THE PAKISTAN COTTON PILOT

RESULTS, LESSONS LEARNED, AND NEXT STEPS FOR SUSTAINABILITY

JUNE 2024

Funding is provided by the United States (U.S.) Department of Labor (DOL} under cooperative agreement number IL-35808-20-75-K. One hundred percent of the total costs of the project or program is financed with USG federal funds, for a total of $4 million dollars.

This material does not necessarily reflect the views or policies of the United States Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the United States Government.

CONTENTS

ACRONYMS AND ABBREVIATIONS

AFM	Artistic Fabric Mills
API	Application Programming Interface
APTIMA	All-Pakistan Textile Mills Association
BCI	Better Cotton Initiative
BWP	Better Work Pakistan
CBP	United States Custom and Border Protection
CLFL	Child Labor and Forced Labor
CRM	Customer Relations Management
DEA	Department of Agricultural Extension
DHS	United States Department of Homeland Security
DRC	Democratic Republic of Congo
ERSA	Responsible Sourcing Assessment
ESG	Environmental, Social and Governance
EU	European Union
FOA	Funding Opportunity Announcement
GAIN	Global Agricultural Information Network
GFEMS	Global Fund to Eliminate Modern Slavery
GTP	Global Trace Protocol
KDE	Key Data Elements
ILAB	Bureau of International Labor Affairs
ILO	International Labour Organization
LRI	Labor Rights Indicators
LRQA	Lloyds Register Quality Assurance
MMF	Man-made Fiber
MOU	Memorandum of Understanding
GNO	Non-governmental Organization
NOC	No Objection Certificate
NTU	National Textile University
OAR	Open Apparel Registry
OECD	Organization for Economic Co-operation and Development
OS Hub	Open Supply Hub
OSH	Occupational safety & health
PCGA	Pakistan Cotton Ginners Association
REEDS	Rural Education and Economic Development Society
RSN	Responsible Sourcing Network
SAQ	Self-Assessment Questionnaires
UA	University of Agriculture
UFLPA	Uyghur Forced Labor Prevention Act
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USDOL	United States Department of Labor
WRO	Withhold Release Order
WWF	World Wildlife Federation
YESS	Yarn Ethically and Sustainably Sourced
REEDS	Rural Education and Economic Development Society
RSN	Responsible Sourcing Network
SAQ	Self-Assessment Questionnaires
UA	University of Agriculture
UFLPA	Uyghur Forced Labor Prevention Act
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USDOL	United States Department of Labor
WRO	Withhold Release Order
WWF	World Wildlife Federation
YESS	Yarn Ethically and Sustainably Sourced
REEDS	Rural Education and Economic Development Society
RSN	Responsible Sourcing Network
SAQ	Self-Assessment Questionnaires
UA	University of Agriculture
UFLPA	Uyghur Forced Labor Prevention Act
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USDOL	United States Department of Labor
WRO	Withhold Release Order
WWF	World Wildlife Federation
YESS	Yarn Ethically and Sustainably Sourced

EXECUTIVE SUMMARY[1]

The Global Trace Protocol (GTP) project, led by LRQA (formerly ELEVATE Limited, hereafter "LRQA"), is funded by the US Department of Labor's (USDOL) Bureau of International Labor Affairs (ILAB) for a period of four years (December 2020 - December 2024) to help reduce child and forced labor (CLFL) in global supply chains through increased downstream tracing of goods made by child labor or forced labor.

The GTP project's objective is to develop a methodology and software-based tool that enables assessors, brands, and other stakeholders to trace products through the entire journey from production to final purchaser, with data on compliance regarding the prohibitions on child and forced labor and other exploitative practices at each tier. To this end, GTP conducted a trace pilot in the Pakistan cotton supply chain and is in the process of implementing a similar pilot in the Democratic Republic of Congo's (DRC) cobalt supply chain. GTP is also developing a free, publicly available commodity agnostic traceability methodology (to be set forth in guides and a protocol) and tool that can be customized and applied to different commodity supply chains.[2]

This Report assesses GTP's first test of the Pakistan cotton traceability pilot with lessons learned both informing a second test in Pakistan's cotton sector and the development of the commodity agnostic application of the methodology and tool, which are hosted on the U.S. Department of Labor's GitHub and explained with supporting resources on LRQA's EiQ website. Specifically, it explains the Project's objectives and key research questions, the critical assumptions and strategies, the Pakistan country context, the pilot and tool design, the results and lessons learned, and the next steps for the Project and methodology and tool.

Section One identifies the overarching problem as the high prevalence and high risk of child and forced labor and other exploitative practices in certain global supply chains, including cotton. It hypothesizes that traceability is an effective means of reducing this problem, particularly in conjunction with other due diligence approaches.

Accordingly, **the overarching research question is**:

How can a new traceability methodology and tool improve the capacity of assessors, brands and other stakeholders to effectively identify and address incidents and risks of child and forced labor and other exploitative practices to reduce them in global supply chains?

---

[1] This Report is authored by Jeffrey Wheeler (GTP Project Director) and Jon Ellermann (Technical Lead) with editorial assistance from Troy Johnson (Senior Project Manager).

[2] For more information, see ILAB's summary of the Global Trace Protocol Project. For LRQA's resources on the Project and guidance on using the methodology and tool, see LRQA EiQ ai and Global Trace. The tool's software will be made available for free at USDOL GitHub.

With challenges including dynamic supply chains, limited collaboration among supply chain actors, complicated and costly traceability tools, and limited data accuracy, the solution is, in part, effective and sustainable traceability methodologies and tools to measurably reduce child labor and forced labor and other exploitative practices in global supply chains.

Challenges in conducting supply chain traceability include:

- Commodity supply chains are constantly evolving in terms of their length (how many tiers), breadth (how wide the range of organizations at each tier), and changes in the specific suppliers, subcontractors, and transporters in various countries that have different laws, systems, and practices;
- Supply chain actors largely operate within their own proprietary and commodity specific systems with little or no collaboration; and
- Most traceability tools are complicated and costly with limited data accuracy and applicability.

The solution tested in this pilot: an effective and sustainable traceability methodology and tool to measurably reduce child labor and forced labor and other exploitative practices in global supply chains. The software-based tool has applications accessible through computers and hand-held devices, such as smart phones.

The operational research questions are:

1. Is the traceability tool effectively designed to be user-friendly?
2. Is the traceability methodology and tool effective in applying labor rights and due diligence principles to accurately identify and assess the presence and risk of child and forced labor and other exploitative practices in global supply chains?
3. Is the traceability methodology and tool sustainable?

For the sustainability question, subordinate questions include whether the traceability methodology and tool are cost-effective, interoperable with other due diligence and traceability solutions, and useable by different stakeholder types.

Section One also summarizes GTP's critical assumptions, which include: cotton within the targeted supply chain will be harvested, processed, and transformed into a product that will be exported; the Pakistani government will authorize the Project's pilot; and key stakeholders will engage with the Project's process. It also identifies GTP strategies - to make the methodology and tool more widely accepted and sustainable: aim to ensure the tool is adaptable to various data inputs, design the tool to support a range of business needs, connect the methodology and tool with other existing due diligence approaches (interoperability).

Section Two summarizes key trends and facts regarding the role of cotton in Pakistan's economy; trends in cotton production; the prevalence of child and forced labor; and political, economic, and environmental events and risks to Project implementation.

Section Three describes the design of the pilot and tool including research and analysis; design validation through a verification plan; tool wireframing and prototyping incorporating key data elements on labor rights; the operational staffing and partnership plan; the plan for pilot implementation at the farm, ginner, and spinner tiers, and the brand sourcing of finished products.

Section Four presents results and lessons learned; evaluates critical assumptions and mitigation responses where they did not fully hold, including environmental events destroying about 40% of Pakistan's cotton crop; challenges that delayed a ginner's sale of sale cotton bales to a GTP spinner; and government military actions that limited data collection. It also answers the three research questions with explanatory charts. In brief:

1. **Is the traceability methodology and tool design user-friendly?**

   Answer: The methodology and tool were user-friendly at the spinner, mill, and ginner tiers, but less so at the farm tier. Users at the farm tier entered data in physical spreadsheets, which was later transferred into the tool at their organization's office with GTP support. While GTP provided guidance and support, users would have benefited from more extensive training at all tiers, particularly the farm tier. At the brand level, the methodology and tool were found to be user-friendly, with GTP working to enhance data analysis and visualization.

2. **Is the traceability methodology and tool effective in identifying and assessing the presence and risk of child and forced labor and other exploitative practices in global supply chains?**

   Answer: The methodology and tool were partly effective in identifying and assessing the risk and potential presence of labor rights violations. The greatest challenge, however, was collecting data at the farm level that accurately reflects the presence and risk of child labor, particularly given the vast number of small farms in the cotton sector and the informal nature of their operations. The methodology and tool were more effective at the ginner and spinner levels where the risk of child and forced labor is much lower, while the risk of other labor issues, such as occupational safety and health, remain high.

3. **Is the traceability methodology and tool sustainable?**

   Answer: The GTP traceability tool was found to be cost-effective partly because of its open-source nature. Compared with other costly, proprietary traceability tools, the GTP tool can be accessed and built upon freely with limited additional software development beyond the effort already made by the Project. In the future, users will be able to apply the methodology and tool across different commodities. Initial evidence supports a current assessment of the cost effectiveness of various elements of the tool as follows:

   - Supplier data entry in OS Hub – currently at relatively low cost.
   - Due diligence assessment at the spinner mill tier - relatively low cost.

- Cotton import management systems at the spinner mill - higher cost, but effective for identifying information gaps; sustainability will require more work.
- DNA marking data - expensive but may be sufficiently cost-effective when targeted at high-risk points and tested at high volume with increased accuracy with repeated testing at those points.

Section Five summarizes next steps including expanding the traceability tool's range of commodities; enhancing its value, efficiency, and effectiveness; and disseminating the methodology and tool among key stakeholders for use by brands, research and dissemination by academics, and sustainable implementation in Pakistan, including with the Pakistan Cotton Ginners Association.

The Pakistan cotton pilot also helped GTP identify ambitious next steps to help brands and other stakeholders continue using, improving, expanding, and integrating these tools to ensure that supply chains are increasingly free of child and forced labor and other exploitative practices.

SECTION 1: PROJECT OBJECTIVES AND KEY RESEARCH QUESTIONS

1.1 Statement of Goal and Objective

The GTP project's goal is to help reduce child and forced labor in global supply chains through increased downstream tracing of goods made by child labor or forced labor and other exploitative practices. The Project is designed to achieve the following outputs: 1) increase the number of tested supply chain methodologies; 2) increase the number of piloted tools for supply chain tracing; and 3) increase the dissemination of supply chain tracing tools and methodologies to a broad range of stakeholders.

The Project's objective is to develop a methodology and tool that enables assessors, brands, and other stakeholders (which can include governments, worker organizations, and academic institutions, among others) to trace products through the entire journey from production to final purchaser, with data on compliance regarding the prohibitions on child and forced labor and other exploitative practices at each tier. Thus, the Project methodology and tool aim to implement traceability, which is the ability to identify and trace the history, distribution, location, and application of products, parts, and materials, to ensure the reliability of sustainability claims, which can include the areas of human rights, labor (including health and safety), and others.[3] The Project will set forth the methodology in a series of tool user guides and through a traceability protocol that will be free and publicly available.

To this end, the Project conducted a trace pilot in the Pakistan cotton supply chain and is developing a traceability tool that stakeholders can customize and apply to different commodity supply chains.[4] Starting in early 2024, the Project began conducting a second refined Pakistan cotton trace pilot, which will also inform future versions of the commodity agnostic trace methodology and tool.

The traceability methodology and tool were designed to have the following characteristics: they 1) are successfully and readily applied across commodities with similar supply chain typologies and characteristics; 2) reflect the complexities and intricacies of those goods; 3) provide confidence around child labor and forced labor (and potentially other labor) verification: and 4) are packaged and delivered in a manner that will drive adoption and scale.

