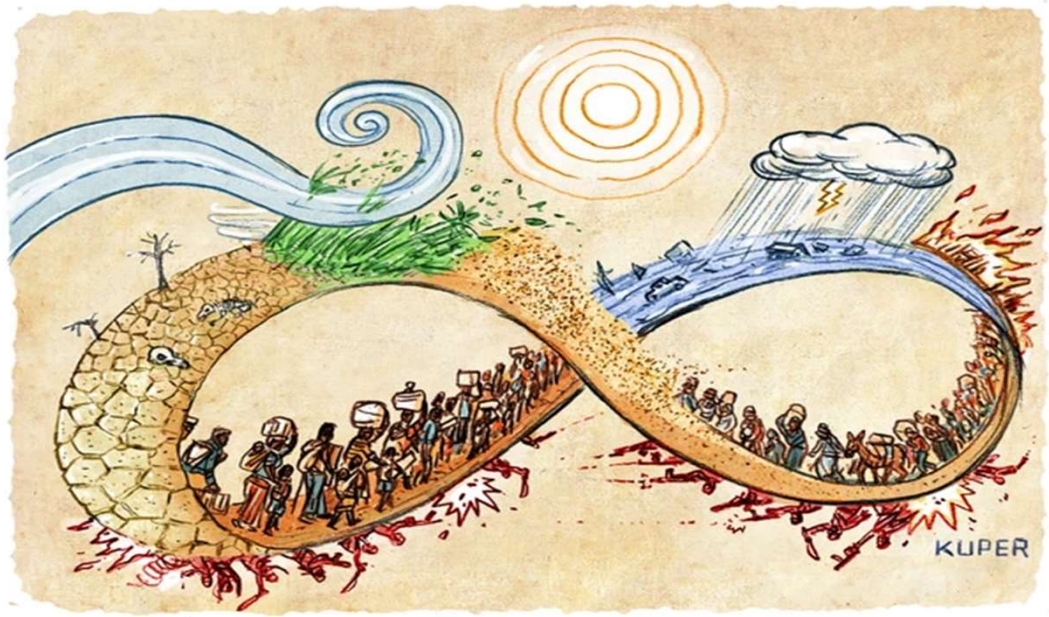
Early Warning Early Action in Conflict-affected Contexts



Catalina Jaime
Head of Climate and Conflict
Red Cross Red Crescent Climate Centre

By 2030, **2.2 billion people** will live in fragile states, which will represent **26% of the total world population**

Of those, **359 million** are projected to be living in extreme poverty, representing **63% of the world's poor**

Across the **10 most fragile states in conflict, only $223 million in climate adaptation** finance was received in 2021 – less than **1% of total adaptation finance flows**

Currently **110 million people** are forcibly displaced worldwide due to persecution, conflict, and other causes of human rights violations

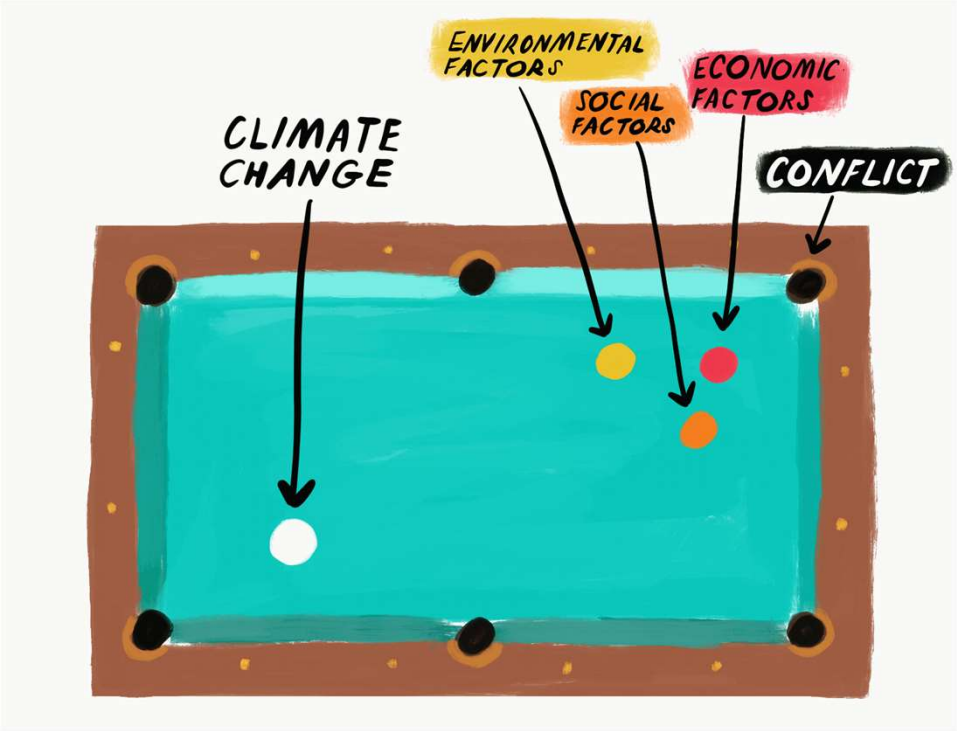
Refugee and IDP sites experiencing the most hazards are in conflict-affected countries, **least equipped to adapt or respond** to them.

