

BER4 · WP3 · DIGITAL SIMULATION TOOLKIT

Disaster Response in Resource-Constrained Environments (MENA)



Resource Scarcity	CBDR	Frugal Innovation	First 72 Hours	WASH Continuity	Satellite Data
MAP1 Toolkit Map	SCAR1 Constraints	ASSET1 Asset Inventory	PRA1 Risk Mapping	FRUGAL1 Frugal Lab	
PLAN1 Contingency Canvas	EWS1 Early Warning	72H1 72h Timeline	WASH1 Water Continuity	DIGI1 Digital Tools	
SAT1 Satellite Change	FLOOD1 Flood Intel	CASE1 4-Country Lab	RESIL1 Social Resilience	SIM1 Video Module	
OBS1 Dashboard	DEBRIEF1 Action Debrief	EV1 Evaluation Pack	EXIT1 30-Day Passport	FAC Facilitator Guide	

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MAP1 · Toolkit Map & Resource Structure

This toolkit converts the WP2 module into visual, printable, low-tech-compatible decision resources. The fixed simulation links local knowledge, scarce resources, community response, water continuity, and satellite-derived information for disaster management in MENA settings.

Module Code & Title	Resource Objective & Operational Focus
MAP1 Toolkit Map	Overview of all printable resources and simulation sequence at a glance.
SCAR1 Constraint Pressure Cards	Identify structural, geographic, political, social, and infrastructure constraints.
ASSET1 Community Asset Inventory	Map physical, human, social, and communication assets.
PRA1 Participatory Risk Map	Plot hazards, vulnerabilities, capacities, and priority households.
FRUGAL1 Frugal Innovation Lab	Convert a shortage into a locally available response option.
PLAN1 Community Contingency Canvas	Assign activation, shelter, vulnerable-household, communication, and external roles.
EWS1 Early Warning Chain Builder	Connect forecasts, mosque/community alerts, WhatsApp, radio, runners, and evacuation.
72H1 First 72 Hours Timeline	Prioritize life safety, shelter, information, WASH, logistics, and coordination.
WASH1 Water Continuity Board	Sort safe/unsafe sources, damaged systems, priority users, and backup actions.
DIGI1 Digital Tool Match	Match Copernicus, UNOSAT, OSM, KoboToolbox, QGIS, Sentinel Hub, and HEC-RAS.
SAT1 Satellite Change-Detection	Read simplified pre/post evidence and damage classes.
FLOOD1 Flood Intelligence Board	Connect DEM, flood extent, depth/velocity, infrastructure damage, and route choice.
CASE1 Four-Country Case Lab	Compare Egypt, Morocco, Libya/Derna, and Palestine.
RESIL1 Social Resilience Ladder	Plan livelihood, PSS, cohesion, reconstruction, and risk-reduction recovery.
SIM1 Interactive Video Module	Wadi Al Noor - 72 Hours with Less (Digital video simulation module).
OBS1 Adaptive Response Dashboard	Observer rubric for prioritization, community action, digital use, WASH, ethics.
DEBRIEF1 Evidence-to-Action Debrief	Structured after-action discussion and evidence translation.
EV1 Final Evaluation Pack	Knowledge check and integrated response-plan review.
EXIT1 30-Day Action Passport	One concrete transfer action and personal commitment card.
FAC Facilitator Guide	Low-tech and digital delivery guidance and debrief rules.



SCAR1 · Constraint Pressure Cards

Identify structural, geographic, political, social, and infrastructure constraints in MENA response.

Constraint Dimension	Field Reality & Operational Impact
Structural	Underfunded or absent formal services; weak maintenance; limited institutional reach.
Geographic	Remote mountains, desert wadis, damaged roads, blockade, isolated settlements.
Political	Fragmented governance, conflict, access restrictions, overlapping authorities.
Social	Poverty, informal housing, displacement, gender inequality, unequal service access.
Infrastructure	Water, wastewater, power, roads, dams, telecom and health systems may fail together.



ASSET1 · Community Asset Inventory

Map physical, human, social, and communication assets available locally.

