Stock Prepositioning

Introduction
- Review Outcomes Rome Workshop
- 4 stockpile related initiatives

UNHRD Task Force
- Who/What/Why?
- Project Steps
- Groups work

ESUPS: LOAN-BORROWING + STOCKHOLM
- Quantify an idea
- Findings
- STOCKHOLM Connect

Collaborative HNPW
- Joint Presentation 2023: why?
- 2024: Expected Outcomes

ECHO Stockpile Mapping
- Presentation
- Outcomes (so far)
- Way Forward

WRAP UP
## Stocks Prepo - GLC Rome Jan 2023

### 4 main Outcomes

<table>
<thead>
<tr>
<th>Information Sharing, Coordination &amp; Analysis</th>
<th>National vs International Prepo</th>
<th>Standards and processes</th>
<th>Funding &amp; Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Mapping: Complementarity between national and regional stocks.</td>
<td>Support localisation agenda.</td>
<td>Branding and Loan-Borrowing.</td>
<td>Pooling resources and infrastructure to share costs and increase efficiency.</td>
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<tr>
<td>Develop and support a culture of sharing</td>
<td>Regional stocks to support national gaps</td>
<td>Tackle the question of Quality Standards: National Vs International specs.</td>
<td>Reduce overall stock levels &amp; increase stock rotation</td>
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<tr>
<td>Strengthen technological connectivity</td>
<td>National log working groups to establish contingency plans including a collaborative prepo strategy</td>
<td>Establish a commonly shared database of stocks across organisations, supported by loan-borrowing mechanisms to maximise stock rotation of core relief items</td>
<td>Capital outlay/ Pre-financing &amp; seeds funding/</td>
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<tr>
<td>Extend mapping to civil actors</td>
<td>Consideration of national disasters history and local market capacities in analysis</td>
<td>Explore academics research to document a more effective approach towards branding to support the increment of loan-borrowing</td>
<td>Reduce carbon footprint of prepo activities</td>
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<tr>
<td>Extend the practice of loan-borrowing</td>
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<tr>
<td>Identify analysis gaps and engage with academics to identify solutions</td>
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<tr>
<td>Explore capacities, opportunities and obstacles to develop shared warehouses initiatives.</td>
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Research Study on Loan-borrowing & Branding

=> Why this research?

=> Methodologies and assumptions.

=> Findings & Results.
Research Study on Loan-borrowing & Branding => Why this research?

=> Recurrent and central question in the discussions on stock prepositioning.

=> No previous researches on that topic: Need to document and quantify it.

=> Follow up action on GLC Rome.
If an HO does not respond to a country where a disaster occurs, this HO can share its excess unbranded stocks, if any, with other HOs that respond to the affected country. According to the model’s proposed inventory allocation policy, HOs mobilise their branded, unbranded and borrowed stocks sequentially as follows:

1. Each HO first mobilises its own branded and unbranded stocks (Model 1).
2. HOs can borrow excess unbranded stocks of other HOs if there exists unsatisfied demand (Model 2).

A regional warehouse would host multiple HOs that store the same products after labelling them with their own brands. Each HO manages its own products independently.

Multiple HOs have response regions (i.e. countries served) that can overlap. Moreover, multiple countries can be affected by a disaster at the same time.

HOs usually have a country office in some of the countries of the region;

Each HO has a response region and cannot serve out of those countries.

20% of the demand after a very severe disaster is satisfied from regional warehouses, and 80% from local (country) warehouses, or suppliers.
RESPONSE TIME

=> KPI 1 - REGIONAL RESPONSE TIME: represents the Response Time general performance of the regional warehouse in **meeting the needs of ALL countries in the network**. An improvement in response time would be represented by a negative ratio, meaning the response time decreased.

=> KPI 5 - EXPECTED COUNTRY RESPONSE TIME: It represents the country-specific performance of the regional warehouse in **meeting the needs of individual countries** in the network. An improvement in response time would be represented by a negative ratio, meaning the response time decreased.

INVENTORY UTILISATION PERFORMANCE

=> KPI 3 - INVENTORY UTILISATION PERFORMANCE (INVENTORY LEFTOVER RATIO): The lower the Inventory Leftover Ratio, the lower the holding costs for the organisation. An improvement in KPI 3 would therefore imply a decreased KPI 3, represented by negative ratios.

FILL RATE

=> KPI 2 - REGIONAL FILL RATE represents the Fill rate general performance of the regional warehouse in **meeting the needs of ALL countries in the network**. An improvement in fill rate would be represented by a positive ratio.