95% of displaced people live in areas exposed to at least **two hazards**, illustrating the importance of multi-hazard **early warning systems for displaced populations.**


KUPER

- In the **absence** of sufficient investment in long-term climate **adaptation** and **disaster risk reduction** in conflict-affected areas, **EWS are not optional; they are essential**!

- Yet, there is a massive **gap in EWS** to protect **people** already extremely **vulnerable due to conflict**.



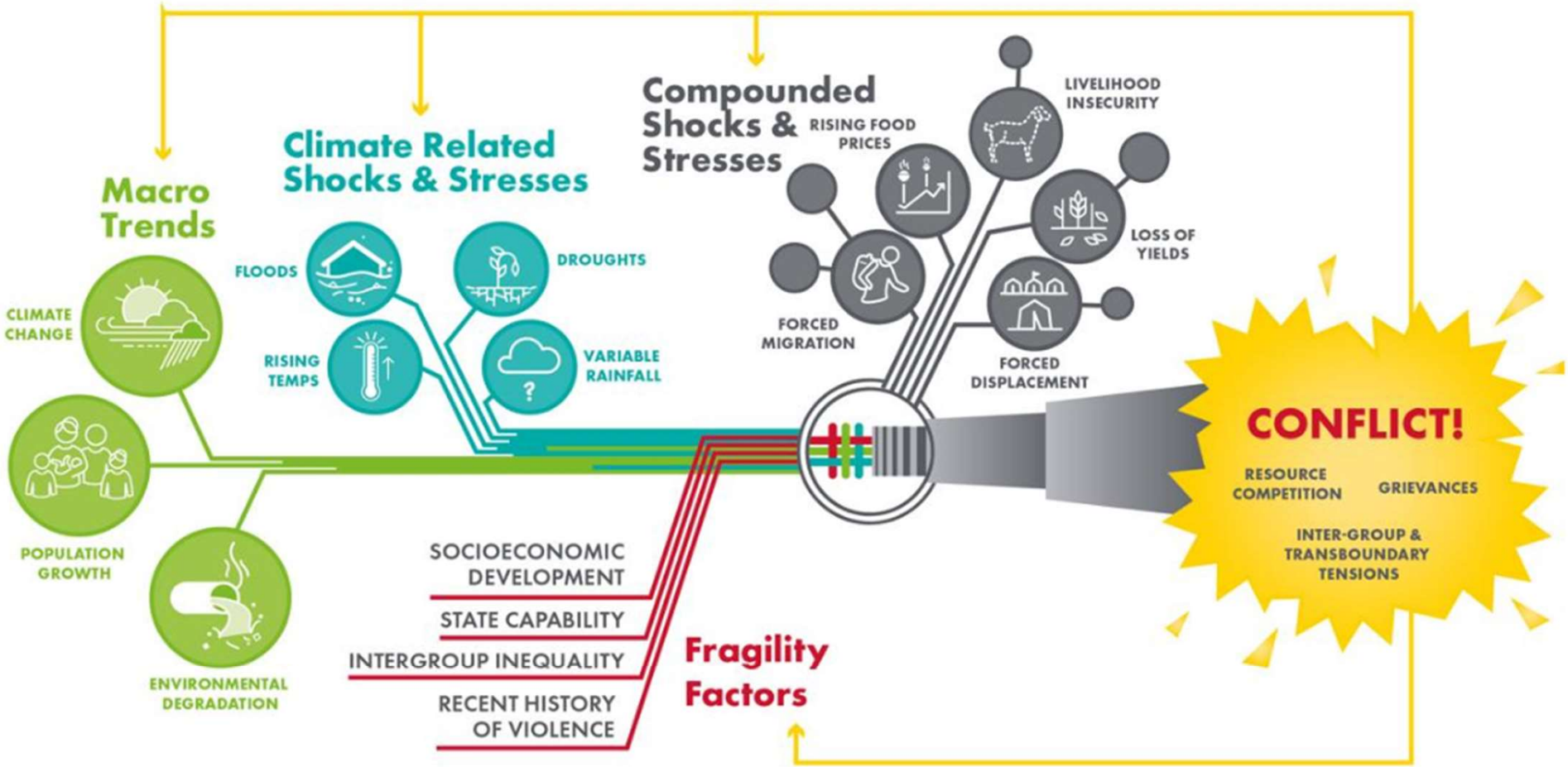
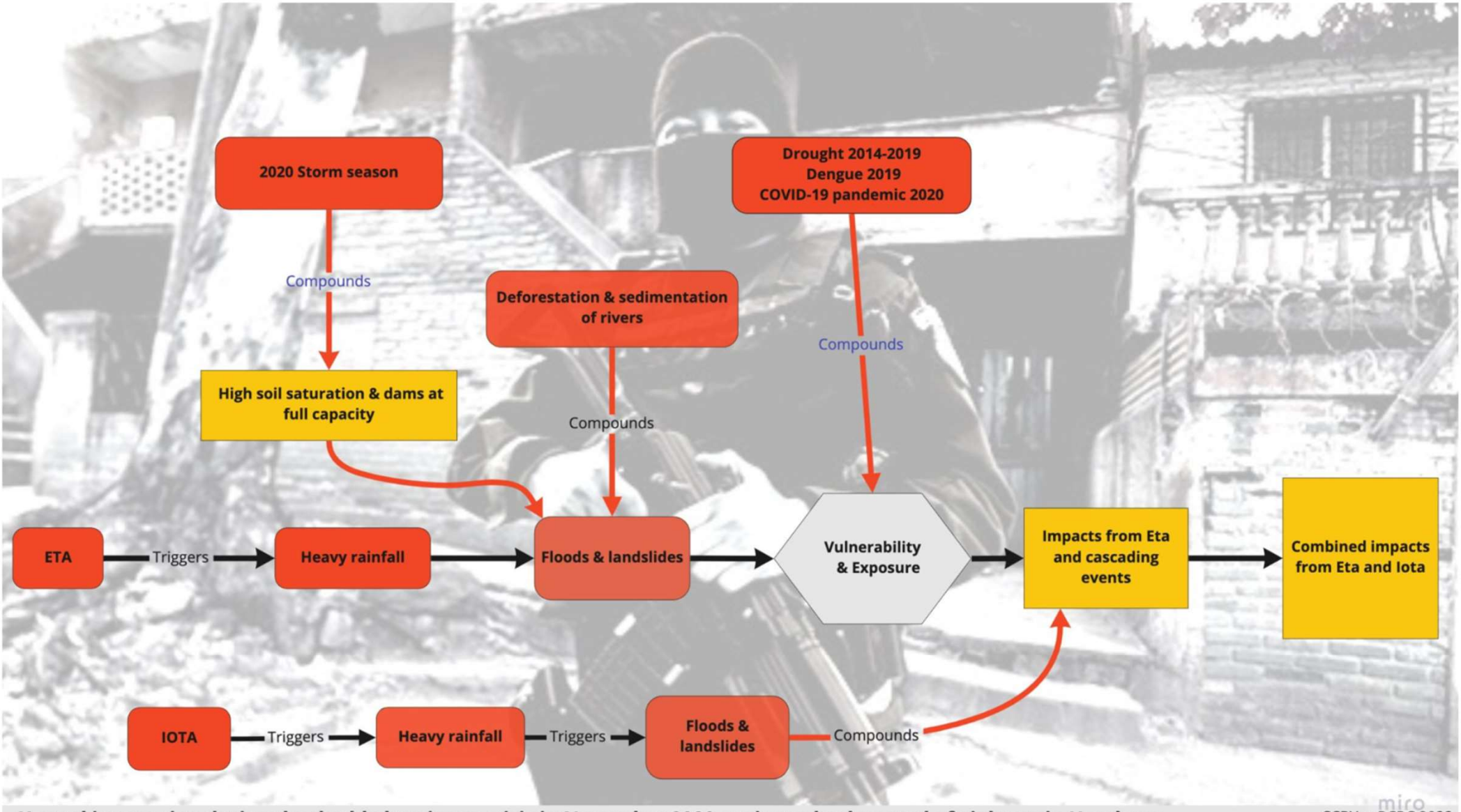


Figure 4: Mercy Corps' Climate and Conflict Resilience Assessment Framework.



