

National Roadmap for Safer Chemical Management in the Textile and Garment making Industry

SwitchMed II – Industry component (MED TEST III)

Egypt



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Each implementing organization contributes specialized experience and tools to partner with the eight beneficiary countries on policy development, capacity building, business support services, demonstration activities and networking.

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Executive summary

As part of the European Union (EU) funded SwitchMed Programme, the United Nations Industrial Development Organization (UNIDO) launched a textile initiative aimed at improving chemical management in the textile finishing sector across Morocco, Tunisia, and Egypt. In the third phase of this initiative, the focus was on providing training and technical support to a group of companies to help them achieve the Foundational level of compliance set by the Zero Discharge of Hazardous Chemicals (ZDHC) program. This involved conducting gap analyses, delivering training on safer chemical management, using online tools for sustainable practices, and developing a roadmap to scale up the outcomes of pilot activities on chemical management at the national level, as outlined in this document.

The document examines Egypt's textile industry, exploring the opportunities and obstacles encountered within the specified project framework. The project context provides insights into the scope, methodology, and phases of the initiative for safer chemical management in textiles. Key findings and lessons learned from pilot projects informing subsequent sections, as well as a detailed proposal for a National Roadmap.

The development of the National Roadmap is a vital process that includes consultations with key stakeholders such as the ZDHC, the Egypt Textiles and Home Textiles Export Council (THTEC), the Apparel Export Council of Egypt (AECE), and the Industrial Modernization Center (IMC). Inputs from these key players help identify industry challenges and gaps and develop actionable projects to promote chemicals management in Egypt.

The implementation plan of the National Roadmap outlines specific actions and timelines, that provide a strategic guide for promoting sustainable chemical management in Egypt. The National Roadmap initiative places a strong emphasis on awareness raising through seminars, events, and the integration of sustainable practices into educational programs. Capacity building is a priority, involving the development and implementation of "Training for Trainers" programs, alongside training programs for interested bodies and laboratories seeking ZDHC approval. Economic incentives and financial support from the Egyptian Government will further incentivize chemical formulators and textile manufacturers to align with sustainable practices. The National Roadmap also prioritizes the development of a chemical phase-out list, targeting non-compliant substances that are still in use.

Finally, modifications to policies and regulations within the Regulatory Framework will establish and enforce regulations, modernizing criteria for wastewater testing to ensure safer chemical management practices.

The document concludes by emphasizing the importance of collective efforts in achieving a sustainable and responsible textile industry in Egypt.



1. Introduction

The textile industry in the Mediterranean region plays an essential role in shaping the region's economic landscape, contributing significantly to job creation and export revenues. However, this vital sector faces challenges that impact its competitiveness and sustainability. The industry is undergoing a major transformation as it copes with cheaper imports and adapts to consumer preferences for goods that are sustainably produced.

One of the significant challenges in the textile and garment sector is the extensive use of chemicals in processes such as dyeing, finishing, and printing. Managing and reducing the reliance on hazardous chemicals is essential for enhancing the industry's overall sustainability performance. As consumers become more aware of the environmental impact of their purchases, there is a growing urgency for the industry to adopt more sustainable and eco-friendly practices. While these chemical substances contribute to textile product innovation, concerns regarding their impact on the environment and health call for a thorough examination of industry practices.

In this context, the SwitchMed Program, initiated in 2014 and funded by the European Union, the governments of Italy and Catalonia, aimed to support eight countries in the southern Mediterranean region in advancing sustainable consumption and production patterns. Beginning in 2019, UNIDO launched a textile initiative in Egypt, Tunisia, and Morocco, focusing on advancing resource efficiency, circular economy practices, and chemical management in the textile and fashion value chain. The textile initiative in the three countries was structured around two main axes of intervention:

- i. the creation of a localized value chain for valorizing pre-consumption textile waste;
- ii. the introduction of safer chemical management protocols in collaboration with the ZDHC Foundation. The implementation of the latter was carried out in three phases:

Phase I - focused on training companies on chemical management in the textile industry, with an emphasis on ZDHC Guidelines.

Phase II - focused on implementing a full-scale technical assistance programme for six industrial facilities to adopt the ZDHC Guidelines and protocols.

Phase III - focused on extending training and technical assistance to a group of 15 companies, guiding them toward achieving the ZDHC Foundational level of compliance. This included gap analysis, training in safer chemical management, and the use of online tools for sustainable practices. It also included the development of a roadmap for scaling up the results of the pilot activities on chemical management at the country level.

Based on the results from Phase III, a National Roadmap for each of the three countries has been developed. The respective roadmap aims to provide strategic guidance on how to enhance sustainability and promote compliance with international standards, fostering a safer and more environmentally friendly textile industry. It has been created to encourage and facilitate discussions, among stakeholders regarding the steps, objectives, and timeframes for developing and implementing a strategic plan. It presents a framework for coordinating actions among stakeholders involved in representing industry interests conducting business operations and participating in research, development, policy formulation, and implementation.

This document draws on insights and knowledge gained from UNIDO's textile initiative during the SwitchMed textile initiative, which was implemented between 2019 and 2023 and covered all aspects of the textile and garment value chain.

Furthermore, the National Roadmap incorporates experience derived from projects and policies that focus on promoting the adoption of safer chemical practices and sustainability, within the textile sector.

2. Current state of the textile and garment industry in Egypt

Egypt is known for its high-quality cotton, particularly Egyptian cotton, which is prized for its softness and durability. Cotton farming is a crucial part of the textile supply chain. Egypt has a well-developed textile manufacturing sector that produces a wide range of products, including clothing, home textiles, and industrial textiles. Egypt's textile industry is a global giant and the second largest country's sector, contributing 30% of industrial production.

Egypt hosts one of the largest and most productive cotton and textile clusters in Africa. Cotton and textile fabrics are among the top three export items of the country, constituting 25% of Egypt's total exports¹.

The Egyptian government has taken steps to support the textile industry through various initiatives and incentives to attract investment and promote local production. Efforts are being made to enhance the international competitiveness of Egypt's textile and garment sector through projects like the Global Textiles and Clothing Programme (GTEX) to create jobs and boost the income of micro, small, and medium-sized enterprises (MSMEs)².

The industry faced challenges such as competition from low-cost textile producers in other countries, fluctuations in global cotton prices, and issues related to infrastructure and logistics.

2.1 Industry outlook

Navigating the textile industry's landscape in Mediterranean countries comes with both common opportunities and challenges.

Some key opportunities for the Textile Industry in Egypt include:

Market growth: The Egyptian Textile Manufacturing Market is experiencing a significant growth rate, projected at over 4% Compound Annual Growth Rate (CAGR) over the next five years. This growth rate presents opportunities for increased production and market expansion³. Egyptian textile companies have the potential to expand in both local and international markets, bolstered by government support and global market interest⁴.

Geographic location: Egypt is an intercontinental country, and multiple ports and facilities enable it to enjoy a strategic advantage for exports to the US and the EU. The Canal region in Egypt is dedicated primarily to denim production. The Suez Canal facility is used to facilitate exports to the EU and Asia. The Alexandria region also enables exports due to the presence of various ports⁵.

