



BEHAVIORAL INCENTIVES, PROCESS INNOVATION, AND TRACK & TRACE IN BOOK DISTRIBUTION

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Environmental impact can be mitigated by reducing loss of books in the supply chain, and preparing for climate change





Agenda

- Where is there book loss and damage?
 - Contextual Studies
 - Digital Track & Trace
- Solutions
 - Better logistics management
 - Accountability & Transparency
 - Behavior Change/Incentives



Afghan Children Read

- USAID Afghan Children Read project
- In 2016, workshops with the Ministry of Education helped understand some of the book chain issues
- In 2017-2018, deployed a Track & Trace system used for ~500,000 books
- In 2018-2020, deployed an inventory system used for >1 million books, and transitioning to Ministry



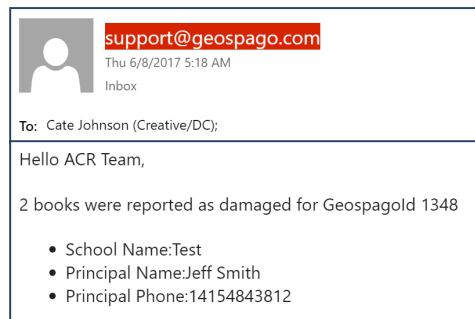
Solution: Track & Trace Systems

- Tracking systems (aka Track & Trace) are a solution to provide real-time data to understand book distribution patterns
- Creative partnered with GraphLI, to customize a digital asset tracking product for development needs – Creative Track & Trace

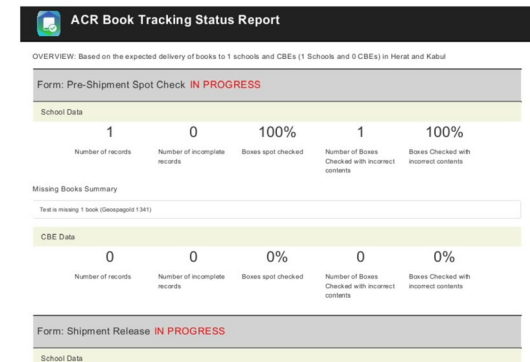
Blends mobile-app based and SMS-interaction technologies to facilitate data collection that provides confirmed book deliveries, and specific, actionable, and automatic report and alerts in real time



