladesh, Indonesia, Pakistan and Viet Nam account for a significant, and growing, portion of this amount, about 15-20% of global clothing exports[41][41], particularly Bangladesh and Viet Nam (see Figure 3). Garments amounted to more than 86% of all exports for Bangladesh in 2016[42][42]. In 2018, Viet Nam had a 36 billion USD turnover for textile and garment. Its main export markets are the USA (38%), the EU (12%) and China, Korea and Japan (each 11%). Most of the materials Viet Nam uses for its production are imported. In 2016, 1.034 out of the 1.534 ton of cotton and all polyester was imported.[43][43] The industry still has to import half of its demands of yarn and around 70% of its textile[44][44]. Cotton textile production and apparel manufacturing are Pakistan's largest industries, accounting for about 65% of the merchandise exports and almost 40% of the employed labour force (NIP 2020).

Figure 3: Share in World Exports of Clothing, 2000-2016 (Source: WTO)

Many of the top 20 producers in the world, including Bangladesh, Viet Nam, or Pakistan, have the lowest minimum wages in the industry. While China is likely to remain the world's largest manufacturer of textiles and apparels, macro-employment trends (such as China's labour pool shrinking by one-fifth over the next 50 years and a steady rise in wages in recent years[45][45]), has led to Chinese garment makers having started looking to open or source from manufacturing facilities in neighbouring countries (including Bangladesh, Vietnam, and Pakistan), to tap into lower-cost labour pools and utilize regional trade agreements to constrain costs[46][46]. There is hence a high risk of rapid escalation of unintended negative impacts on health and environment from poorly controlled labour and environmental manufacturing practices.

Figure 4: Clothing and textile value chain (Source: WWF 2017)[47][47]


RAW MATERIAL MANUFACTURERS
Cotton growing; pulp for viscose and packaging; animal husbandry (incl. feed), oil and gas extraction, recycling processes
Energy use and GHG emissions, water use/ pollution, basin water risks, use of chemicals, biodiversity loss, land-use-change, deforestation, exotic skins (wildlife trade)
FIBER AND FABRIC PRODUCERS
Ginning, spinning, weaving, knitting, polymerization, extrusion, reprocessing of recycled fibres
Energy use and GHG emissions, water pollution
WET PROCESSORS
Bleaching, scouring, dyeing, printing, finishing and laundry, tanning
Energy use and GHG emissions, Water use/pollution, basin water risks, use of chemicals
GARMENT ASSEMBLY COMPANIES
Cut, sew, assembly of items, adding of fixtures
CONSUMERS (USE PHASE)
Buyer's choice, washing, drying, ironing
END OF LIFE
Disposal, reuse, recycling
Waste, GHG emissions
Recycle
Reuse
Disposal
Process stage
Most material environmental impact

The apparel supply chain is long and complex (see Figure 4), from retailers, brand agents, to factories that cut and sew materials, 'wet processing' factories which dye and finish fabrics, and back to fibre producers and chemical suppliers. It is not uncommon for some producers of apparel to have more than 1,000 suppliers scattered across several dozen countries[48][48]. During the process of manufacturing, textiles go through various chemical treatments, including pre-treatment, dyeing, and refinement/ finishing yarn formation, fabric pre-treatments, laminating, finishing, and coating, using special chemicals such as flame retardants, water repellents, and yarn warp sizers. Wet processing, including dyeing, finishing and printing, of all the finishing operations, is where most of hazardous substances are used and released to the environment, to surface water as well as to the air. The substitution of POPs and CoCs by safer chemical or non-chemical alternatives that can perform acceptably is a widely recognized goal within the textile sector globally and one which is aligned with the requirements of the Stockholm Convention as well as the Principles of Green Chemistry and the SAICM 2020 goal.

B ii Industry voluntary initiatives

Several industry organizations have established chemical and environmental management programmes, usually on a voluntary basis. As explained in the problem analysis, these initiatives cover only a small part of the whole value chain with far from universal membership. However this baseline analysis shows that it is technically and economically feasible to phase out POPs and certain CoCs. It also reveals a significant number of tools and methods that have been tried and tested and are available for scaling up to a more universal uptake. Finally these ongoing initiatives represent a significant source of co-finance and investment upon which the intervention will build.

The top 32 brands globally joined together for one harmonized approach under the Zero Discharges of Hazardous Chemicals (ZDHC) [49][49]. The ZDHC Roadmap to Zero Programme is are currently monitoring data on 3400, mostly Tier 2, facilities (wet processing facilities where 80 % chemicals are used). Hazardous chemicals subject to restriction by the ZDHC Manufacturing Restricted Substances List (MRSL) include POPs (SCCPs, pentachlorobenzene, hexachlorobenzene, pentachlorophenol, PFOS, PFOA) and CoC in the following chemical groups, (medium-chain chlorinated paraffins, mono, di, tri, tetra, penta, and hexa chlorobenzenes and chlorotoluenes, di, tri, and tetra chlorophenols, all PFOS related PFCs produced by electrofluorination (c6 and above), and all PFOA related PFCs produced by telomerization (c8 and above). ZDHC member brands and retailers map their production supply chain from T1 up to T2, T3, T4 etc. and these facilities (especially wet processing facilities at T2 and T3) implement sustainable chemical management systems, including total chemical inventories to assess the level of ZDHC MRSL chemical conformance; and by providing solutions through ZDHC database (ZDHC Gateway to Chemical Module) of safer and alternate chemicals. Wastewater testing conducted by dyeing and finishing facilities serving the fashion industry shows that on average 98% of the facilities that are following ZDHC guidelines and tools have met the requirements or have no detections in MRSL analytes (including some POPs e.g. SCCPs) in the wastewater. ZDHC Foundation works directly with chemical suppliers, and more than 41 global and national chemical companies have engaged in certifying their chemical products according to ZDHC MRSL chemical conformance guidance. With respect to traceability, ZDHC is collaborating with UNECE[50][50] and other partners to use Blockchain technology for traceability on Bill of Substances to trace the chemicals from Process to Product. There is ongoing discussion on collaboration with other data disclosure platforms

such as ITC Sustainability Mapping platform where several sustainability and supply chain management initiatives like ICS, amfori, SAC and ZDHC will jointly work on supply chain and product traceability.

Other voluntary initiatives include The Apparel and Footwear International RSL Management (AFIRM) Group, the Outdoor Industry Association (OIA), and the Sustainable Apparel Coalition (SAC) which manages the Higgs Index tool. This includes questions on chemical use in the Facility Environmental Module (FEM) and members regularly monitor and track various environmental parameters. Members of these groups account for approximately 40% of the global apparel and footwear market. Some brands are seeking individual solutions to identify substances in chemicals used throughout their supply chain, such as VF Corp's CHEM IQ, a chemical management programme to test for substances of concern in the chemical formulations. These organizations are either working together or developing collaboration to reduce redundancy and achieve positive impact. As an example, ZDHC and SAC have aligned the common audit protocol where the chemical management module of the Higg Index FEM version 3.0 is aligned and harmonized with the ZDHC audit protocol. There are ongoing discussions on alignment of ZDHC MRSL and AFIRM RSL as many member companies belong to both initiatives, making it meaningful from a product and process optimization purpose; and with the Leather Working Group (LWG), an initiative of leather industry for improvement on chemical and environmental performance of several hundred leather facilities globally.

External certification of textile producers performance on implementing chemical standards can strengthen the transparency and impact of RSLs, for example Bluesign[51][51], which assesses all input streams including raw materials and chemicals, or Oeko-Tex Eco Passport which screens products against manufacturers' own MRSL and RSL, as well as the EU REACH Regulation and ZDHC guidelines[52][52]. GreenScreen and Cradle to Cradle certifications also require assessment and full disclosure of the materials used in a product [53][53].

However, environmental and social management and reporting often only cover first tier suppliers where garments are assembled, but not further. An analysis of 150 top brands with an annual turnover over US$500 million showed that the number of companies publishing supplier lists of first tier factories has increased rapidly (12.5% in 2016 to 32% in 2017); however only 14 brands (9%) published their second tier processing facilities, i.e. where clothes undergo dyeing, printing, finishing, laundering and other processing[54][54]. These earlier stages, where most chemicals are used and released, may not be fully traceable by third party certification systems. Similar issues arise from the other types of textiles, e.g. outdoor, vehicle and home furnishing textiles, tents and uniforms.

The Clean by Design Programme which was created by the Natural Resource Defense Council (NRDC) and is currently run by the Apparel Impact Institute (Aii), addresses a number of sustainability aspects including water, energy and chemical use[55][55][56][56] through improvement projects in wet-processing facilities, and through providing self-learning courses to promote capacity building. Through years of efforts and experiences, NRDC and Aii has developed a set of best practices to help tier two dyeing and printing

facilities to improve their performances in chemical management and wasetewater treatment. These practices includes 10 best practices in chemical management and 10 best practices in wastewater treatment, and it primarily targets on low-hanging fruits opportunities that are relatively inexpensive and easy to implement. The Clean by Design chemical management and wastewater treatment pilot is currently being implemented by Aii with brands' support in 7 dyeing and printing mills in India. The pilot is expected to be completed by the end of 2020 and brought to scale in 2021. With Clean by Design as part of its efforts, NRDC runs an integrated programme to eliminate toxic chemical threats through many avenues, including promoting transparency and raising public awareness, advocating for local and global policies, applying pressure to multinational corporations through market campaigns and improving supply chain managements[57][57]. To create a comprehensive system for sound management of CoCs, it is important that multiple stakeholders working with each other with clear roles and responsibilities. For example, national and local policies ban the most dangerous uses of the top-priority classes of chemicals like PFCs; while multinational brands and retailers eliminate their uses from their global value chain. Furthermore, these policies encourage safer products and require disclosure of big sources of toxics exposures. Where national and local policies fail, major retailers of consumer products stop selling products containing these dangerous classes of toxic, putting pressure on government policy makers to act. Lessons learnt from pilot activities in India and China include the need to focus on PFOS/PFOA and all related compounds; and to review needs from different voluntary initiatives and develop a single approach that allows companies to coordinate. Further review of these experiences (despite being outside of the project countries) will be included in the PPG baseline analysis.

Regulatory restrictions, increased consumer awareness, civil society campaigns (e.g. DETOX, Greenpeace) and industry-driven initiatives encourage innovation in the industry. Leading brands have introduced sustainable collections without harmful chemicals, and with low water and carbon footprints (Ellen MacArthur Foundation 2017). Sustainable textile fibres such as hemp, sisal and jute are becoming popular. The ecofibre market is estimated to grow, with a CAGR of more than 10 per cent by 2022 (Technavio 2018). Other opportunities for innovation include safer textile chemistries (like the ZDHC initiative) and advanced technologies for chemical recovery from wastewater (Sustainable Business 2013).