Legislative support: Recent legislative changes in Egypt have been geared to benefit manufacturers and investors. These changes simplify processes and create a more business-friendly environment for textile companies⁶.

Vertical integration: The Egyptian textile industry has a complete vertically integrated functioning model, starting from raw materials up to finished products of apparel and home textiles. The module of the industry functions with both; the local availability of Egyptian cotton fibres and the imported fibres (polyester, viscose, wool, etc.)

Industrial parks: Egypt's Qualified Industrial Zone (QIZ) program allows products manufactured in an Egyptian QIZ to be exported to the United States at a zero tariff rate. The textile and garment industry has taken the greatest advantage of the program.⁷

1 <https://www.fibre2fashion.com/industry-article/5465/egyptian-textile-industry-comes-under-the-global-radar> 28/11/2024

2 <https://intracen.org/our-work/projects/egypt-improving-the-international-competitiveness-of-the-textile-and-clothing> 28/11/2024

3 <https://www.mordorintelligence.com/industry-reports/egypt-textile-manufacturing-industry-study-market> 28/11/2024

4 <https://www.fibre2fashion.com/industry-article/5465/egyptian-textile-industry-comes-under-the-global-radar> 28/11/2024

5 <https://www.linkedin.com/pulse/egyptian-garment-industry-its-much-bigger-than-you-think-ambastha/> 28/11/2024

6 <https://kohantextilejournal.com/apparel-and-textiles-sectors-in-egypt/> 28/11/2024

7 <https://aaciaegypt.com/wp-content/uploads/2021/06/Challenges-Facing-Textile-Industry-in-Egypt.pdf> 28/11/2024

2.2. Sustainability and chemical management within the textile sector in Egypt

Egypt has demonstrated significant strides towards better chemical management, especially in terms of pollution management, training, and regulatory frameworks. There have been Pollution Management Initiatives undertaken and Egypt has been actively managing hazardous chemicals to ensure healthier communities. This includes efforts to reduce pollution and manage chemical hazards effectively.

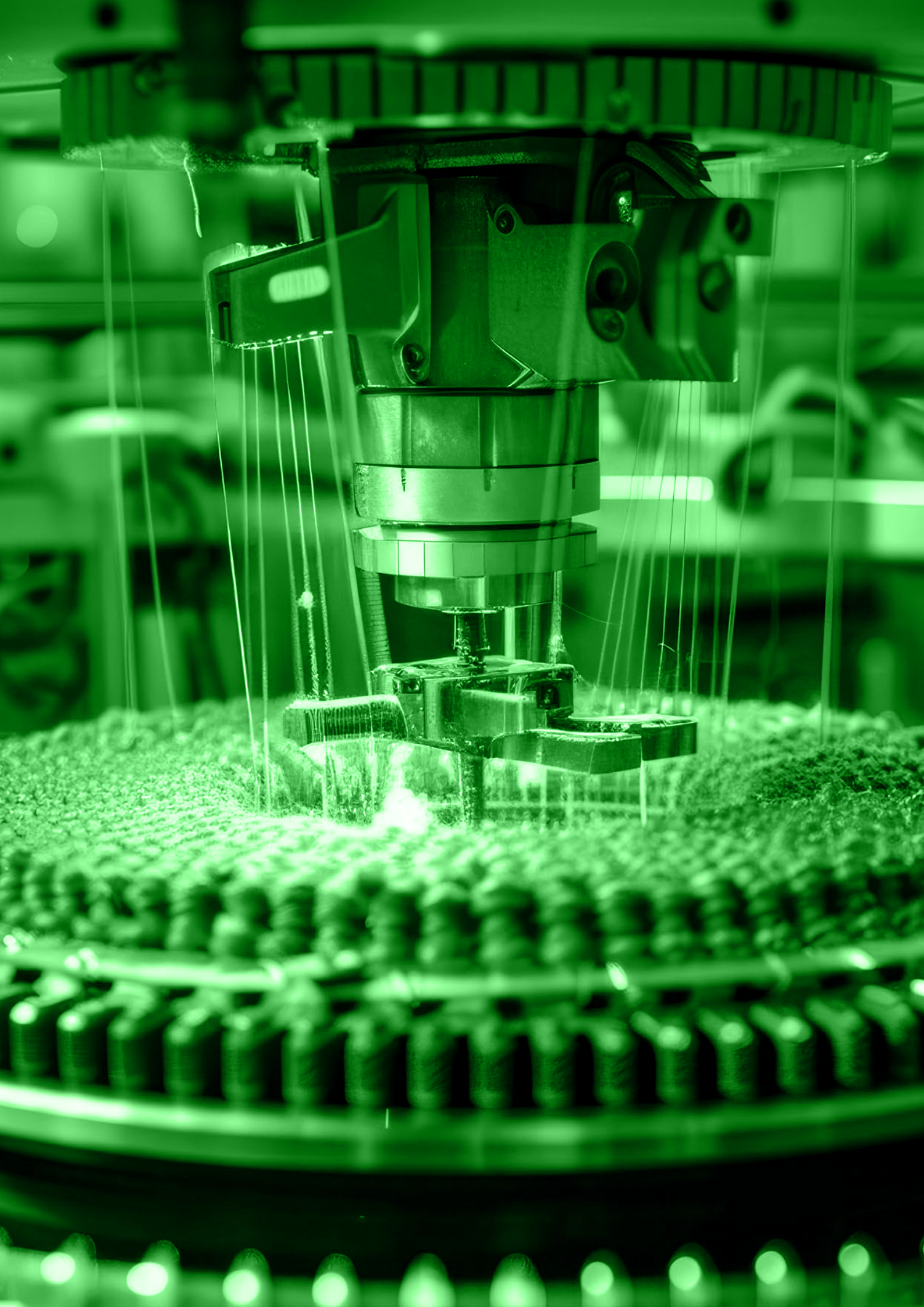
There has been a growth in Egypt's bulk chemicals market, driven by various industries such as healthcare, food & beverage, and automotive, indicating a robust and expanding chemical sector.

Egypt's chemical regulatory structure has been evolving, with a national overview and governmental structure dedicated to chemical substance regulations. This provides a clear framework for managing chemicals within the country.

The Egyptian-German Twinning Project under the European Neighborhood Policy exemplifies international cooperation aimed at improving chemicals management policy and legislation in Egypt⁸. Egypt is aligning with new global frameworks on chemicals, which presents opportunities to further enhance chemical management and reduce pollution impacts by 2030.

Despite these advancements, the use of chemicals in the textile finishing sector remains a key issue for the Egyptian textile industry since it not only poses notable environmental and health challenges but also demands management for safety and sustainability. Addressing this issue entails navigating the complexities of international standards and regulations, presenting a considerable challenge. It involves not only ensuring the appropriate storage, handling, and disposal of chemicals but also necessitates a strategic transition toward adopting safer and more environmentally friendly alternatives.