Mobile Apps/SMS



Notifications

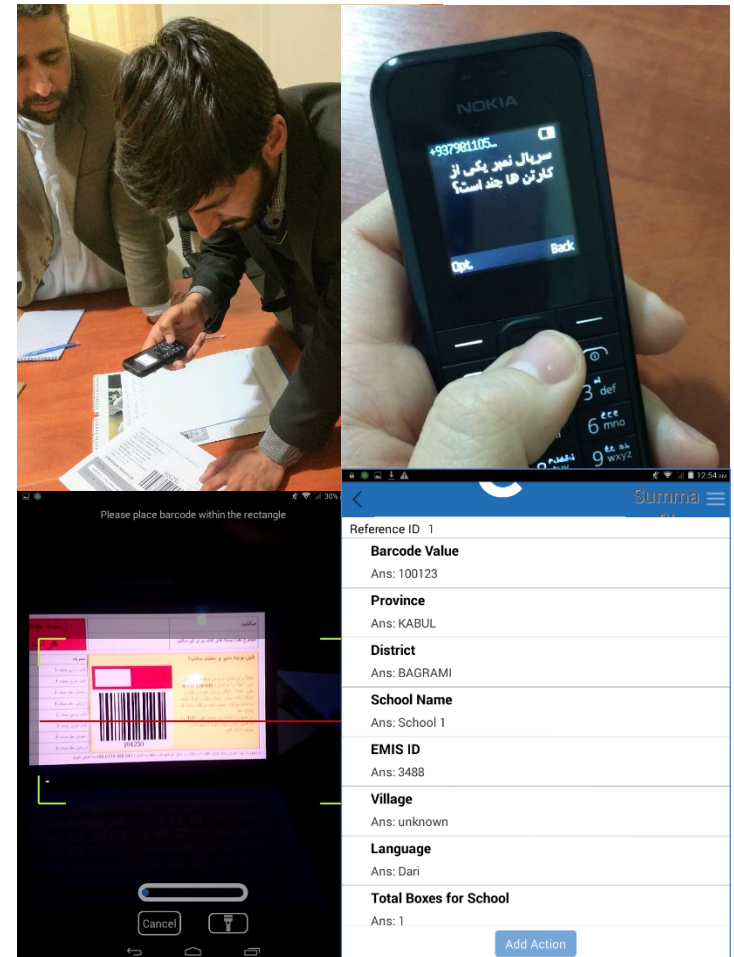


Dashboards

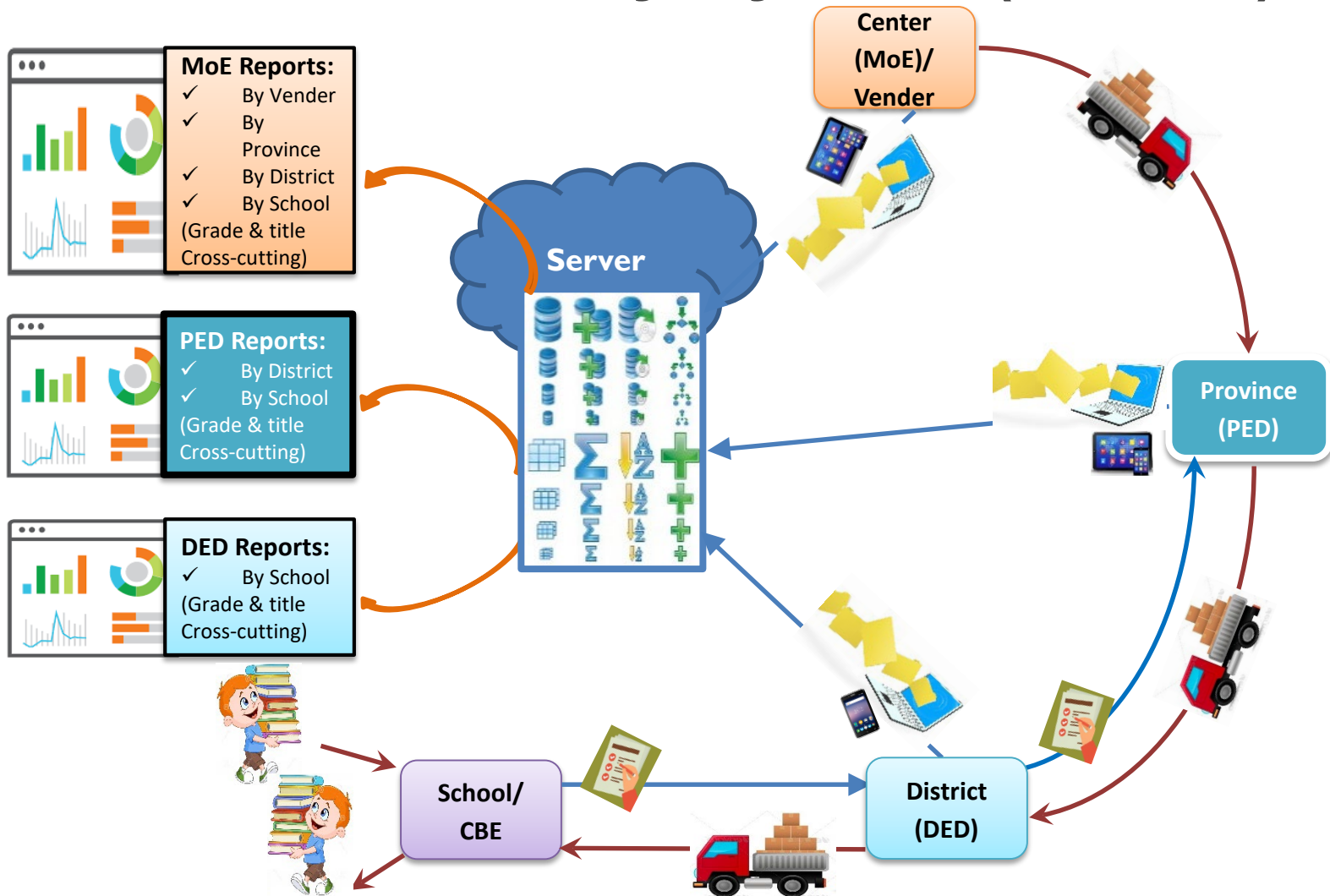
Creative Track & Trace

Blends mobile-app based and SMS-interaction technologies to facilitate data collection that provides confirmed book deliveries, and specific, actionable, and automatic report and alerts in real time.

- Online dashboard
- Mobile Application with record look up and offline functionality
- Barcode scanner, signature pad, image storage
- SMS-enabled conversational multi-lingual data collection
- SMS notifications to schools
- Actionable Email alerts to staff
- Daily Summary reports to staff
- Blockchain enabled, smart contract ready



Solution: Inventory System (OTIMS)



Delivery Tracker (School level)



Ahmad Rezae

Sent Packages

Package Id	Title	Description	From	To	Received Status	Action
513	ننگرهار / کوزکنر / استاد غلام ربانی صافی د هلکانو او نجونو ابتدایه	ننگرهار / کوزکنر / استاد غلام ربانی صافی د هلکانو او نجونو ابتدایه	Vendor / SIG	استاد غلام ربانی صافی د هلکانو او نجونو ابتدایه	Pending	View Detail
511	ننگرهار / کوزکنر / سید آباد د هلکانو او نجونو متوسطه	ننگرهار / کوزکنر / سید آباد د هلکانو او نجونو متوسطه	Vendor / SIG	سعیدآباد	Receive	View Detail