Hazard interaction during the dual-tropical storm crisis in November 2020

ENVIRONMENTAL RESEARCH
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Beyond the forecast: knowledge gaps to anticipate disasters in armed conflict areas with high forced displacement

Catalina Jaime[1], Erin Coughlan de Perez[2], Maarten van Aalst[3] and Evan Easton Calabria[2]

Accepted Manuscript online 18 January 2024 •

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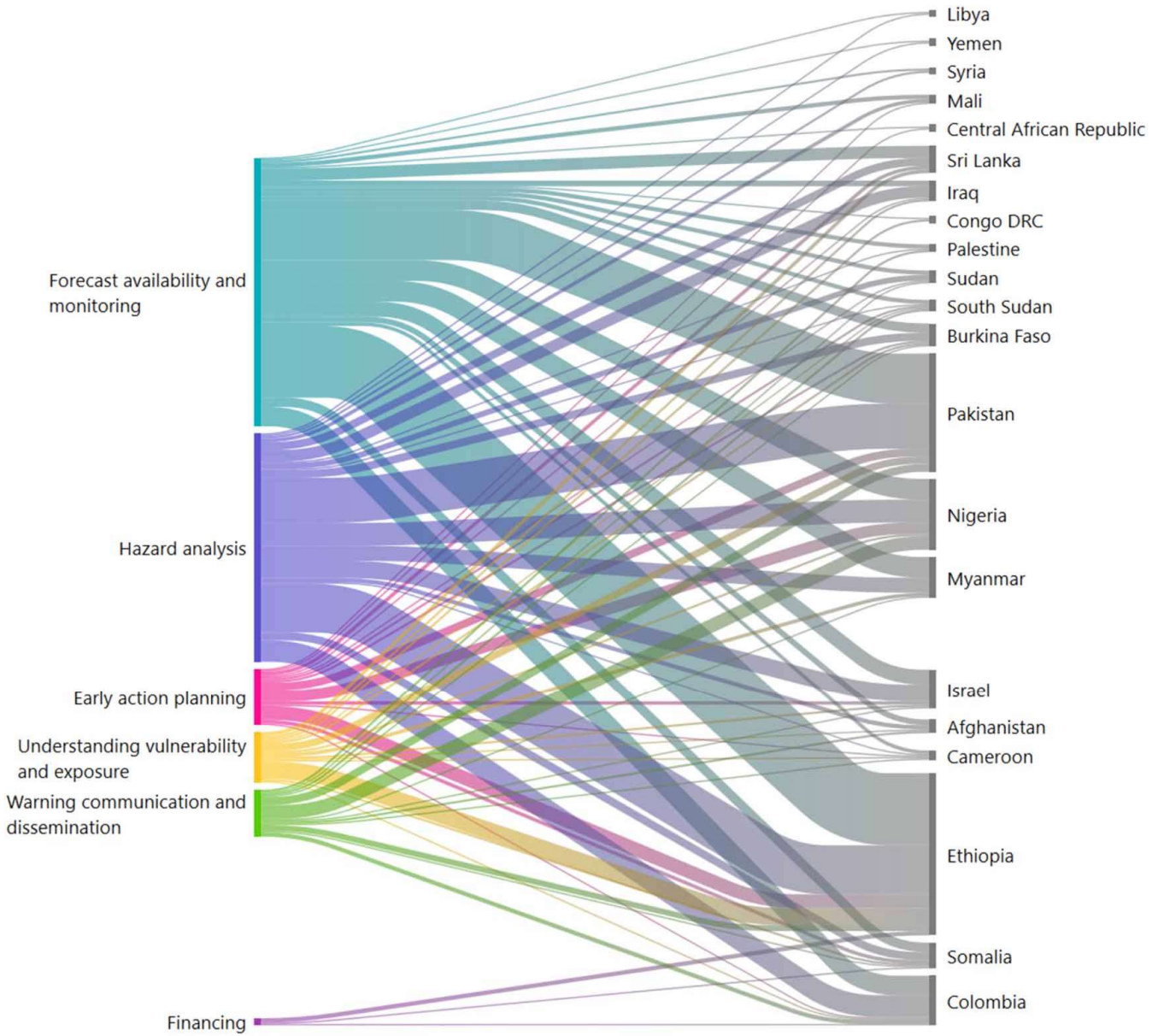
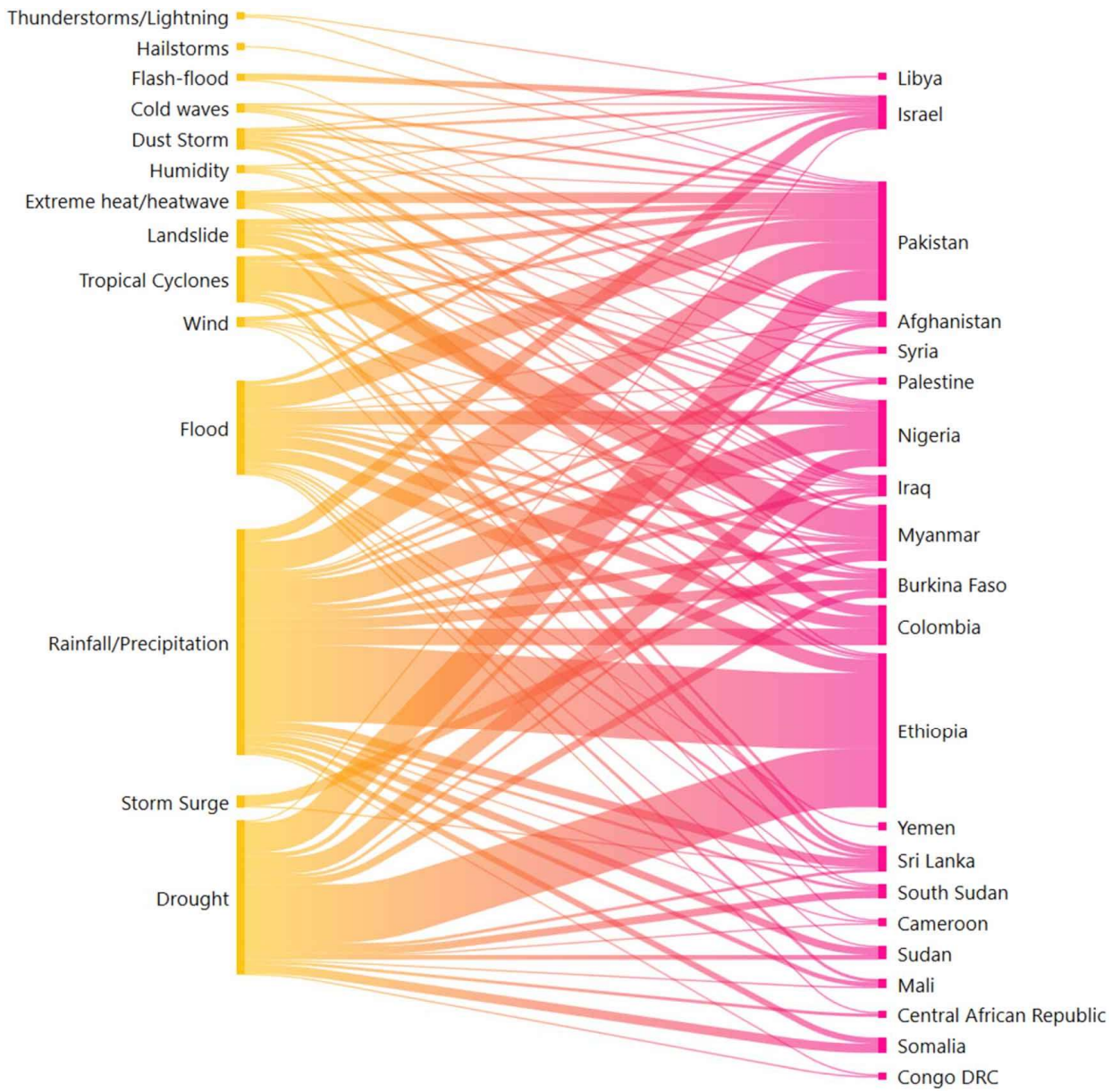