⁸ https://www.researchgate.net/publication/235649511_Recommendations_on_chemicals_management_policy_and_legislation_in_the_framework_of_the_Egyptian-German_twinning_project_on_hazardous_substances_and_waste_management 28/11/2024



3. Project Context

3.1 Scope and Methodology

As part of the SwitchMed Programme, UNIDO launched a textile initiative aimed at promoting circular business models in the textile and garment industry, specifically in Tunisia, Morocco, and Egypt. This initiative focused on improving the management of pre-consumer textile waste and introducing valorization business models within the textile value chain in these three countries. In addition, the initiative also encouraged the adoption of best practices for safer chemical management in textile finishing. Working together with the ZDHC Foundation, local textile federations and international brands, the textile initiative successfully conducted training modules on safer chemical management for over 48 companies, enhancing their skills in chemical inventory management, the substitution of harmful products, and wastewater control.

3.2 Description of the textile initiative for safer chemical management

3.2.1 Phase I

At the beginning of the project, there was a significant lack of awareness about the ZDHC Guidelines⁹ and requirements among sector representatives of the participating countries. To address this knowledge gap, the project launched a targeted training initiative aimed at wet-processing textile and garment companies in Tunisia, Morocco, and Egypt.

The training program had three distinct modules:

Module 1: Introduction to Chemical Management in the Textile Industry

Module 2: Top 10 Issues of Chemical Management

Module 3: Wastewater Management

UNIDO collaborated closely with the ZDHC Foundation and major global fashion brands to engage local suppliers from tier one and two, particularly those involved in dyeing and finishing processes. The aim was to encourage these suppliers to participate in SwitchMed training activities focused on effective chemical management.

Companies that participated in the training were encouraged to express their interest and nominate participants for each module. UNIDO, in turn, through consultation with local stakeholders, and following a predefined selection criteria identified the most promising companies to benefit from the training. The overarching plan included the implementation of two training cycles per country, with an estimated 25 participants per training module. Following the completion of each module, participants were invited to undergo the ZDHC exam, further enhancing and certifying their proficiency.

The training sessions were delivered online and followed a structured schedule.

June 2020: the participation of six Tunisian companies.

July 2020: three additional Tunisian companies.

September 2020: two Moroccan and four Tunisian companies.

December 2020: further engaged three Moroccan companies, one Tunisian company, and the Tunisian textile technical center (CETTEX)¹⁰.

March 2021: extended the initiative to six Egyptian companies in collaboration with the Industrial Modernization Center (IMC).

June 2021: participation of ten Egyptian companies.

The table below presents the results of the training sessions during phase I for the three countries:

Parameter	June 2020	July 2020	Sept. 2020	Dec. 2020	March 2020	June 2020
N. of Trainees	62	68	88	55	77	88
N. of ZDHC Academy training certificates issued	59	57	79	31	51	51
Success rate*	95%	84%	90%	56%	66%	64%

Table 1: Final indicators for the training conducted during phase I

* Success rate is calculated as the ratio between the number of certificates issued to the number of trainees

⁹ Zero Discharge of Hazardous Chemicals ZDHC: This is a program initiated by a group of major fashion brands and retailers with the goal of eliminating the use of hazardous chemicals in the textile, leather, and footwear value chain. The ZDHC program develops guidelines, tools, and trainings to drive the adoption of safer chemical management practices. This includes establishing protocols for wastewater discharge and chemical use, promoting more sustainable practices across supply chains, and working towards a vision where harmful chemicals are no longer released into the environment.

¹⁰ CETTEX: The Textile Technical Center (CETTEX) is a Tunisian public institution of economic interest established in 1991. It operates under the Ministry of Industry and provides counseling and expertise to industrialists in the Textile and Clothing sector and to public authorities.

This phased approach not only facilitated tailored learning experiences for industry stakeholders but also fostered a continuous and progressive engagement with the ZDHC Guidelines and best practices in chemical management within the textile industry

A total number of 238 company employees were trained, with some of whom attending more than one training module, 501 exams were taken, 377 out of which achieved ZDHC Academy training certificates passing the final exam.

3.2.2 Phase II

Following the completion of the awareness-raising phase, two companies per country were identified from those that attended training sessions to receive customized technical assistance in formulating their individual roadmaps toward ZDHC compliance. The pilot companies, nominated by major brands, were encouraged by their primary customers to participate in the pilot initiative.

The technical assistance provided involved tailored one-to-one guidance for each company, covering specific aspects including:

- **Chemical Purchasing Policy and Procedures:** Offering guidance on the formulation of policies and procedures for the procurement of chemicals.
- **Preparation of a Chemical Inventory List:** Aligning with the ZDHC template, assistance was provided in creating a comprehensive Chemical Inventory List.
- **Roadmap for Chemicals Substitution:** This involved the development of a roadmap for substituting chemicals, including a risk assessment of existing chemicals.
- **Chemical Storage Management Audit:** Conducting an audit to assess and improve the management of chemical storage facilities.
- **Wastewater Assessment:** Evaluating wastewater management practices to ensure environmental compliance.
- **Effluent Treatment Plant Management:** Providing guidance on the management of effluent treatment plants.

Upon completing the technical assistance phase, companies were expected to have implemented all the necessary parameters for safer chemical management. Consequently, they were encouraged to apply for the Foundational level. Companies were also encouraged, on a voluntary basis, to undergo wastewater treatment to confirm compliance. In cases where non-conformities were identified, companies received support in developing corrective action plans.

The entire technical assistance process lasted approximately one year for each company, reflecting the systematic and detailed nature of the guidance provided.

By the end of this phase, five out of the six pilot companies assisted, achieved the ZDHC Foundational level. The results of the pilot projects were published in a set of [SwitchMed case studies](#).

3.2.3 Phase III

A pool of 15 companies—comprising eight from Tunisia, six from Egypt, and one from Morocco—was selected by UNIDO in collaboration with local textile federations and international brands. These companies received support to create their accounts on the ZDHC Supplier to Zero Platform. Following this, their current performance in chemical management was assessed against the ZDHC Supplier to Zero Foundational Level. A gap analysis was conducted for each of the 15 companies to determine what was needed to reach the ZDHC Foundational Level.

Based on the identified gaps and training needs, Leadership & Sustainability (L&S) delivered a training program to the 15 companies, consisting of a package of training sessions on safer chemical management requirements, comprising the following five modules:

- **Chemical Management System Technical Industry Guide:** This training provides practical guidance for the implementation of CMS TIG minimum requirements for sustainable chemical management and best practices.
- **Wastewater Management:** This training is designed to improve the company's understanding of Wastewater Management.
- **Effluent Treatment Plant Management:** This training introduces the latest ZDHC Wastewater Guidelines, including sampling and testing requirements.
- **Resource Efficiency:** This training covers strategies and best practices for using resources more efficiently throughout the supply chain, with a focus on reducing waste, conserving energy, and optimizing resource utilization.
- **Use of ZDHC on-line tools:** This training provides an overview of how ZDHC Guidelines, Platforms and Solutions can support the development and implementation of a Sustainable Chemical Management System.

The training sessions aimed to support the companies in developing their internal skills, educate related people working in these factories to understand how to implement safer chemical management standards, eliminate hazardous chemicals, and draw their specific roadmap to fill existing gaps.