---

[3] Traceability can also be used to assess compliance with environmental and anti-corruption requirements. For a comprehensive definition, see The Traceability Glossary. January 2024.

[4] The Project originally planned to simultaneously conduct a traceability pilot in the Democratic Republic of Congo's (DRC) cobalt supply chain and use those results as well to inform the commodity agnostic methodology and tool. However, because of various challenges, including lengthy delays in the DRC's approval processes, that pilot had not begun in time for inclusion in this report.

Key components of the GTP cotton pilot included: 1) a traceability methodology applicable to various supply chain types; 2) a child and forced labor risk verification system to provide trusted information on the exposure of each actor; and 3) a training system that prepares upstream actors to implement the methodology and ensure data accuracy. The desired users of this tool include assessors (third-party and in-house), brands, and other stakeholders, which may include governments, worker organizations, NGO's, and academia, among others, enabling them to identify, address, and prevent child and forced labor and other exploitative practices in the supply chain.

1.2 Key Research Questions

Set forth below are the overarching problem and proposed solution, the traceability challenges, and operational research questions.

1.2.1 Overarching Problem, Proposed Solution, and Research Question

The overarching problem: The high prevalence or high risk of child and forced labor and other exploitative practices in particular supply chains, including Pakistan's cotton supply chain.

The proposed solution: A traceability methodology and tool that is cost-effective, accurate, and interoperable with other due diligence tools and approaches that address social responsibility and business needs.

The overarching research question: How can a new traceability methodology and tool improve the capacity of assessors, brands, and other stakeholders within supply chains to effectively identify and address incidents and risks of child and forced labor and other exploitative practices?

1.2.2 Challenges & Operational Research Questions

The traceability challenges: The Project has identified the following challenges to effectively deploying traceability methodologies and tools:

- Supply chains are dynamic in nature, with suppliers and sub-suppliers rapidly substituted or replaced, particularly in upstream portions of the supply chain;
- Collaboration between supply chain actors is limited by the availability of data, willingness to collaborate due to competition, and resources to support collaboration;
- Data accuracy is limited in scope and uncertain in quality, particularly in upstream portions of the supply chain; and
- Replicability and scalability are limited because proprietary traceability tools are expensive, not publicly available, and/or isolated and incompatible with established due diligence systems.

The operational solution: Create an effective and sustainable traceability methodology and tool that measurably reduces child labor and forced labor and other exploitative practices in global supply chains.

***Operational research questions**:*

1. *Is the traceability tool effectively designed to be user-friendly?*
   a. *Is it effectively designed for Pakistan's cotton supply chain?*
   b. *Is it effectively designed for other commodity supply chains?*

2. *Is the traceability methodology and tool effective in applying labor rights and due diligence principles to accurately identify and assess the presence and risk of child and forced labor and other exploitative practices in global supply chains?*
   a. *Are they effectively designed for application for Pakistan's cotton supply chain?*
   b. *Are they effectively designed for application in other commodity supply chains?*

3. *Are the traceability methodology and tool sustainable?*
   a. *Is the traceability methodology and tool cost-effective in application?*
   b. *Is the tool designed to be interoperable with other due diligence and traceability solutions?*
   c. *Is it effectively designed to be used by various groups of stakeholders engaged in supply chain due diligence and traceability?*
   d. *Can sustainability and effectiveness be improved by different stakeholders hosting platforms for the protocol and tool?*

1.3 Critical Assumptions and Strategies

Critical assumptions are the general condition under which the hypothesis or strategy for achieving the Project's objectives will hold true. They are events or decisions that are beyond the control of the Project but are important and necessary to its success. A "risk" is an uncertain event or condition that, if it occurs, has an adverse effect on one or more outcomes sought during implementation.[5] GTP operated with the following assumptions:

1. The farmers are able to grow, produce, and harvest cotton;
2. The ginners are able to purchase, gin, process, and sell their cotton bales;
3. The spinners and mills are willing and able to purchase Pakistan cotton bales produced by the Project's participating ginners and farmers;
4. Pakistan's national and provincial governments in Punjab and Sindh will approve the pilot's operations and data gathering efforts, to the extent required;
5. Global brands purchasing cotton goods actively engage in dialogue with GTP to test the pilot; and
6. Key civil society actors and private sector entities (e.g., companies, academia, and workers) are supportive and actively engaged in or, at a minimum, not actively opposed to the pilot.

[5] See ILAB. Monitoring and Resource Guide for OCFT Projects. June 2020.

GTP also developed strategies during its research and development phase based on a review of best practices in traceability program management.[6]

The Pilot strategies developed during the design phase posited that the traceability tool will be more effective and sustainable if:

1. The tool accommodates a range of chain-of-custody models and is adaptable in terms of data inputs required for traceability and risk management.
2. The tool is designed and promoted to address a range of business needs that connect to but extend beyond child and forced labor; and
3. The methodology and tool are connected to and ultimately integrated with a suite of due diligence tools already established or in development through other actors to ensure interoperability in one or more of its forms as is feasible and desirable, which include *foundational* (system simply receives data but does not interpret it); *structural* (or technical) (uniform data packages sent with purposes and meaning unaltered); and *semantic* (contains standardized coded data for interpretation).[7]

[6] LRQA. EiQ Global Trace Protocol. May 2022.
[7] See Wolters Kluwer. Describing the Three Levels of Interoperability. 2014.

SECTION 2: COUNTRY CONTEXT

Effective pilot implementation requires consideration of salient trends and risks in Pakistan and the cotton sector. Overarching factors include the economic importance and role of cotton and textiles, emerging cotton market trends, the prevalence of child and forced labor, and political and environmental risks in Pakistan.

2.1 Heavy Dependence on Cotton and Textiles Exports but Limited Leverage Due to Competitive Markets

According to the USDA, global cotton production is projected at 112.4 million bales for the 2023/24 season, while Pakistan's cotton production is projected at 6.5 million bales. Pakistan is predicted to remain the world's fifth largest cotton producer after China (27 million bales), India (25 million bales), Brazil (13.8 million bales), and the United States (13.1 million bales). As a result, Pakistan has a relatively small but stable percentage of the global market share. It is also the third largest consumer of cotton for spinner production after China and India and is slightly ahead of Turkey and Bangladesh.[8] Most cotton imported to Pakistan is from the United States, Brazil, Mexico, Argentina, and Egypt, and some is from West African countries. China and Europe are the leading suppliers of man-made fibers (MMF) to Pakistan.[9]

Cotton and textile production are the primary drivers of Pakistan's economy and employment. Cotton is the most important cash crop while textiles are Pakistan's largest industrial sector accounting for more than 60% of total exports and employing about 40% of the industrial labor force, about 10 million people. Cotton production is an integral part of the national and rural economy of Pakistan, employing about 1.6 million farmers, with 81% being smallholder and family-based farms.[10]

Pakistan's national government has ambitious plans to expand cotton production and textile and garment exports, as detailed in its Textiles and Apparel Policy, with an ambitious target of $25 billion in textile exports in 2023/24, which experts predict will be difficult to achieve.[11] Challenges include the lack of incentives for farmers to produce higher quality cotton, the high cost of inputs, the removal of energy subsidies, power outages, inflation, and higher taxes.[12] As a result, Pakistan's cotton sector actors seek new ways of gaining a competitive edge.

---

[8] USDA. Cotton and Wool Outlook: September 2023. September 14, 2023.
[9] USDA. Cotton and Products Annual: Pakistan. March 31, 2023.
[10] Wei, W., Mushtaq, Z., Ikram, A., Faisal, M., Wan-Li, Z., & Ahmad, M. I. Estimating the Economic Viability of Cotton Growers in Punjab Province, Pakistan. 10(2). 2020. SAGE Open.
[11] USDA. Cotton and Wool Outlook: September 2023. September 14, 2023.
[12] USDA. Cotton and Wool Outlook: September 2023. September 14, 2023.

2.2 Cotton Market Trends Pose New Opportunities and Challenges for Expanding Traceability

Pakistan's agriculture experts are seeking new ways of producing higher-value cotton products, which would involve meeting high requirements set by certification programs. For example, Pakistan's agricultural schools and institutes have been exploring the implementation of "regenerative" farming practices, which aim to restore land and biodiversity with a focus on healthy living soil.[13] These trends may expand opportunities for linking traceability efforts with other economic and environmental goals. Soil conditions in Baluchistan are more amenable to such efforts in the short term. One of the GTP spinner partners – Artistic Fabric Mills – has engaged with WWF Pakistan to pre-book organic cotton from small farms in Baluchistan starting with 1,500 small, family farms.[14] Organic cotton production would likely require two to several years to amend the soil in Punjab and Sindh, the wide-spread use of pesticides in those provinces.[15] Given the strong market interest in regenerative farming and organic cotton, Pakistan's cotton sector actors are likely to continue exploring the possibilities in this realm. If brands are seeking to source and paying a premium for regenerative or organic cotton, then they may be more interested in deeper due diligence efforts that include traceability for labor rights.

2.3 Environmental, Security, and Political Risks May Affect Future Cotton Production and Government Due Diligence Support

While Pakistan's cotton production is highly vulnerable to extreme environmental events, it has shown resiliency in a recent rebound. The country was hit by an extreme heat wave and drought in March and April 2022 followed by extreme flooding in August that year destroying about 40% of Pakistan's cotton crop, which is concentrated in the Punjab and Sindh provinces.[16] Despite fears that this damage would impair the 2023 cotton crop, the quality of cotton in 2024 is reported to be reasonably high and the cotton yields are rebounding well. Yield forecasts for the 2023-2024 season were initially targeted at 12.8 million bales and then re-set at 11.5 million bales. However, due to a whitefly infestation in Punjab, which damaged the quality and quantity of cotton, actual season production was recorded at 8.26 million bales.[17]

In 2023/24, smaller cotton crops are predicted for all major cotton-producing countries except Pakistan, where production is expected to increase to 6.5 - 6.8 million bales because "growing conditions have been good, with timely rains and sufficient water availability for irrigation."[18] GTP's visit to cotton fields with farmers in 2023 and 2024 confirmed this assessment. As

---

[13] See for example, Makhdum, A. Regenerative Cotton and the REEL Regenerative Code in Pakistan.
[14] Sourcing Journal. Artistic Fabric Mills and WWF Pakistan Dive into Organic Cotton. June 2023.
[15] Textile World. Pakistan's first certified organic cotton bale a major breakthrough in Pakistan's cotton sector. February 13, 2019.
[16] UNICEF. Devastating floods in Pakistan. August 25, 2023.
[17] Pakistan Today. Pakistan's cotton production reaches 8.2m bales, still below domestic demand. January 19, 2024.
[18] USDA. Cotton and Wool Outlook: September 2023. September 14, 2023.

discussed below, the environmental devastation with a reduced crop and shorter growing and ginning season required GTP to implement on a shorter schedule and narrow its scope with some stakeholders not available to participate.

Regarding the security and political context, in 2023 and again in 2024, Pakistan's government ordered the arrest of Imran Khan, the popular former prime minister, resulting in wide-spread protests and the disruption of transportation, internet access, and a range of other services.[19] Security was tight on the roads and highways. When traveling outside of the largest cities, the Project Director (as well as other non-Pakistani visitors) had to obtain advanced security approval and have a police escort through provincial districts (switching teams at each border), including in and around Multan, a city of over 2 million that serves as a hub for the cotton sector. Some regions, such as Baluchistan, are not considered safe for foreign visitors.

Pakistan's labor laws and enforcement powers have largely been devolved to the provinces, including Punjab where the provincial assembly is dominated by Khan's party, which is, at times, in direct conflict with national leaders. Labor-related and agricultural government agencies, however, appear to largely function as usual. Due to political disputes government officials have limited bandwidth for engaging in Project activities and traceability discussions but they have not impeded pilot implementation.

[19] Al Jazeera. Why was Pakistan's former prime minister Imran Khan arrested? August 5, 2023.