1. Jaime et al, 2024



1. Jaime et al, 2024

What was known: Weather forecast availability and communication in conflict-affected countries

62% of the events, were forecast with at least 30% probability and at least 3 days lead time.

ELSEVIER

International Journal of Disaster Risk Reduction

Volume 83, December 2022, 103421

What was known: Weather forecast availability and communication in conflict-affected countries

Catalina Jaime [a b], Erin Coughlan de Perez [b c], Maarten van Aalst [a b d], Emmanuel Raju [e f], Alexandra Sheaffer [g]

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Enhancing hydro-met infrastructure coverage in FCV contexts contributes to:

- Improve global forecast models - we all benefit

- Game changer for territories with limited weather and climate services = massive impact in saving lives and livelihoods!

Hydrometeorological Infrastructure*	Institutional Fragility potential impacts	Contested Territories potential impacts	High Intensity conflict potential impacts	Protracted conflict potential impacts
Weather Stations: Equipped with instruments to measure temperature, humidity, wind speed, and direction, atmospheric pressure, and precipitation. Rain Gauges: Devices that measure the amount of rainfall over a specific period. Hydrological Stations: Facilities that monitor water levels, flow rates, and quality in rivers, lakes, and reservoirs. Radar Systems: Used for detecting and tracking weather patterns, particularly precipitation. Doppler Radar: Specialized radar used to measure the velocity of precipitation, helping to predict severe weather events like tornadoes. Buoys: Floating devices equipped with sensors to measure sea surface temperature, wave height, and other oceanographic data. Automated Weather Observing Systems (AWOS): Systems that provide real-time weather data at airports. Climate Monitoring Networks: Networks of stations and sensors dedicated to long-term monitoring of climate variables. River Gauging Stations: Measure the flow and discharge of rivers, critical for managing water resources and flood forecasting.	1. Not maintained due to lack of financial resources by the NHMS, as well as limited human resource capacity able to reach all territories in a country where infrastructure is located. 2. In some contexts vandalism and pillage can render the infrastructure inoperable. 3. In some context, there are not enough resources for the wide range of hydro met infrastructure, therefore it is limited to few options. 4. These governmental infrastructure is often not prioritized compared to other critical infrastructure such as roads, dams, health centers etc. 5. Regular power failures that cause interruptions of power supply, common in these contexts, could also have an impact in the damage and decay of AWOS or other equipment that requires electricity. 6. The private sector (hydro met) tend to install their own hydro met infrastructure, offering services to business, often their capacities are higher than the NHMS, yet such infrastructure tends to be located in areas of economic interest and not necessarily where the most vulnerable people live, however there are exceptions for example in the cases of territories with petroleum and mining extraction. 7. Some hydro met infrastructure in fragile contexts is located at the airports or military facilities, hence it tends to be protected .	1. Often infrastructure is non-existent due to access restrictions by NSAG to government personnel, for example NHMS staff . 2. If it exist, maintenance is limited due to security concerns making it more challenging to both access and replace necessary parts due to potential damage and/or looting, creating logistics concerns also due to NSAG presence. 3. Hydro met infrastructure in contested territories is not well knows by parties to a conflict, making it vulnerable to attacks, pillage etc. (Note: some of the impacts described in IF can be applicable to CT)	1. Direct or collateral damage due to bombs, missiles, landmines etc. (There is no evidence that weather stations are directly targeted by parties to a conflict), informal evidence suggest that in some contexts they are cases of damage, more research is needed to understand this. 2. Due to lack of access and other priorities, infrastructure is neglected and as a result damaged over time. 3. EWS investments are on hold during high intensity conflict, due to high levels of risks, therefore hydro met infrastructure installation and maintenance is stopped. (Note: some of the impacts described in IF can be applicable to HI)	1. In addition to the impacts mentioned in IF contexts, hydro met infrastructure in contexts of protracted conflict are often not installed in all parts of a country, they are limited to areas with easy access and less security concerns. 2. Infrastructure can be also damage directly and indirectly by acts of war, as described in High intensity contexts. 3. Military forces tend to have their own hydro met infrastructure and EWS capacity, however this resource is not shared with other actors and communities. (More research is needed to understand at what extent military forces collaborate with NHMS on weather forecast). 4. In PC sudden changes in governance (new governments, coup d'etat etc), can have serious implications in the capacity of the NHMS to deliver services, linked to the impacts mentioned in IF contexts. 5. Some hydro met infrastructure in fragile contexts is located at the airports or military facilities, hence it tends to be protected.

* A similar analysis is recommended for telecommunications infrastructure. (WMO pointed out that destruction/damage of this infra is often more in danger than hydro met infra.

Protracted conflict potential impacts

1. In addition to the impacts mentioned in IF contexts, hydro met infrastructure in contexts of protracted conflict are often not installed in all parts of a country, they are limited to areas with easy access and less security concerns.
2. In PC sudden changes in governance (new governments, coup d'etat etc), can have serious implications in the capacity of the NHMS to deliver services, linked to the impacts mentioned in IF contexts.