The tables below presents the results of the training sessions delivered during this phase:

Parameter	Tunisia	Morocco	Egypt	Total
Companies trained	8	1	6	15
Personnel trained	23	2	16	41
Number of ZDHC Academy training certificates issued	33	2	16	51
Number of non ZDHC Academy training certificates issued	51	3	18	72

Table 2: Final indicators for the training conducted during phase III

	Round 1 (March 2021)	Round 2 (June 2021)	Round 3 (July 2023)	Total
Companies registered**	7	10	6	21
Individuals registered***	35	37	16	87
Number of participants (3 modules)	80	77	25	182
Number of certificates issued	51	51	16	118
Success rate	64%	66%	64%	65%

Table 3: Final Indicators of non-ZDHC certified training - Egypt

* Success rate is the ratio of number of certificates issued from the number of participants (3 modules)

** Two companies participated to two rounds, so are counted once in the totals indicator

*** Same participant from one company attended two rounds, thus is counted once to avoid double counting

After providing the training, the L&S team worked on specific assistance for each company to guide them in implementing specific elements of their roadmap to fill in the gaps and reach the ZDHC Foundational level. The technical support assistance averaged three working days per company, depending on the level of assistance needed.

The table below presents the ZDHC self-assessment scores achieved of the facilities participating in the third phase of the project, before and after the technical assistance received for achieving the Foundational level of the Supplier to Zero Platform.

Facility	Score before technical support from UNIDO	Score after technical support from UNIDO
Participant 1	84%	100%
Participant 2	83%	92%
Participant 3	71%	100%
Participant 4	82%	100%
Participant 5	41%	97%
Participant 6	68%	Not Assisted

Table 4: Scores on the Supplier to Zero Platform before and after assistance

The tables below present the consolidated results of all the training sessions conducted under this project (with the three phases) for the three countries:

Parameter	Tunisia	Morocco	Egypt	Total
N. of companies trained	21	6	21	48
N. of personnel trained (including CETTEX and IMC)	119	29	88	236

Table 5: Consolidated number of companies and personnel trained during the three phases

Parameter	June 2020	July 2020	Sept. 2020	Dec. 2020	March 2021	June 2021	July 2023	Total
N. of Trainees	62	68	88	55	77	88	71	501
N. of ZDHC Academy training certificates issued	59	57	79	31	51	51	49	377
Success rate*	95%	84%	90%	56%	66%	64%	69%	75%

Table 6: Final indicators for the training conducted during the project with three phases

* Success rate is the ratio of number of ZDHC certificates issued from the number exams undertaken by trainees

The findings of the technical assistance provided to the company participating in the project can be analyzed based on the identified gaps in practices and procedures. This analysis highlights areas that require significant improvement to align with international best practices and standards, particularly those set by the ZDHC:

Policy for Chemical Management: Currently, there is an absence of a specific policy for chemical management that covers the latest ZDHC Manufacturing Restricted Substances List (MRSL) and Wastewater and Sludge Guidelines.

Documented Chemical Management Strategy: The absence of a structured and documented approach to managing chemicals poses considerable risks. Without a clear strategy, the likelihood of mishandling chemicals and subsequent hazards increases. A well-documented strategy is essential not only for regulatory compliance but also for ensuring the health and safety of employees, minimizing environmental impact, and maintaining operational efficiency and industry reputation. By implementing such a strategy, organizations can establish clear guidelines, enhance accountability, and facilitate consistent practices across the sector.

Safety Data Sheets (SDS) Management: The absence of a documented procedure for maintaining and regularly reviewing SDS for all chemicals points to potential gaps in information accessibility and chemical safety knowledge among workers.

Air Circulation and Extraction Systems: Inadequate air circulation and extraction in areas where hazardous chemicals are used can lead to poor air quality and increased health risks for workers.

Reviewing CMS Performance: The lack of a standard operating procedure for reviewing Chemical Management System (CMS) performance indicates a shortfall in ongoing evaluation and improvement of chemical management practices.

CMS Performance Review and Incident Management: Without a complete CMS performance review, including incident logs, root cause analyses (RCAs), and corrective action plans (CAPs), there is a missed opportunity for learning from past incidents and preventing future occurrences.

Regular CMS Reviews: The absence of regular CMS reviews to measure progress against the goals set in the CMS strategy suggests a lack of continuous improvement and adaptation in chemical management practices.

Document and Record Control: The lack of a standard operating procedure to control documents and records can lead to disorganization and inefficiency, potentially impacting compliance and traceability.

Finally, each country prepared and presented a detailed plan to national stakeholders to illustrate the potential and the way forward to upgrade the entire textile finishing sector to the ZDHC best practices on safer chemical management.

3.3 Lessons learned

The observations gathered from the training sessions and exam results from all project phases can be summarized as follows:

Regional interest disparities: The success rate for Egyptian trainees was lower than the success rate for Tunisian and Moroccan trainees. The engagement levels of the participating pilot companies played a pivotal role. Many demonstrated a proactive willingness to embrace change and adhere to new requirements and guidance. These pilot companies expressed commitment to implementing the outlined corrective plans in the future. In some instances, companies found motivation to get involved when brands and customers showed interest and made requests. However, challenges arose when a pilot company lacked similar demands, potentially leading to a deviation from the prescribed process and objectives. Maintaining close monitoring and assistance became crucial in these scenarios, especially in fostering a culture of change and adaptability within the factory.

Language preference: The potential trainees expressed a desire for training sessions and exams to be conducted in the local language instead of English, in which they lacked proficiency.

Module-specific engagement: Notably, there was a decline in both interest and participant numbers for the “Top 10 Issues of Chemical Management and Wastewater Management” modules of the training compared to the initial module “Introduction to Chemical Management in the Textile Industry”. This observation suggests the need for targeted strategies to maintain engagement throughout the entire training program.

Impact of brand affiliation: Companies affiliated with ZDHC contributing brands exhibited a notably higher success rate in the training and exams compared to those not associated with such brands. This highlights the influence of brand affiliation on the commitment and success of participating companies.

Diverse company readiness and challenges in navigating chemical management phases: The varying levels of preparedness, commitment, and capability to navigate the distinct phases were evident among the participating companies. For instance, some lacked a comprehensive chemical management policy, while others had policies that required refinement. Similarly, disparities existed in the adoption of Chemical Inventory Lists (CIL), ranging from companies relying on basic spreadsheets to those seamlessly integrating detailed CILs into their ERP systems, tailored to align with ZDHC templates. Consequently, each company faced its own set of challenges, and these were carefully recorded in individual reports.

The degree of participation of the various pilots was crucial. Certain facilities were noted for their initiative and willingness to adapt to changing guidelines and needs. All of the activities mentioned in their corrective action plans will be implemented by the pilots going forward. In many instances, requests from business stakeholders—primarily their brands and customers—also contributed to a rise in this interaction. This explains why it was discovered that one particular pilot strayed from the process and target when he did not receive any requests of that nature from his clients. Maintaining close observation of all the various actions and finishing the factory’s adoption of this new culture was a tremendous challenge.

