Necessary approach: overall strategy - logistics - shipping - mobility - flexibility - expandability - case specific

Expandable Containers: How does it work?

Systematic Section before expanding (shipment)  Systematic Section after expanding

Expandable Containers: adjustments required to ISO Hgh Containers

ISO Hgh Container  Expandable Container  How to expand

Step 1  Step 2

Photovoltaic panels  Slightly sloping ceiling for rain water
Additional U-profiles/tracks along the joint as drainage
Displacement walls
Built-in windows
Additional steel frame
Strip shields
Built-in pipelines for sewage (contaminated/clean) and water (potable/non-potable)
On-site mounted pipelines for sewage (contaminated/clean) and water (potable/non-potable)
Flip-up original sidewall panels, used as flooring in extension zones

Expandability On Site

6 or 12 Meter Container Delivery

Global Local

Levels of Action in Case of Infectious Disease Spread

Pandemic:
UN, Global & National Authorities, Logistic Systems: Research, Quarantine, Supervise
UN, National Authorities: Advanced Isolation Units if available/Transferring
Regional, less mobile Isolation Units: Research, Data Gathering, Treatment & Transferring for confirmed cases, Supplies & Supports
Local Mobile Isolation Units: Diagnosis, Isolation, Temporary Treatment & Transferring for Confirmed Cases

Infection Threat
Quarantine Barrier needed
Intervention Mission

Outbreak - remote area - no supplies (no water, no energy)
Local Mobile Isolation Unit
Diagnosis, Isolation, Data Gathering, Temporary Treatment & Transferring for Confirmed Cases & Supplies & Supports

Epidemic: remote areas - no supplies
Worst-case scenario: Disease Epidemic - No available/Transferring Supplies
Regional: Isolation Units if available/Transferring
Regional, less mobile Isolation Units: Research, Data Gathering, Treatment & Transferring for confirmed cases
Regional Mobile Isolation Units: Diagnosis, Isolation, Data Gathering, Temporary Treatment & Transferring for Confirmed Cases

Outbreak - supplies available
Local Mobile Isolation Unit
Diagnosis, Isolation, Data Gathering, Temporary Treatment & Transferring for Confirmed Cases & Supplies & Supports

Global Local

2015 UIA-PHG International Student Competition
Design of a Mobile Isolation, Diagnosis and/or Treatment Unit for use, in Ebola or Other Communicable Disease Epidemics

Expandable Container How to expand Step 1 Step 2ISO high Container

Unfold sides to expand the floor
Leveling studs: adjusting heights according to natural sloping
Rainwater drainage
Displaceable interior walls on flush-fixed rails
Foldable walls with linings suitable for walking
Higher floor paneling with linoleum floor covering

Bottom Siderails
Flooring
Sidewall Panel

Expandable Container How to expand Step 1 Step 2

Systematic Section after expanding (shipment)

Systematic Section after expanding

Necessary approach: overall strategy - logistics - shipping - mobility - flexibility - expandability - case specific

Expandable container: adjustments required to ISO Hgh Containers

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Global Local
Expandable Container: a flexible system & a practical solution for remote areas

Functional Distribution, Site Management & Shipment Size

Site Preparations

Minimum operational | short term | fully mobile | local
Mission: external diagnosis + treatment & isolation for confirmed cases + safety transport
People: yes (2)
Shipment size: essential size 5 units (2x6m containers + 3x12m containers + 5x6m supports and supplies container)

Fully operational | middle term | less mobile | regional
Mission: internal diagnosis + treatment & isolation + safety transport
People: yes (5 - 10)
Shipment size: essential size 4 units (3x6m containers + 1x12m containers)

Fully operational | long term | least mobile | regional
Mission: internal diagnosis + treatment & isolation + safety transport
People: yes (20 - 50)
Shipment size: essential size 4 units (3x6m containers + 1x12m containers)

Essential Unit Types: 4
(1x12m Patients Unit + 1x12m Staff Unit + 2x6m Sluice Units)
Shipment size offers according to estimated infected cases (patients number) and to case specifications (location, supplies, supports ...)

Shipment Add-ons: Supports, Supplies & Self-efficiency (on demand - case specific)
All Supports & Supplies containers must be secured and situated at low risk area; eventually, on top of the essential units

Energy
Photovoltaics and/or CHP-Plant
Electricity from CHP-Plant And/or usage of photovoltaics

Water
Potable water treatment System for 20/30/90 fathom
- Osmotic treated
- Chlorine at micosatal concentration
- Full use essential biological systems for water purification 12 - 20 Container according to station size

Compressed Air
Possible equipment of power supply for the Compressed air production

Waste
Dependent on the installed wastewater the solid waste capacity of the plant ranges between 75 & 150 kg per year