Asset Category	Locally Available Resources
Physical Assets	Community spaces, vehicles, tools, water tanks, generators, pumps.
Human Capital	First-aid providers, builders, teachers, drivers, mechanics, language speakers.
Social Capital	Community leaders, women's groups, youth networks, religious institutions, cooperatives.
Communication	WhatsApp admins, radio operators, mosque loudspeaker access, runners, local media.



PRA1 · Participatory Risk Map

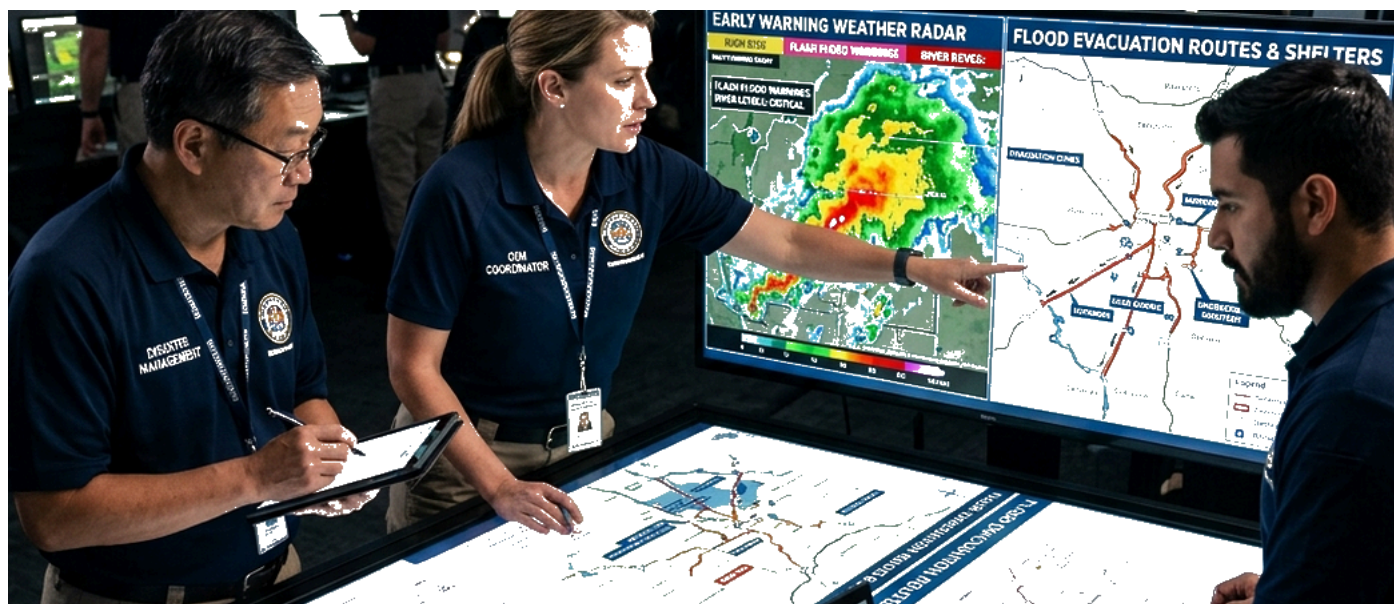
Plot hazards, vulnerabilities, capacities, and priority households.

Hazards: Flood-prone wadi, unstable buildings, damaged dam, fire, conflict-adjacent zone.

Vulnerabilities: No family support, mobility limits, informal housing, elderly alone, infants, displaced families.

Capacities: Tractors, pumps, local clinic, school shelter, youth network, local construction skills.

Priority links: Who cannot self-evacuate? Who controls key assets? Which road fails first?



FRUGAL1 · Frugal Innovation Lab

Convert a shortage into a locally available response option.

Constraint / Shortage	Local Response Option & Alternative
No formal shelter	Use a safe school, mosque, community centre, or other pre-identified local space.
No dedicated rescue vehicle	Map locally available vehicles and assign low-risk support tasks.
Limited communication	Use WhatsApp, radio, mosque loudspeaker, pre-assigned runners, or notice points.
No digital field form	Use printed forms, SMS/WhatsApp template, then digitize later.
Limited water delivery	Inventory tanks, pumps, transport owners, repair skills, and priority facilities.
No live satellite access	Use pre-printed Copernicus/UNOSAT/OSM maps or cached screenshots.