SECTION 3: PILOT AND TOOL DESIGN

The Project began with extensive research and analysis on traceability, labor rights, and due diligence practices and Pakistan's cotton sector, which informed the design and development of the traceability tool and its methodology. As discussed below, GTP developed design elements for key data indicators (product transformations steps) and labor rights indicators, followed by the creation of a trace tool wireframe (blueprint for software structure) and prototype. GTP held a plan validation workshop with ILAB and other US government representatives and experts. It implemented a management plan using GTP staff, Diginex, contractors, and participating cotton sector organizations. Finally, GTP tested the methodology and tool at the farm, ginner, and spinner tiers leading to brand sourcing of the cotton products, as detailed below.

3.1 Research and Analysis

The Project's research and analysis phase began with the production of the **Context Analysis Report: Global Supply Chains, Labor Rights and Traceability** and the **Traceability Glossary**. The Context Analysis Report explores the driving forces behind the demand for supply chain traceability and due diligence including regulatory pressures, civil society demands, the need for enhanced efficiency and resiliency, and investor expectations. The Context Report also outlines critical considerations and best practices for the pilot, the application of chain of custody models, and approaches to data capture and data management in the context of risk management and supply chain due diligence. That report provides guidance on conducting comprehensive risk assessments and employing tools such as due diligence monitoring, grievance mechanisms, and worker engagement approaches.[20]

GTP also published the **Pakistan Cotton Supply Chain Mapping Report**, which analyzes and maps the cotton supply chain in Pakistan, including farms, ginners, spinners, and manufacturers involved in knitting, weaving, and the assembly of cotton products goods. The Pakistan Report provides a detailed overview of the traceability landscape and an analysis of Pakistan's labor laws and administration at the national and provincial levels. It also addresses the prevalence of, and risks related to, child labor and forced labor and other exploitative practices and identifies key stakeholders. The mapping report describes the limited scope and effectiveness of existing labor law enforcement and labor rights protections resulting from the devolution of these functions to under-resourced provincial governments. The mapping report enhanced the Project's understanding of stakeholder goals and constraints, helping to inform the pilot's design and implementation.

[20] For all GTP Reports, see the GTP webpage.

3.2 Design Elements

The Project consulted with technical experts, brand representatives, and developers of other traceability and due diligence software applications and approaches, establishing relationships with stakeholders at various supply chain tiers. Early in the process, GTP drafted the **Monitoring and Verification Plan**, which detailed the tool's technical requirements, activities to be conducted at each tier, specific data points, and stakeholder responsibilities. The Project also produced the **Key Data Element Template,** based on best practices for open-source data collection (informed by the seafood industry's traceability data element interoperability[21]), which served as a foundation for aligning GTP indicators and data points.

GTP incorporated the Template into a **Key Data Elements and Labor Rights Indicators ("KDE/LRI")** document, which outlined key indicators of child labor and forced labor to be integrated into the Global Trace tool along with other critical labor-related indicators. The KDE/LRI document furnished the definitional data points needed to record risks of child labor and forced labor linked to indicators, as well as specified traceability elements like weight and purity for assets. A limited range of indicators were also incorporated for freedom of association, occupational safety and health (including "hazardous" work), and other labor rights to improve visibility on the broader labor rights context. All of the labor rights indicators are grounded in the International Labour Organization's (ILO) **Fundamental Principles & Rights at Work** and Pakistan's national and provincial labor laws.

3.3 Tool Wireframe and Prototype

Subaward partner Diginex supported the team in developing a "wireframe," which is a blueprint or schematic that helps programmers and designers think and communicate about the structure of the software they are building. Wireframes are **visual representations** outlining the tool's structure, interfaces, and functionality. With feedback on the wireframes, developers refine and build out subsequent detailed iterations of the product's design, including a prototype.

In December 2021, the Project held a workshop with Diginex's software design team to evaluate the initial wireframes for the tool's data collection and management approach. The participants reviewed requirements related to the Key Data Elements and Labor Rights Indicators (KDE/LRI); supply chain mapping, traceability, and labor rights verification. They reviewed the approach to confirm coverage of the GS1 Traceability Standard's key elements[22], including: *identify* (e.g., hone risk assessment indicators for data accuracy), *capture* (e.g., ensure collection of consistent indicators across different tiers), and *share* (e.g., design for

---

[21] Global Dialogue on Seafood Traceability. GDST Standards and Materials v 1.2. June 2023.
[22] The GS1 Global Traceability Standard "defines a minimum set of traceability requirements within business processes to achieve full chain traceability, independent of any technology. It outlines a common framework to build a traceability system using other GS1 standards," such as barcodes and data carriers. See How Traceability Standards Work.

input from and share between different types of data storage; track physical cotton tag process).

Workshop participants also assessed the wireframes functionality related to different chain of custody models including identity preservation, segregation, and mass balance and obtained stakeholder feedback to ensure the tool would be user friendly for different data contributors. The participants also took steps to make the application as intuitive as possible and help ensure data integrity by limiting the ability of certain user types to enter and modify particular data fields. They also reduced the technology requirements for collecting data at the farm, which could be first captured on printed sheets.

3.4 Methodology Validation

In 2022-2023, GTP extensively consulted with brand representatives, civil society actors, and companies within the cotton supply chain to validate the pilot's design, often in coordination with LRQA customer service representatives. For example, GTP spoke with European brand representatives regarding traceability's potential role in demonstrating compliance with the German Supply Chain Due Diligence Law. The Project Director and Pakistan Project Manager also consulted with key stakeholder groups that included national and provincial government officials, the Pakistan Cotton Ginners Association (PCGA), representatives from spinning mills, other traceability initiatives, NGOs working in the field, the National Textile University (NTU), and garment sector union representatives.

On June 28, 2022, GTP convened a workshop with 35 stakeholders from the US government, NGOs, and private sector experts specializing in traceability to review and validate the GTP **Monitoring and Verification Plan**. Participants included representatives from ILAB/USDOL, the US Department of State, the US Agency for International Development (USAID), the US Department of Homeland Security's Customs and Border Protection (CBP/DHS), the US Department of Agriculture (USDA), Cornell University's New Conversations Project, the Open Apparel Registry (OAR), Verité's STREAMS Project, and LRQA's support team. The workshop's primary objective was to review and provide feedback on the traceability and Monitoring and Verification Plan as a means of achieving the Project's objectives.

The workshop featured a presentation of the tool's prototype, which included a demonstration of application interfaces for each entity along the supply chain. It also demonstrated how the application displays labor rights risk ratings for forced labor and child labor along with a more limited range on other labor rights such as freedom of association, collective bargaining, occupational health and safety, and gender equality. The pilot's Monitoring and Verification Plan, research questions, and pilot plan were presented in detail and a Q&A session was facilitated. Key topics discussed included interoperability with other traceability solutions or due diligence programs, Project connections to CBP and regulatory standards, worker protections in the program, and incentives for cotton sector actors to provide accurate data. Based on feedback, GTP subsequently updated the Monitoring and Verification Plan and provided it to ILAB prior to the pilot's launch.

3.5 Operational Staffing and Partnerships

In January 2022, GTP onboarded a Pakistan Project Manager (PPM) to oversee in-country management of the farm-level survey, tool users training, local stakeholder engagement, and workshop organization. With extensive experience in Pakistan's cotton supply chains, the PPM provided detailed feedback on the prototype and mobile app design, informed by cotton industry stakeholders. A short-term Field Officer was also hired to facilitate effective implementation of the application and foster stakeholder dialogue from November 2022 to May 2023. Recognizing the need to strengthen Project activities and reporting, GTP further expanded its team in November 2022 by hiring a Senior Project Manager.

Beginning in July 2022, GTP developed scopes of work and agreements with the following key partners and service providers:

1. **The Rural Education and Economic Development Society (REEDS) Pakistan**: was contracted to conduct farm-level worker surveys and risk assessments with LRQA oversight and Diginex guidance. REEDS Pakistan's status as a registered civil society organization enabled a relatively quick start in Punjab and Sindh provinces.

2. **The LRQA Pakistan office**: was engaged to provide pilot support and conduct an LRQA Responsible Sourcing Assessment (ERSA) at a participating GTP spinner (through an internal task request). GTP also collaborated with LRQA and its *Hamary Awaz* worker helpline, established in conjunction with a Pakistan NGO, to assist a brand client in exploring how a helpline (in whole or part) can best be integrated into GTP's tool for worker-level input.

3. **Open Supply Hub (OS Hub)**: to ensure interoperability between supply chain traceability initiatives, the Project purchased a package of Application Programming Interface (API) calls from OS Hub for identification data related to GTP ginners, spinners, and mills. OS Hub has identified, mapped, and assigned OS Hub IDs to over 90,000 facilities in the apparel sector globally. Data collected by the Hub is open-source and is used by many organizations across the apparel sector to map, organize, and communicate data related to supplier and facility social compliance and sustainability, helping to ensure that data collected about facilities is attributed to the correct party.

4. **Haelixa**: was engaged to verify the origin of products in the pilot's cotton supply chain through the application of a DNA marker additive during ginning and then lab tested throughout the supply chain to assess the value and accuracy of the technology and potential for integrating DNA data into the trace tool.

5. **The Responsible Sourcing Network (RSN)**: facilitated a series of trace due diligence workshops in February 2023. These workshops included training on the Yarn Ethically and Sustainably Sourced Standard for Spinner Mills (YESS™) for brand sourcing agents, academics, and representatives from spinners, ginners, and other organizations involved in traceability and due diligence assessments in Pakistan and the execution of YESS™ assessments at two of GTP's participating spinners.

Beginning in October 2022, GTP negotiated and signed an MOU with **CHF Industries** (a US-based company sourcing garments from Pakistan) and **Nishat Mills Ltd.** (a vertically integrated textile company spinning, dyeing, and manufacturing textiles in Pakistan). The purpose of the MOU was to ensure that each party would share information with GTP, use the GTP tool, and collaboratively implement the cotton pilot successfully. Roles and responsibilities for each party were outlined in the MOU, including Nishat's commitment to purchase cotton bales from the GTP partner ginner. Later, in November 2022, GTP signed another MOU with **Artistic Fabric Mills (AFM) (Pvt) Ltd**. (a vertically integrated yarn spinner and premium denim mill) to collaborate with GTP in Pakistan under similar terms.

These partnerships, which are discussed in more detail in the Results and Lessons Learned section, were pivotal for successfully managing the farm-level survey, implementing the tool, engaging stakeholders, conducting assessments, and facilitating Project activities.

3.6 Pilot Implementation

GTP selected 200 cotton farms (100 per province in Sindh and Punjab) in regions that had not been affected by flooding to participate in the pilot. The farms were grouped based on location (10 farms per group, 10 groups per province) to enhance data management efficiency and draw community-level conclusions regarding risk. The farms were in locations well known to LRQA, where the team has a robust network of business and civil society partners.

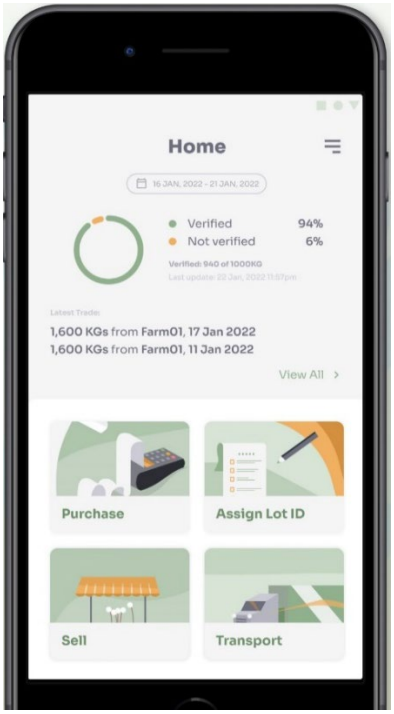


Figure 2: Mobile Ginner App Home Screen

3.6.1 Farming Unit

REEDS assessed each farm using a set of GTP community and farm tier risk questions. The assessment collected base-line data on risks related to child and forced labor and other labor rights (e.g., hazardous work) as well as information about production processes and children's school access. The 100 participating farms in Rahim Yar Khan, Punjab were Better Cotton Initiative (BCI) certified farms, while the farms in Sindh were not, allowing comparison of certified and non-certified farms. The assessment provided an initial opportunity to test Project linkages to the BCI certification program. Data from the assessment was logged into the platform using the GTP mobile phone application. The data allowed GTP to associate risk from the farm groups with specific batches of cotton up to the ginning unit tier.

