

# Read@Home: Embedding Track and Trace in Book Supply Chains

## Final Country Report: Sudan

# Background and Key Activities

The Read@Home Track and Trace to Strengthen Book Supply Chains project involved the creation of a best practices guide to implementing track and trace solutions for Teaching and Learning Materials (TLM). Support was also provided to five target countries, including Sudan, to adapt these best practices to the country context to enable the development of robust, locally-owned supply chain monitoring systems to ensure delivery of TLM to the schools and families that need them most.

The following key activities were planned for Sudan:

- Creation of National Consultative Group (NCG) made up of key decision makers from all relevant MoE departments and other ministries related to TLM supply or results based financing
- Workshop (1-day) with National Consultative Group to map existing supply chain practices
- Conduct meetings and interviews at sub-regional and local levels led by in-country staff/experts to identify on-the-ground reality of TLM delivery and distribution, connectivity and technology penetration/usage in key user groups across different geographical areas.
- Workshop (up to 3 days) with National Consultative Group to step through the process of designing a Track and Trace system to monitor TLM distribution
- Validation workshop (1 day) with National Consultative Group of draft country implementation blueprint and recommendations following decisions made in design workshop

Project implementation was impacted by a coup in Sudan in October 2021 that led to prolonged political and social unrest in Sudan. This meant that field data collection had to be cut short, and the 3-day design workshop and 1-day validation workshop could not be organized.

## Creation of National Consultative Group (NCG)

The Terms of Reference for the NCG were drafted by JSI/WEI and confirmed by World Bank representatives through conference calls and email exchanges in March and April 2021. The NCG was formed with members from Federal and State levels and partners. World Bank representatives assisted in identifying members and making introductions, while the Federal Ministry of Education (FMOE) ultimately selected those that would be included in the NCG. The membership of the NCG was formally established by decree by Ms. Tamador Alterifi, Undersecretary of the FMOE, in July 2021. The membership of the NCG was as follows, all of whom attended the first workshop:

- Mr. Al-Moaz Faisal - Operation Manager - Federal Ministry of Education
- Mr. Mahir Gareeb - Director of Planning - Federal Ministry of Education
- Mrs. Fayza Alsayed - Director of Quality - Federal Ministry of Education
- Mr. Mohamed Akasha - Office Manager for Undersecretary - Federal Ministry of Education
- Mr. Yasir M. Ibrahim - National Center for Curriculum and Education Research
- Mr. Hashim Hamza - PIU Coordinator
- Mr. Mustafa El Karib - Education Specialist UNICEF
- Mr. Ahmed Siddig Fadul- Director of Planning - Ministry of Education Gazira State
- Mr. Abdelaziz Mohamed Yuhia - Manager of Ministry of Education West Darfur Printing House
- Mr. Adil Bashir -Director of Projects - Ministry of Education Gederaf State
- Mr. Hashim Mohamed-Director of Supply Chain - Ministry of Education Khartoum state

- Ms. Abda Mahjooob - IT and communication officer

Later in the process, the newly appointed Acting Undersecretary for the FMOE, Ms. Hanan Ibrahim, was also involved in the process, including a final validation meeting (discussed below).

## Team Recruitment

A team of experts, including a Local Education Advisor, Local Coordinator and Local IT Advisor, was recruited in May and June 2021 to lead the implementation of the project in Sudan, with remote support and oversight provided by JSI/WEI teams.

## First Meeting of the National Consultative Group of Sudan for Track and Trace Project (“Workshop One”)

An initial workshop was held with the NCG in July 2021. This one-day workshop involved an overview of the project and “Track and Trace” systems, as well as mapping of the existing distribution and monitoring practices in the supply chain for TLM, including necessary data collection, processes, and strengths and weaknesses.

The workshop was opened by the Minister of Education and was attended by 11 NCG members from the Federal Ministry of Education (FMOE); State Ministries of Education of Gazira, West Darfur, Gadarif and Khartoum; National Center for Curriculum and Education Research; PIU; and UNICEF.