=> KPI 4 - EXPECTED COUNTRY FILL RATE represents the Fill rate country-specific performance of the regional warehouse in **meeting the needs of individual countries** in the network. An improvement in the fill rate would be represented by a positive ratio.
Research Study on Loan-borrowing & Branding => Findings & Results

=> KPI 1: A decrease in Response time was observed at levels of 25%, 50% and 75% of unbranded stocks. A 100% unbranded however did not improve response time, as compared to 0% unbranded stocks, because, as the proportion of unbranded stocks increases, so does the delivery time, which is higher for unbranded stocks.

<table>
<thead>
<tr>
<th>Unbranded Rates</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>100%</th>
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<tbody>
<tr>
<td>KPI 1</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Response Time*</td>
<td>-3,68%</td>
<td>-4,25%</td>
<td>-2,37%</td>
<td>4,69%</td>
</tr>
<tr>
<td>KPI 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fill Rate*</td>
<td>29,21%</td>
<td>38,97%</td>
<td>44,49%</td>
<td>48,97%</td>
</tr>
<tr>
<td>KPI 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inventory Leftover Ratio*</td>
<td>-11,35%</td>
<td>-21,27%</td>
<td>-29,61%</td>
<td>-36,86%</td>
</tr>
</tbody>
</table>

* Compared to the results obtained at a 0% unbranded rate

=> KPI 2: Postponement at any rate increases the network fill rate, on average. Therefore, Fill Rate increases as the unbranded stocks rate increases.

=> When the results for both KPI 1 and KPI 2 are considered together, the best option appears to be an unbranded rate of 75%, because this rate increases the fill rate significantly while not hurting the response time.

=> KPI 4 (fill rate) and 5 (response time at country level): Overall, the benefits are sufficiently high for all countries (see details in the report).

While this research focuses on investigating the impact of keeping unbranded stocks, the general issues related to whether branding should even be necessary, or whether the branding rules of donors and HOs could be reviewed to further improve response rates (and limit costs) need further consideration.
While mathematical models and simulations are always imperfect in their ability to perfectly represent reality, this model demonstrates that there are unambiguous advantages to sharing practices.

Encouraging all humanitarian organisations using regional warehouses to replicate this model and to confirm or adjust the strategy to keep 75% of their stocks unbranded.

Decision makers need to start designing and implementing Loan-Borrowing policies, as a way to better and more efficient emergency stock prepositioning.
Research Study on Loan-borrowing & Branding

PLEASE SHARE
Stocks
Prepositioning
(ECHO: Stockpile Mapping)
**Project Overview**

**Action**
European Humanitarian Response Capacity – EU stockpiling and logistics support

**Project**
Humanitarian Stockpile Systems Mapping

**Objective**
Contribute to building solid, fast-responding humanitarian stockpiling systems

**Approach**
A mapping exercise of existing stockpile prepositioning systems & common logistics services

**Method**
Partner Survey, Expert Interviews, Stakeholder Workshop, Academic RoundTable
Project Framework

PHASE 1: DEFINE THE SCOPE AND METHODOLOGY FOR MAPPING EXERCISES

PHASE 2: MAPPING OF EXISTING HUMANITARIAN STOCK PREPOSITIONING SYSTEMS

PHASE 3: MAPPING OF EXISTING COMMON LOGISTICS SERVICES AND CAPACITIES

PHASE 4: DATA MODELLING, PREPOSITION ANALYTICS, INTEGRATION AND STANDARDS MAPPING

PHASE 5: FINAL REPORT PREPARATION
Partner Feedback

Results of partner outreach and engagement related to stockpile systems and strategy, emphasizing the gaps and opportunities that the broader humanitarian community perceives.
Partner Engagement and Feedback

41 Participants
32 Organisations
Who were the Respondents

Diversity
Director of Supply Chain
Head of Operations
CEO
Field Officer
Supply Chain Officer
Data Engineer
Professor
Program Account Manager
Vice President - Sustainability
Head of Donor Relations and Partnerships
Senior Emergency Manager
Deputy Head of Global Logistics

- Government/Donor: 24%
- NGO/INGO: 58%
- Private Sector: 9%
- Academia: 9%
Source of the Feedback

47% SURVEY  53% INTERVIEW
Partner Feedback - Main Topics

1 - Importance of Stockpiling
2 - Major Challenges
3 - Innovation
4 - Attainable Solutions
# Importance of Stockpiling