PLAN1 · Community Contingency Canvas

Assign activation, shelter, vulnerable-household, communication, and external-contact roles.

Canvas Parameter	Operational Assignment & Protocol
Activate CDRT	Who sends the first alert?
Open shelter	Which safe building and who has access?
Protect vulnerable households	Who checks priority households?
External coordination	Who contacts municipality / authority / NGO?
Information hub	Who verifies casualties, needs, aid, and rumors?
Water continuity	Who checks sources, tanks, pumps, wastewater, chlorine, and priority users?



EWS1 · Early Warning Chain Builder

Connect forecasts, mosque/community alerts, WhatsApp, radio, runners, and evacuation action.

Step	Chain Link Title	Action Protocol
1	Forecast / hazard signal	Weather, seismic, dam, local observation
2	Verification	Trusted authority / community coordinator
3	Local dissemination	Mosque loudspeaker, WhatsApp, community radio
4	Backup dissemination	Runners / door-to-door / notice point
5	Action	Evacuate, move assets, open shelter, activate CDRT
6	Feedback	Confirm who received message and who needs assistance



72H1 · First 72 Hours Timeline

Prioritize life safety, shelter, information, WASH, logistics, and coordination.

Timeframe	Operational Phase Title	Key Actions & Priorities
0 - 6 h	Life safety	Activate CDRT, rapid needs picture, rescue/first aid support, open safe shelter, verify water risk.
6 - 24 h	Stabilize	Prioritize food/water, record vulnerable households, rumor control, identify blocked routes, request support.
24 - 48 h	Integrate evidence	Use printed/digital satellite maps, update OSM/Kobo data, refine priorities, inspect WASH continuity.
48 - 72 h	Transition	Plan sustained shelter, logistics, recovery priorities, social support, external coordination.



WASH1 · Water Continuity Decision Board

Sort safe/unsafe sources, damaged systems, priority users, and backup actions.

Water Check Category	Verification & Operational Decision
Safe water source?	Visible contamination? Flood exposure? Treatment status?
Storage & pumps	Tank damage? Pump failure? Power backup?
Disinfection	Approved chlorine-based option available and correctly managed?
Wastewater	Overflow, blocked drains, sewage contamination zones?
Priority users	Shelters, clinics, hospitals, elderly, children, persons with disabilities.
Coordination	Water company, municipality, NGO, private treatment provider, pump/tank suppliers.



DIGI1 · Digital Tool Match

Match Copernicus, UNOSAT, OSM, KoboToolbox, QGIS, Sentinel Hub, and HEC-RAS to decisions.

Digital Tool / Source	Primary Operational Application in MENA
Copernicus / UNOSAT	Rapid satellite damage mapping, flood extent overview, and bridge cuts.
OpenStreetMap (OSM)	Crowdsourced base maps, building outlines, road networks, and key infrastructure.
KoboToolbox	Mobile field data collection, rapid needs assessment, and triage surveys.
QGIS / Sentinel Hub	Geospatial analysis, satellite band combinations, terrain modeling, and change detection.
HEC-RAS	Hydraulic flood modeling, wadi flow velocity prediction, and inundation zone mapping.



SAT1 · Satellite Change-Detection Cards

Read simplified pre/post evidence and damage classes.

Satellite Indicator	Operational Interpretation
Pre-disaster baseline	Verify pre-event building outlines, roads, and land cover.
Post-disaster optical scan	Identify inundated zones, collapsed structures, and debris fields.
SAR radar change detection	Detect water extent through clouds and night operations.
Damage classification	Sort structures into minor, major, and destroyed classes for priority routing.



FLOOD1 · Flood Intelligence Board

Connect DEM, flood extent, depth/velocity, infrastructure damage, and route choice.

Parameter	Operational Function
Digital Elevation Model (DEM)	Analyze wadi terrain slopes and natural water accumulation zones.
Flood Extent Map	Overlay satellite flood extent to identify submerged infrastructure.
Velocity & Depth	Assess road breach risks and safe evacuation pathways.
Route Selection	Choose optimal supply and casualty transport corridors.