B iii Government regulatory controls

An important driver for improved reporting and information sharing on chemicals use and management can be regulatory requirements. A 2017 survey of fashion industry executives shows that the 'most influential stakeholder groups in shaping the company's sustainability agenda' is policy makers/ regulators[58][58]. A project in China published a Green Supply Chain Map, linking official supplier factories for brands and government-provided data on monitoring manufacturing pollution[59][59]. The OECD Due Diligence on global supply chain initiative is contributing to transparency, as well as other supply chain sustainability initiatives such as Amfori, SAC, ZDHC, ICS, ITC, etc. With respect to product and material traceability, there are ongoing collaborative projects such as on organic cotton traceablity under the leadership of UNECE with some brands and other

organizations by using blockchain technology with verified data. The scope of this project is going to extend on Man Made Cellulose Fibres with ZDHC collaboration and other synthetic fibres.

Internationally, the lack of sufficient CiP information exchange throughout and outside the supply chain was recognized as a priority Emerging Policy Issue in May 2009 by the International Conference on Chemicals Management at its second session (ICCM2). ICCM2 noted the objective described in the SAICM Overarching Policy Strategy Paragraph 15(b), which seeks to ensure that *"information on chemicals throughout their life cycle, including, where appropriate, chemicals in products, is available, accessible, user friendly and appropriate to the needs of all stakeholders*". Following ICCM2, UNEP led a CiP project, involving a broad stakeholder community to identify four priority product sectors (textiles, electronics, toys and building materials) and analyse the extent of existing CiP information exchange in relation to stakeholders' information needs. A synthesis report presented to ICCM3 led to the development of the UNEP *Chemicals in Products (CiP) Programme* and *Guidance for Stakeholders on Exchanging CiP information*, endorsed at the fourth session of the Conference (ICCM4) in October 2015, where UNEP was invited to lead the CiP Programme and to promote and facilitate implementation activities. The CiP Steering Committee includes various chemicals suppliers, NGOs and the research community and represent an important network of actors for this project. A textiles sector case study done in 2011 and guiding the development of the programme noted that negative lists (chemicals *not* present in products) may exist in certain parts of the value chain, but systematic information of what chemicals *are* present is largely absent[60][60]. The CiP programme identified three core information objectives, including to:

- i. know and exchange in supply chains information on what chemicals are in products, associated hazards and sounds management practicies;
- ii. disclose information of relevance to stakeholders outside the supply chain to assist in informed decision making about CiP; and
- iii. ensure, through due diligence, that information is accurate, current and accessible.

At the national level in the four project countries, governments and stakeholders have initiated efforts to better manage the health and environmental impacts of chemicals used in the textile sector. While most countries were not able to obtain precise data on the use of POPs regulated under the Stockholm Convention in their national textile industries, some surveys and data do exist. For example, Vietnam's 2017 NIP estimates between 0.11-3.45 tonnes of PFOS is used in the textile and upholstery sector per year (for the period 1998 – 2013).

National level interventions by brands and value chains involve individual suppliers and partners, but also include sectoral initiatives such as Race to the Top in Vietnam, which is a "*collaborative effort between the Vietnamese government, the Vietnamese apparel and footwear industry, global consumer brands, international organizations, and civil society organizations. Working toward long-lasting sustainable performance throughout the sector, its added value resides in broad stakeholder commitment and collaboration*". The programme includes chemicals management through the SAC and ZDHC partnerships, and the Viet Nam Environment Administration carried out an assessment of chemical pollution in the textiles sector and drew up a voluntary Technical Guideline based on the ZDHC approach. Other related projects in Viet Nam include a UNDP/GEF project on

green chemistry; and a Vietnam Environment Administration project on strengthening control of chemical pollution, including textile industry and introduce life cycle impact assessment approach; however, still lack of implementation capacity. The Greening Textile supply chain project with WWF in the Mekong river delta focuses on water management and includes best practices in chemical management to improve water quality. Finally, the government has started to develop PRTR regulation and is deliberating on new environmental standards for recycling.

Free trade agreements in the region can also represent drivers for improving environmental and social standards. In 2019, the Vietnam-EU Free Trade agreement and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) were both signed, facilitating the movement of textile from China and other countries to Viet Nam. These agreements will increase access to capital, production technology, skilled labour, experience in advanced management and equipment from developed countries. They also provide the opportunity to enhance the Viet Nam textile sectors' competitiveness. They also come with some challenges for the Vietnamese garment and textile companies. Many lack raw materials, advanced technology, human resources, and the capital for investment in production of these raw materials and auxiliary materials. According to the evaluation of many experts in recent years, the technology level in the textile and dyeing industry is generally considered lower than in other countries in the region. This can lead to a weak capacity in global value chains. Compliance with the FTAs in terms of working environment and labor will not be easy. The principal obstacles Vietnamese enterprises face when implementing chemical management are the lack of information on quantity, quality and the characteristics of toxic levels of their used chemicals, dealing with unlabelled chemicals, limited financial and human resources, unregulated management of documentation and information systems and not prioritizing chemical management.

Occupational health and safety initiatives focusing on chemical use and exposure have also been initiated by governments and the International Labour Organization (ILO), including through their Better Work programme. The sector has experienced serious incidents and worker safety campaigns, including on women workers' conditions. Broader occupational safety initiatives have been tried including Bangladesh's legally binding Accord on Fire and Building Safety, established after a building collapse at the Rana Plaza garment factory in 2013 and supported by unions and workers who are calling for a similar accord for other countries[61][61].

B iv Circular Textiles Economy and Eco-Innovation

In May 2017, the Ellen Mac Arthur Foundation launched "Make Fashion Circular" as the Circular Fibres Initiative. Its ambition is to ensure clothes are made from safe and renewable materials, new business models increase their use, and old clothes are turned into new. The initiative brings together leaders from across the fashion industry, including brands, cities, philanthropists, NGOs, and innovators. Its aim is to stimulate the level of collaboration and innovation necessary to create a new textiles economy, aligned with the principles of the circular economy. In 2018 the Circular Fibres Initiative entered its second phase: Make Fashion Circular. To thrive, and not just survive, the fashion industry needs to radically redesign its operating model. Make Fashion Circular brings together industry leaders including Burberry, Gap Inc., H&M Group, HSBC and Stella McCartney as Core Partners, made possible by C&A Foundation, MAVA Foundation, players of People's Postcode Lottery and the Walmart Foundation. At the same time, an increasing

number of initiatives and commitments (such as the UNFCCC Fashion Industry Charter for Climate Action or the G7 Fashion Pact) shows the growing awareness and recognition of urgency to act across the industry.

The elimination of POPs and other priority CoCs in the textile sector and identification of alternatives is a pre-requisite for a non-toxic circular approach in the textile sector. Life cycle thinking is at the core of eco-innovative solutions and will support the shift towards a more circular textiles system, ensuring that other trade-offs, such as substantial amounts of water consumption, could be avoided. The textile sector traditionally uses a linear business model in which raw materials are used to create valuable substances which are, in turn, used to manufacture products for the end markets. However, most of these business models do not encourage resource efficiency and sustainability where the aim is to minimize resource use whilst maximizing added value. With the purpose of placing sustainability at the heart of business strategies and business models, eco-innovation requires working with many stakeholders of the value chain. Working together with key partners along the value chain and across several sectors (e.g. industrial symbiosis, where waste or by-products are used by another sector) can save resources, lead to improved recycling strategies and increase the profitability for all actors. Several types of partnership can emerge, such as industrial symbiosis, where partners of a supply chain work together, associations, which are collaborations of companies of the same industry sector. It can also take the form of eco-parks, geographically delimited partnership, where companies work together to share resources (energy, feedstock, labour etc.) and reduce the amount of waste generated (e.g. recover and recycle). Thereby, they increase the profitability during the production and become more sustainable. One of the three sectors of focus of the European Commission funded project '*Adopting Resource Efficiency into Business Practices Resource Efficiency and Eco-Innovation in Developing and Transition Economies 2012-2017'*, was the chemicals sector, including a cotton spinning and dyeing company in Egypt. The main findings of the project's evaluation included the fact that eco-innovation works better when there is an enabling environment to support SMEs implement the eco-innovative changes, i.e. a conducive policy environment and access to finance[62][62].

Eco-Innovation is not only actively working with companies but also offers support to governments in developing policies based on life cycle thinking. Vietnam's government, for example, is committed but lacks the knowledge and capacity. UNEP's Sustainable Consumption and Production unit and Life Cycle thinking team conducted a life cycle assessment for the textile sector in 2019 (funded by the Norwegian government). "*Mapping the textiles value chain*" identified key hotspots at the global level and assessing trade barriers and opportunities for interventions to enable sustainable textile value chains. Among them:

- Agricultural practices in natural fibers production
- Energy use and occupational health in synthetic fibers production,
- Harmful chemicals in textiles, microplastics releases, water consumption and energy use in the use phase of the textile
- The wet processes of dyeing and finishing through wastewater discharge and use of chemicals of concern,

The findings will guide action and decision making towards enhanced circularity and sustainability in textile value chains. The baseline assessment highlights the lack of information on chemicals, noting that "*Toxic impacts from dyeing wastewater is a trending topic, but difficult to characterize due to lack of data, and likely to be underestimated*

here"[63][63]. An initiative is being developed in Africa where the Resources & Markets Branch will further develop the methodologies and tools to promote eco-innovation and circularity in the textiles sector, including policy scans of potentially relevant national policies (e.g. on plastics or sustainable public procurement); supporting SMEs through training and case studies to develop eco-innovative company strategies, including by improving links with large clients and finance institutions; and supporting use of life cycle assessment tools such as the EU Product Environmental Footprint calculator.

Regional and national initiatives on sustainability in the textiles sector are fast-paced. The Vietnam Center For Creativity And Sustainability Study And Consultancy (CCSPIN) has a '*Home Decor Home Textile*' project with CBI and the Netherlands in 5 countries: Bangladesh, Indonesia, Laos, Cambodia, and Myanmar. The Vietnam Cleaner Production Centre is working with WWF on building a sustainable textile strategy, with WB on recycle water in textile industry, with retailers as H&M on RE-CP, EE; and working with UNIDO/GEF on POPs in Eco-Industry Parks. Lessons from these projects will be reviewed during the PPG and opportunities to integrate chemicals issues with these and other initiatives identified.

Consumer information tools, such as ecolabels, voluntary standards or marketing claims, aim at enabling consumers to take more informed and sustainable decisions regarding product purchase, use and end of life. As outlined above, it is important that information provided is accurate and reliable. Therefore, UN Environment Programme, together with the International Trade Center, has developed international '*Guidelines for providing product sustainability information*'[64][64], which can guide and encourage producers and other actors in the chemical sector to make reliable claims about their product's sustainability performance. A road-testing already applied these Guidelines in the textiles sector. They are a key output of the 10Year Framework of Programmes on Sustainable Consumption and Production (10YFP) Consumer Information Programme and were developed in response to the demand of the Multi-stakeholder Advisory Committee of the Programme (23 institutions). Further, the textile sector is one of the sectors covered in the UNEP report 'The Long View: Exploring Product Lifetime Extension'. UNEP also worked on eco-labeling in the textile sector under the project 'Enabling developing countries to seize ecolabelling opportunities', in Mexico, India, South Africa, Ethiopia and Kenya.