One Egyptian company reported that their biggest obstacles were finding qualified candidates with sufficient experience in chemical management in the local market, persuading laborers and employees that they must perform their jobs differently and overcoming resistance to change.

Finally, the lack of quality infrastructure in Egypt is considered a main barrier. The absence of ZDHC-approved laboratories in the country forces companies to export their wastewater samples abroad (mostly to Turkey), with the local agent of the recognized laboratory being recognized as a sampler. This adds, from one side, a financial burden on the companies (export fees, customs, storage of samples during shipment) and also a time constraint, and it is common that some parameters are not possible to determine after longer periods of storage.

Exploring the [company case studies](#) provides valuable perspectives on integrating safer chemical management practices within the textile and garments value chain. These cases present a rich variety of experiences, providing a comprehensive understanding of the challenges faced. They also shed light on the effective strategies adopted by these companies. Several key lessons can be gathered from their experience:

Flexibility and adaptability: Companies should be flexible and adaptable to changing industry requirements. Companies' willingness to align their existing policies, procedures and documents with the ZDHC Guidelines demonstrates the importance of adapting existing practices to industry standards. Facilities should be prepared to adjust their procedures to meet evolving industry requirements.

Alignment with international standards: Adapting existing systems to align with globally recognized standards, such as the ZDHC Guidelines, contributes to enhanced chemical management. Establishing an effective chemical management system, from purchase to disposal, is essential. This includes developing and reviewing procedures, enforcing a purchasing policy aligned with industry guides, and incorporating hazard evaluations as a key decision criterion in procurement.

Employee training: Investing in the capability of employees through comprehensive training is crucial for successful implementation to ensure that employees possess the necessary knowledge and skills. Also, conducting regular training sessions, including work instructions, safety measures, and the use of Personal Protective Equipment (PPE), contribute to a safer and more environmentally friendly workplace.

Supplier engagement: Proactive engagement with chemical suppliers, even those who initially resisted the change, increased the amount of ZDHC-listed chemicals. Collaboration with suppliers is vital, and companies (e.g., brands) should communicate the importance of safer chemicals to foster cooperation.

Chemical substitution and risk analysis: Despite challenges, companies have successfully substituted hazardous chemicals and phased out others based on risk analysis. While substitution requires time and resources, it can significantly contribute to reducing health and safety risks.

Wastewater testing: In some cases, when wastewater testing is not mandated, it becomes crucial to identify non-conformities and implement corrective actions. As a consequence, certain practices integral to industry guidelines should be embraced for comprehensive compliance.

Documentation and records: Maintaining records of training sessions, chemical inventory lists, and Standard Operating Procedures (SOPs) is crucial. These records not only ensure compliance with guidelines but also serve as valuable documentation during audits and evaluations.

Monitoring and improvement: It is also crucial to regularly monitor and evaluate the effectiveness of implemented changes. Companies should be proactive in identifying areas for improvement, adjusting strategies, and continuously working towards achieving higher levels of certification.

Certification and recognition: Achieving certifications, such as the ZDHC Supplier to Zero assessment, and reaching foundational level, demonstrate a commitment to sustainable chemical management. These certifications provide tangible tools, including training certificates, to showcase the commitment to brands and build customer relationships. As a result, implementing safer chemical management practices can positively impact business relationships, even if not initially driven by client demands.

In conclusion, [the case studies](#) emphasize the importance of proactive engagement, continuous improvement, and aligning with industry standards to achieve safer and more sustainable chemical management practices in the textile and garments value chain.

4. Development of the National Roadmap

The National Roadmap for Egypt's textile industry outlines a detailed and dynamic strategy focused on promoting sustainability and aligning with global standards. It provides strategic guidance to make the industry safer and more environmentally conscious. The primary purpose of the National Roadmap is to promote structured exchange among various stakeholders, including manufacturers, educational institutions, and organizations to outline the necessary steps, objectives, and timelines necessary for developing and implementing a strategic sustainability plan. Once these insights are gathered, the next step is to identify and assess the challenges that currently obstruct the adoption of safer chemical management practices.

The plan to address these challenges is multifaceted including the development of targeted training and capacity-building programs to equip industry professionals with the necessary skills and knowledge. Simultaneously, collaborative strategies will be implemented to engage stakeholders actively. This involves establishing partnerships with suppliers, chemical formulators, regulators, and local communities, supporting a collective commitment to sustainable chemical practices. Furthermore, the plan emphasizes the importance of effective communication channels to disseminate information regarding safer chemical management.

This involves both internal communications to ensure alignment within organizations and external communication to raise awareness among consumers and the general public. Through openly addressing challenges and highlighting the advantages of implementing safer chemical practices, our goal is to generate extensive support and enthusiasm for adopting sustainable methods.

By combining education, collaboration, and communication, the National Roadmap aims to transform Egypt's textile industry into a model of sustainability and safety, compliant with all relevant international standards.

4.1 Stakeholders involvement

Recognizing that successful outcomes rely on collaborative efforts, this section underscores the importance of engaging a wide range of participants and provides a comprehensive stakeholder landscape.

The key players who have been consulted in drawing this roadmap and who can play a key role in the implementation of the roadmap are listed hereafter.

The Egypt Textiles and Home Textiles Export Council (THTEC) is Public Private Partnership (PPP) organization founded by the Ministry of Trade and Industry in 1997. The THTEC is made up

of leading exporters and stakeholders from the textile and home textile sectors. Its primary role is to serve as an advisory board to the Minister of Trade and Industry. Additionally, THTEC advocates for the welfare of exporters within the sector and works to market and promote Egyptian textile and home textile products in international export markets.

The Apparel Export Council of Egypt (AECE) is a non-profit organization established by Ministerial Decree No. 521 in 1997. Its primary roles include serving as an advisory board to the Minister of Trade and Industry, advocating for the welfare of exporters in the apparel sector, and marketing and promoting Egyptian apparel exports.

The Industrial Modernization Centre (IMC) was established by a Presidential Decree in December 2000 to foster a sustainable, modernized, vibrant, and competitive Egyptian industry. The primary goal of the IMC, in coordination with the Ministry of Trade and Industry, is to support industrial enterprises and create a conducive business environment for the industrial sector.

The Zero Discharge of Hazardous Chemicals (ZDHC) is a program initiated by a group of global fashion brands and retailers to eliminate the use of hazardous chemicals in the textile, leather, and footwear value chain. The ZDHC program develops guidelines, tools, and trainings to drive the adoption of safer chemical management practices. This includes establishing protocols for wastewater discharge and chemical use, promoting more sustainable practices across supply chains, and working towards a vision where harmful chemicals are no longer released into the environment.

The United Nations Industrial Development Organization (UNIDO) is a specialized agency of the United Nations. UNIDO was established in 1966 by the UN General Assembly to assist countries in economic and industrial development. UNIDO advocates that inclusive and sustainable industrial development is the key driver for the successful integration of the economic, social and environmental dimensions, required to fully achieve sustainable development for the benefit of our future generations. UNIDO strengthens international trade norms and standards by assisting developing countries and transition economies in upgrading production and processing systems to enhance the quality of local products, in particular through the adoption of improved technologies, and help them conform to the standards required by international markets. UNIDO builds capacities in both public and private institutions to formulate trade policies and strategies based on economic and statistical analysis.