510	ننگرهار / کوزکنر / شهید لعل محمد د هلکانو لیسه	ننگرهار / کوزکنر / شهید لعل محمد د هلکانو لیسه	Vendor / SIG	لعل محمد شهید	Receive	View Detail
509	لغمان / قرغه نی / قرغه بی د هلکانو ابتدایه	لغمان / قرغه نی / قرغه بی د هلکانو ابتدایه	Vendor / SIG	قرغه نی	Receive	View Detail
508	لغمان / قرغه نی / سلطان ویس بابا د هلکانو لیسه	لغمان / قرغه نی / سلطان ویس بابا د هلکانو لیسه	Vendor / SIG	نکور سلطان ویس بابا	Receive	View Detail
507	لغمان / مهترلام / شهرک سلطان غازی بابا د د هلکانو او نجونو متوسطه	لغمان / مهترلام / شهرک سلطان غازی بابا د د هلکانو او نجونو متوسطه	Vendor / SIG	شهرک سلطان غازی بابا	Receive	View Detail
506	لغمان / مهترلام / احمد شا مسعود تجروبه وی د هلکانو متوسطه	لغمان / مهترلام / احمد شا مسعود تجروبه وی د هلکانو متوسطه	Vendor / SIG	تجروی شهید احمد شاه مسعود	Receive	View Detail
505	لغمان / مهترلام / چاردهی د هلکانو متوسطه	لغمان / مهترلام / چاردهی د هلکانو متوسطه	Vendor / SIG	چاردهی	Receive	View Detail
504	لغمان / مهترلام / چاردهی د نجونو لیسه	لغمان / مهترلام / چاردهی د نجونو لیسه	Vendor / SIG	نسوان چاردهی	Receive	View Detail
503	لغمان / مهترلام / حیدرخانی د نجونو عالی لیسه	لغمان / مهترلام / حیدرخانی د نجونو عالی لیسه	Vendor / SIG	نسوان حیدر خانی	Receive	View Detail