3.6.2 Ginning Unit

Ginning is the first processing event in the cotton value chain. Ginning cleans raw cotton by separating cotton fiber from seeds producing cotton bales. After extensive research, GTP partnered with ginner AA Cotton, which helped map farms to be included in the pilot based on their existing sourcing relationships. AA Cotton purchased the seed cotton (unginned cotton seed with lint) through a trader who purchased it directly from farmers in the GTP farm groups. That purchase was recorded in the GTP app, which captured information about sellers, the quality and weight of the cotton, certification programs, and optional pricing information (see Figure 2: Mobile Ginner Application Home Screen).

Prior to being cleaned and ginned, the seed cotton was segregated into a "GTP lot" at the ginning unit. With guidance from Haelixa and the Pakistan Project Manager, AA Cotton employees applied a DNA marker additive to the cotton during ginning. After pressing, they applied QR coded stickers to the bales where handwritten tags are commonly applied. Thus, GTP was able to trace physically (the DNA marker) and administratively (paper trail)[23] the product through subsequent supply chain tiers, including the yarn spinner and fabric mill tier.[24]

[23] See the GTP Context Analysis Report: Global Supply Chains, Labor Rights and Traceability for descriptions of and distinctions between physical and administrative traceability.
[24] Spinners typically purchase lots of 100 bales from traders or directly from ginning units.

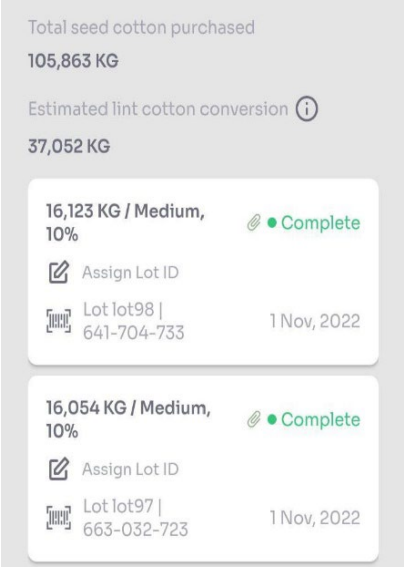


Figure 3: Purchased Cotton View Spinner

3.6.3 Yarn Spinner and Fabric Mill

Spinning transforms cotton bales into yarn. Many spinning facilities in Pakistan are composite textile mills that spin yarn and manufacture fabric. Spinning facilities produce yarn from raw cotton lint, cotton by-products (from combing or carding), and/or recycled cotton yarn. Weaving and knitting mills interlace sets of yarn to create continuous fabric.[25] The agreements with CHF Industries, Nishat, and AFM provided that each party would share information, use the GTP tool, and collaborate for successful pilot implementation. They also outlined each party's roles and responsibilities, including the mills' commitment to purchase cotton bales from the GTP partner ginner.

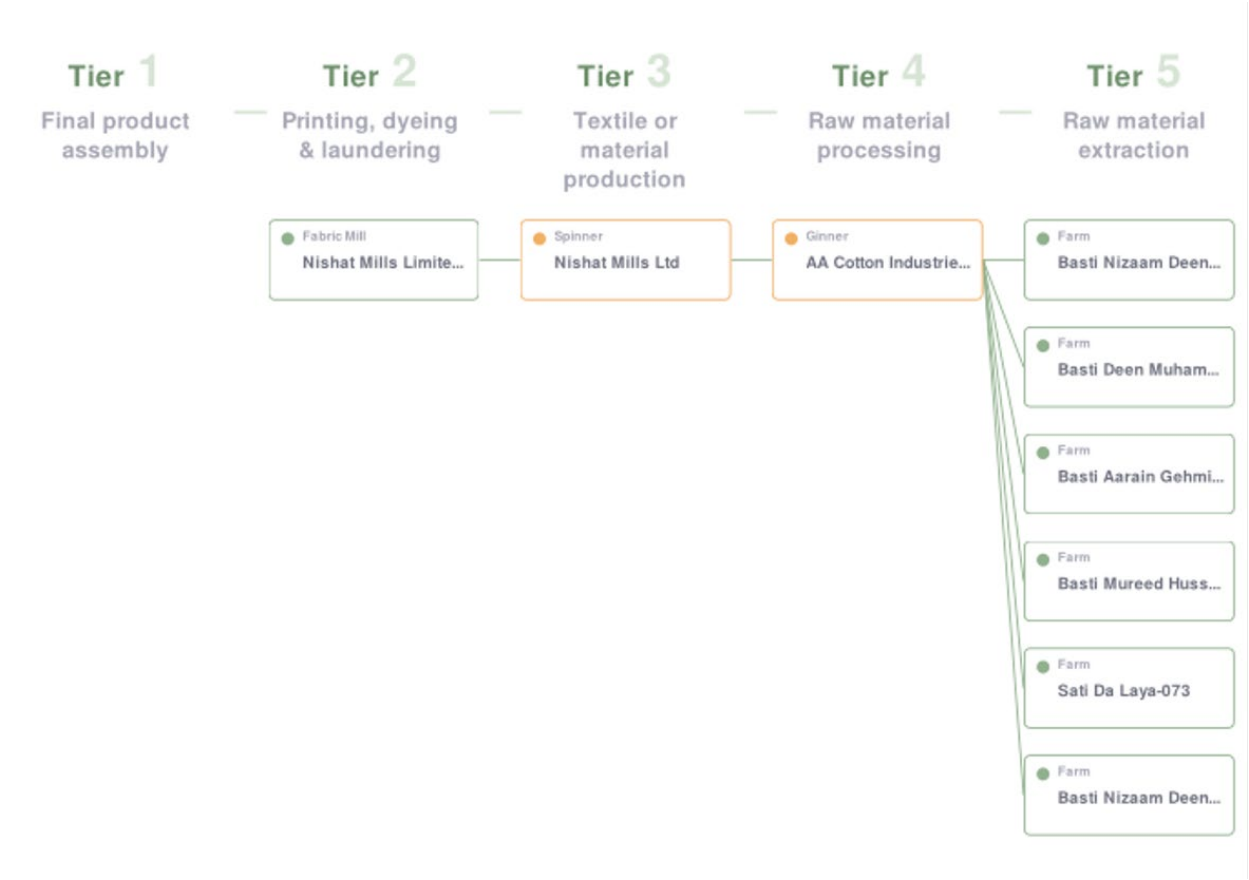
The spinners were onboarded into the system after completing a Self-Assessment Questionnaire and adding AA Cotton (the upstream ginning unit) into their supplier systems. The trained ginner-tier users entered data into the GTP tool on smartphones (see Figure 3: Purchased Cotton View Spinner).

3.6.4 Brand Sourcing of Finished Product

GTP engaged with representatives from a brand purchasing Nishat's curtains made with GTP traced cotton and with representatives of another brand considering the purchase of AFM's denim (ultimately not purchased by that brand). Nishat's curtains were shipped to the brand's retailed operations in the summer of 2023. GTP shared with the brand users access to its platform to follow the full supply chain map of the segregated product, the risk assessment of each supplier in the supply chain, and all associated documentation collected during the pilot (see Figure 4: Brand View of Supply Chain Map). GTP conducted a series of presentations for the brand representatives and received feedback on the tool's functionality, ease of use, and value for integration into their due diligence approaches.

[25] LRQA. The Pakistan Cotton Supply Cain Mapping Report. (September 2022) p. 12.

Figure 4: Brand View of Supply Chain Map



SECTION 4: PILOT RESULTS AND LESSONS LEARNED

As detailed below, the critical assumptions were not fully met and, as a result, GTP had to implement responses to mitigate the impact and adjust to changing circumstances, most particularly adjusting to a loss of about 40% of the cotton crop. The answers to the three research questions are also set forth below.

4.1 Critical Assumptions and Mitigation Responses

No amount of planning can fully identify the challenges that need to be addressed for successful implementation. Every project contends with "white space" risk, which entails encountering challenges in implementation that were not identified or identifiable in advance.[26] Other challenges entail circumstances that change between plan formation and implementation. GTP's critical assumptions were that the cotton would be harvested, processed, and transformed into a product that would be exported, that the Pakistani government would authorize/allow the pilot, and that key stakeholders would engage in the process. GTP implemented mitigation responses where the assumptions were challenged (see Chart A and discussion below).

Chart A: Critical Assumptions

Did the cotton pilot critical assumptions hold?			
CRITICAL ASSUMPTION	**LEVEL**	**CHALLENGES**	**MITIGATION RESPONSE**
Cotton produced/ harvested	L/M	Flooding destroyed over 40% of crops in country; mass farmer displacement; growing season shortened	Selection of farms still producing; move up test time frame
Ginners operational	M	Earlier processing in shortened season; many ginners not operational; 1 participating ginner dropped out	Move up test time frame; implement at one ginner
Spinner mill purchase cotton	M/H	Some mills not accepting Pakistan cotton for products; price disagreement delayed sale to spinner	Shift to spinners purchasing Pakistan cotton; facilitate transaction; sign MOUs with spinners & intermediary
Government support	L/M	National government legal approval complexity; provincial lack of enforcement or data sharing; army stopped NGO collection of geolocational data	Government clarified approval process; approved NGO farm level survey; locational data still obtained; farm spread sheets kept in-country
Brands engaged	M/H	Slow brand supplier data share at start; limited brand interest, cautious to engage	Brand interest increased; ongoing discussions; retool applications
Civil society engaged	M	GTP met with union leaders, but they do not represent workers at farms/ ginners/ spinner	Good relationships developed with academic and research institutions

**LEVEL OF ACHIEVEMENT: L=Low, M=Medium, H=High*

[26] Matta, N., and Ashkenas, R. Harvard Business Review. Why Good Projects Fail Anyway. September 2003.

4.1.1 Environmental Challenges

As discussed in the Country Context section above, Pakistan's cotton crop suffered disruptions due to massive flooding and a heat wave, which resulted in a shorter growing season and reduced yield. To avoid spoilage, cotton farmers and ginners were compelled to quickly sell and process cotton seed. Some farms had limited space and time to store their crop as flooding impacted transportation infrastructure. Far fewer ginners could operate due to the reduced quantity and quality of cotton resulting in increased costs. The remaining operational ginners had to process cotton quickly to avoid spoilage due to moisture damage.

To address the challenges of a shorter growing season and reduced yield, GTP engaged stakeholders, including farm groups in Rahim Yar Khan and Ghotaki, to identify farms and ginners that remained operational. As a result, the number of potential participants was reduced and GTP shortened its timeline for tailoring tools and training users. GTP also expedited testing of the tool and application of DNA markers.

4.1.2 Spinner Challenges in Purchasing Cotton

During the pilot, the market price for cotton rapidly dropped causing ginners to sell their cotton as quickly as possible at lower prices. Tensions arose between the buyer for a participating ginner and the spinner when the buyer attempted to renegotiate prices. The buyer also reportedly expected a premium for GTP traced cotton. GTP helped facilitate a fair sale of the cotton, though it did not propose a specific sales price. A lesson learned: in the future, engage the spinner in the selection of participating ginners with a clear pricing policy and no expectation of a premium.

4.1.3 National and Provincial Government Challenges

GTP engaged with governmental officials to identify potential legal and security hurdles, including an asserted governmental requirement that all audit data must be maintained in Pakistan. However, the common practice for assessment firms, including LRQA, is to maintain data on servers out of Pakistan. To meet the government's requirement, GTP determined that physical farm audit spreadsheets would be maintained at REEDS's office, serving as the primary documentation location, from which the data would be uploaded into an external data system. A lesson learned: governmental data security requirements may impact the tool's collection of data in other jurisdictions.