The day involved seven sessions:

- S1 : Official opening and words of welcome
- S2 : Objectives and agenda for the meeting
- S3 : Introduction to the Read@Home Project
- S4 : Introduction to “Track and Trace”
- S5 : Mapping the book supply chain
- S6 : Details of the book distribution system
- S7 : Details on the collection and management of information

Key takeaways from Workshop One included:

- Books are procured by the FMOE from international and national suppliers.
- Procurement normally takes place once per academic year.
- All books pass through State warehouses, as well as intermediate storage points at the Locality and, where they exist, Administrative Unit levels.
- Demand and distribution data is collected and communicated using paper forms and by telephone.
- Key strengths of the TLM supply chain were cited as:
  - Government commitment
  - Donor support
- Key weaknesses of the TLM supply chain were cited as:
  - Limited capacities at different levels
  - Lack of reliable data
  - Very limited/no use of technology
  - Limited resources, including financial resources to arrange collection/delivery of TLM
  - Poor infrastructure hampering storage and distribution, e.g. warehouses, roads and storage at schools
  - Poor communication and visibility between different levels

- Lack of planning
- Lack of an updated/implemented textbook policy
- Security concerns in some parts of the country
- Buy-in for a track and trace system was high; participants signaled their interest in a comprehensive tracking system that would involve feedback from schools and potentially parents or school committees.

## Sub-regional and local level data collection

Following the initial workshop with the NCG, a series of interviews was held with key personnel at the central levels. Additional data collection was planned with key informants at the sub-regional and local levels in order to validate and expand on the information from the NCG. The JSI/WEI team created data collection tools to be used by the Local team in these interviews, targeting those in key positions and at key steps in the TLM supply chain, including State Planning and Warehouse officials, Locality and Admin Unit officials, PTA members, School Directors, and Printing House staff.

Travel arrangements for data collection were delayed by international foreign exchange restrictions encountered in Sudan, which led to difficulties in transferring funds for logistical arrangements and payment of salaries. These issues were resolved by October and a week-long data collection trip to Kassala State began on October 23<sup>rd</sup>, 2021. However, following the coup in Sudan on October 25<sup>th</sup>, 2021, very limited data collection was possible in Kassala State.

Overall, given the extended period of political and social unrest, and the loss of internet connectivity in the country, limited data collection was possible. Following consultation with the World Bank in November 2021, it was decided to rely on data already collected during Workshop One and in interviews conducted at the central and by phone in Gazira, Khartoum, and West Darfur states, along with any supplemental information that could be collected by phone, to create a suggested design for the track and trace system in Sudan.

The local team was able to conduct additional data collection by phone in Kassala State and in the Karray and Alsgana localities around Khartoum. Results from this data collection were shared with the JSI/WEI team on December 7<sup>th</sup>, 2021 after the internet had been restored in the country.

The results from this limited data collection supported the findings from the one-day NCG workshop, highlighting the lack of visibility of order status/location and the low levels of technology penetration throughout the TLM supply chain.

Crucially, the potential to leverage the rapid assessment survey mechanism currently in place, which uses Kobo Toolbox for data collection and analysis, was also highlighted. While the rapid assessment survey form only captures limited TLM information – focusing only on total availability of Arabic, English, Science and Mathematics books from grades 1 to 8 – the mechanism involves the distribution of tablets and the digital entry of information at the Locality and Admin Unit levels, and the analysis of this information at the Federal level in the FMOE's Office of Statistics.

## Development of Track and Trace System Design

A track and trace system was designed using the results from the initial NCG workshop and the data collection. The proposed system is a variation of the First and Last Mile tracking model, which will involve the FMOE entering the total number of TLMs ordered, then State and school officials recording how many books are received via SMS using basic phones.

This model aims to provide increased visibility into the TLM supply chain while taking into consideration the limited technology penetration indicated during the assessment. Further, as the school-level data will not be dependent on state-level data, it will also provide flexibility if proposed changes to the educational or political structure in Sudan go ahead. This design would also allow for integration with the already-existing Kobo Toolbox system being used by the FMOE.

The proposed design was presented to part of the NCG and newly appointed officials during a half-day workshop on December 29th, 2021. The meeting was led by the newly appointed acting Under Secretary for Education, Ms. Hanan Ibrahim. Overall, the proposed design was well received, in particular the possibility of leveraging the existing rapid survey and Kobo Toolbox infrastructure. The participants suggested follow-on activities could include development of a communication and outreach plan for the proposed system.

The full system design is detailed in the accompanying Track and Trace system for learning materials: Sudan design report.

## **Development of Draft Terms of Reference**

To help guide the creation of the technology platform for the Track and Trace system, a terms of reference document was developed containing the technical details from the system design document. This document will be used by the FMER for solicitation for external technical assistance for development of the Track and Trace system.

## **Next steps for implementation and key challenges**

### **Implementation of the track and trace system**

Further discussion and validation of the design will be required with the NCG and other stakeholders in the supply chain that could not be interviewed during the assessment. This will enable the design and TOR to be refined. The interviews should include as a priority Warehouse staff in the State and lower levels, and printing house staff with the FMOE printing house, private printers and state printers.