District-wise Summary Report



Report Result

Ministry of Education

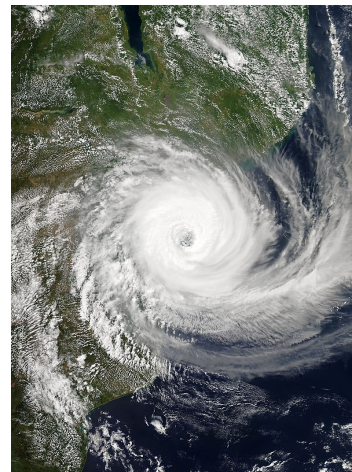
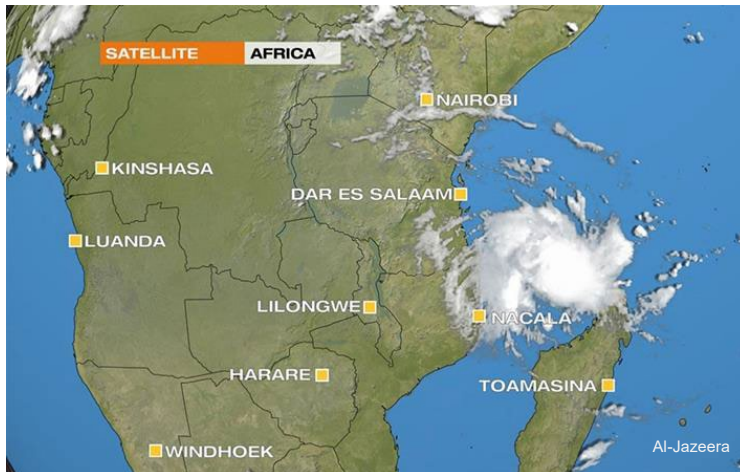
District-wise Summary Report of School Inventories

Report for the Period: __09/01/2018__to__10/05/2018__

S. No.	Province	District	Grade	Language	Title	Quantity Sent to	Quantity Received		Total Lost	Total Distributed	Total Available Stock
							Total Received (Usable)	Total Damaged			
1980	NANGARHAR	JALAL ABAD	Grade One	Pashto	لسان پښتو	11441	11337		104		11337
1981	NANGARHAR	JALAL ABAD	Grade One	Pashto	کتاب مشق - پښتو	11441	11337		104		11337
1982	NANGARHAR	JALAL ABAD	Grade One	Pashto	کتاب رهنمای معلم - پښتو	219	214		5		214
1983	NANGARHAR	JALAL ABAD	Grade One	Pashto	کتاب ارزیابی متداوم - پښتو	219	214		5		214
1984	NANGARHAR	JALAL ABAD	Grade Two	Pashto	لسان پښتو	9736	9736				9736
1985	NANGARHAR	JALAL ABAD	Grade Two	Pashto	کتاب مشق - پښتو	9736	9736				9736