Contested Territories potential impacts

1. Often infrastructure is non-existent due to access restrictions by NSAG to government personnel, for example NHMS staff .
2. If it exist, maintenance is limited due to security concerns making it more challenging to both access and replace necessary parts due to potential damage and/or looting, creating logistics concerns also due to NSAG presence.

High Intensity conflict potential impacts

1. Direct or collateral damage due to bombs, missiles, landmines etc. (There is no evidence that weather stations are directly targeted by parties to a conflict), informal evidence suggest that in some contexts they are cases of damage, more research is needed to understand this.
2. Due to lack of access and other priorities, infrastructure is neglected and as a result damaged over time.

Institutional Fragility potential impacts

1. Not maintained due to lack of financial resources by the NHMS, as well as limited human resource capacity able to reach all territories in a country where infrastructure is located.
2. In some contexts vandalism and pillage can render the infrastructure inoperable.

How can hydro-met infrastructure and observations can be protected in the most complex contexts?

International Humanitarian Law (IHL)

Hydrometeorological infrastructures and data are civilian “objects”.

Hence, they should be respected and protected in situations of armed conflict. Even during high-intensity conflict, this infrastructure should continue performing its function.

For this, it should not be attacked or endure indirect damage.

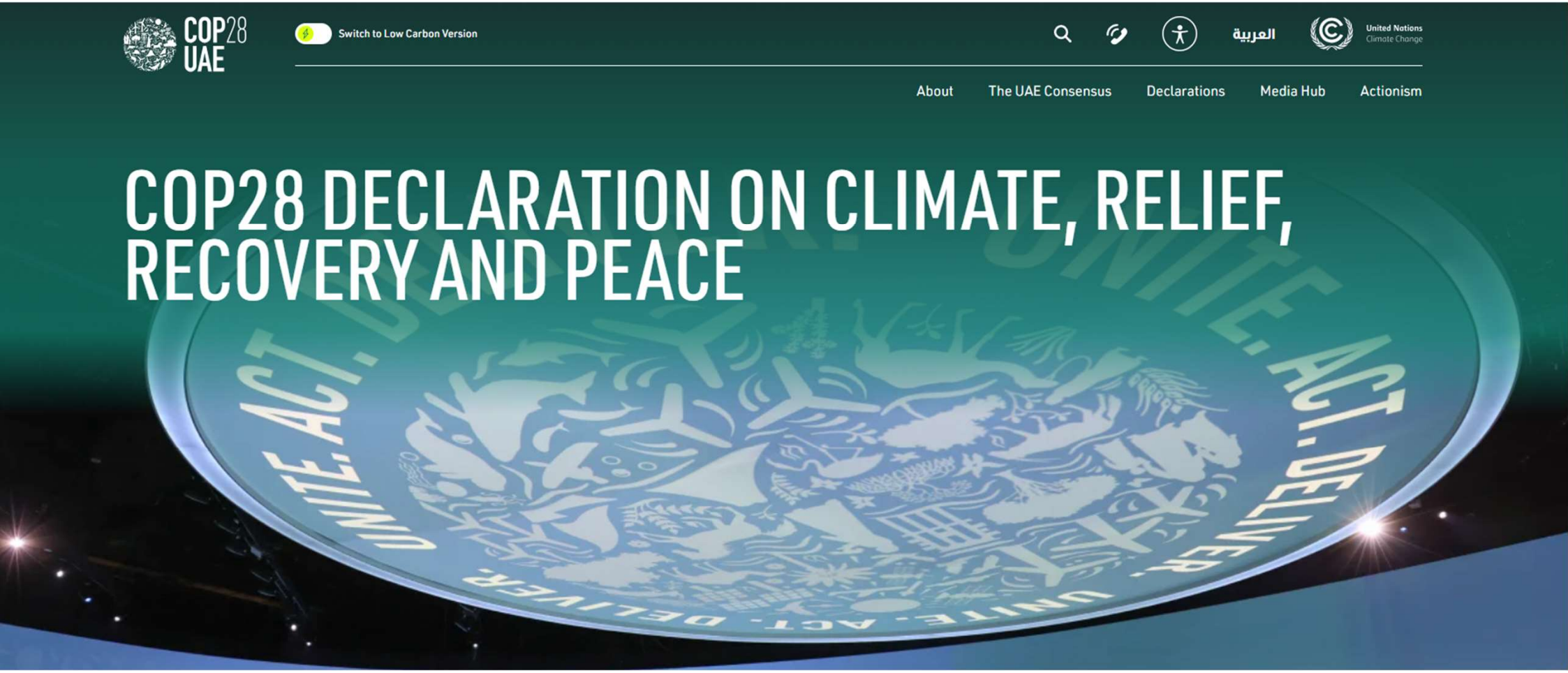
Recording observations and maintenance should be possible under the necessary safety and security protocols.