Government officials also informed GTP that different authorities govern assessor approvals at farms, covered by an NGO law, compared to commercial enterprises in manufacturing and sales, covered by a separate commercial law. Therefore, in effect, at least two assessor organizations needed to be engaged to conduct assessments at different tiers. Because REEDS had previously obtained provincial government approval to conduct farm tier surveys, it was able to amend the existing authorization to cover the GTP farm survey

GTP also encountered an unanticipated hurdle not explicitly found in governing regulations: during a farm visit, an unmarked army unit stopped and warned REEDS staff that they were not authorized to collect the farms' longitude and latitude data and, therefore, must cease doing so. Fortunately for the pilot, GTP was able to collect this data for participating farms from third-party sources. Subsequently, GTP was informed that the army actively monitors users' access to regional internet connections, hence identifying another source of government regulation.

4.2 Research Question 1: Is the Traceability Tool Effectively Designed to be User-Friendly?

Determining the extent to which the methodology and tool were effectively designed to be user-friendly depends on the following factors:

- User knowledge and skills training;
- User capability to use tool technology at all engaged tiers; and
- Active technical support during implementation.

See Chart 1 for a breakdown of factors, challenges, and GTP's modifications.

Chart 1: User-Friendly Tool

1. Is the traceability tool effectively designed to be user-friendly?			
FACTORS	**LEVEL**	**CHALLENGES**	**MODIFICATIONS**
Overall rating	M	Greatly differing user skills and abilities at each tier	Updated tool interfaces
Training & support requirements	L/M	Shortened growing season, long geographical distances, language barriers	Provided regular follow-up for user support to asset accuracy and address gaps
Data entry accuracy	M	Identified errors and gaps	Detailed review, follow up for data correction, process improvement
Farm tool use	L/M	NGO users unable to use remote device at farms	Initial data collection shifted to spreadsheets
Ginner tool use	M	Poor data entry practices using mobile application	Regular support improved proper data entry
Spinner mill tool use	H	Use of web-based application	Improved spinner/mill user guides
Language & translation	L/M	Limited English comprehension on farms, generally higher but still limited at ginner & spinners	Urdu translation for mobile app
Terminology	M	Clarification of data field terminology required	Added specificity and clarity of particular purpose
Brand view of final products	H	Brands identified supply chain mapping visualization and results printout functions as valuable	Added PDF function for evidence of due diligence

**LEVEL OF ACHIEVEMENT: L=Low, M=Medium, H=High*

4.2.1 Tool User Training and Support Requirements

Across all user types and supply chain tiers, users required extensive training and support on the application including navigating application interfaces and entering quality and timely supply chain data. While the GTP team designed the application to be user-friendly, the team needed to provide frequent guidance to both mobile and web-based application users when they encountered technical issues or had questions.

Because GTP had less time to train users due to the shortened growing season, much of the training occurred during live piloting with the Project providing direct user support to assessors. During the pilot, the GTP team coordinated with the Pakistan Project Manager to answer questions and incorporate user feedback into the platform with support from Diginex, which also provided additional training as needed.

4.2.2 Data Entry Accuracy at Farms, Ginners, and Spinners

In conducting the farm tier survey, REEDS encountered unreliable internet connectivity, preventing their surveyors from recording data into the trace tool. As a result, and because users had challenges in entering data on handheld devices, they resorted to entering data into physical spreadsheets. Once back in REEDS's office, they entered data into the tool by desktop computer. This modification led to an increased error rate in the accurate transfer of data, which required GTP time and attention to expand explanations and correct entries. At the ginner and spinner tiers, the GTP Pakistan Project Manager and Field Officer helped participating ginners and spinners enter correct data concerning their practices into the Global Trace application directly to ensure data quality.

Through this process, GTP gained insights for improving user onboarding steps, simplifying user interfaces, and identifying data entry errors. Future testing of traceability tools would benefit from additional upfront user skills assessments, deeper training, greater clarity on roles and responsibilities, and more detailed user guides. User support will always be required for traceability systems, but users must have, at the beginning, a basic level of comfort with independently entering quality and timely data.

4.2.3 Language and Translation

Accurate use of the tools assumed a certain level of user proficiency in English, which was not met in every case. GTP prepared user guides in English based on this assumption. Users had relatively high levels of English proficiency at the spinner tier, sufficient levels at the ginner tier, but uneven proficiency at the farm tier. In response, the Pakistan Project Manager and Field Officer provided detailed guidance to the users in Urdu.

A broader challenge was raised by handwritten and printed Urdu invoices and receipts, which were uploaded into the tool. One problem: the documents were difficult to read, whether read by machine or person. A second problem: in some cases, the documents lack key information, either inadvertently or to avoid entering information that could serve as a tax liability paper trail.

In short, lessons learned included ensuring that the tool's fields are in accessible languages and that data is entered for all required questions whether or not they are all captured in attached documentation. Accordingly, GTP is designing prompts allowing users to select a preferred language from a drop-down menu so standard data fields are defined in a user's language of choice.

4.2.4 Terminology

GTP encountered user confusion in terminology. A notable example was distinguishing assessment entries labeled "By Product" and those related to "By-product." The former pertains to the transformed cotton product, such as woven cloth, while the latter refers to by-products like cotton comber noil, short fibers removed through the combing process that can be repurposed. Users explained that they saw value in tracking both the primary product and its by-products, which requires users to understand the difference between these concepts. Therefore, improved user guides, robust training plans, tailored methodology instructions, and a written traceability protocol will likely be helpful to improve user comprehension and traceability effectiveness.

4.2.5 Brand View of Final Products

The GTP platform allows brand users to view the entire supply chain map of segregated products, risk assessments of each supplier in the supply chain, and all associated documentation collected during the pilot. For example, Nishat produces curtains that are purchased and sold by a major US based brand. GTP conducted a series of presentations for that brand's representatives and elicited feedback on the platform's functionality, ease of use, and value, which will be integrated into the next version of the GTP tool. GTP has been in and will continue dialogue with brands with a range of commodities.

4.3 Research Question 2: Is the Traceability Methodology and Tool Effective in Identifying and Assessing the Presence and Risk of Child and Forced Labor?

Determining the extent to which the methodology and tool were effective in identifying and assessing the presence and risk of child and forced labor depended on the following factors:

- A ranking methodology that effectively assesses risk levels;
- Indicators tailored to type of data source, whether objective or subjective; and
- Effective farm-level child labor risk indicators that distinguish between children present and children at work/risk.

Chart 2 summarizes the evaluation, followed by discussion and analysis.

Chart 2: Methodology and Tool Effectiveness

2. **Is the traceability methodology and tool effective in applying labor rights and due diligence principles to accurately identify and assess the presence and risk of child and forced labor and other exploitative practices in global supply chains?**			
FACTORS	**LEVEL**	**CHALLENGES**	**MODIFICATIONS**
Risk ranking methodology	M	Weighing indicators of various importance	Revised risk rankings
Farm child labor risk indicators	L	Ambiguous fact findings are a challenge to accurate risk indicators	Follow-up questions for narrative detail
Objective/ subjective data	L/M	Differences in qualitive sources	Provided different risk rating weight by source
Farm coverage	L	Very large number of small farms	Farm grouping
Ginner data quality	M	Training on tool and accurate application of DNA marker; challenge of maintaining segregation	Training and oversight from GTP and Haelixa; training on segregation
Spinner data quality	M/H	Training and use of tool; transfer of purchase data; difficult to segregate cotton given small test in high volume	Training and oversight by GTP and Diginex; hands-on assistance

**LEVEL OF ACHIEVEMENT: L=Low, M=Medium, H=High*

4.3.1 Risk Ranking Methodology

Sufficient clarity of indicator data is required to effectively categorize risk. The nature and quality of data influence the reliability of risk ratings. GTP is revisiting the indicators, sub-indicators, and risk ratings to assess whether indicators should be rated in clusters, particularly with specific operational safety and health (OSH) related requirements, for balanced ratings for strong indicators of violation/nonconformance with fundamental rights (see Figure 5 for Indicator Display). GTP will revisit the rankings to determine where sub-indicators are required and to consider whether to expand ratings (high, medium, low) to include a 5-point scale or similar commonly used metric in risk ranking.

4.3.2 Child Labor Indicators

The most significant challenges in farm tier data collection were related to child labor. As a practical matter, a monitoring survey most often finds potential indicators of risk rather than clear-cut cases of child labor. Two approaches to improving data captured at the farm tier are: 1) refine indicators for the collection of more precise, objective data to determine if a risk indicator is present; and 2) ensure that the risk methodology accurately identifies the presence of a “high risk” of child labor.

In practice, field surveys can yield ambiguous evidence. Here, some of REEDS’s first farm risk assessments lacked sufficient detail to effectively assess labor risk levels. For example, the presence of children on or around farms raised context clarifying questions:

- Were the children near a worksite engaged in work or were they waiting for their parents or others?
- Were the children using nearby tools for hazardous work or were they just near them?
- Were the children on site during regular school hours?
- Were the children exposed to hazards (e.g., pesticides) even if they were not working?

Ambiguous information on the circumstances of children found on farms may lead surveyors, including those using the Global Trace tool users to speculate about what children were doing at a job site and why they were there, unless the user actively seeks to determine why children are present. In the first pilot, GTP staff asked REEDS to supplement their findings with more detail, where possible, and to provide written clarification on the severity of incidents observed.

For the second pilot, GTP refined and added questions to collect more objective data to better assess risks, including binary questions (answer “yes” or “no”) and based them on discernible evidence that facilitates a more accurate assessment of risk than in the previous pilot. For example, if a child is present at a worksite, users will ask if a parent or adult relative is present; if not, there is higher risk level that a labor rights violation is present. GTP added and refined questions to determine if a child is working and if so, if the child engaged in hazardous work; and if not, if the child is exposed to hazardous conditions such as pesticides or a lack of water. GTP clarified that an indicator regarding a child’s presence at a work site during school hours relates to the free public school year, noting however, that many parents send their children to private school programs outside the regular school year. Because these schools generally are not free, although sometimes with minimal fees, many or most farm workers cannot afford them. However, the survey team has been asked to add comments where a private school is being used by some of the families.

In situations where child labor is not directly observed, indirect indicators may be used to determine whether there is sufficient risk – i.e. “high” risk – to warrant a targeted audit assessing whether child labor is indeed present. Certain individual indicators may be of greater concern than others, and/or a cumulative number of risk indicators may identify “high risk” levels in particular situations. GTP is refining risk metrics for the second pilot, supported by a wider range of more precise indicators.

4.3.3 Objective and Subjective Data Sources

The GTP protocol was designed to collect similar types of information at each tier in the cotton supply chain. For this reason, GTP explored similar questions at each tier. However, at some tiers, the data source was objective while at other tiers it required subjective evaluation. As assessments moved upstream, the more likely they were to depend on subjective judgments. For example, lux light meters may be used at the spinner level to determine whether lighting is “inadequate” and, therefore, hazardous. However, lux light meters are not commonly used at farms where auditors judged the adequacy of lighting based on subjective observation. One way of increasing reliability of audit data is to eliminate questions that could collect subjective

data to the greatest extent possible and to cross check and recheck subjective data for consistency where it cannot be avoided.

In some cases, objective questions asked during GTP farm assessments may have lacked sufficient precision to capture local circumstances. For example, a question asking whether an organization is representing farm workers will always be answered in the negative because there is no legal structure for a farm union to be registered. As a result, GTP added questions to determine how many times (if any) workers have collectively raised a dispute and how many times such disputes were resolved. The presence of an active group of workers could be taken as circumstances for a reduced risk of child and forced labor.