Books in Mozambique

Heavy rains normally damage books and delay book availability

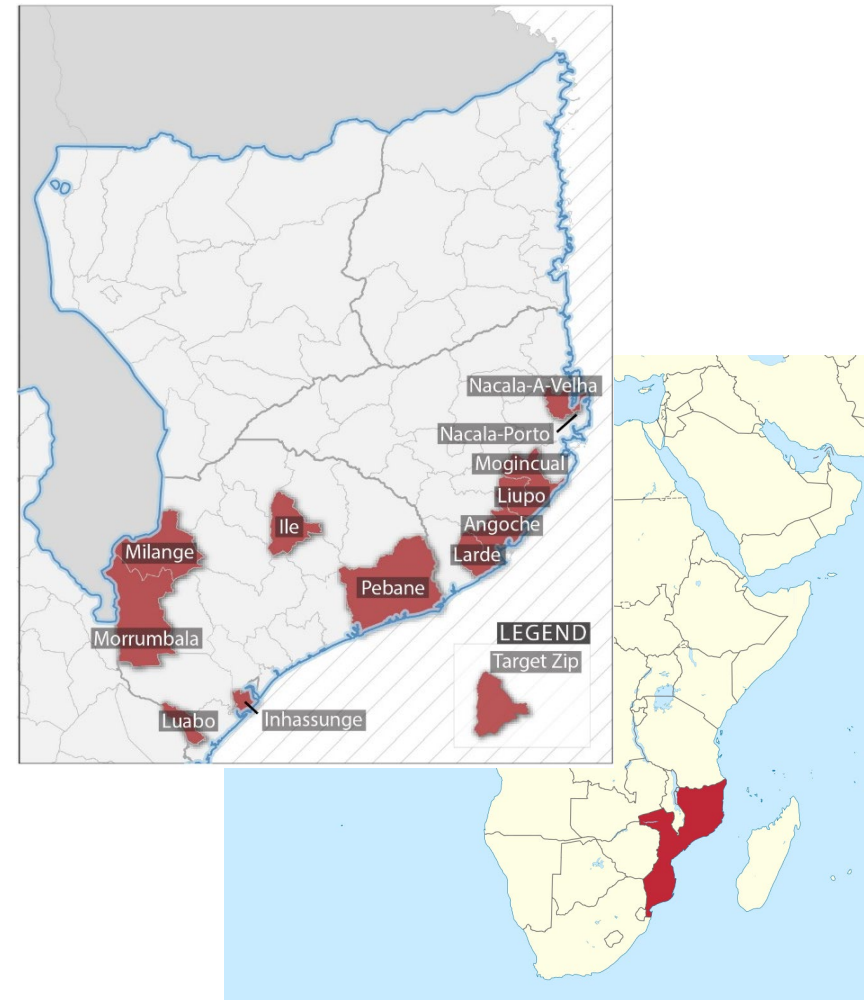


Climate Change is exacerbating this.

Cyclone Idai (March 2019)
Cyclone Kenneth (April 2019)