<table>
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<tr>
<th>Effective</th>
<th>Efficient</th>
<th>Alignment</th>
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<tbody>
<tr>
<td>Quicker disaster response</td>
<td>Reduced costs</td>
<td>Enhanced coordination</td>
</tr>
<tr>
<td>Those that need help get it quicker – it reduces time for shipping, packing, distributing, customs, paperwork, and the last mile which translates directly into more lives saved.</td>
<td>You often hear of every dollar you invest in preparedness you save seven in the response – from our experience it can easily be 10-15 times cheaper to preposition stock.</td>
<td>Being able to see who else is involved in prepositioning allows networks to be established – otherwise, I would not know who is even in-county. This helps also for the response phase.</td>
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</tbody>
</table>
### Challenges - System

<table>
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<th>Strategy</th>
<th>Coordination</th>
<th>Funding Mechanism</th>
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<tbody>
<tr>
<td>No Strategic Planning</td>
<td>Little In-Country Communication</td>
<td>Self Funding of stockpiles</td>
</tr>
<tr>
<td>National or international, where do I put my stocks, all good questions – but most of the time is spent firefighting and in reactive mode and not long-term planning.</td>
<td>I find it challenging to achieve sufficient system-wide coordination. I often lack understanding of what other organizations with the same goal are doing</td>
<td>Funds are only released from donors once a disaster happens; therefore we store internationally as we have limited resources and do not want all our eggs in one basket</td>
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Challenges – Information Management

Visibility
Limited Stockpile
Transparency
A notable lack of transparency at the national level hinders operational planning, making it challenging to coordinate resources effectively – duplication is rife.

Decision making
Back of the Envelope
Inadequate decision-making abilities often lead to incorrect product placement, excess or shortages, resulting in stockpile inefficiencies.

Accountability
Absence of Oversight
The absence of information leads to no overview on whether partners are checking local markets or if there is already stock in-country.
Focus on Attainable Solutions

System
Create a strategic framework/guideline on national and international stockpiling to increase synergy, reduce duplication and promote accountability

Common Logistics Services
Strengthen common logistics services for prepositioning at the national and regional level to increase the pooling of resources, reduction in costs and the streamlining of operations

Stockpile Information Management
Develop one system/tool that would aggregate stockpile data, creating visibility for policy makers, and have the analytical capabilities to support data-driven decision making

The role of the Donor
Donors have the capacity to encourage organizations to adopt the suggested strategies and systems, ensuring that their investments yield tangible outcomes
This session focused on the potential benefits associated with utilizing stockpile data, what types of data are essential for enhancing the efficiency and effectiveness of prepositioning, and what challenges are currently faced in this context?
• Reduce Duplication
• Allow for borrow/swap mechanisms
• Coordinate use of resources
• Creates accountability

visibility of other organizations stockpiles

0 2 4 6 8 10 12 14 16 18 20

1 2 3 4 5
Analytical Capabilities

- Demand Forecasting
- Inventory Optimization
- Simulation of Potential Disruptions
- Risk Assessment and Scenario Planning
- For more effective decision making, resource allocation and logistics planning
Willingness to Share

- Is your organisation willing to share stockpile data?

- Is your organisation in a technical position to share your data?

- Is your data live?
Challenges to Information Sharing

- Which organisation should operate an inter-agency mapping system?

- Need for a steering committee

- Lingering concerns
  - Data Security
  - Cost
  - User Friendly
Stocks Prepositioning

(UNHRD Task Force)
UNHRD: one piece of the puzzle

**Ideal stock prepositioning strategy:**
- Items located within each country/region: *best response time*
- Stock every type of item: *coverage of all possible crises*
- Prepare for worst case scenario: *certainty to cover all needs*

**Stock prepositioning with restricted resources:**
- Space/funding constraints requires prioritization of emergencies
- Items have limited shelf life; duplication of stock leads to less frequent use
- Complexity in creating local partnerships
UNHRD: one piece of the puzzle

A regional support to the local response in a limited-resources scenario:

- Quick response to complex crises:
  - Can intervene within a few days to integrate an initial local response
  - WFP guarantees prompt and robust access to areas contested by non-state actors
- Contribution to medium/large crises: possibility to move large volumes from partners’ and suppliers’ stock
- “Generic” stockpile: providing support for all types of crises
- Effective prepositioning:
  - Less dependent to events’ uncertainty
  - Quicker stockpile turnaround
The UNHRD Stock Task Force

Obstacles:
- Unknown ideal generic stockpile composition
- Unknown ideal prepositioned stock levels
- Lack of optimal use of geographical hub location

Composition:
- UNHRD partners
- Prepositioning experts
- UNHRD team (support)
Project Steps

00 Identify improvement options:
  - Common stockpile composed of generic items?
  - Use of unbranded items?
  - Hub geographical coverage?
  - What are the relevant metrics and constraints?