B v Baseline projects in the countries and region

The closely related GEF-supported project "*Defining and demonstrating best practices for exchange of information on chemicals in textile products*" (GEF #5662) was executed by China's Foreign Economic Cooperation Centre and ran from 2014 until 2019. It successfully created an online chemical information exchange platform and trained companies to use it; and also reviewed voluntary and legislative mechanisms currently existing in China. The online Chemical Improvement Exchange[65][65] was developed by the China National Textile and Apparel Council (CNTAC), as a tool for users and suppliers of chemicals to centrally manage and share their chemicals inventories within the supply chain. More than 400 technicians engaged in environmental and chemical control, procurement and quality control, and environmental management from nearly 300 enterprises in local

textile supply chains including product manufacturers, textile and printing and dyeing processors, chemical suppliers and purchasers attended the training. The key lessons learnt (which have informed the current project design) were:

- Brands acknowledge that they cannot continue to ignore the use of substances of concern in their supply chains, and want to take action but currently lack necessary mechanisms for improvement.
- While the training was positively received, trainees did not all continue to update the platform following the training. There were no perceived incentives for enterprises to participate and disclose their chemicals information, for example policy action by regulators to make reporting mandatory, access to finance for investments required for emissions reduction (wastewater treatment); access to expertise for substitution of hazardous chemicals; or increased access to end markets and consumers (both export and domestic). On the contrary, the additional reporting burden of regularly updating the platform has a cost, particularly in the beginning when users are not yet familiar with the process and not able to do it efficiently. Future projects should focus on supporting partners to develop Corporate Social Responsibility and sustainable business strategies
- Less formal stakeholders, e.g. from SMEs, dyeing and printing mills, do not have the capacity or mechanisms to regularly update and use the information on the platform. The platform data entry and training tools should be customized and simplified for SMEs and less organized companies.
- Other stakeholders, particularly retail and consumer-facing actors, may be concerned with how recipients might act upon receiving the CiP information, and are wary of sharing business information, particularly when doing so might affect their brand reputation compared to other competitors. The platform was designed to not include any confidential information, providing only annual summaries of chemicals used.
- Textile brands that currently do not have any chemical reporting or management voluntary initiative expressed concern about generating and sharing tangible data with just two outcomes, compliance or non-compliance, that might affect their brand reputation[66][66]. ZDHC MRSL does not match Chinese standards completely[67][67], for example the ZDHC water module standards are higher than the Chinese legal regulations while there is no mandatory legal framework in China to report/ disclose chemicals information, making it difficult for companies to report to ZDHC. Viet Nam is in a similar situation. The recommended ZDHC regulations regarding limit levels of wastewater parameters are stricter than the Viet Nam regulations. At the project closing meeting, NRDC also referred to their research which suggests that up to 40% of the ZDHC M/RSL lists may have been phased out and their production ceased, therefore NRDC has recommended that the lists be revised and updated.
- The project highlighted the need to engage the chemicals suppliers, particularly domestic, where information provided on chemicals does not permit their sound management – for example Material Safety Data Sheets are not accurate or correct; or correct chemical names (CAS numbers) are not used, but only commercial product names.

Older projects have created relevant data including The Basel Convention Regional Centre for Asia and the Pacific / Stockholm Convention Regional Centre for Capacity-building and the Transfer of Technology in Asia and the Pacific (BCRC/SCRCAP) recently published a report providing a compilation of information on alternatives to POPs in current

uses[68][68]. The Substitution in Practice of Prioritized Fluorinated Chemicals to Eliminate Diffuse Sources project funded by the Swedish Research Council, a number of European academic and global industrial partners collaborated toward development of safe alternatives to PFOS, PFOA and related chemicals that can provide desired functionality in textiles starting from the designing phase.

The outcomes of such past and ongoing activities will be used as the basis for the design of the proposed GEF project. During the PPG, a round-table of the partners involved in these initiatives will be convened by the Implementing Agency to validate the baseline, confirm gaps, and agree on the project intervention priorities for the demonstration projects and for wider scaling-up of sound chemical management in the global textile sector.

C. Proposed Alternative Scenario

The overall project objective is to achieve significant reductions in the use, release and exposures to CoCs and POPs in the textile sector. The project will work at facility, national government, and global levels to scale up approaches that are already working within certified voluntary schemes.

Component 1 will provide technical support at facility level on identifying and reporting on chemicals used, improving handling and management practices and supporting transitions to alternatives. Activities will focus on chemical suppliers and T2 and T3 facilities where chemical use is the heaviest. Component 2 will trigger policy changes by governments and more coordinated and ambitious practices by global supply chains. Through partnership with UNIDO and UNDP it will also include waste management and recycling companies, consumers and supporting actors including Green Chemistry researchers and civil society. Component 3 will scale up the project results nationally and globally, supporting Component 2 by creating and curating resources and knowledge management.

Component 1: Information sharing and eco-innovation pilots on priority CoCs including POPs in textile facilities

The component will deliver Global Environmental Benefits by interventions in thousands of textile mills and facilities, focusing on the parts of the supply chain that are the heaviest users of CoC and POPs. It will increase knowledge of chemical use, using this information to promote better storage and handling practices (Output 1.1); and increase transparency on chemicals via reporting mechanisms to allow Tier 1 companies and brands to better control chemical risks (Output 1.2). More comprehensive pilot projects will enable facilities to adopt alternatives to POPs and other priority COCs in production process (Output 1.3) and document these experiences (Output 1.4).

Outcome 1: Tier 2 and Tier 3 textile companies restrict use, releases and exposure to priority CoC including POPs

The outcome aims to scale up existing voluntary approaches, providing first steps towards chemical management in thousands of facilities. Chemical inventories and simple risk management steps will be undertaken in many facilities through partnerships with private sector initiatives and expanded to facilities that would not otherwise adopt them (Output 1.1). The information on chemical use will be shared with the supply chain in order to improve knowledge of actual chemical use and drive better control and systemic changes to redesign products (Output 1.2). Pilot projects with selected Tier 2 and 3 manufacturing facilities that are currently using POPs and other CoCs will operationalize pilot projects to phase out use of CoC and POPs, to achieve the project GEB in a minimum of ten Tier 2 or 3 facilities (Output 1.3) and to document these experiences (Output 1.4).

This outcome addresses the first two root causes identified in the Problem Tree (Fig 2), of knowledge and technical capacity gaps.

Output 1.1: Chemical inventories and risk reduction measures for POPs and CoC produced and delivered to at least 500 chemicals suppliers and textile SMEs

This output will quantify chemical use and establish risk management in at least 500 SMEs particularly chemicals suppliers and Tier 2 and 3 wet processing facilities. Key deliverables will be validated chemical inventories and audit reports of baseline practices (e.g. storage, handling, PPE, etc); and establishment of zero or low-cost corrective actions or practices to reduce use and exposure. The M&E framework will include gender disaggregated reporting of the number of women workers who are able to access improved training and personal protective equipment.

A PPG study will identify individual facilities which are currently not registered with voluntary chemical management initiatives. The study will start from registered members of ZDHC and other initiatives to map their suppliers; and involve national bodies such as textile associations or chambers of commerce. The study will prioritize facilities based on their products (certain clothes, footwear, leather, technical textiles and/or furnishing textiles, where POPs exemptions exist); and manufacturing processes (wet processing, spinning, weaving, dyeing and printing sectors where CoC are typically used) and exposure risks (e.g. in facilities with higher proportions of women, informal workers or other vulnerable groups, or proximity to sensitive pollution receptors). Data sources for this review will include published data of textile analysis, of import and trade data, further consultations with national stakeholders and initiatives which have worked with producers to phase out chemicals and other relevant mechanisms and the PPG gender analysis. The PPG survey will also map chemical manufacturers and importers supplying the textiles industry with chemical inputs.

During the project, activities will include:

- Surveys of small and medium, or informal value chain actors to identify and confirm chemical use ‘hotspots’ and to confirm the likely quantities of POPs contaminated wastes being generated by the sector through basic chemical inventories of the facilities. Surveys will be conducted via local networks including ZDHC Implementation Hubs, NRDC, global partners (amfori, Sustainable Apparel Coalition (SAC), Leather Working Group (LWG) and others) existing inspections e.g. by government, labour control or environmental permitting and pollution control. Inventories will be validated via third party for conformity to safer chemicals. Surveys will also include aspects of

basic occupational safety and health indicators established by ILO on frequency of occupational injury and disease caused by chemical risks, with gender-differentiated reporting of results.

- Validation and cross-checking of chemical inventories against established MRSL requirements to identify and document use of CoC and POPs, including quality control of MSDS provided information, and screening tests of chemicals in use to identify potential other CoC present as by products or impurities.
- Access and support provided to mill owners to identify potential alternative chemicals or processes in order to phase out use of POPs and CoC, including where possible access to information on the availability of such alternatives in the local context.
- A minimum set of recommendations based on legal requirements will be developed and adapted to each site. These recommendations will propose and support roll-out of no-cost or low-cost risk reduction measures around safe storage of chemicals, labelling and handling of CoC including appropriate protection, particularly of women and vulnerable workers.

Output 1.2: SMEs use of POPs and CoC reported via textile value chain chemicals information sharing campaign and tools and provided to clients and regulators

This output will develop practical tools and establish information sharing protocols for mills to transparently report chemicals used in their products. Reports will be shared with regulators and with other actors in the value chain, especially garment assembly, brands and retailers. Efforts will be complementary and synergetic with other campaigns and information systems, such as ZDHC, the Sustainable Apparel Coalition, Outdoor Industry Association, European Clothing Action Plan (ECAP) and Greenpeace.

The use of transparency tools by SMEs is based on the assumption that they will be willing to share this information voluntarily. Previous experience shows that in the absence of incentives this may not happen, so the design of the tools will include consideration of incentives such as marketing and partnership opportunities. Activities under Component 2 will also bring incentives from regulators and supply chains for replacement and changes in recipes, processes and functionalities.

Activities will include:

- Engagement of chemical suppliers and the global chemicals industry to generate and increase access to comprehensive, practical and credible information about the chemical composition of formulations used in the textile industry, including products impurities and possible abnormal process conditions. Tools may include simple checks of Material Safety Data Sheets for accuracy and validity.
- Round table consultation with governments, scientific experts and private sector actors already engaged in green textile chemistry, to obtain consensus around a minimum list of CoCs, including POPs for immediate action by all value chain stakeholders; and consolidation of information and experience on available alternatives.
- For the textile value chain actors, interactive and user-driven tools will be developed to support collection/disclosure of information on chemicals used and released from textile manufacturing processes, covering import, use, emissions and waste generation. These may include:
  - map based interfaces using regulatory data to view factories or chemical management initiatives like the Green Supply Chain map from China.
  - Tool to facilitate quick identification of problematic chemicals included in inventories, based on global regulatory standards on chemicals of concern in the EU and other export destinations, international agreements, or brand clients. This may include further development of the online inventory tool developed during the GEF-supported

China project; searchable databases for manufacturers to readily identify formulations containing CoC; and Pollutant Release and Transfer Registers (PRTR) where they exist.