CASE1 · Four-Country Case Lab

Compare Egypt, Morocco, Libya/Derna, and Palestine context lessons.

Country / Region	Key Response Insight
Egypt Context	High urban density, Nile flood management & community networks.
Morocco Context	Mountainous terrain, remote wadis & rural mobilization.
Libya / Derna	Dam breach dynamics, rapid inundation & infrastructure loss.
Palestine Context	Resource constraints, restricted access & community resilience.

RESIL1 · Social Resilience Recovery Ladder

Plan livelihood, PSS, cohesion, reconstruction, and risk-reduction recovery.

Ladder Phase	Recovery Focus & Action
1. Life Safety & WASH	Secure clean water, emergency shelter & immediate first aid.
2. Livelihood Support	Restore local trade, tools & daily economic continuity.
3. Psychosocial (PSS)	Community mental health, youth programs & family support.
4. Risk Reduction	Rebuild with flood-resistant design & early warning links.

SIM1 · Wadi Al Noor - 72 Hours with Less (Interactive Video Module)

UPGRADE NOTICE: The 5-round tabletop decision text (SIM1-R through SIM1-5) has been upgraded into an interactive digital video simulation. Click the video frame below or use the button to launch the simulation directly from the server.

Scenario Overview: A fictional MENA town of 6,500 people lies beside a seasonal wadi. An extreme storm causes flash flooding, road cuts, power loss, damage to the water network, and partial building collapse. Formal emergency support is delayed. The community has one school shelter, a mosque loudspeaker, two tractors, several water tanks, a youth network, limited medical supplies, and intermittent mobile coverage. Participants manage the first 72 hours using local innovation and digital tools.



■ **CLICK HERE TO WATCH THE SIM1 VIDEO SIMULATION**

Direct Video Link: [http://disastersimulation.beready4life.com/video/BeR4_Disaster_Response_Resource_Constrained_MENA_Toolkit_EN%20\(1\).mp4](http://disastersimulation.beready4life.com/video/BeR4_Disaster_Response_Resource_Constrained_MENA_Toolkit_EN%20(1).mp4)

OBS1 · Adaptive Response Dashboard

Observer rubric for prioritization, community action, digital use, WASH, ethics, and coordination.

Evaluation Parameter	Observation Standard
Prioritization	Logical ordering of life-safety vs secondary actions.
Community Action	Effective inclusion of local youth & asset owners.
WASH Rules	Strict monitoring of water safety & sanitation risks.
Coordination	Clear SITREP reporting and authority integration.



DEBRIEF1 · Evidence-to-Action Debrief

Structured after-action discussion.

1. What worked well during the resource-constrained simulation?

Notes: _____

2. What operational challenge had the greatest effect on team performance?

Notes: _____

3. What communication breakdown appeared and how was it resolved?

Notes: _____

4. What safety/WASH lesson emerged during the scenario?

Notes: _____

5. What ethical issue arose and how was dignity protected?

Notes: _____

6. What should change in the next simulation or field exercise?

Notes: _____

EV1 · Final Evaluation Pack

Knowledge check and integrated response-plan review.



1. Name three constraints common in MENA resource-limited settings. Answer: _____	2. List four local assets that can be mapped in ASSET1. Answer: _____
3. State the 6 steps of the Early Warning Chain (EWS1). Answer: _____	4. What four timeframes structure the 72H1 operational timeline? Answer: _____
5. Name three critical parameters checked in WASH1 water continuity. Answer: _____	6. Give two examples of digital tools matched in DIGI1. Answer: _____
7. State the purpose of satellite change detection in SAT1. Answer: _____	8. Name the four country contexts compared in CASE1. Answer: _____
9. What are the four levels of the Social Resilience Recovery Ladder? Answer: _____	10. What single priority transfer action will you commit to in EXIT1? Answer: _____

EXIT1 · 30-Day Action Passport & FAC · Facilitator Guide

Individual transfer passport and facilitator session delivery boundaries.

1. One community asset I will map within 30 days: _____
2. One warning channel I will test locally: _____
3. One WASH continuity question I will verify in my area: _____
4. Facilitator Rule: Keep core simulation injects unchanged across groups. _____