4.2 Key challenges and implementation gaps

The current state of chemical management practices in the textile finishing sector in Egypt reflects a positive beginning marked by capacity building activities and implementation projects. These initiatives, primarily led by the SwitchMed Program and UNIDO in collaboration with ZDHC Accredited Training Providers, have set a foundation for sustainable practices.

The key challenges in implementing sustainable chemical management practices in Egypt's textile finishing sector have been collected through consultations with the national key institutions (THTEC, AECE, IMC, etc...) ZDHC as well as by compiling observation by L&S team consolidated during their work in companies (gap analysis and technical assistance support for implementing safer chemical management practices).

Adapting to industry dynamics: Companies face the challenge of keeping up with evolving rules and regulations, meeting the changing needs and desires of the market, and making the most of new technologies as they emerge. This requires a deep understanding of predicting how the market might change, and using new technologies to improve how chemicals are managed. It's also about creating a workplace culture where flexibility and learning are valued, where everyone is ready to adjust and improve as needed.

Global standards integration: Meeting the challenge of aligning with international chemical management standards. This involves harmonizing existing systems with globally recognized benchmarks, such as the ZDHC Guidelines. Companies must carefully review and adjust their procedures, procurement policies, and hazard evaluation protocols to ensure seamless alignment.

Workforce empowerment: Overcoming challenges in comprehensive employee training. Companies face challenges in ensuring that employees possess the necessary knowledge and skills to handle chemicals safely and responsibly. Overcoming these challenges requires a commitment to regular training sessions covering work instructions, safety measures, and proper use of PPE.

Capacity building of local institutions and centers: There's a clear need to enhance the skills and knowledge of educators and trainers in Egypt. Instead of relying continually on external expertise, building in-house expertise ensures that the knowledge remains within the local institutions and can be continuously updated and disseminated.

Lack of approved laboratories and service providers: The issue of the lack of approved laboratories and service providers in Egypt, particularly for wastewater testing, is a significant challenge. Egyptian facilities find themselves in a position where they must send their wastewater samples to foreign countries for testing. This reliance on external entities can increase the time taken for results and add logistical complexities and costs.

Collaborative supplier relations: Addressing the challenge of convincing chemical suppliers to conduct required tests for product registration on the ZDHC Platform is a critical aspect of ensuring transparency and compliance within the industry. Many companies have encountered difficulties in this endeavour. The primary obstacle lies in the suppliers' reluctance, driven by concerns about the added expenses linked to the required testing processes. The added expense involved in conducting tests for product registration can create a barrier to entry for chemical suppliers, potentially inhibiting their willingness to comply with ZDHC Guidelines. The financial implications, coupled with a lack of chemical data sheets for certain products, further aggravate the challenge. To navigate this challenge, companies must adopt a strategic and collaborative approach. Clear communication is essential to transmit the significance of ZDHC compliance not only in meeting industry standards but also in promoting a responsible and sustainable supply chain. Companies can explore incentive-based programs, such as offering support for testing costs or extending preferred partnerships, to motivate suppliers to undertake the required tests. Companies should work collaboratively with suppliers to explore cost-effective testing solutions, share best practices, and collectively address the financial concerns associated with compliance.

Substitution dilemma: Effectively dealing with chemical substitution involves overcoming challenges within this complex process. Companies must invest time and resources to identify, compare, and select safer alternatives for chemicals of concern. While substitution is essential for reducing health and safety risks, it demands a strategic approach, including risk analysis and phased implementation. Balancing the need for efficacy with sustainability goals presents an ongoing challenge in the chemical substitution landscape.

Wastewater compliance complexity: Challenges in integrating wastewater testing for comprehensive compliance.

Effective documentation management: Maintaining records, including training sessions, chemical inventories, and SOPs, is fundamental for compliance. Companies face challenges related to documentation accuracy, accessibility, and traceability. Overcoming these challenges demands the establishment of robust document and record control procedures. Ensuring the availability and accuracy of documentation not only supports compliance but also provides valuable insights during audits and evaluations.

Continuous improvement struggle: The pursuit of continuous improvement in chemical management practices is a persistent challenge. Companies must actively monitor and evaluate the effectiveness of implemented changes, identifying areas for improvement, adjusting strategies, and ensuring ongoing compliance.

Certification commitment: Committing to sustainable chemical management certifications presents distinct challenges. Achieving certifications such as the ZDHC Supplier to Zero assessment requires a dedicated effort. Companies must align their practices with stringent criteria, undergo rigorous assessments, and showcase a commitment to sustainable practices.

Meeting these challenges not only validates a company's dedication to responsible chemical management but also strengthens relationships with stakeholders, fostering a positive industry reputation.



5. Roadmap

The National Roadmap is structured into a set of actions, related to seven key objectives, aimed at promoting sustainable practices and ensuring the responsible use of chemicals in the Egyptian textile and garment sector.

The initial phase involves a detailed National Survey to assess existing practices, setting the groundwork for subsequent improvements. Following this, a key milestone is the Roundtable discussion with influential organizations and brands to secure commitment, aligning stakeholders towards shared goals within a specified timeframe. The National Roadmap emphasizes broad industry engagement, encouraging major brands to participate and facilitating knowledge exchange through seminars and events. Educational transformation is integral, involving the integration of sustainable practices into academic programs and the development of targeted training initiatives for institutions like THTEC and AECE. The focal point of this initiative is the pursuit of ZDHC approval, accompanied by training and capacity building programs for manufacturers and chemical suppliers.

Furthermore, the roadmap strategically incorporates economic incentives and financial support from the Egyptian Government to the chemical formulators and textile manufacturers to foster industry compliance and encourage them to adopt and implement ZDHC Guidelines. A critical step involves the development of a chemical phase-out list targeting non-compliant substances in manufacturing processes to ensure their elimination. The Regulatory Framework holds significant importance as it seeks to modernize and elevate standards such as laws related to wastewater testing. This aims to establish and enforce regulations that prioritize the promotion of safer chemical management practices.

The roadmap's actions are summarized in the table below:

No.	Key Objectives	Actions
1	Establish sector baseline	National survey of the textile sector in Egypt
2	Stakeholder engagement	Collaborations and partnerships
3		Engage major brands
4		Seminars and events
5	Awareness raising	Mainstream Chemical Management in education
6		Communication material
7	Capacity building	Train the trainers programme
8		Training of the Textile manufacturers
9	Establish economic instruments	Economic incentives for Chemical Formulators
10		Incentives and Recognition for Textile manufacturers
11		Approval of laboratories according to the ZDHC requirements
12	Prioritize Phase Out of hazardous chemicals	Hazardous chemicals Phasing-out list for the MED region.
13	Regulatory framework upgrade	Policy instruments

Table 7: List of identified actions within the national scaling up roadmap

5.1 Roadmap actions

1 – National survey of the textile sector in Egypt

Description	<p>A National Survey to be initiated by THTEC and AECE aiming at evaluating current chemical management practices and areas of improvement in Egyptian textile factories.</p> <ul style="list-style-type: none">• The survey should include at least 400 of the over 6,500 textile companies in Egypt, as representative samples for the assessment.• The survey should also include a significant representation of the chemical manufacturers located in Egypt.• The survey can utilize a combination of online data collection methods, existing platforms like the Higg FEM (wastewater and chemicals modules) and Supplier to Zero (S2Z from ZDHC) for standardized and globally recognized data collection.• The survey should be updated every five years to track industry progress toward the adoption of safer chemical practices.
Objective	Establish a national baseline of the sector
KPIs	<ul style="list-style-type: none">• Coverage Rate: Percentage of targeted companies (both textile and chemical manufacturers) that participate in the assessment. This KPI measures the extent of engagement in the survey.• Number of certifications or audits passed related to environmentally responsible chemical management.• Scores of the factories on the Supplier to Zero and selected sections of Higg FEM.• Gap analysis summary.
Key stakeholders	THTEC, AECE, Textile Manufacturers, Chemical formulators, ZDHC.