- Tools to check chemical recipes, chemical usage and manufacturing processes to identify errors and wastes.
- Combination of the above research into comprehensive, relevant and easily digestible formats for decision making and communication, e.g. dashboards to generate chemical reduction reports and data for clients, regulators and the public.

Output 1.3: Company-specific business strategies and operational plans developed and support provided to implement them in at least 10 textile mills.

This output will generate and deploy detailed technical and operational plans to phase out use of CoC and transition toward an eco-innovative business model. Operational plans will be developed that respond to the specific needs of participating companies and ensure consistency and compliance with regulatory requirements and Best Available Techniques/ Best Available Technologies/Best Environmental Practices.

During the PPG phase best practices in substitution will be surveyed, including chemical substitution, fibers substitution, non-chemicals alternatives, Green Chemistry and /or changes in production processes. A strong driver for this work is the many mills that have successfully stopped using POPs and other chemicals, and a growing body of experience on BAT/BEP, Green Chemistry and eco-innovative approaches in the textiles sector.

Activities undertaken under this Output will include:

- Life cycle analysis conducted on alternatives to CoCs covering potential trade-offs between areas of concern such as human health, ecosystem quality and natural resources, and cost-benefit analysis.
- Development of an eco-innovation guidance supplement at the level of individual textile companies. This guidance will be developed in consultation with many partners to draw on experience (e.g. BAT/BEP pilot projects, NRDC pilots, ZDHC facilities and others).
- Selection of manufacturing facilities from the facilities participating in the information exchange system from Component 1, based on current use of POPs and CoCs and building on existing initiatives by brands and others e.g. National Cleaner Production centres, Clean by Design or ZDHC projects. An initial group of facilities can be nominated by a single brand or client, to increase efficiency by posing a single set of brand requirement and pressure to this first group of pilots. Selection criteria will include gender aspects for example female-owned businesses or facilities employing women, both in supervisory roles and workers who are directly exposed to hazardous chemicals.
- Once facilities are selected, the business strategies, and related operational plan will be developed, drawing on UNEP, UNIDO and corporate partner expertise on CoCs and POPs in textile and life cycle perspective. The development of the business strategy and plan will follow the eco-innovation methodology to include wider sustainability

objectives (environmental, economic and social dimensions). Social dimensions include gender mainstreaming for example placing women in supervisory or managerial positions and in progressive improvements towards identifying and addressing women workers' strategic needs and concerns.

- Technical support to deliver operational plans on replacement of CoCs, including POPs with safer alternatives and establishing better handling and management of chemicals, with access to experts (RECP Network, UNIDO, NRDC, ZDHC and others) and chemicals suppliers to provide hands-on training and support and provide access to existing resources (Chemical Management System, Facility Leader Program, ZDHC Gateway modules on safer chemicals and waste water, Clean by Design, and others).
- Implementation of eco-innovative strategies in selected companies including network creation for the textile manufacturers along their value chain and overall environmental and labour performance and benefits.

Output 1.4: Compilation of pilot results produced and endorsed by partners

The lessons and experiences of the pilot projects will be developed through an adaptive management and participatory model during and after the pilot projects. Lessons will be drawn and documented in a variety of formats for wide sharing via Component 3 on knowledge management.

Activities undertaken under this Output will include:

- Update of tools, guidance documents and training materials developed, based on the pilot project experiences, specifically targeting both chemical and textile manufacturers. Tools and materials will be developed specifically for women workers and covering issues that relate particularly to women's exposures, including for example on reproductive health, right to information and protection from hazardous chemicals, and access to social protection including life/disability insurance.
- Best practices and case studies of successful experiences in regulating, managing and/or substituting POPs and CoCs will be documented, along with lessons learnt or identification of challenges experienced or overcome. This will include the development of business case studies from the 10 pilots, to support eco-innovation uptake and replication by the technical institutions and business intermediaries. The materials will cover experience in applying a life cycle perspective, the principles of green chemistry, and eco-innovation tools and approaches.
- Development and adoption of national strategies for successful interventions to be rolled out throughout all participating facilities who are engaged in Component 1 including a supply chain policy on CoC for individual facilities and wider value chains to consider.

Project component 2: Eco-innovative strategies towards a non-toxic circular textiles economy

This component will support the private sector shift to alternatives to POPs and other priority CoCs identified in component 1 and implement sound chemicals and waste management practices. It will go beyond the shift to alternatives, towards a *non-toxic circular economy approach in the textile sector* and will inform both government and corporate policy development at the national, regional global level.

Outcome 2: Governments and global textile value chains strengthen policies for phase out of CoCs and POPs

Some actors in the textile sector may already have knowledge on chemicals in the supply chain, feasible substitutions or handling and safety requirements, but do not act on these. Recognizing the wider influences on decisions of companies and facilities to adopt sound management of chemicals, this component will intervene beyond technical aspects. The outputs will review global drivers for chemicals improvements including market pressures from consumers, certification or standards, brands and suppliers, sustainability schemes e.g. carbon or water or labour reporting and management and government regulations (Output 2.1). These global drivers will then be adapted by global supply chains (Output 2.2) and rolled out at national level (Output 2.3).

This component addresses the third root cause of the problem analysis, lack of enabling environment.

Output 2.1: Global eco-innovation and circular economy guidance produced and distributed to regulators and global supply chain actors

This output will produce a sector-specific non toxic circular economy model. This will highlight existing elements and gaining consensus for recommendations to further apply eco-innovation approaches, aligned with international best practice and national specificities.

The PPG will review pollution prevention and control requirements in the project countries to assess the potential of improving regulatory control and incentivising companies to adopt safer chemical management. Further work is also needed to consult with stakeholders on chemicals and circularity in the textile sector, to identify additional elements of an enabling environment.

This output will strongly build upon and be coordinated with UNEP work responding to UNEA-5 requests[69][69]; especially ongoing work to develop assessments of sustainable economic models' potentials to support the transition to sustainable consumption and production in the textiles value chain, including through the adoption of value retention processes. These models will provide evidence on the environmental and socio-economic impacts of the different innovative sustainable economic models in the textiles value chain.

Activities will include:

- A side-by-side comparison of the information under each of the most widely available chemical screening and management programs in the industry, including ZDHC, BlueSign, and ChemIQ at a minimum. Similarities, inconsistencies, and data gaps in each programme will be identified and scoping of possible synergies by strategically combining key elements of each program.
- Case studies and good practices in developing and implementing a positive list when the companies considered chemicals from the design phase e.g. Green Chemistry approaches, designing products with only preferred chemicals or incorporating functions such as fire resistance by changing the material or weave of the fabric rather than applying chemicals.

- Review of the economic incentives for phasing out POPs and other CoCs in the textile sector and highlight international best practices on incentives, including perverse incentives such as capital investments in companies or processes depending on the use or trade in CoCs.
- Review of recycling and recyclability of textiles, based on results from the UNIDO project and including recommendations for a harmonized, cross-border legislative framework to enable transparency and availability of recycled materials.
- Gender review of wider impacts of hazardous chemicals used in the textile sector on women's health; assessment of the relevance of eco-innovation and circularity to improving gender mainstreaming and women's conditions; gender representation at policy, legislative and global supply chain levels.
- Engagement of global brands, retailers and consumers to push both information exchange and the elimination and restriction of priority substances forward through brand policy requirements, and technical and funding assistance.
- Global consultations with value chain actors including technical institutions, large brands, private businesses, business intermediaries such as RECPnet members, and governments, civil society and consumer organizations and finance institutions to identify actual and potential 'levers' that may influence companies to adopt eco-innovation in the textile sector, integrating guidance on alternatives to priority CoCs and eco-innovation supplement and related responsible production processes.

Output 2.2: Actions to coordinate and raise ambition of supply chain policies and initiatives are proposed and agreed by global supply chain stakeholders

The output will coordinate global supply chain actors, including brands, retailers, certification schemes, recyclers and consumers to align existing initiatives and increase the scope and ambition levels. The regional approach of the project and direct involvemet of a number of private sector partners in the technical component, and the growing interest in the sector on sustainability issues, will mitigate the risk of low participation and engagement of global players.

Activities to be considered will include:

- Promoting aggressive expansion of existing voluntary initiatives and increasing membership including consideration of special arrangements to facilitate the participation of SMEs.
- Coordinating and increasing the range and scope of chemicals being controlled or restricted through value chains, building on the chemical information being shared under Component 1.
- Promoting rapid adoption and expansion of green chemistry, circular and eco-innovative approaches at all levels of the supply chain, particularly design, specification, procurement and recycling. This will be delivered in coordination with UNDP work on Green Chemistry (see section 6 on coordination with other initiatives) and the establishment of regional accelerators to disseminate, trial and invest in cutting edge solutions in the textile sector.
- Coordinating existing sustainability initiatives in the sector including via the UN Sustainable Fashion Alliance, SAICM and industry platforms to create new minimum standards and ensure private sector support for enhancing and ensuring compliance by all textile producers.

Output 2.3 National actions to facilitate enabling conditions for textile SMEs developed and agreed by regulators and national stakeholders

The output will support national policy makers and regulators to establish and strengthen the regulatory, fiscal, and other enabling national conditions to incentivize and support textile sector to phase out POPs and other CoC.

The results of the pilots of Component 1, and the case studies of voluntary schemes, will demonstrate that alternatives are available and affordable in the countries. The regional and global partnership approach will mitigate the risk of national regulators not wanting to disadvantage their national industry, by promoting common approaches across countries and cost sharing between all actors of global value chains. During the PPG extensive consultations with both Environment ministries but also Industry and Labour departments and inspectorates will explore links between the planned interventions and wider green/ circular economy, plastics, and finance priorities to maximise buy-in.

In Viet Nam a parallel UNDP project on lifecycle and ecolabel approaches will be employing similar approaches (green finance, labels, procurement) in other POP-using sectors but not textiles. The two projects will establish joint engagement of common stakeholders e.g. policy makers, finance institutions, to benefit from familiarity with the shared concepts among the target audiences, avoid duplication and increase exchanges and coordination between UNDP and UNEP approaches.