Recommendations

- Engage in strategic discussions with organisations such as the ICRC, the International Institute of Humanitarian Law, the Norwegian Refugee Council, the International Criminal Court, and others to identify avenues of cooperation to create resources and strategic and tactical plans to educate conflict parties, NHMS, other EWS actors, and civilians on IHL[9].
- Collaborate with relevant stakeholders to identify and map vulnerable hydrometeorological infrastructure in FCV settings, especially those in conflict. This would provide valuable information to conflict parties and other relevant actors on the essential nature of such infrastructure and the need to protect it.
- Encourage, through collaboration with IHL actors, that parties to a conflict take measures to minimise the risk of damage or destruction of hydrometeorological infrastructure, as mentioned above.

ICRC in Mali

COP28 DECLARATION ON CLIMATE, RELIEF, RECOVERY AND PEACE

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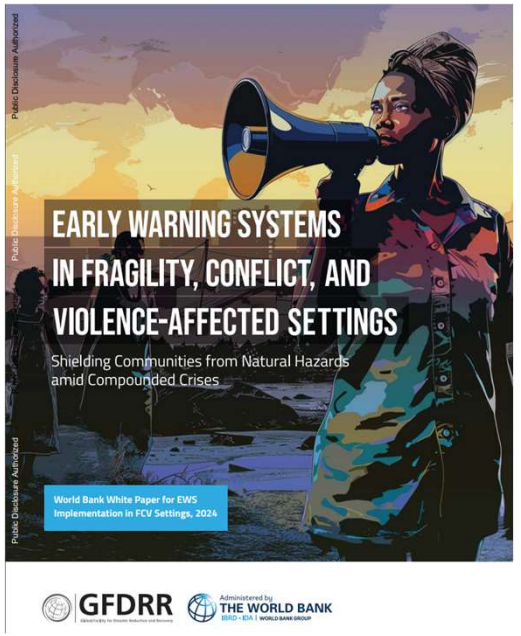
Adapting to climate change is pivotal for people whose vulnerability has been increased by armed conflict. People affected by conflict are highly susceptible to suffer disproportionately from climate and weather-related hazards (ICRC 2020). To address this, disaster risk reduction in these complex contexts is a crucial part of the process to reduce disaster impacts. As part of these efforts, anticipatory action can help to protect people's lives, livelihoods, and wellbeing in the face of predictable hazards.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EARLY WARNING SYSTEMS IN FRAGILITY, CONFLICT, AND VIOLENCE-AFFECTED SETTINGS
Shielding Communities from Natural Hazards amid Compounded Crises
World Bank White Paper for EWS Implementation in FCV Settings, 2024
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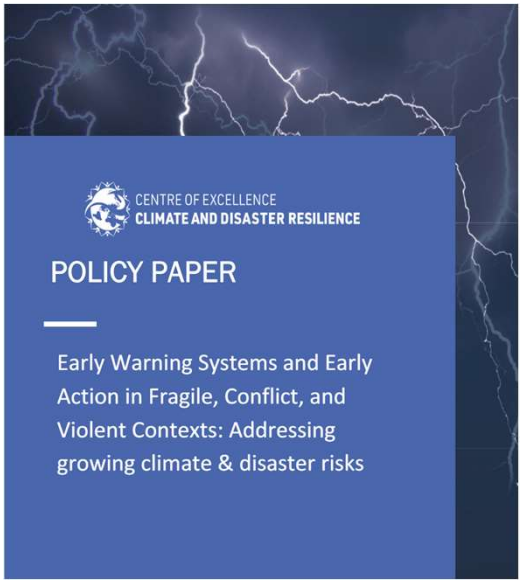
CENTRE OF EXCELLENCE
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Early Warning Systems and Early Action in Fragile, Conflict, and Violent Contexts: Addressing growing climate & disaster risks


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RESEARCH INITIATIVES
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Home
INITIATIVE:
Fragility, Conflict, and Migration

Takeaways

- **Re-think the way how SOFF investments** are done in FCV settings.
- **Increase awareness** of how IHL can protect hydromet investment and observations/data.
- **Research** on how SOFF investments have been affected or could be affected in FCV contexts.

Thank you!!

Catalina Jaime
Head of Climate and Conflict
Red Cross Red Crescent Climate Centre

ITC

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