2 – Collaboration and partnership

Description	Workshops with ZDHC, THTEC and AECE: A Roundtable to be organized with the purpose of discussing the roadmap and securing the commitment from different organizations.
Objective	Stakeholder engagement
KPIs	<ul style="list-style-type: none">• Specific commitment and funding amount• Number of manufacturers engaged.• Number of events.
Key stakeholders	THTEC, AECE, ZDHC, Textile Manufacturers, SAC.

3 – Brands’ Engagement

Description	<p>A dialogue to be initiated by ZDHC in collaboration with THTEC, AECE, IMC and with major brands operating in Egypt, highlighting the benefits of adopting safer chemical practices and specifically promoting activities in Egypt.</p> <ul style="list-style-type: none">• Identify major brands operating in the Egyptian textile industry by utilizing industry databases, market reports, and collaboration with industry associations.• Initiate a dialogue to introduce the initiative and emphasize the benefits of adopting safer chemical practices.• Advocate for major brands to actively implement ZDHC Programs within their Egyptian operations. Encourage them to integrate sustainability criteria into their procurement processes, prioritizing suppliers with a strong commitment to safer chemical practices• Collaborate with brands to design and conduct training sessions, ensuring that their Egyptian suppliers gain practical insights into implementing safer chemical practices.• Advocate for funding and research: Engage with industry partners, governmental bodies, and organizations to secure funding for research projects focused on chemical prioritization and sustainable practices.
Objective	Stakeholder engagement
KPIs	<ul style="list-style-type: none">• Number of major Brands committing to implement specific supplier programs in Egypt.• Number of manufacturers engaged.• Number of people participating in ZDHC trainings.• Number of workshops
Key stakeholders	THTEC, AECE, IMC, ZDHC, Textile Manufacturers, SAC, Brands.

4 – Seminars and events

Description	<p>THTEC and AECE and IMC in collaboration with manufacturers can organize seminars and events to share best practices and success stories. This will allow stakeholders to exchange insights, challenges, and lessons learned in the journey towards sustainable chemical management.</p> <ul style="list-style-type: none">• ZDHC manufacturers forum: The forum can facilitate focused discussions on ZDHC Guidelines, compliance, and emerging trends, ensuring that manufacturers are well-informed and aligned with global best practices. Experts within the ZDHC network can provide specialized insights, further enriching the knowledge-sharing experience for participating manufacturers.• Social media, corporate websites, and industry platforms can also be effectively used to showcase success stories, innovative practices, and case studies, promoting a sense of industry-wide achievement and progress.
Objective	Awareness raising
KPIs	<ul style="list-style-type: none">• Number of events.• Number of companies participating in the events.• Success stories demonstrating the impact of these innovative approaches.
Key stakeholders	AECE, THTEC, IMC, ZDHC, Textile manufacturers.

5 – Mainstreaming Chemical Management in education

Description	<p>IMC as an institution can collaborate with relevant ministry of Education to integrate sustainable practices into relevant educational programs.</p> <ul style="list-style-type: none">• In-depth integration: Work closely with educators, curriculum developers, and industry experts to embed sustainable chemical management principles across disciplines, ensuring a holistic understanding and adoption of these practices.• IMC: Incorporate a training module covering all sustainability related topics.• Collaborative content development: Collaborate with industry experts, sustainability consultants, and educational specialists to ensure the educational module aligns with current industry standards and addresses emerging challenges.• Research opportunities: Encourage and support student-led research projects focused on advancing sustainable chemical management within the textile industry.• Industry collaboration: Encourage collaboration between students and industry professionals, providing students with valuable exposure to real-world challenges and opportunities through internship programs.
Objective	Awareness raising
KPIs	<ul style="list-style-type: none">• Number of courses/students related/attending to of safer chemicals management in the educational program of Textile universities and Textile training centers.
Key stakeholders	IMC, Ministry of Education, industry experts, sustainability consultants, and educational specialists.

6 – Communication material

Description	Development of a mini awareness guide (Mini-Book) available on the IMC website, aiming to promote the transition to good practices and underscore the importance of sustainable initiatives, accessible to all.
Objective	Awareness raising
KPIs	<ul style="list-style-type: none">• Creation of a mini-guide and dissemination on the IMC website.
Key stakeholders	IMC, ZDHC

7 – Train the trainers programme

Description	<p>Develop and conduct trainings for Training Bodies with support from ZDHC and its Accredited Training Providers in collaboration with IMC to facilitate the creation of a national accredited service provider for the delivery of ZDHC trainings.</p> <ul style="list-style-type: none">• Organize a Training program where Approved Trainers provide a comprehensive training for the training bodies and laboratories who are interested in ZDHC approval status.• Work closely with ZDHC and its network of Accredited Training Providers to involve experts who have both global perspective and local insights for a Training of Trainers (ToT) activity: Organize a ‘Training of Trainers’ program where Egyptian Training Bodies and trainers receive intensive training from ZDHC Accredited Training Providers. The objective is to build in-house expertise and ensure that the knowledge transfer is sustainable.• During this training, hands-on workshops and seminars should be organized, where participants can apply what they have learned in real-life scenarios. Include interactive sessions, group discussions, and problem-solving exercises.
Objective	Capacity building
KPIs	<ul style="list-style-type: none">• Number of trainees who received the training and successfully attained approval.
Key stakeholders	IMC, ZDHC, Accredited Training Providers, Egyptian Training Bodies.

8 – Training of Textile manufacturers

Description	<p>THTEC AECE and IMC can in collaboration with ZDHC and Accredited Training Providers plan a national training program for textile and apparel manufacturers to promote the adoption of safer chemicals practices and the implementation of ZDHC requirements.</p> <p>The national training program is an initiative designed to address specific skill gaps and knowledge requirements within finishing textile sector on a nationwide scale. With a focus on interactive and practical learning, the program aims to equip participants with the essential skills and insights necessary for success in their roles. Developed through a collaborative effort involving THTEC, AECE, and IMC industry experts, and trainers, the program covers a structured curriculum aligned with national goals. The program should be tailored to the identified needs of the target audience. Participants can expect hands-on workshops, expert-led sessions, and a supportive learning environment.</p>
Objective	Capacity building
KPIs	<ul style="list-style-type: none">• Number of companies active on ZDHC platform• Number of trainees who received the training and success rate.
Key stakeholders	THTEC, AECE, IMC, ZDHC, Accredited Training Providers, Textile Manufacturers.