Activities to be considered in the roadmaps will include:

- Strengthening government regulation and control for chemicals procurement, storage, use and disposal by textile companies, in synergy between ministries of industry, environment and labour through existing permitting, inspection and licensing schemes.
- Linking the circular textiles agenda to the marine micro-plastics agenda including data collection and target setting to operationalize policies on microplastic pollution where available.
- Mapping financial mechanisms and institutions and instruments in the countries and across the value chain and assisting SMEs to prepare bankable proposals and access financial and other incentives for SMEs, including via sustainable public and private procurement;
- Reviewing and assessing non-financial incentives, for example partnerships with retailers and labelling options to increase consumer information, development and accessibility to green chemistry options for alternatives to COC, and access to markets and promote revenues for pilot SMEs that have adopted an eco-innovative models and practices;
- Convening national multistakeholder processes to develop a national roadmaps with priority actions to address CoCs in the textile sector and review and adapt the priority actions included in Stockholm Convention NIPs, to be funded by the GEF project during years 3-5 of the project.
- National schemes to identify and reward responsible chemical suppliers who consistently provide adequate and actionable information on the chemicals they sell, while also identifying suppliers who fail to meet requirements and provide adequate information.

Project component 3: Knowledge management for scaling up

Outcome 3: Upscaling of project results to global textile and garment sectors and reporting to MEAs

This component aims to ensure that project results are sustained and scaled at national and global levels. This Component is shared with the UNIDO project in Africa, both projects following the same basic structure, although specific activities will be developed as needed in each region.

The outcome will be achieved through sharing technical successes and lessons to the wider textile sector via national capacity and awareness raising, including ensuring access to information for regulators to meet international reporting obligations (Output 4.1). At a global level, information will be shared between the UNEP and UNIDO projects, via SAICM and international networks, and with global supply chains, to ensure appropriate incentives for textiles facilities are in place (Output 4.2). Gender and social impacts are particularly important in the sector and will be addressed in Output 4.3.

Output 3.1: National capacity and awareness programmes developed and implemented to increase ability of textile sector and policy makers to control POPs and CoC

The project will link the outputs of the tools developed under Component 1 with Stockholm Convention and SAICM/beyond 2020 reporting structures at country level.

During the PPG a review of the internal processes and mechanisms for reporting at the national level will be conducted, as well as Stockholm Convention reporting data gaps related to textile sector and will guide the use of project funds.

Activities may include:

- National workshops and consultations with sector groups and regulators; publication of annual reports and inventories; and coordination with customs, statistics and other potential sources of relevant data, building on national steering committees developed in particular in the context of the Stockholm Convention as well as existing projects under the Special Programme
- Development of national databases and data collection systems and mandates including an open-access platform for internal users (chemical suppliers, Tier 2 and 3 users, and Tier 1 clients and brands) and the wider public, including regulators and project partners. Systems will include incentives for users to update them (e.g. space for advertising themselves or a chat function to connect on possible new opportunities). Different approaches will be considered including mobile phone apps, browser-based interfaces, and PRTR-model data collection and reporting tools. The tools and processes will be linked to existing sustainability reporting and monitoring, including any certification or standards partners already have in place.
- Development of training modules and teaching resources on ESM of chemicals and POPs-contaminated wastes, and training of users (governments and private sector actors) in the use and interpretation of data from reporting tools, linking to country reporting under the Stockholm Convention and SAICM. These resources can also be used in existing school curricula and university research programmes.
- Multimedia sensitization campaign targeting multiple/various demographics (decision makers, industry, Ministries, local governments, community leaders, recycling companies, informal sectors, women and youth group associations, NGOs, academies, media, etc.).

Output 3.2: Global Knowledge Exchange and Management tools produced and accessed by users globally

This output will be delivered jointly with UNIDO, to ensure all tools relevant to each target audience can be found in a common space and build on each other. Relevant lessons and results from the UNDP project in Viet Nam will also be shared in the platform and links made with their existing KM channels. The agencies agree in principle to use the SAICM KM Platform which is being developed in a separate GEF project (ID 9771) and creating dedicated space for chemicals in products. The addition of textiles to an existing platform will allow both regional textiles project in Africa and Asia to immediately reach a global audience interested in chemicals in products, and ensure sustainability of the platform after the project end, as it is owned and maintained by the SAICM Secretariat.

Activities may include.

- Development of a dedicated section for textiles in the SAICM Knowledge Management platform being developed under a related GEF Full Size Project (GEF ID 9771), and dissemination of project results and tools via global networks including UNIDO and UNEP websites, the UN Sustainable Fashion Alliance and government or regulatory networks and SWITCH Med and SWITCH Asia;
- Collection of relevant tools, guidance and best practices, from the project, the project implemented by UNIDO, government and private sector initiatives;
- Engagement of global supply chain actors including brands, retailers (including online) to overcome communication barriers between a highly globalized industry, and ensuring that the communicating partners understand each other and that the right information is coming from, arriving to and understood by the correct persons
- Development and roll-out of a public information strategy with due consideration of the UNEP "*Guidelines for providing product sustainability information*" to the textile sector with specific case studies drawn from the project countries.
- One of two global Conferences in coordination with the UNIDO Africa project (i.e. UNIDO in Africa, UNEP in Asia) bringing together representatives of both projects and common stakeholders notably from the brands and private sector partners including certification, labelling, and consumer partners.

Output 3.3 Gender and Social Action Plan implemented and benefits accrue to women workers

This output will build on a PPG analysis of the gender mainstreaming issues, in consultation with the UNEP and UNIDO gender advisors. The analysis will focus on chemical safety issues but also review wider and well-established gender issues and initiatives in the industry around workplace rights, violence and access to training and jobs. The gender activities will be integrated with the technical components, bringing a gender lens and additional budgetary resources to identify and mitigate impacts of unsound chemical management on women and marginalized groups including children or illegal labourers.

Activities in the project may include:

- Gender analysis as part of the facility visits to identify and describe gender differences in handling, exposure and impacts of chemical management practices;
- Training and awareness raising specifically targeting women workers, e.g. by provision of childcare to encourage participation and increasing access to training and jobs.

- Creation of safe spaces for dialogue on chemical safety, labour and women's rights in the workplace, including access to training and protective equipment and practices.
- Prioritization of women-owned or women-managed businesses for demonstration pilots and capacity building.

Project component 4: Monitoring and Evaluation

Outcome 4: . Project delivery is tracked, and lessons are learnt and disseminated

This component will seek to ensure efficient delivery of the project and promote sustainability of results by establishing good governance principles (participation, consensus, accountability, transparency, responsiveness, effectiveness, efficiency, equitability, inclusiveness, and strict legality). In addition, the project will contribute to shared knowledge management of circular and sustainable life-cycle management of materials along industrial processes for future up-scaling projects.

Activities include regular quarterly financial and technical monitoring of project progress, Steering Committee meetings and periodic monitoring including visits in the four project countries.

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D. Alignment with GEF Focal Area Strategy

The project activities are aligned with the Industrial Chemicals Program under the Chemicals and Waste Focal Area. It will support the elimination of the use of POPs and other priority SAICM chemicals in products, by supporting the phasing out of these chemicals in textile manufacture; promoting the introduction of safer chemical and/or non-chemical alternatives and the avoidance of any regrettable subsitution. The components adopt both a bottom-up approach working with textile companies, linking up to a top-down approach to ensure the enabling policy and financial incentives are present to support decision making.

E. Incremental/Additional Cost Reasoning and Expected Contributions from the Baseline, The GEFTF, LDCF, SCCF and Co-financing

Through support under this project participating countries will have a set of effective instruments to assess and manage chemicals manufactured by the chemical industry and used in the textiles sector in an environmentally sound manner. This will enable and strengthen national capacities to comply with requirements under the Stockholm Convention on current and future POPs and to proactively prevent contamination by and harmful impact on human health from other priority CoCs used in the textile sectors, as well as businesses' (including SMEs in the selected countries) capacities to develop eco-innovative strategies that cut across the textile value chain, to contribute to a circular economy.

Component 1 of the project will extend existing initiatives of CiP information exchange and promote relevant best practices of CiP information exchange in participating countries through training workshops for the private sector and pilot and scale-up activities. This will enable participating countries to identify POPs and other priority CoCs existing as ingredients, impurities and/or cross contaminants in the textile sector. The incremental benefit is significant, as application of existing tools beyond the current limited base will bring benefit to other (i.e. non-participating) production facilties within supply chains and also to outside-supply chain stakeholders (thus bringing benefit to other life-cycle stages). It will also equip companies to proactively address potential POPs that may be listed in the future. The Component will then implement technical training in alternative assessment and transition to safe alternatives and supporting the companies shift to eco-innovative models, that include alternatives to POPs, POP candidates and other priority CoCs identified in component 1.

Component 2 will support this shift through a circular economy push in the textiles sector, a national level enabling framework, and a review and access facilitation to incentives (financial, market based or information based).

Under Component 3 the project will support development of data collection and reporting tools: i) for local governments and communities, to demonstrate performance, and ii) to national governments to enable reporting under the Stockholm Convention and SAICM. The data collection and reporting tools will build upon the CiP information exchange systems developed in Component 1.

Contribution by project partners will include the financial and technical support of coordinating existing initiatives of CiP information exchange, the implementation of the CiP Programme and identified best practices, facilitation of knowledge and lessons learned, and alternative identification and assessment and substitution activities for POPs, POP candidates and other priority CoCs. These seeding activities will lead to the further advancement of dialogue that strengthen the framework for actions throughout the project. Co-financing by project partners will include the development costs for these initiatives and resources required to carry them through the duration of the project.

F. Global Environmental Benefits

This project will deliver significant reductions in the use of POPs, POP candidates and other priority CoCs in the manufacture of textiles processing chemicals and textile products in Bangladesh, Indonesia, Pakistan and Viet Nam. These countries are all among the world's top ten textiles or clothing producers[70][70], with a combined export value of US$63 billion in 2015[71][71]. Achieving the targeted reductions will, internationally, avoid the distribution of textiles products contaminated with these chemicals, reduce uPOPs releases that can travel across borders and, nationally, will lead to decreased exposure to chemicals by workers and consumers and to reduced releases of POPs and other chemicals to the environment.

The project expected outcome in the participating countries is the avoidance of an estimated 5,500 ton/yr of textiles contaminated with POPs, candidate POPs and other CoCs[72][72]. By working with the entire textile supply chain in four major textiles producing economies and by leveraging the use of the project outputs in global supply chains through direct involvement of global actors, the project will achieve GEBs well beyond the project countries: global brands will use the tools and replicate the successes demonstrated under this project in other countries where they source production.