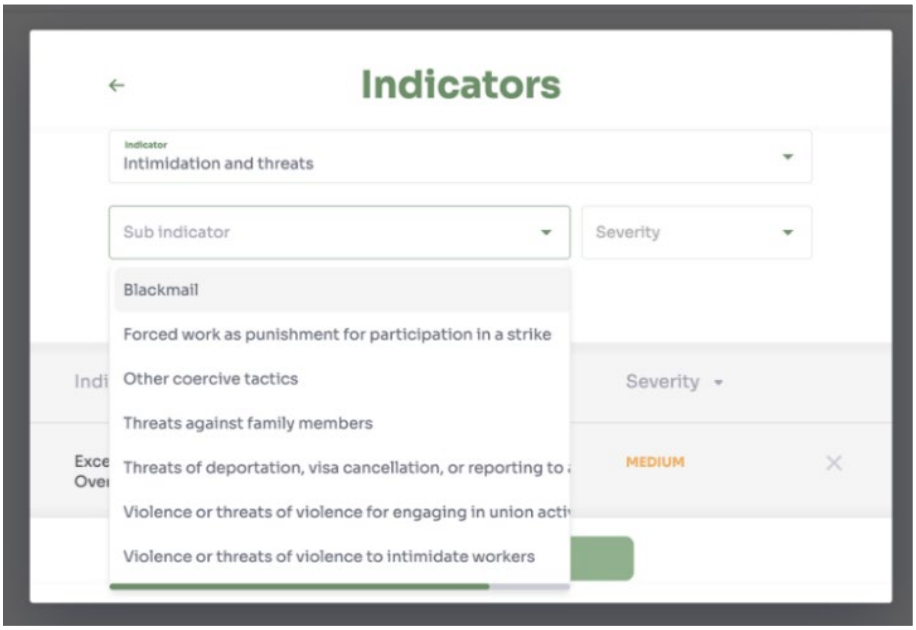


Figure 5: Indicator Display

4.4 Research Question 3: Is the Traceability Methodology and Tool Sustainable?

Determining the extent to which the methodology and tool are sustainable depended on the following factors:

- Consistent use of the methodology and tool over a sustained period of time;
- Adaptability and scalability for evolving needs and different commodities for different stakeholders;
- Cost-effectiveness, particularly when gained through high volume and repeated use;
- Application of a methodology consistent with other due diligence systems; and
- Interoperability with complimentary due diligence and data sources, particularly including:
  - Supplier locational resources (Open Supply Hub);
  - Management systems that track cotton imports (tested with YESS Spinner 2.0™);
  - Social responsibility due diligence systems (tested with ERSA);
  - Physically traced product (tested with Haelixa DNA marking); and
  - Worker voice input (helpline/grievance system, here *Hamary Awaz*).

Chart 3 below sets forth the factors, challenges and GTP modifications.

Chart 3: Sustainability

3. Is the traceability methodology and tool sustainable?			
FACTORS	**LEVEL**	**CHALLENGES**	**MODIFICATIONS**
Cost-effective	M/H	The tool is reasonably cost effective, other interoperable tools range from L-M	Open-source approach
Consistency in methodology	M	Developing specific accurate risk indicators for different tiers/ commodities within common principles	Improved the indicators used in the system
Interoperability: OS Hub	M/H	Entering data on farms, regular updates	Obtained geolocation data for farms by other means; collaborate with OS Hub
Interoperability: due diligence test (ERSA)	M/H	Data share with different systems; differing scope	Data inputs from existing due diligence approaches
Interoperability: RSN's YESS	M	Lack of due diligence knowledge and YESS standard, lack of spinner/mill management systems, scale limitation	Ongoing follow-up with spinners on management systems
Interoperability: DNA Marking	L/M	Proper application, accurate results, cost-effective, value-added	Evaluated results of test
Interoperability: Worker helpline	L	Stakeholder spinner/mill use; brand requirements	NA – not able to test
Strategy: general interoperability	M/H	Complexity of different systems in structure, functions and outputs	Testing other due diligence system interoperability
Strategy: incorporating business needs	H	Issues with cotton quality, including moisture, waste and polybag contamination	Incorporate data points for moisture & waste

**LEVEL OF ACHIEVEMENT: L=Low, M=Medium, H=High*

4.4.1 Cost-effectiveness

Overall, the GTP traceability tool is cost-effective due to its free, open-source availability. Compared with fee-based, proprietary traceability tools, the GTP tool can be accessed and built upon freely with limited additional software development. Future tool users will be empowered to apply the methodology and use the tool to trace different commodity supply chains. Access to low-cost data from other organizations, including OS Hub, is accessible using the tool (though these costs are subject to increases).

Ensuring that physical tracing is cost-effective, it appears, depends on a plan and approach that targets testing at high-risk points (per "segmentation") with repeated application ensuring greater accuracy. In addition, the cost of interoperability with other due diligence systems varies greatly depending on a host of factors, including supply chain complexity, data availability, the presence and maturity of existing systems, and product volume, among others. In its next phase, GTP aims to test physical traceability through isotope testing and repeated and refined due diligence testing.

4.4.2 Interoperability with Existing Due Diligence Solutions

GTP research supports the conclusion that traceability tools are more likely to be effective and sustainable if they are interoperable with other due diligence efforts and tools. A labor rights risk or violation/non-conformance incident not picked up by one tool may be picked up by another. For example, an audit may miss a worker abuse problem that could be identified by a worker survey or grievance system. Child and forced labor are included in many due diligence systems, but data sets are often incomplete and data quality may lack the desired rigor. Brands frequently encounter inconsistent and incompatible data sets. Moreover, different regulatory entities may have different requirements, including US customs law and European due diligence laws. GTP evaluated multiple due diligence solutions during the pilot, which are briefly described below.

4.4.3 Open Supply Chain Hub (OS Hub)

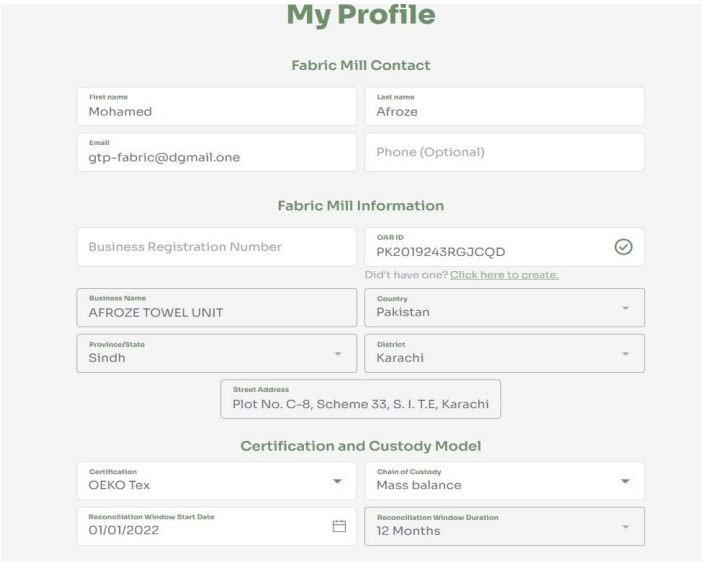


Figure 6: OS Hub/OAR IDs in User Profile

Open Supply Hub identifiers (IDs) were utilized to explore how open-source identification systems can contribute to traceability programs. Leveraging existing supplier IDs and locations for mills and spinners, GTP established connections to data provided by other industry actors who have also used OS Hub IDs at these facilities. The GTP team also actively contributed data necessary for integrating new IDs into the OS Hub database for GTP ginners and spinners.

In instances where supplier locations were not found in the OS Hub, new IDs were added through an Application Programming Interface (API) (which facilitates communications between applications) connecting the traceability tool with OS Hub, thus expanding the OS Hub database. To streamline user onboarding and enhance data accuracy, the GTP team introduced a dedicated field for entering new supplier IDs providing an efficient and integrated approach to utilizing the OS Hub identification systems within the traceability tool (see Figure 6: OS Hub). This effort demonstrated GTP's commitment to interoperability with other due diligence tools and the value of a centralized database for ID management.

4.4.4 The LRQA Responsible Sourcing Assessment (ERSA 2.0)

Social responsibility due diligence assessments identify labor rights issues in the context of a wide range of factors. GTP tested the interoperability of its tool by sponsoring an LRQA

Responsible Sourcing Assessment (ERSA 2.0) at one of the participating spinner mills in May 2023. GTP agreed to maintain the confidentiality of the assessment's specific findings provided that a summary of the process and findings would be reported to GTP.

ERSA is designed to collect and assess data related to labor, health and safety, environment, business ethics, and management systems. Results are presented in an Audit Summary which scores supply chain risk and identifies both Good Practices and Priority Improvements (see Figure 7). The data is categorized under Labor, Health and Safety, Environment, Business Ethics, and Management Systems and are scored in a Performance Summary (see ERSA Standard Coverage Box).

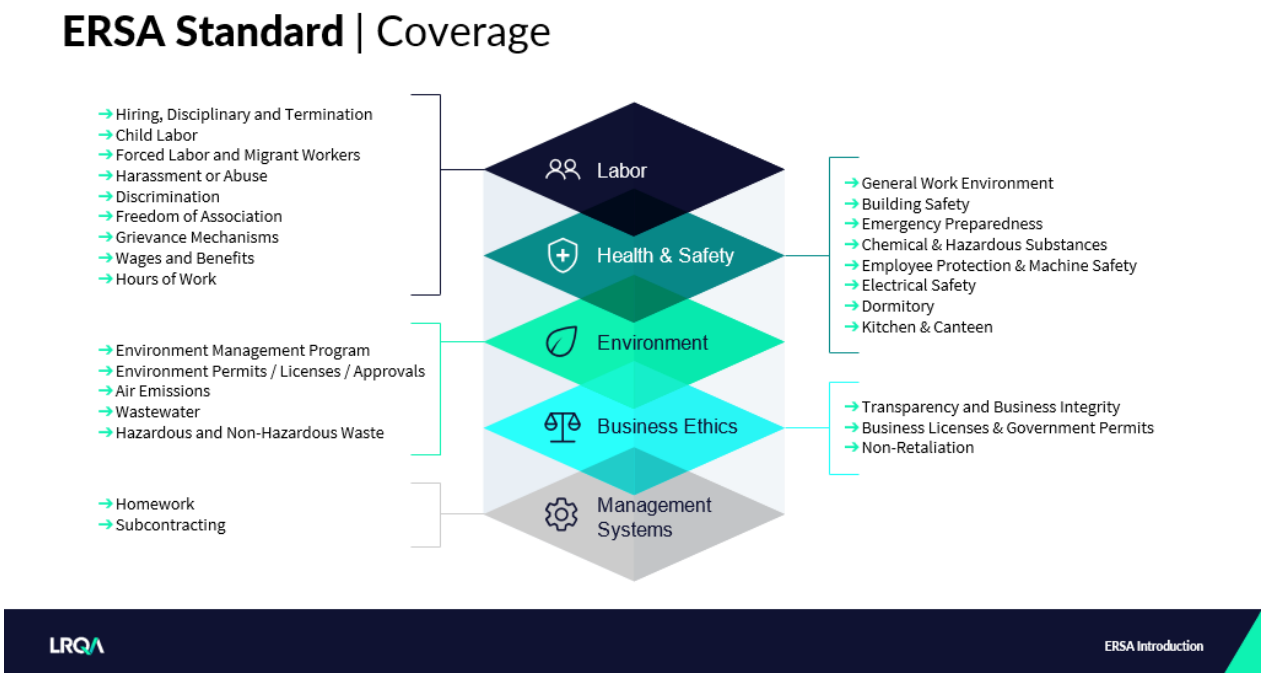


Figure 7: ERSA Standard Coverage

In the GTP Pakistan ERSA test, the results included no "zero tolerance" findings (which include child and forced labor, requiring a fast-track response) or "critical" findings but found some major, moderate, and minor findings, primarily related to OSH. The data from the ERSA was entered into the tool database and reflected in risk rankings for the audited party.