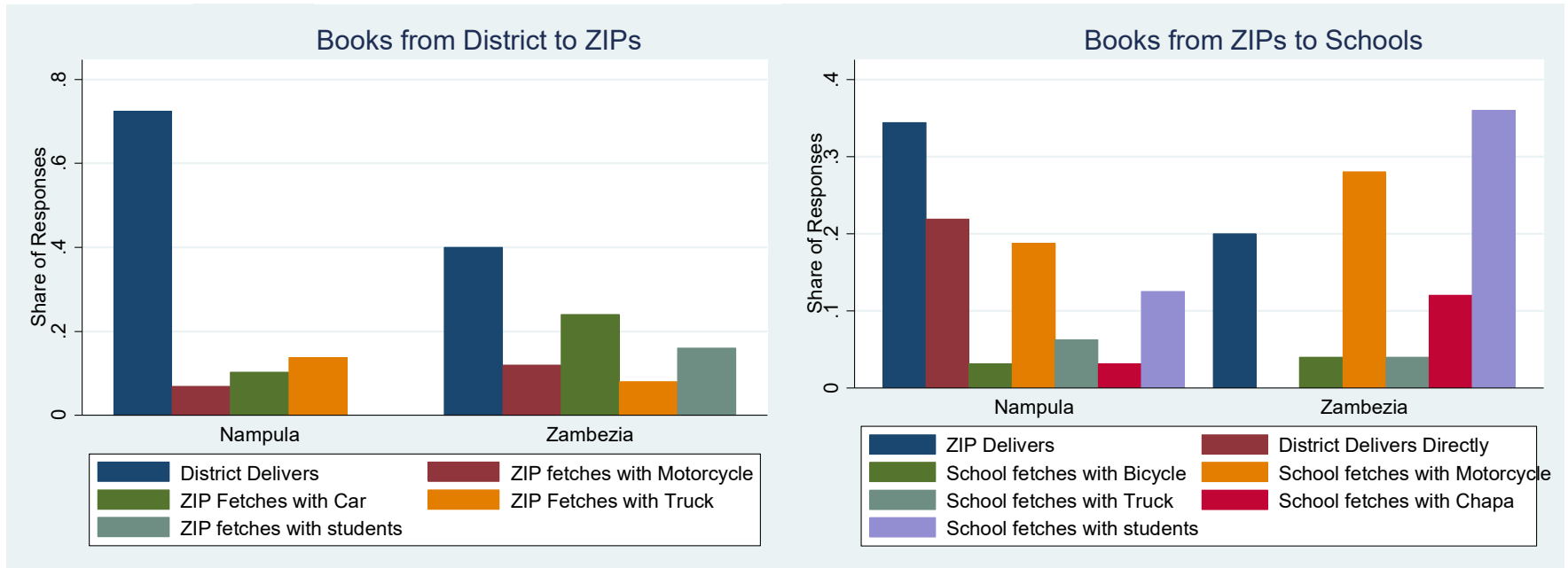
Livros a Tempo

- World Bank REACH Grant
- Study book distribution from districts down to schools in Northern Mozambique in 2019
- Focused on 12 districts in Nampula and Zambezia
- Surveys at the district directorate of education, ZIP, and school levels; and qualitative interviews at the district offices of those responsible for managing the delivery system.
- Covered book delivery methods, transportation, barriers to delivery, finance for book distribution, requisition methods, book storage and inventory.