According to ILO, exposure to hazardous substances in the workplace kills over 400 thousand people annually[73][73]. Through facility-level work, the project will identify and promote safe production practices and pilot green chemistry alternatives, and responsible production practices, resulting in reduced exposure of workers to hazardous chemicals. The project will work with the chemicals manufacturing sector which formulates chemicals supplied to the textiles industry, to improve labelling and communication of the risks of the chemicals of concern and leading to a decrease in the demand for the manufacture and supply of hazardous chemicals to textile manufacturers and less hazardous waste from textile product manufacturers. Reduced content of the targeted chemicals in the textile products will additionally benefit textile consumers globally, through reduced risk of chemical exposure, and reduced volumes of hazardous waste being released to the environment through post-consumer textile waste in downstream market countries and of hazardous chemicals released to the environment throughout the product's lifespan. Textile manufacturing is also listed as a key source of dioxin and furan emissions[74][74]., which the project aims to reduce in the participating countries, hence contributing to reduced global emissions. The magnitude of these releases will be documented, and the scope of their potential reductions will be elaborated during the PPG phase.

Other GEB related to CO2 emissions, water and resources consumption as well as waste generation could be identified through the application of circular economy. The consumer-facing brands/ producers will be encouraged to communicate those benefits (the GEB) to consumers, following the UNEP Guidelines for providing product sustainability information (2017), including to highlight where and how consumers themselves can contribute to environmental benefits, e.g. through a certain use behaviour.

G. INNOVATION, SUSTAINABILITY AND POTENTIAL FOR SCALING UP

The project engages stakeholders along the value chain including non-supplier stakeholders and those stakeholders who are not involved in existing initiatives particularly SMEs and producers for non-export markets (see Table 2, Stakeholders). This project will leverage ambitious voluntary initiatives that are well established but not universal, thus providing incremental benefit through replication, scale-up and broadened stakeholder engagement. The project is also innovative in explicitly targeting Tier 2 and Tier 3 producers who are typically less engaged in voluntary schemes despite being the heaviest users of hazardous chemicals.

under Component 1, the experience gained in building CiP information exchange system within and outside supply chains will generate knowledge in effective implementation of these systems and their use in providing information for sound chemicals management decisions and actions. This knowledge, and the project's methodology of engaging stakeholders broadly, will be applicable in many country settings and to many product sectors. The brands which will participate in this project and have manufacturing processes bases in Bangladesh, Indonesia, Pakistan and Viet Nam, are global and will apply the successful methods put in place through this project in other countries they source from. Thus, geographic replicability will be achieved. Application of this approach to other sectors will be achieved through engagement with the RECP Network and SAICM community, bringing a new and strengthened cooperation between industry (particularly SMEs) and governments in SAICM, and modelling an important element of future replication of project benefits in other countries.

Under Component 2 the project will innovate by linking decisions on POPs and CoC by individual facilities and supply chains to a much wider concept of a non-toxic circular economy and a full lifecycle perspective applied to the textile sector. This will materialise through the implementation of the Eco-innovation methodology, that is based on life cycle thinking. Outputs 2.2 and 2.3 will harness the UN's role as mediator to enhance precompetitive collaboration between companies and countries for sustainability goals that will benefit everyone. The momentum of a regional project in four major textile producing economies, with practical activities from a range of private-sector initiatives, will accelerate and align stakeholders toward implementing and scaling up sustainable and circular textiles.

Component 3 is designed to scale up and sustain project results and best practices from others. Within the UN, visibility will be gained by those private sector and other stakeholders who are engaged in the project and demonstrate notable progress towards the project outcomes as lessons learned and exemplary government and corporate performance will be disseminated including via the UN Alliance for Sustainable Fashion, the SAICM Knowledge Management platform being developed by the SAICM Secretariat (refer to section 8 on Knowledge Management), and other mechanisms.

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1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

Please refer to Annex A which provides a map of the project countries. The specific geo-referenced information and map of individual companies within the four countries will be developed during the PPG phase.

2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Indigenous Peoples and Local Communities

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above,please explain why:

An overview of key stakeholders and their potential contributions to the proposed project is listed in Table 2. In particular, represented by relevant associations (i.e. ZDHC, OIA and SAC), a number of brands were involved in the design/preparation of the proposed project. During the PPG the project will also target both apparel, home textiles, automotive and technical textiles.

This preliminary table will be further developed based on consultation and consensus during the PPG, and roles during project implementation will be defined. This will include a complete assessment of potential EAs at global, regional and national levels (see Section 6 on Coordination below).

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.

Key Stakeholders	Relevance and potential contribution to project
UN Environment Programme GEF team	Implementing Agency for suite of SAICM and Emerging Policy Issue projects including on Chemicals in Products.

UN Environment Programme – SAICM Secretariat, Chemicals and Health, Resources and Markets and Regional Office teams	Partners for related SAICM projects including on CiP information exchange in textiles in China, other industry projects such as electronics and other sectors, and development of SAICM Knowledge Management tools and platform The Regional Office for Asia and the Pacific coordinates relevant GEF projects and others in the region, including SWITCH-Asia, with experience of both Chemicals and Health and Resource Efficiency programming.
Government in participating countries, i.e. Ministries of Environment/ Industries	Ministries of Environment are responsible for regulating and controlling national environment and chemicals policy. Stockholm Convention and SAICM Focal points in participating countries are responsible for POPs and national reporting between national stakeholders and the MEAs and will be beneficiaries of the project, being able to access relevant information to meet reporting obligations to the MEAs. They will take the lead in drafting new policy and disseminating it, in coordination with relevant government partners (particularly ministries and inspectorates of labour and industry) and industry partners. Through engagement with labour ministries in particular the government partners will identify and address gender related issues that are prevalent in the sector. The wider eco-innovation and circular economy compoonent will also provide opportunities to link with emerging policies on microplastics and marine pollution.
Regional convention centres	Identification and assessment of alternatives to POPs and other priority CoCs in the project countries. They have a mandate to build national capacity for data collection and reporting to the Stockholm Convention. The Regional centres in project countries is the BCRC-SCRC Indonesia.
Resource Efficient and Cleaner Production Network (RECP*Net*) members	Act as business intermediaries, and support implementation of eco-innovation in countries. RECP*Net* members in the project countries and wider region include the Viet Nam NCPC and the Centre for Creativity and Sustainability Study (CCS); and the Asian Institute of Technology in Viet Nam; the NCPC Foundation in Pakistan; Centre for Resource Efficient and Cleaner Production Indonesia (CRECPI).
Non-profit and non-government organizations active on chemicals, textiles issues and in the region	Manage and coordinate multi-sector projects in the textiles and other sectors, e.g. WWF project on ‘Greening Vietnam’s textile sector’ or NGOs participating in partnerships such as idh Sustainable Trade Initiative in the Vietnam Race to the Top Initiative. Assist in communication/ outreach activities at regional and international levels, support awareness raising at national level. NGOs with relevant programmes or initiatives include ChemSec, Green Chemistry and Commerce Council, International POPs Elimination Network (IPEN) member organizations, WWF, idh, Ellen MacArthur Foundation. Occupational health and safety organizations including trade unions, ILO and others who are already active on building safety will be engaged during the PPG to identify the contribution of unsound chemicals management to work related injuries and illness. The SAICM secretariat has initiated a dialogue with ILO on textiles which will be further developed and guide the gender aspects of the site-specific activities in Component 1.

Private sector including brands, retailers, chemical suppliers and other supply chain actors via the representation in industry associations and initiatives.	Proactive members of the business community with experience of financing, business planning detail design, development and operation of textiles sector CiP information systems, identification of POPs and other priority CoCs with initial experience of alternative assessment and transition to alternatives activities. Burton, ZDHC, NRDC, Outdoor Industry Association (OIA) and its Chemicals Management Working Group[1], Sustainable Apparel Coalition (SAC)[2]. During the PPG the finance sector in the countries and globally will be mapped to identify long term financing models to sustain project activities.
Research and development bodies (e.g. Swerea[3], IDH and others)	Technical expertise in performance and alternatives assessments for chemicals used in the textiles industry.

[1] OIA is an outdoor apparel brands association with 4000 members including brands e.g. Adidas Group, C&A, Esprit, G-Star Raw, H&M, IndiTek, Jack Wolfskin, Li Ning, Marks & Spencers, Levi Strauss, New Balance, Nike, and PUMA; chemicals suppliers e.g. Everlight, JINTEX and PolyOne; and retailers e.g. CooP. Its Chemicals Management Working Group includes chemicals suppliers such as DuPont, Huntsman, Clariant and Dyestar.

[2] SAC is “an industry-wide group of leading apparel and footwear brands, retailers, manufacturers, non-governmental organizations, academic experts and the U.S. Environmental Protection Agency working to reduce the environmental and social impacts of apparel and footwear products around the world.”

[3] Swerea is a Swedish research group for industrial renewal and sustainable development.

3. Gender Equality and Women's Empowerment

Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).

Efforts to ensure sound management of chemicals used in relation to textile products including POPs listed in the Stockholm Convention and other priority CoCs have important gender dimensions. Although environmental exposure to POPs and other priority CoCs is rather evenly distributed across society, potential risks associated with human exposure to these substances can differ considerably. For instance, UNDP notes that several factors, including differences in occupational roles (e.g. around 75% of workers involved in the manufacturing of textiles products are female), household responsibilities, and biological susceptibility impact gender differences in risks to toxic chemicals and the resulting health impacts. At particular stages of their lives, such as pregnancy, lactation, and menopause, women’s bodies undergo rapid physiological change, making them more vulnerable to health damage from chemicals such as endocrine disrupting chemicals.

Moreover, because of their special reproductive roles, women carry greater reserves of fatty tissue throughout their life cycles, making them generally more vulnerable than men to the impacts of fat-soluble chemicals such as POPs that bio-accumulate in fatty tissues.

The potential adverse effects on developmental processes places the young in both human and wildlife populations at risk. Such effects can be long-lasting and may evidence themselves only in a later life stage. For example, increasing evidence shows that exposure to certain chemicals in foetal development and early postnatal development phase may lead to male reproductive health problems. In the few European countries where studies have been systematically conducted, it is estimated that fertility in approximately 40% of men is impaired. Recent analyses show that children are born with more than 200 foreign chemicals in their blood; they have received these from their mothers who are not aware of having been exposed to any of them. Thus, reducing/minimising production and use of POPs and other priority CoCs in textiles products in the long-term will contribute to the reduction/minimisation of human exposure to these substances and thus have a, positive impact on these vulnerable populations (women and children).

The textile and garment sector overwhelmingly employs women (around 75% of all workers are women) yet women face challenging conditions in many factories from harassement and sexual violence to exposure to hazardous chemicals and dangerous working conditions. Although women are known to predominate at the garment stages of production, the project will generate data on women's participation in the workforce and conditions in Tier 2 and Tier 3 stages. It will focus attention to gendered differences in chemicals exposures, access to protective equipment and training at site level. The selection of pilot enterprises for the demonstration project will prioritize female-headed enterprises or those employing female supervisors or managers, and will include criteria for assessment of negative (e.g. occupational injury or disease) but also potential positive impacts on women workers through transition to alternatives. At policy-level, gender-differentiated evidence of women's needs will be explicitly communicated and reflected in national and global consultations for formulation of policies, while the project will include activities to train women policy-makers and legislators on specific gender aspects of a just transition to a circular textiles economy.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? Yes

closing gender gaps in access to and control over natural resources;

improving women's participation and decision-making; and/or Yes

generating socio-economic benefits or services for women. Yes

Will the project's results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Will there be private sector engagement in the project?