4.4.5 The Responsible Sourcing Network's (RSN) Yarn Ethically and Sustainably Sourced Standard (YESS™)

The YESS™ assessments integrate the OECD Due Diligence Guidance for Responsible Supply Chains in the Garment and Footwear Sector[27] as a core element of due diligence to identify and eliminate cotton produced with forced labor from apparel supply chains. An important focus is in developing effective management systems for collecting and reporting relevant data about supply chain risk, including determining whether cotton is imported from countries that use forced labor.

After conducting YESS™ assessments at both GTP spinners, the Responsible Sourcing Network (RSN), which manages YESS™ certification, provided detailed findings to the spinners, on a confidential basis. It also provided GTP with a process description and a results summary. In both assessments, RSN found significant gaps and shortcomings in spinners management systems across all six steps of the OECD guidance.

After consultations, GTP concluded that spinners need and are interested in effective management systems to track the source of their imported cotton. The GTP team also concluded that YESS™ can help fill an important gap by helping spinners effectively identify the sources of imported cotton and establish management systems to track and trace them, provided that it can be scaled up and sustained over time through a process of continuous improvement. One lesson is that extensive advance notice and preparatory work helps enterprises prepare to provide key documentation to facilitate the YESS™ audit process. For example, one spinner had the documentation required for YESS™, but it was not organized and accessible on-site. A second lesson learned is that repeated runs of YESS™ (and other) assessments would improve the spinners' experience with due diligence audits and test their commitment to compliance or corrective action. This would encourage them to establish processes to support continuous improvement.[28]

RSN has faced challenges in scaling up and sustaining YESS™. At the time of these assessments, RSN had just one trainer who conducted a relatively limited yet time-consuming certification program. GTP recommended raising the prerequisites for certification of assessors (e.g., prior audit/accessor certifications and experience) so the amount of time required for YESS™ certification could be reduced. Also, training costs can be reduced through the use of webinars. Since that time, RSN has been ramping up an improved training and certification program.

---

[27] OECD Guidance for Garment and Footwear Sector includes the following: Step 1. Embed responsible conduct into systems; Step 2. Identify and assess operations' risks; Step 3. Cease, prevent, and mitigate risks; Step 4. Track implementation and results; Step 5. Communicate how impacts are addressed; Step 6. Cooperate for remediation.

[28] One participating mill provided feedback on their experiences with YESS™ and ERSA, regarding: 1. ease of use; 2. usefulness of process and outcomes; 3. similarities and differences between the two assessments; 4. potential for integration of approaches; and 5. recommendations.

Brands are increasingly asking mills to track and report on the sources of their cotton imports and are reviewing a range of potential approaches for tracking cotton supply chains that include but are not necessarily limited to YESS™. In future versions, the traceability tool should accommodate various systems for tracking and tracing cotton imports as well. The spinner/mill management systems would need to be improved to effectively track and report on the sources of imported cotton.

4.4.6 Physical Traceability: Haelixa DNA Marking

The Project explored various approaches to conducting physical tracing, including soil sampling, DNA marking, and isotope testing. At that time, GTP determined that soil sampling was more expensive and less reliable than DNA marking (e.g., soil sampling requires numerous regular samples from multiple locations and flooding would have negated validity) and was not presented with a viable approach for conducting isotope testing, which was evolving with a limited range of providers. After a competitive procurement process, the Project contracted Haelixa to provide DNA marking services starting at the ginner and spinner/mill levels.

In brief, the purpose of DNA tracing focused on these questions:

1. Is DNA marking accurate?
2. Is it cost-effective and scalable?
3. Does it provide information not otherwise available?

Between October 2022 and June 2023, GTP collaborated with Haelixa to apply two unique DNA marker formulations – 24 megatons (MT) – to lint cotton at GTP's ginner, which tested physical traceability through various stages of cotton production, including spinning and fabric production. A total of 40 samples were tested before and after spinning, as well as after cutting and sewing processes (see Figure 8). Haelixa provided training and support on the application of its DNA marker to ginner employees and the GTP Pakistan Project Manager, who supported their efforts.

GTP's test of DNA marking as a value-added traceability tool demonstrated high accuracy in determining the presence or absence of markers when properly applied and monitored. However, the technology's reliability requires repeated application over time to establish baseline DNA levels to determine the percentage of marked material in blended products. When optimally set up with continuous operation, not one-off pilots, Haelixa is able to detect the mixing of different materials and lots (e.g., certified/non-certified) during garment production. The fraction (%) of known material in a yarn or fabric can be detected by quantifying the marker concentration in a fixed amount of fabric. This result would be compared to the expected marker concentration in the 100% blend to calculate the actual blend percentage.

The "Yes/No" determination could be useful in certain instances, but comprehensive traceability solutions must consider DNA marking's limitations. A combined approach involving chain of custody tools and physical traceability can provide useful results, especially in higher-risk supply chains. Evaluating risks and implementing physical traceability in specific geographies or fragmented supply chains, along with periodic auditing through alternate marking, enhances overall risk management. Integrating DNA marking with other traceability methods is essential for accuracy, as blending and potential manipulation of samples pose challenges.

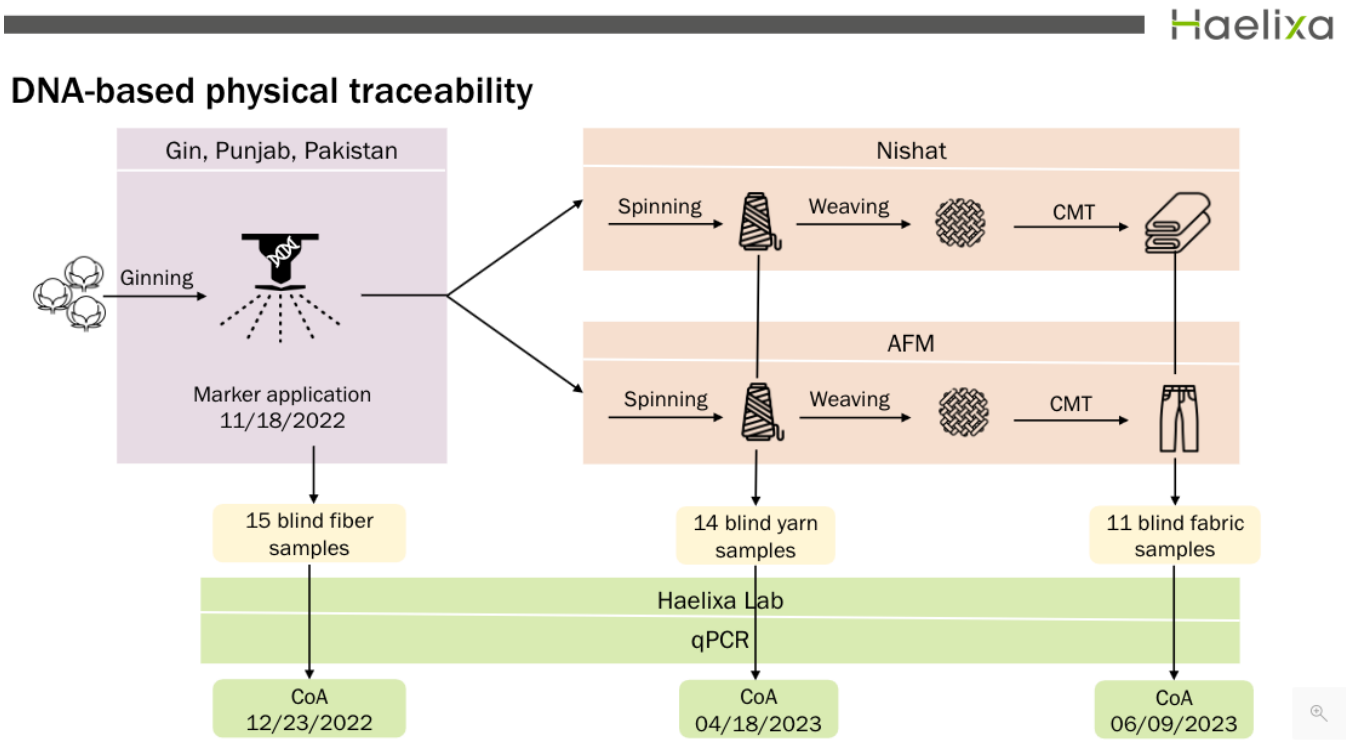


Figure 8: Haelixa's DNA Marking Process

4.4.7 The Hamary Awaz Worker Helpline

LRQA's Advisory Service partnered with the Cahn Group (a consultancy on supply chains and worker voice) and Baidarie (a Pakistani labor rights NGO) to establish the *Hamary Awaz* (Our Voice) helpline in Pakistan, which was modeled on the Amader Kotha Helpline implemented under the Alliance for Bangladesh Worker Safety. To build on this effort, GTP collaborated with the Advisory Service to design an iteration of the helpline in Pakistan that could be integrated into the traceability tool and tested with a segment of cotton sector workers.

The *Hamary Awaz* helpline includes two worker engagement components: 1) design and deploy worker surveys; and 2) design and rollout of a grievance mechanism/helpline for

workers at selected sites, adapted to suit the needs of spinners, mills, and eventually cotton farms. The approach is to establish a helpline where it is most feasible and expand it to include tiers and locations where child and forced labor are more likely to be prevalent. The main features include:

1. Call handling protocols, with defined categories and escalation pathways for worker issues related to participating factories and brands.
2. Call intake and case management system, which workers would access via a toll-free number, WhatsApp, or email to connect to an operator who will collect data regarding labor issues in the helpline's customer relations management (CRM) software.
3. Call center operators, speaking local languages, including Urdu, Punjabi, and others.
4. Worker training, in-person training and outreach materials distributed to workers in participating factories.
5. Data analysis and reporting, with issues tracked, problems referred through appropriate channels, and reports reflecting aggregated data on type of issue, status, and resolution.

GTP, with LRQA's Advisory Services, identified issue areas that workers may raise through the helpline related to child and forced labor; common problems such as OSH, payments, benefits, and working conditions; and highly sensitive issues such as abuse and harassment. GTP shared a Concept Note for the helpline with the two participating mills/spinners and suggested collaboration to determine how and in what form the helpline could be established. The mills/spinners, however, declined to discuss the helpline further, expressing concern that a helpline could introduce new areas of risk and liability that they are not currently in positions to address.

As a result, GTP began exploring the possibility of working with another large brand that is establishing a helpline in Pakistan to test the interoperability of a third-party helpline with the tool in their supply chain, although it may focus on workers outside of GTP's cotton product supply chain pilot. GTP explored the possibility of collaborating with worker organizations (with whom the team met) or civil society organizations but concluded that doing so would require lengthy efforts to navigate a complex political and economic environment outside of GTP's scope and timeframe.

Nevertheless, GTP aims to ensure that the tool functions to collect worker voice input from a variety of sources, whether from unions' collectively bargained grievance systems, third-party employee grievance mechanisms, and/or from worker helplines or hotlines. In Pakistan, GTP is engaging with key cotton sector organizations to test a worker helpline in the next pilot. Such efforts will inform future iterations of the methodology and tool and sources of data that include workers.

4.4.8 Incorporating Business Needs

In discussions with spinners, ginners, and other industry stakeholders, their representatives identified the value of addressing key business needs that are bound up in the transport and

transformation of cotton as it moves through the supply chain. If the methodology and tool address core business needs, then suppliers will be more likely to sustainably use them.

Most notably, during pilot preparations, spinners raised the problem of polybag contamination of Pakistani bales, which consists of broken pieces from the bags lodging in the cotton. While polybags are prohibited at the farm level, they are used in transportation and in market sales to ginners. Unlike “trash” (twigs, stems, etc.), polybag fragments are very difficult to remove and risk spoiling an entire product batch. Such cotton may still be used in low to medium quality cotton but cannot be used in some high-quality products, such as white dress shirts. To avoid this risk, spinners use higher quality imported cotton for such product lines.