9 – Economic incentives for Chemical Formulators

Description	IMC in collaboration with ZDHC provides support to chemical formulators seeking accreditation for their products on the ZDHC platform. Recognizing the complexity and importance of this process, IMC and ZDHC can develop a systematic approach to guide formulators through every step of the accreditation journey. The selection of accredited laboratories capable of conducting the necessary tests and offer guidance on sample collection and preparation procedures to ensure accuracy. The goal is to ultimately contribute to safer and more sustainable chemical management practices within the industry.
Objective	Establish Economic instruments
KPIs	<ul style="list-style-type: none">• Number of chemical products registered in the ZDHC Gateway
Key stakeholders	Chemical formulators, Relevant Ministries, IMC and ZDHC

10 – Incentives and Recognition for Textile manufacturers

Description	Economic incentives and financial support from the Egyptian Government to encourage the textile manufacturers to adopt environmentally friendly practices. These incentives can take various forms, such as tax breaks, subsidies, grants, low-interest-rate loans, or rebates, designed to make sustainable choices financially attractive. For instance, companies that invest in green technologies or adhere to environmentally friendly manufacturing processes may receive tax reductions or subsidies, reducing their overall operational costs.
Objective	Establish Economic instruments
KPIs	<ul style="list-style-type: none">• The total value of investments leveraged.
Key stakeholders	Manufacturers, Relevant Ministries, IMC, Brands

11 – Approval of laboratories according to the ZDHC requirements

Description	Economic incentives and financial support from the Egyptian Government to upgrade training facilities, laboratories, and resources at IMC as required to meet the standards of ZDHC approval status. This may include acquiring new equipment, software, or learning materials.
Objective	Establish economic instruments
KPIs	<ul style="list-style-type: none">• Amount of funds allocated and utilized.
Key stakeholders	IMC, Training Providers, Laboratories, Relevant ministries, governmental agencies.

12 – Hazardous chemicals Phasing-out list for the MED region

Description	<p>Development of a chemical phase-out list specific to Egypt: ZDHC in collaboration with IMC can work together to identify the chemicals that need to be phased out (chemicals that are MRSL non-compliant and are still used in manufacturing process) and establish clear and achievable timelines for the phase-out process. The phase-out list can then be made available to all relevant parties.</p> <p>National survey carried out during the first phase of this Roadmap, detox.live and InCheck reports, can be used for ensuring alignment with established standards such as REACH or ZDHC.</p> <p>Promote:</p> <ul style="list-style-type: none">• Substitution strategies.• Use of computational tools e.g.: https://www.epa.gov/comptox-tools• Use of the SIN list https://sinlist.chemsec.org/
Objective	Prioritize Phase-out of hazardous chemicals
KPIs	<ul style="list-style-type: none">• Creation of a phase-out list.• Implementation rate of the phase-out list year by year.
Key stakeholders	ZDHC, Textiles companies registering in ZDHC, Chemical suppliers, IMC, TfS.

13– Policy instruments

Description	<p>IMC in collaboration with policymakers work together to establish and enforce regulations that promote safer chemical management.</p> <p>A proposed recommendation is to</p> <ol style="list-style-type: none">a. Incorporate an existing Egyptian Chemical Substances Inventory list and a new chemical notification scheme for the country for new Chemicals imported.b. Contemporize and elevate the criteria for wastewater testing, making them more stringent and in harmony with global standards. <ul style="list-style-type: none">• Upgrade the existing Decree 44/2000 with amendment 254/2003, establishing general discharge limit values for surface or groundwater. Requirements pertaining to any type of water discharge not subject to specific regulations.• Egypt has a general decree in place that mandates the assessment of industrial wastewater discharge. The textile industry lacks this specialized regulatory framework with specific limit values assigned and adopted. This gap in legislative coverage for the textile industry raises important considerations for environmental monitoring and regulation. It highlights the need for tailored frameworks and guide-lines that address the unique characteristics and potential environmental impacts associated with textile manufacturing processes.• It is recommended to establish limit values for the physical, chemical, biological, and bacteriological attributes of discharges originating from textile facilities.
Objective	Regulatory framework update
KPIs	<ul style="list-style-type: none">• Number of new regulations/guidelines.
Key stakeholders	ZDHC, Textiles companies registering in ZDHC, Chemical suppliers, IMC, TfS.

5.2 Implementation Timeline

The execution of the National Roadmap is structured into phases based on the urgency of the intervention. Nearly all the actions represent short-term priority initiatives spanning from 2024 to 2027. Meanwhile, some of these actions are

anticipated to extend into the period from 2027 to 2030. This extended timeframe aims to generate the necessary impact for the comprehensive transformation of the adoption of safer chemicals into a contemporary and effective system.

National Roadmap - Actions

Action	Timeline
A National Survey initiated by THTEC, AECE, IMC aiming at evaluating chemical management practices in Egyptian textile factories.	2024-2025
Workshops with the purpose of discussing the roadmap and securing the commitment from these organizations.	2024-2027
Engage major brands: A dialogue to be initiated by ZDHC with major brands operating in Egypt, highlighting the benefits of adopting safer chemical practices and specifically promoting activities in Egypt.	2024-2027
Mainstream chemical management education: IMC as an institution collaborate with relevant ministry of Education to integrate sustainable practices into relevant educational programs.	2027-2030
Develop and conduct trainings "Training for trainers" for training bodies with support from ZDHC and its Accredited Training Providers in collaboration with IMC to reinforce their capacity.	2024-2025
Organize a training program where IMC Approved Trainers provide a comprehensive training for the training bodies and laboratories who are interested in ZDHC approval status.	2025-2027
Training and Capacity Building for the Manufacturers: THTEC, AECE and IMC can in collaboration with ZDHC and Accredited Training Providers plan a national training program for textile and apparel manufacturers to promote the adoption of safer chemicals practices and the implementation of ZDHC requirements.	2025-2027
Empower chemical formulators with the resources and expertise needed to navigate the accreditation process successfully and have their products registered in the ZDHC Gateway.	2025-2030
Economic incentives and financial support from the Egyptian government for the chemical formulators and textile manufacturers.	2027-2030
Approval of laboratories according to the ZDHC requirements: financial support from the Moroccan Government to upgrade training facilities and laboratories.	2027-2030
Development of a chemical phase-out list of chemicals that are MRSL non-compliant and are still used in manufacturing process in the region.	2025-2030
Policy instruments: IMC in collaboration with policymakers work together to establish and enforce regulations that promote safer chemical management. A proposed recommendation is to contemporize and elevate the criteria for wastewater testing, making them more stringent and in harmony with global standards.	2027-2030
Development of a mini awareness guide book (Mini-Book) available on the IMC website, aiming to promote the transition to good practices and underscore the importance of sustainable initiatives, accessible to all.	2025-2030