Yes

Please briefly explain the rationale behind your answer.

The project design is strongly based on private sector engagement at different levels, from large corporations operating at global level to SMEs in the project countries. The PPG will include a Round Table with private sector actors who have already implemented chemical information sharing and management approaches, in order to learn from their experience and lessons, and better understand a) where gaps sill remain and b) the barriers and options for scaling up the existing efforts and achievements. The aim of the round table, to be convened as part of the PPG stage of the project, will be to develop a coherent private sector engagement strategy across the textiles sector including the industrial textiles sectors. The project will research into current best practice and opportunities to build on existing industry lead initiatives and leverage possible investment across the sectors.

As a starting point the group engaged in this process will include, but not be limited to those partners identified earlier in this submission. They include ZDHC, The Apparel and Footwear International RSL Management (AFIRM) Group, the Outdoor Industry Association (OIA), American Chemistry Council and, the Sustainable Apparel Coalition (SAC). Members of these groups account for approximately 40% of the global apparel and footwear market. In addition, links with specific brands such as Burton and those represented by the VF Corporation (includes brands such as North Face, Timberland and Vans) and Kering Group will also be included in the initial engagement with the private sector under this project. These private sector partners will be joined by representatives from the NGO / Civil Society sector including the Natural Resources Defense Council Clean by Design Programme and the Ellen MacArthur Foundation.

At a local level, a rigorous baseline of textile companies in the four countries will be done to identify the companies which will be involved in developing and piloting both the information exchange and demonstration projects. The project Component 1 will actively involve private sector partners who are already sharing information within their supply chains and other companies who are not yet systematically documenting and sharing chemical information; and involve both types of companies in sharing experience and piloting eco-innovation and alternative chemicals.

5. Risks

Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)

An overview of risks and potential risk management strategies is listed in Table 3. In brief, the project involves numerous and diverse countries, and risks arise due to different chemicals management systems, political situations, varying access to reliable information and stakeholder commitment. For example, as priority CoCs are substances that are not yet regulated on the local and global scale, it might take time and motivation to identify, assess and transit to relevant alternatives. However, identification and inclusion of important stakeholders, such as key supply chain actors, and development of robust partnerships (covering multiple life cycle stages) in the early stages in the project is planned to address this.

Table 3. Risks and Potential Risk Management Strategies

	Risk Description	Category	Impact Severity	Likelihood	Risk Management Strategy
1	Manufacturers and/or users of targeted chemicals might consider their replacements as an undesired development and may lobby against such developments to reduce risks associated with these chemicals.	Economic	Medium	Medium	The project will present practical responses to concerns and ensure that difficulties for manufacturers and downstream industrial users are adequately identified and incentives for participation clear. The project is also providing support for transition to alternatives to the supply side, through support to chemical manufacturers for transition to the manufacture of less hazardous alternative. The eco-innovation methodology allows users of targeted chemicals to become actors of their shift to sustainable practices as they have ownership on the eco-innovative strategies they decide to implement.

2	Political support is insufficient to drive strong engagement from private sector and/or key government actors resulting in reduced impact from the project.	Political	Medium	Medium	Inclusion of activities related to funding mechanism to support SMEs of the textile supply chain, and political integration to facilitate eco-innovative strategies will build momentum and facilitate implementation. Ministries of Environment have indicated their strong interest in the project, which will provide support to reporting under the Stockholm Convention and meeting its provisions. Awareness-raising among government officials in industry and labour ministries of the needs for addressing potential environmental and human-health related adverse effects associated with exposure to POPs, POP candidates and other priority CoC has already started, with participation in convention meetings. This engagement will be a priority during the PPG to jointly identify and drive participation in relevant activities. Component 2 will drive regional and supply chain 'precompetitive cooperation' (see section 7 on innovation) to introduce minimum standards in all countries and avoid a race to the bottom.
3	Stakeholders do not engage fully, resulting in not adequately addressing the project priorities nor achieving the desired outcomes.	Potential negative environmental and social risks	High	Low	Promotion will be undertaken to raise interest among key stakeholders, including at PPG stage. Active engagement of UNEP and the CiP Project Steering Group members to reach out to key stakeholder groups, to build interest and sustain focused efforts.
4	Private sector stakeholders have technical difficulties to participate in alternatives assessments and substitution trials	Technical, economic	Medium	Medium	Sufficient expertise and incentives will be brought into the project by the private sector associations representing brands and downstream users, the UNIDO and UNDP experiences on BAT/BEP and Green Chemistry in the sector and the region. This will bring best practices and strong market incentives to the in-country stakeholders. Outputs 1.3 on pilot projects and 1.4 on documenting experiences directly address this risk.
5	The costs and difficulties of establishing and maintaining the initial CiP information exchange infrastructure is prohibitive	Economic and administrative	Medium	Medium	The project output 1.2 directly addresses the cost of establishing the sectoral (large-scale and homogeneous) CiP information exchange platform. Maintenance and regular updating by chemicals users will be promoted by the government and private sector participants (associations) in the project. The platform design will include considerations of incentives for users to regularly update it, allowing them to benefit from transparency via new business opportunities or peer-to-peer exchange on best practices and improvements.

6	The project partners do not sustain the project activities and benefits	Economic, political and technical	Medium	Medium	The project will involve global actors and associations which have been active on this issue for over 10 years. The need for a sustainable solution is clear, and the project will publicize – through the networks of the numerous and diverse project partners - the gains and successes of the project activities, bringing visibility to their efforts and progress, and stimulating continuity and replication.

6. Coordination

Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.

6.1 Institutional structure

The project will be delivered by a regional Executing Agency who will coordinate a consistent approach in the four countries, compile single project reports and plans (e.g. annual reports, workplans, budgets, etc), and serve as Secretariat to the Regional Steering Committee. National project partners will be contracted by the EA to develop and deliver national activities, including active engagement of all relevant stakeholders such as via national steering bodies. Criteria for confirmation of the EA during the PPG will include among others, regional presence and experience with the key project partners and beneficiaries; a high level of project and financial management capacity and transparency with sound financial accounting system and project auditing in place; relevant technical experience in eco-innovation, multistakeholder engagement, textiles and/or chemical management; demonstrated commitment to the objectives of the project and proactive approach to ensuring timely delivery of activities; ability to play a neutral role and not sit on the Project Steering Committee.

Technical assistance will be provided from the relevant UNEP partners based on their comparative advantage and relevant programs. The Chemicals and Health branch hosts the Chemicals in Products programme and has the necessary expertise to provide technical support on chemical usage, alternatives and Green Chemistry, and links with other relevant projects (SAICM FSP and textiles in China project). A second technical assistance partner will be the Resources and Markets branch based in Paris, which will provide support on circular economy, eco-innovation, eco-labelling and consumer information, and other sustainable consumption and production issues.

Private sector, civil society and government representatives will drive the project delivery and governance, through participation in national and regional Steering Committees and with specific responsibilities including identification and engagement of beneficiary companies, selection of pilot demonstration projects and others. The project will deliver facility-level activities (Component 1) via existing standards and organizations including ZDHC, NRDC, and others.

6.2 Coordination with other initiatives

The project will be jointly delivered with the UNIDO project on textiles and garment sector in Africa, "*Promoting Circular Economy in the Textile and Garment Sector through sustainable (POPs) Chemicals and Wastes Management in Lesotho, Madagascar, Mauritius and South Africa*". Both projects address the same basic problem and include technical components on managing and replacing toxic chemicals in production processes. The UNEP project in Asia reflects the much larger sector (thousands of companies, not tens or hundreds as in the African countries) and will include a first stage to inventory and introduce basic measures for chemical risk management in at least 500 of the estimated 50,000+ total mills and facilities in the four countries. Both UNEP and UNIDO projects will invest in technical demonstration projects in around 10 facilities, to directly achieve GEB. Both projects will intervene at a policy level to promote circular economy approaches throughout the value chain, including regulators and consumers. Finally the shared KM component will ensure efficient sharing of practices and coordination of reporting.

This project will exchange information with and draw on knowledge, experiences and lessons learned from other relevant GEF-supported projects listed in Table 4. Links will be made with a related SAICM Full Size Project which includes a component on chemicals in products for the buildings, toys and electronics sectors. The institutional arrangements will be designed to ensure smooth integration of the results and knowledge from this project, as well as maximizing operational efficiencies for example through shared services including Knowledge Management, private sector and gender-responsive stakeholder engagement. This project will also learn from existing industrial initiatives of establishing CiP information exchange in the textiles sector that are company-managed or provided as a third-party service and typically grew out of companies' efforts to meet legislative requirements or market forces in their target markets. This exchange is primarily concentrating on what chemicals are not in the products; however, these systems present a well-established infrastructure of existing communications and sector expertise on chemicals in textile products, which are an important starting point for developing information exchange on what chemicals are in the products. This project will also explore the linkages with environmental monitoring tools such as Pollutant Release and Transfer Registers (PRTRs) where industrial facilities report on releases of chemicals.

UNDP national projects on POPs include the proposed GEF 7 project to "*Reduce the impact and release of mercury and POPs in Vietnam through lifecycle approach and Ecolabel*". This project will work in various sectors (although not explicitly the textiles sector) to promote sustainable consumption and production approaches including via Green Chemistry, public procurement, green financing and ecolabels. It will engage different parts of the government and industry with similar messages and objectives around POPs reduction that will nonetheless be relevant for textiles, and will therefore be closely coordinated with the UNEP project Component 2 on national actions and policy in Vietnam. The two projects will also coordinate via their respective KM components: the regional UNEP regional project will allow UNEP, UNIDO and UNDP to share practices and materials and ensure a wider dissemination than any of the individual agencies would achieve.

Links will also be made with the numerous baseline initiatives described in Section 1b. Partners in the countries will ensure links with national initiatives (notably Race to the Top and others in Viet Nam) and with regional (especially Switch Asia and regional projects by Cleaner Production Centres in Cambodia and Laos). The PPG phase will allow for a full mapping of such initiatives and discussion of coordination mechanisms with each.