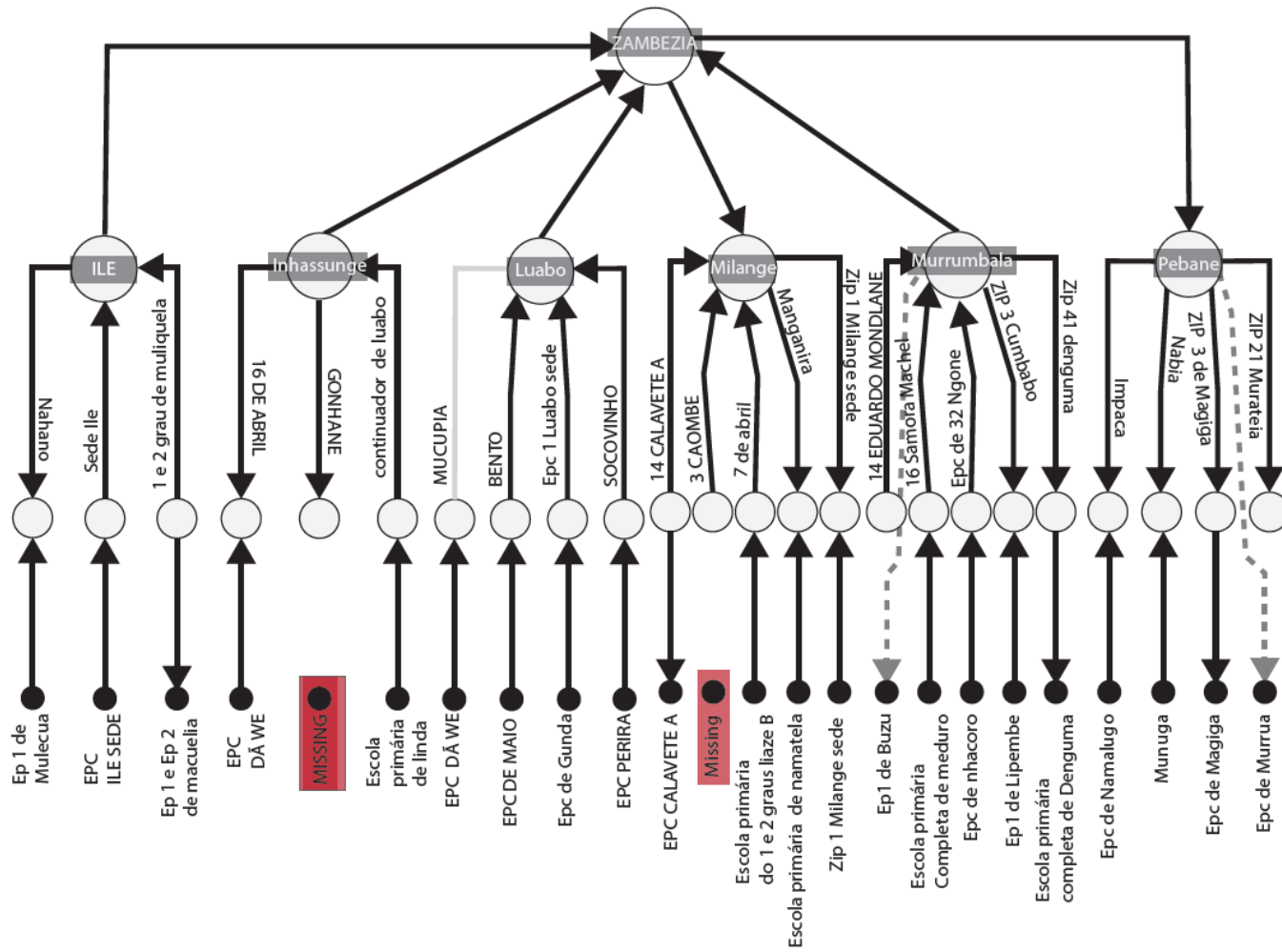


Livros a Tempo study results





Livros a Tempo study results





Livros a Tempo study results

No.	Insight Statement
1	Book delivery is based on vague guidelines and not official policies. Many people in the book delivery chain are not clear on what the precise responsibilities of each entity in the book delivery chain are.
2	MINEDH believes that the districts have book delivery budgets, but the districts do not think so. Some districts believe that book delivery budgets have been eliminated in the past 5 years. Also, the budgeting system does not allow districts to budget for book delivery explicitly.
3	Effective and cost-effective transportation for textbooks is difficult to arrange. Book delivery needs many vehicles over a very short period. Besides shortage of fuel and transportation payment budget, there is not enough capacity for book delivery logistics
4	Communication between levels of the book delivery chain can break down with negative consequences. Books can be delayed, and the ZIP does not feel like they were given adequate notice.
5	Waterproof book storage is often insufficient at the ZIP level, which slows the entire process. Book storage at the district level is often ad hoc.
6	Receipts are all on paper, so changed quantities don't make it up the chain. Also, receipts sometimes are not required.
7	Remote districts and remote schools within districts are underserved, likely receiving insufficient books or books late.
8	Regular inventories are supposed to be done at the schools but in practice are not carried out.
9	Enrollment projections and expected book demand are perceived not to make it up to the province planning. There is no clear timeline on requisitions.
10	Books degrade faster at schools than the replenishment rate.

Solution co-design

Contextual Study Inputs

- Insight Statements
- Design Statements, How Might We

Prioritizing Problems

- Card Sort of Insight Statements
- Group Brainstorm

Solutions Design

- RBF Training, RBF Template
- Group Brainstorm, Gallery Walk

Refining Solutions

- Voting
- Group Refinement



Solution: Incentives for storage

Awards to ZIP coordinators that build new waterproof storage for books or make significant repairs to a damaged book warehouse by before the rainy season begins



Solution: Incentives for distribution

Awards to district directors of districts that have the greatest number of ZIPs constructing or repairing storage and are able to timely deliver books to ZIPs and schools



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THANK YOU

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