01 Selection of “important” items:
  - Item definition: good that perform a certain function within the humanitarian response (e.g. blanket, tent,...).
  - “Calculate” item importance: historical data, forecasts, experience.

02 Optimize Stock Levels
  - Prepositioned quantities
  - Prepositioning locations
  - Replenishment schedules
**Group Work – 20’**

**Group 1 & 2**
If you were limited to a set of relief items, define the top 35 items you think would be the most critical across all clusters

=> Group the selected item per cluster

=> in each cluster organise them by critical importance

**Group 3 & 4**
Would it be helpful to agree on common stock levels/ceilings to optimize the effectiveness of prepositioning plans?

How do you think these levels should be determined?

=> Feedback on the arguments for/against

=> Feedback on other relevant points you discussed

=> Summarise the methods discussed to determine these potential stock levels
A few data insights

Material Importance:

- Based on UNHRD’s historical outbound delivery data
- Focused on 3-month periods after crises onset
- Developed a generic metric (Importance factor) applicable to all materials (# deliveries, partner, crises,...)
A few data insights

**Delivery Times:**
- ~60% of deliveries within 2 weeks
- Much faster than procuring from suppliers
- Can be used to identify bottlenecks
A few data insights

**Demand estimation:**

- Forecasting future demand:
  - Complicated by unpredictable events
  - Small amount of data when split by region
  - Lack of global view of supply and demand
- Calculation of past worst-case scenarios (90-day demand). Might be hindered by limited resources
Conclusions

• UNHRD can provide an important contribution to the humanitarian response through a regional prepositioning strategy.

• Urgent need for optimization

• Several possible avenues:
  o Selection of standard, “generic” items: simpler strategy
  o Unbranded prepositioning: simpler to share
  o Shared stockpile: simpler optimization of stock levels

• Common needs, requests and constraints need to be identified.

• In-depth analysis and modelling of historical data can provide insights to this exercise.
Stocks

Prepositioning

Digitalization to support Relief Emergency.
Improving Stockpile Management & Visibility

Facilitate National Decision – Making process on stock related disaster responses questions

Overall Mapping: Complementarity between national and regional stocks.

Develop and support a culture of sharing

Strengthen technological connectivity

Extend mapping to civil actors

Extend the practice of loan-borrowing

Identify analysis gaps and engage with academics to identify solutions

Explore capacities, opportunities and obstacles to develop shared warehouses initiatives.

Support localisation agenda.

Regional stocks to support national gaps

National log working groups to establish contingency plans including a collaborative prepo strategy

Consideration of national disasters history and local market capacities in analysis
Scenario based: Cyclone approaching Madagascar

Focusing on the questions of stocks availability and access to relief items

HNPW 2023

Phase 1: ANTICIPATION

Phase 2: RESPONSE

Phase 3: PREPAREDNESS
Improving Stockpile Management & Visibility

**Regional Stocks**
(Humanitarian Databank)
- Information Sharing
- Preparedness
- Coordinated Response

**National Stocks**
(STOCKHOLM Platform)
- Preparedness
- Localisation
- Joint Pre-positioning Strategies

**Coordination**
(Relief Actors)
- Readiness
- Response
- Preparedness

**Logistics Infrastructure**
(Operational Information Gateway)
- Localised & international data
- Operational infrastructure info
- Live field reports

Global Logistics Cluster
NDMO’s and other decision makers

PUSH

PULL
Collaboration allows the centralization of all individual information in one central place for ease of access and analysis.

- Support the paradigm shift towards the value of pooled resources (data).
- Rebalance the Push-Pull approach
- Save time and costs during the response.
- Reduce overall carbon emissions by allowing more informed decisions on transport capacities (Medium + Pooled approach).
- Maximise stock rotation and increase preposition stock efficiency (less loss and damages)
Stocks Prepositioning (Wrap up)
“If you always do what you’ve always done, you’ll always get what you’ve always got.”

Henry Ford
WRAP UP

Changes in discussion

- Collaborative approach: No more silo, Sharing data, Sharing resources & loan-borrowing
- National & International: Interdependent and connected/ Localisation at the centre
- Processes and systems: Core items? Ceilings? Technology
- Integration: Stock and Services / Stocks & Customs/ Stocks & Emissions...

=> All these require a change of MINDSET to become changes in process

- Accepting that these changes are required to adapt to the changing context.
- Accepting to step out of our comfort zone