4. Ongoing Relevant GEF and Special Programme Projects in the Participating Countries

	Ongoing Relevant GEF Projects
Global	**GEF #9771 "Defining and Demonstrating Best Practices for Exchange of Information on Chemicals in Textile Products"**: The project is on accelerating actions on Emerging Policy Issues, including chemicals in products in 3 sectors (not including textiles); and with a major Knowledge Management component to be developed by the SAICM Secretariat, linking EPIs to the Beyond 2020 agenda and Sustainable Development Goals.
Africa	**GEF 7 proposed regional project in Africa (UNIDO):** Promoting Circular Economy in the Textile and Garment Sector through sustainable (POPs) Chemicals and Wastes Management in Lesotho, Madagascar, Mauritius and South Africa. The project has similar technical components to the Asia proposal including BAT/BEP demonstrations and will be closely coordinated via the RECP Network and shared KM component.
China	**GEF #5662 "Defining and Demonstrating Best Practices for Exchange of Information on Chemicals in Textile Products"**: The project aims to identify and demonstrate best practices and stakeholder roles and responsibilities for chemicals information exchange in textile products. Lessons learnt in application of existing industry chemical management tools and in development of an online CiP information sharing tool will be transferred to the current project.
Viet Nam	**GEF #4838 "Updating Viet Nam National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants"** (together with UNDP, CEO approved on 27 April 2012): The development, endorsement and submission of an updated National Implementation Plan on POPs, specifically addressing new POPs added under amendments to the Stockholm Convention and including priority actions required for their control, elimination and reduction of releases associated with them.
	GEF #5067 "Viet Nam POPs and Sound Harmful Chemicals Management Project" (together with UNDP, CEO endorsed on 18 September 2014): The continued reduction of environmental and health risks through POPs and harmful chemicals release reduction achieved by provision of an integrated institutional and regulatory framework covering management and reporting of POPs and harmful chemicals within a national sound chemicals management framework and targeted development of POPs contaminated sites management capacity that builds on experience from GEF-4 projects and specifically built a management plan at provincial level to assess risk and implement release reduction measures at all the POPs contaminated sites in two provinces.
	GEF 7 proposed project (UNDP): Reduce the impact and release of mercury and POPs in Vietnam through lifecycle approach and green Ecolabel labeling, a national project targeting various sectors but proposing an integrated approach to establish legal limits on POPs, development of Extended Producer Responsibility schemes and access to green finance.
	UN Environment Programme Special Programme Project: Strengthening national capacity in sound chemical and waste management for the implementation of the Stockholm, Basel, Rotterdam, Minamata Conventions, SAICM in Viet Nam. The project aims to review gaps in policies and regulations relating the Stockholm Convention and SAICM; and develop a database on chemicals and wastes under the Basel, Rotterdam and Stockholm Convention and SAICM.
	GEF ID 9379 Application of Green Chemistry in Vietnam to Support Green Growth and Reduction in the Use and Release of POPs/Harmful Chemicals. The project has identified six priority sectors to apply green chemistry principles for multiple environmental benefits and includes the textiles and fibres sector.
	GEF ID 4766 Implementation of Eco-industrial Park Initiative for Sustainable Industrial Zones in Vietnam. While the project is not explicitly about textile sector, the UNIDO and the national Cleaner Production network and companies who are the main partners in the project will be proactively engaged and lessons learnt that can be transferred to the textile sector.

	Ongoing Relevant GEF Projects
Indonesia	**GEF #5033 "Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)"** (together with UNIDO, IA approved on 31 July 2012): The overall objective of the proposed Enabling Activities (EA) is to review and update the National Implementation Plan (NIP), and have it endorsed and submitted by the Government to the Stockholm Convention Conference of Parties (COP). Participating stakeholders will be able to manage the additional POPs with newly developed technical skills, expertise and awareness.
Pakistan	**GEF #5525 "Global Project on the Updating of National Implementation Plans for POPs"** (together with UNEP, CEO approved on 11 November 2013): The objective of the project is to assist countries to review and update the National Implementation Plan (NIP) in order to comply with reporting obligations (Article 15) and updating of National Implementation Plans (Article 7) under the Stockholm Convention.

7. Consistency with National Priorities

Is the Project consistent with the National Strategies and plans or reports and assesments under relevant conventions

Yes

If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc

The project addresses the priorities of the SAICM Overall Orientation and Guidance, which is the prioritised set of 'Basic Elements' that was adopted at ICCM4, and especially:

- Collection and systems for the transparent sharing of relevant data and information among all relevant stakeholders using a life cycle approach
- Industry participation and defined responsibility across the life cycle
- Development and promotion of environmentally sound and safer alternatives

In terms of the country priorities for new POPs:

Bangladesh: Submitted its first NIP in 2009, attributing unintentional releases of POPs to water, largely to releases from the textile sector, and lists addressing this in its priorities. Bangladesh became a Party to Stockholm in 2007 but has not ratified any of the amendments to the convention Annexes listing the new POPs and is currently developing a NIP update. They did not submit a country report or other informational documents so there is a lack of data about used chemicals. Bangladesh's UN Development Assistance Framework, UNDAF 2017-2020, commits the country to reduce the volume of POPs in the environment by 500 tonnes in 2020 from 2015 levels; means of Verification, Frequency of Monitoring is conducted by Department of Environment.

Indonesia: Submitted its first NIP in 2010, noting that the textiles industry was a major source category for dioxins and furans, prioritising further action in this sector. Indonesia has added every Convention amendment and revised its NIP in 2014. This update notes that textiles are among the top ten fastest growing industry in the country (not counting non-oil and gas). For PFOS, textiles are the third priority sector nationally (after paper and firefighting foams). Chemical suppliers were reported as having stopped the import of PFOS without informing about previous practices. Estimates based on export and import of articles thought to contain PFOS reveal the textile sector as the one with the biggest number of imported products containing PFOS (2,022,057 kg) and the second biggest number of imported products containing PFOS (874,622 kg). The Centre for Green Industry in the Ministry of Industry has initiated an awareness campaign about the use of PFOS and related substances in several textile industries, but the NIP notes gaps in the regulatory framework of chemicals in articles and products. For PBDEs there is no exact information on the production, use and trade of PBDEs, but estimates on the amounts of trade volume are provided. The action plans include strengthening existing regulations, assessing the quantity of PFOS used, building a strategy to examine the stockpiles, assess the amounts of PFOS on stockpiles, conduct an inventory on the articles that contain PFOS, contain an inventory of the sites contaminated with PFOS; development of strategies to eliminate the existing PFOS.

Indonesia responded to requests for information from the Secretariat and POPRC, including on PFOS in 2012, noting lack of detailed inventory data; and in their Country Report in 2015 noting no legal/administrative actions taken on the use of PFOS, or HBB, penta- or octa-BDE and no regulatory schemes for industrial chemicals.

Pakistan: submitted its revised NIP in 2020, identifying the textile sector as a significant contributor to dioxin and furan emissions. According to the update, there is no specific legislation or regulation for PFOS and related substances. Certain synthetic carpets and synthetic textiles might be treated with PFOS or PFOA related substances and polymers. Synthetic carpets are produced in Pakistan, and those produced before 2002 might contain PFOS. Due to the long service life of carpets, some of these carpets might still be in use. Synthetic carpets/textiles produced or imported after 2002 might rather contain other PFAS such as PFOA and related substances. An assessment of potential quantities has not been conducted in this first inventory. Currently very limited information is available for Pakistan on the PFOS or PFOA contamination in surface and ground water and related drinking water due to the lack of monitoring capacity and therefore an impact cannot be estimated but are urgently needed. In this first inventory of POP-BFRs no assessment of the textile sector has been made but will be conducted in implementation when also monitoring capacity is developed. The exposure to HBCD in textiles might have a higher risk from fibres and related house dust ingestion. However, it is not clear to what extent HBCD has been used in textiles in Pakistan. For other minor uses of HBCD (textiles and electronics) no quantitative assessment was made. Pakistan has a large textiles and leather industry operating since decades. Both industries have used chemicals containing PCDD/Fs in the past (e.g. PCP or chloranil). Contamination with PCDD/Fs has been reported in textile and leather products due to the use of chlorinated aromatic chemicals, especially pentachlorophenol to protect the raw materials (e.g. cotton, wool or other fibres, leather); and use of PCDD/F-contaminated dyestuffs (e.g. chloranil or phthalocyanines). For the leather industry 210.5 g TEQ/a (4.7% of total) release is estimated while for textile industry the estimate is 23.1 g TEQ/a release. Assessment of POPs in textiles was prioritized under the NIP action plans.

Also, in their response for the third round of Country Reports in 2016, Pakistan notes a lack of technical capacity and financial resources to address PFOS assessment.

In the UNDAF, Pakistan identifies textile workers as a priority and the UN commits to enabling textile stakeholders in Pakistan to obtain the knowledge needed for attaining international and regional competitiveness.

Viet Nam: submitted its NIP update in 2017. The NIP estimates that 5% of dioxin and furan goods are from the production of chemicals and consumer goods, including textiles, and prioritizes addressing dioxin and furan release in its action plan. Viet Nam has accepted every amendment and requested a specific exemption for the production and use of PFOS in the textile sector which expired 2015. However, there is no information about their process of phasing it out during that period of exemption or if use stopped after 2015.

The NIP includes a full inventory of PFOS in synthetic carpets and textiles as a priority action, as well as investigations of textile and leather factories where dioxin and POPs chemicals have been historically used.

Viet Nam has a broad legislation on chemical safety management, including POPs. An example is the national plan to implement the Stockholm convention on POPs, It has continuously re-constructed its institutional and administrative system in order to promote environmental protection. In this context MONRE, who is responsible for environmental management in the whole country, was created in 2002. However, environmental investment is still insufficient.

8. Knowledge Management

Outline the Knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.

Knowledge management is a substantive element of this project given the importance of information sharing on chemicals in the supply chain. The knowledge management approach will share tools and mechanisms for information on chemicals used, experience with implementing alternatives and phasing out CoCs, and emissions from textile manufacturing facilities. The KM platform will be developed jointly with the UNIDO project in Africa and have a global scope.

The information and communication needs for the textiles project will be captured within the strategic communication and knowledge management analyses and approaches developed by the related SAICM FSP (GEF ID 9771. The SAICM Secretariat will actively manage and populate it with the component specific information and knowledge products from the current FSP on chemicals in textile products. As part of the SAICM information hub, the SAICM FSP will also establish a moderated community of practice on CiP in the other three priority sectors (building products, toys and electronics). This community will also host the stakeholders from the current project on textiles. This will give access to stakeholders from the textile sector and pilot countries to connect with peers in the other product sectors, as well as scientists and practitioners from around the globe, in an interactive space to share ideas, data and knowledge, with and from other similar projects and initiatives, and ensure opportunities for networking building and communication through the use of technology and social media.

Part III: Approval/Endorsement By GEF Operational Focal Point(S) And Gef Agency(ies)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).

Name	Position	Ministry	Date
Shahrukh Nusrat	GEF OFP	Ministry of Climate Change	10/17/2018
Laksmi Dhewanthi	GEF OFP	Ministry of Environment and Forestry	9/6/2019
Nguyen Duc Thuan	GEF OFP	Ministry of Natural Resources and Environment	10/4/2019
Abdullah Al Mohsin Chowdhury	GEF OFP	Ministry of Environment, Forest and Climate Change	10/9/2019

ANNEX A: Project Map and Geographic Coordinates

Please provide geo-referenced information and map where the project intervention takes place