The supply chain assessment conducted as part of this activity indicated financial resource constraints, creating challenges at all levels to manage the TLM supply chain. Further discussion and clarity on the costs and funding of the track and trace system will be essential to ensure implementation and sustainability. The need for an upgrade and sustainability strategy was also flagged during the half-day workshop on December 29th, 2021.

Nonetheless, the system design and draft terms of reference document place Sudan on a solid foundation for moving forward. Should Sudan wish to implement the track and trace system suggested, the terms of reference can be used in issuing a request for proposals for any technical assistance they may need in bringing the designed system to reality, including in soliciting for professional software developers.

### **TLM Supply Chain Contextual Challenges**

Prior to the currently ongoing coup, Sudan was in the midst of a generational shift in its political structure, and interviews with stakeholders at all levels indicated that large shifts in the administrative structure of Sudan's education system were being considered. As anywhere, potential changes to the administrative structure of the education system may impact the design and roll out of a track and trace system for TLMs; such changes seem particularly likely in Sudan. Changes might include redrawing or reduction of state, locality

and admin levels. Decentralization of the TLM supply chain might take place further, as responsibility for ordering and printing could potentially be moved to the state level. A means of maintaining overall visibility of the national supply chain will be needed, so that the FMOE can retain and enter the full quantity of TLM ordered to then be received at the State and school level.

The assessment indicated that Sudan's electronic Educational Management Information System (eEMIS) was not functioning well. Follow-on assessment and technical assistance might be valuable to make the system operational.

During the half-day validation workshop on 29th December, the participants noted the network and connectivity challenges highlighted during the assessment. They proposed a meeting with Government counterparts and telecommunication companies to discuss this issue. If this goes ahead, there may be opportunities to increase coverage and/or leverage the private sector to support the track and trace system.

A lack of standardized paper and electronic (Excel) reporting templates in the TLM supply chain was indicated in the assessment feedback. Each level in each state had developed their own tools to capture TLM needs and student information, and to record receipt and delivery. While the proposed track and trace system will provide increased visibility into the total numbers of books being procured and delivered in the supply chain, further discussion with FMOE and State Ministries of Education regarding standardization of forms and procedures might be warranted to strengthen the TLM supply chain.

## Annex A: List of Interviews

Name	Title	Contact Info
Ahmed Siddig	Director of Planing - Gazira State	249921917074
Hashim Hamza	Project Manager - GPE Grant	249912140642
Sami Alzain	Focal point for the Rapid Surevy	249123439819
Om Salama Alamin	Statisic Department - Federal Ministry of Education	249127916441
Hashim Mohamed	Director of Logistics, Khartoum State	249119978245
Ibrahim M Madani	Logistic Manager - Khartoum Locality	249925493802
Alsir Sulieman	Director of Admin & Finance - Kasala State	249123033965
Fatihia Deroushi	Director of Planing - Kasala State	249995448700
Alla Adin Almubarak	Ministry of Education - Kasala State	
Thoria Omer	Store keeper - Kasala State Warehouse	
Mustafa Faiet	Education Manager - Wad Sharfi Locality	
Ali Ibrahim	Cluster Coordinator - Kasala State	
Suleiman Mohamed	School Principal - Wad Sharifi Basic School	249963578375
Adel Bashir	Director of Projects - Gadarif State	249912629410
Abdelaziz M Yahia	State Printing House Manager - West Darfur	249912699482
Almoaz Faisal	Admin & Finance Manger - Federal Ministry of Education	249112777420
Osman Al Shiekh	Store Keeper - Federal Ministry of Education	249960407388
Omer Gorashi	Federal Printing House - Manager	249912647280
Yagoub Koko	Logistic Coordinator - Bahri Locality	249116654784
Badria Mohamed	Education Manager - Bahri Locality	249124061305
Hasan Abdelazim	School Principle - Saad Ibn Maaz School	249128847313
Samia Mohamed	School Principle - Alkadarwo South School	
Ahmed Ali Algali	Education Cluster Manager	249912324275

Hasan Abdelmoim	Albarir Printing House	249912349300
Mohamed Alfatih	Arrow Printing House	249128467971
Abdelmoim Ahmed	Inspector - Khartoum Locality	
Maryam Osman	Cluster Manager - East Althora	249122024637
Asma Gourshai Emam Aldin	School Principle - Karari Locality	