After consultations, GTP incorporated into the tool a data field related to trash and moisture content, which affects the value and processing time. The collection of these data points increases the business value for downstream users. These issues highlighted the value of a digital system like GTP’s to facilitate communications and negotiations between buyers and sellers to efficiently communicate key aspects that affect price and quality. Expectations related to quality could be collected during onboarding assessments to streamline these key discussions.

SECTION 5. NEXT STEPS

This section discusses next steps for enhancing the traceability tool, which include refining key data elements collected by the tool, the mobile and desktop application's functionality, and user training materials including data entry and management guidance. It then discusses how GTP will expand linkages to due diligence systems, disseminate its methodology as a protocol, and the support tool's sustainable implementation in the Pakistan cotton supply chain.

5.1 Traceability Tool Enhancements

Based on lessons learned, GTP is taking the following measures to improve the methodology, protocol, and tool to help ensure that it serves as an accurate, cost-effective, and sustainable resource for use in Pakistan's cotton supply chain as well as a wide range of commodities throughout the world.

Tool Enhancement	Description
Create Super Administrator role	A "Superadmin" role will establish and maintain the GTP tool for specific supply chain/use cases. They will be able to update data fields in labor risk reports and support reporting on multiple indicators with varying risk severity levels. An overview panel for all administrators will facilitate easy viewing of supplier information enabling effective supplier management and continuous improvement of the monitoring process.
Create new web-based monitor user type role	The "Labor Monitor/helpline Operator" role will add labor issue reports to the tool using a web-based interface. Reporting mechanisms may include helplines, grievance mechanisms, and/or third-party monitor reports. The interface will allow operators to report and manage incidents, view previous reports and those assigned to them, and enable them to add more details to reports.
Translate interfaces for local languages	Users will be able to access the interface in their language of choice. A interface with fields in English accompanied by space for corresponding translations will be added to the tool.
Update risk scoring methodology	The risk-scoring methodology will be improved to include factors such as the number and severity of reports from auditors, web-based labor monitors, and farm monitors. Sub-indicators will be added for higher quality data collection, and hazard details will become a mandatory sub-selection in the GTP incident monitoring app. The risk scoring system will be calibrated based on the quality and depth of data, utilizing a rating system (e.g., 1-5) to assess risk levels.
Refine child and forced labor risk data	The method of collecting child and forced labor risk data at the farm tier will be refined with input from other trace initiatives and key stakeholders with sustainable commitments to entering and maintaining accurate data. Key Data Elements (KDEs) will be improved to capture more effective indicators for child and forced labor and include risk indicators related to hazardous conditions and freedom of association.

Activate "new indicators" function	A function will be added to the tool allowing users to collect data beyond product tracking and labor rights such as social responsibility, environment and energy management (e.g., EU Deforestation Regulation requirements, GHG accounting), risks related to due diligence management systems aligned with OECD guidance, and traceability risks such as negative results from DNA tests.
Update commodity agnostic data collection	Fields specific to Pakistan cotton and for commodity agnostic data collection will be improved. The application will be revised for use with a broad range of commodities ensuring flexibility and relevance across different supply chains.
Corrective Action Plan and Risk Management	A digital Corrective Action Plan Manager will be introduced in the next version of the tool to efficiently manage risks and non-compliances identified during assessments, audits, monitoring, or by third parties. The digital Manager will enhance the tracking and resolution of issues within the supply chain.
User Guides development and revision	GTP will further develop, revise, and post user guides within the application for easy accessibility. These guides will provide comprehensive instruction on using the tool effectively ensuring that users have necessary guidance.

5.2 Expanding Linkages to Due Diligence Systems

This Lessons Learned Report details GTP's utilization of external supply chain due diligence approaches, including social responsibility assessments (ERSA tested), import management systems (YESS™ tested), geolocational data on suppliers (OS Hub tested), physical trace (DNA marking tested) and worker voice input (*Hamary Awaz* helpline to be tested). Seamlessly linking such approaches would address a common complaint by brands: while each has value, there are too many and they are too disconnected for effective use.

In the next phase, GTP plans to build on its dialogue with brands, addressing their increasing interest in the trace tool and its improved interoperability with these approaches refined and tested with other due diligence approaches. The tool will be augmented to facilitate interoperability with other systems, including worker voice/grievance systems, DNA marking technology, and management systems to track cotton imports at the spinner and mill levels. Testing will be conducted through initiatives such as the *Hamary Awaz* helpline. GTP will also explore opportunities to collaborate with other trace/due diligence efforts to enhance data sharing and interoperability.

5.3 Methodology and Tool Dissemination

Empowering a wide range of stakeholders with different perspectives and abilities to use the traceability methodology and tool will greatly expand its use and refinement for a wide range of commodities. GTP is making the tool’s open-source software codebase available via the USDOL GitHub, which will also provide detailed guidance on GTP’s traceability methodology in technical user guides and in a protocol, which will provide rules and guidelines for using the GTP tool linked to goals and strategies. The protocol will define key data elements to be captured by the tool including rules for successfully transmitting data. GTP is also seeking a

partnership with a US academic institution to host a website with resources on traceability and labor rights and to promote robust research on related topics.

5.4 Sustainable Implementation in Pakistan

In the first run of the Pakistan cotton sector trace pilot, the GTP team found common ground with key stakeholders, provided information and training to them, incorporated their feedback into the methodology and tool design, and conducted the pilot with their assistance and participation. In the process, GTP gained seasoned allies who, with additional assistance, can support sustainable testing and dissemination.

As a result, GTP is in the process of running a second pilot in Pakistan to refine the methodology and tool and build capacity in key institutions to promote them. They include a well-respected academic institution – the National Textile University (NTU) – which has been active in supporting developments and conducting research in Pakistan's cotton sector. They also include one of the most important organizations – the Pakistan Cotton Ginners Association – which represents, trains, assists, and supports the wide range of Pakistan's ginners. These stakeholders can also improve, over time, the quality of data collected in country.

5.4.1 The Pakistan Cotton Ginners Association (PCGA)

GTP held a series of meetings with the PCGA board to discuss the pilot's progress and identify areas for collaboration and assistance. The PCGA seeks to increase their members' competitiveness by improving compliance with brands' due diligence requirements. For that reason, the PCGA further agreed to sign an agreement with GTP to achieve the following:

1. Formally require PCGA members to agree to a policy of ensuring no child or forced labor is used in their facilities and promoting decent work;
2. Establish a monitoring role for the PCGA to ensure compliance;
3. Establish a role for periodic third-party assessments; and
4. Cascade these requirements to transporters/middlemen and farms.

The next steps include completing the MOU, tailoring the GTP tool for PCGA's use, and providing PCGA assistance for implementing the tool.

5.4.2 Pakistan's Academic Institutions

Over the past two years, GTP has collaborated primarily with the National Textile University of Faisalabad (NTU) and to a lesser degree the University of Agriculture (UA) to coordinate cotton and garment workshops and facilitate dialogue with spinners, ginners, worker organizations, and researchers in the field. In February 2023, GTP and the NTU jointly conducted a workshop on traceability and child and forced labor, due diligence, and YESS™. In August 2023, the NTU opened GTP's workshop with other cotton trace initiatives to review common goals, challenges, and potential improvements in traceability.

In March 2024, GTP participated in the NTU's Third International Conference on Knowledge-Based Textiles, held in Faisalabad on March 5-6, 2024. At that conference, the parties agreed that GTP would help the NTU expand its KnowTex (Knowledge based Textiles) website[29] by hosting GTP's resources on traceability and labor rights as well as guidance on the traceability methodology and tool in the cotton sector. The NTU agreed to use its website to disseminate relevant information and support ongoing dialogue and research, particularly aiming at reducing child and forced labor and other exploitative practices. The parties are drafting a formal agreement and plan to implement this effort. By taking a leadership role, the NTU will be better placed to conduct cotton sector research, participate in national and international dialogue, and potentially win research funding.

5.4.3 The Cotton Farmers' Voice and Role

Farmers cannot effectively advocate for their interests – including receiving premiums for producing better cotton and complying with labor regulations, resolving issues with ginners, garnering government support, and reducing child and forced labor on farms – without exercising collective voice. Currently, Pakistan law provides for the establishment of farming cooperatives; however, farmers do not view them as effective representatives for small and medium sized farms.

GTP held discussions with farmers from the Punjab's Lodhran district to identify other ways in which farmers could be collectively engaged on a regular basis to educate and demonstrate compliance with child labor and forced labor prohibitions with effective data collection that would feed into the trace tool. The farmers expressed an interest in forming their own organization; in response, GTP produced and shared a draft constitution and bylaws for a potential "Lodhran Cotton Farmers Association."[30] After conducting extensive research, however, GTP determined that the process for registering such an organization would be long, difficult, and potentially unsuccessful. As a result, GTP will continue informal dialogue with farmers and explore the potential for addressing farmers through the assistance provided to the PCGA for ginners, which is the closest tier to them.

5.5 Engagement with Brands

GTP has engaged with brands for feedback on the trace methodology and tool, their potential interoperability with other due diligence approaches, and on the structure of brand supply chains, which for some include sourcing cotton products from Pakistan. GTP also engaged with industry associations, including the American Apparel and Footwear Association (AAFA),

---

[29] See KnowTex.

[30] The draft constitution and bylaws provided that the organization would promote the "rights and interests of cotton farmers," by ensuring that cotton is produced in a "responsible manner consistent with social responsibility goals, including respect for fundamental labor rights;" and by encouraging "education, training, and resources for farmers and their communities."

where the GTP Director has served on their Social Responsibility Committee and given presentations on the pilot's goals and progress. GTP representatives have also met, through LRQA's coordination, with law firms managing their brand clients' supply chain risks. GTP's next steps include engaging with brands to test and provide feedback that will lead to improvements in the methodology and tool and dissemination of the role of traceability in labor rights, including but not limited to eliminating child and forced labor in global supply chains.

CONCLUSION

This Report explains that to help reduce child and forced labor and other exploitative practices in global supply chains through traceability, the Global Trace Protocol project is developing a methodology and tool that enables assessors, brands, and other stakeholders to trace products through the entire journey from production to final purchaser, with data on compliance regarding these labor rights.

The Report addresses three research questions: 1) is the traceability tool effectively designed to be user-friendly; 2) are the tool and methodology effective; and 3) are they sustainable? It explains how the GTP Project modified its implementation plan to meet challenges to critical assumptions that were encountered.

It describes the growing support in Pakistan for traceability due to external pressures and internal awareness that enhanced due diligence will improve their competitive edge in global markets. It further details the successes, challenges, and limitations of the Global Trace methodology and tool tested through the pilot at the farm, ginner, spinner, and mill tiers in Pakistan as well as global brands. It provides recommendations, planned corrections, and enhancements to the tool and methodology for their improved use in Pakistan's cotton sector and, on a continuing and expanding basis, for other commodity supply chains.

The Pakistan cotton supply chain pilot successfully demonstrated the potential of the GTP tool, methodology, and other GTP project resources for enhancing traceability within this sector and for other commodities. The pilot confirmed that key aspects of GTP's approach produced meaningful results while identifying gaps that planned modifications can address in the future. It notes the difficulties in conducting surveys at the farm tier, conducting DNA physical trace tests, and attempting to incorporate worker voice and engagement into trace tools. It also identified next steps to help assessors, brands and other stakeholders continue using, improving, expanding, and integrating these tools into their operations to ensure supply chains are increasingly free of child and forced labor and other exploitative practices.

It also proposes deeper engagement with stakeholders, including organizations in sourcing countries, so they can take ownership of traceability within cotton and other sectors using key components of the tool to demonstrate measurable change.

Many traceability initiatives, including the Global Trace Protocol pilot, generate innovative ideas, approaches, and partnerships. Deeper dialogue and coordination among trace initiatives will support the refinement, improvement, and expansion of traceability tools. An exciting challenge will be to better integrate traceability tools into a broad range of due diligence tools available (enhanced "interoperability") that will measurably reduce child labor and forced labor and other exploitative practices as well as address other goals.