

Developing Effective Field Contingency Plans for Staff Safety and Security in High Risk Humanitarian Operations

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Abstract:

The turn of the millennium has experienced an unprecedented surge in humanitarian crises across various regions. Record levels of forced displacements primarily driven by political factors such as armed conflict has created immense need for humanitarian intervention and assistance. Paradoxically, the environments in which humanitarian operations take place have become increasingly insecure, especially in conflict-affected regions. Humanitarian organizations are increasingly operating in high-risk environments marked by armed conflict, post conflict political, economic and security instability, terrorism, civil unrest and natural disasters. These complex and often volatile settings pose significant threats to the safety and security of humanitarian personnel and operations necessitating robust contingency planning and the development of effective standard operating procedures (SOPs). This research paper explores how humanitarian organizations can enhance the design and implementation of field-level security, natural disasters and health emergencies contingency plans to better protect staff, communities and aid beneficiaries and ensure operational continuity. Drawing on existing literature, organizational policies, procedures and reports, field reports and case studies, the study identifies key components of effective contingency planning for high-risk humanitarian contexts. It examines common challenges in insecure contexts and highlights best practices. The research underscores the importance of context-specific, adaptable, and regularly updated contingency plans that integrate local risk analysis and staff training. The paper concludes with practical recommendations aimed at strengthening institutional preparedness and resilience in increasingly complex and insecure humanitarian landscapes.

Key words: Contingency planning, Humanitarian security risk management, Operational continuity, and Organizational resilience.

1. Introduction

The onset of the 21st century has witnessed a dramatic escalation in humanitarian crises, with record levels of forced displacements, driven by a complex interplay of armed conflict, political, economic and social instability, terrorism, civil unrest, health emergencies and natural disasters [1]. According to the United Nations High Commissioner for Refugees (UNHCR), the world is experiencing record levels of forced displacement, with millions of individuals uprooted from their homes and in urgent need of humanitarian assistance [2]. While humanitarian crises have surged and correspondingly demand for humanitarian assistance, the environments in which humanitarian operations are conducted have become increasingly volatile and unpredictable particularly in high-risk environments where insecurity is pervasive.

High-risk environments are characterized by one or more of the following contextualized conditions: general insecurity; armed conflict; fragile post-conflict settings; weak or absent governance and security structures; ongoing and/or widespread violence; violations of international and national laws; human rights abuses; political instability or repression; weak law and order maintenance; and the collapse of civil infrastructure [3, 4, 5]. High risk humanitarian environments pose significant threats and risks to the safety and security of local communities, humanitarian personnel and operations, and aid beneficiaries, often resulting in injury, or even loss of life. Significantly, in some high-risk humanitarian environments, the interplay between insecurity and natural disasters, such as cyclones, floods, earthquakes and health emergencies, including epidemics and pandemics, creates complex and significant risks. Proactive planning for these scenarios is not only essential but it is lifesaving.

Humanitarian organizations now frequently deploy staff in these high-risk settings characterized by active conflict, post-conflict fragility, terrorism, and environmental and other natural hazards. These operational contexts not only complicate the delivery of humanitarian assistance but also pose significant threats to the safety and security of humanitarian personnel. As a result, it is imperative for humanitarian organizations, individually or collectively, to adopt robust risk management strategies across the full spectrum of their programs, that protect staff, aid beneficiaries and local communities to ensure uninterrupted operations. Central to this effort are well-designed comprehensive field level contingency plans (CP) complimented by standard operating procedures (SOPs) tailored to high-risk environments.

Contingency planning and the development of Standard Operating Procedures (SOPs) are essential tools for managing operational risks in high-risk environments [6]. Contingency plans (CPs) serve as structured frameworks that guide humanitarian actors in responding to sudden changes in the operational landscape, such as active hostilities, targeted attacks, or forced relocations and or evacuations [6,7]. Standard Operating Procedures (SOPs) provide clear, consistent, and actionable instructions for responding to crises [7,8]. Despite the widespread recognition of the importance of contingency planning and SOPs development, many humanitarian organizations struggle to develop and implement effective field-level contingency plans and SOPs that are context-specific, actionable, and regularly updated [6,7,8].

This research seeks to explore how humanitarian organizations can enhance the design and implementation of contingency plans, aimed at ensuring staff safety in high-risk operational settings. By examining current practices, identifying gaps, case studies and analysing lessons learned from past emergencies, the research paper identifies key components of effective contingency planning, examines common challenges in insecure contexts, and highlights best practices. The findings aim to contribute practical recommendations to strengthen institutional resilience and preparedness in an era of increasingly complex and growing insecurity and climate change related natural disasters, in humanitarian operations.

2. Background and Context

The global humanitarian landscape has undergone significant transformation since the turn of the millennium. A confluence of factors, including protracted armed conflicts, political and social instability, climate-related disasters, illegal migrations and economic collapse has led to an unprecedented rise in forced displacements and humanitarian needs [1]. According to the UNHCR, at the end of 2024, an estimated 123.2 million people worldwide were forcibly displaced due to persecution, conflict, violence, human rights violations and events seriously disturbing the public order [2]. The record numbers of forcibly displaced people worldwide require urgent protection and assistance placing immense pressure on humanitarian organizations to respond rapidly and effectively in complex humanitarian environments with significant security concerns and budget cuts. Equally troubling in modern era high-risk humanitarian setting are the effects of natural disasters and health emergencies impacting on everyone. Some high-risk locations are highly susceptible to the detrimental

impacts of climate change related natural disasters such as, droughts, flooding, landslides, wildfires, extreme heat, and extreme cold. These have severe implications on all aspects of human life, be it security, livelihoods, health, shelter, protection and food, exacerbating humanitarian challenges.

In paradox, the operational contexts in which humanitarian organizations' function have become evidently more insecure. The operational landscape for humanitarian organizations has become increasingly complex and dangerous with diverse threats and risks from multiplicity of actors with divergent motivations [9, 10, 11]. Many of today's humanitarian crises unfold in fragile or conflict-affected states characterized by active armed conflict, high levels of crime, terrorism, fundamentalism, extremism, civil unrest, pandemics and natural disasters, and other dangers. Violence, lawlessness, and weak governance generally prevail [9, 10]. In such settings, humanitarian personnel are often exposed to direct security threats, including targeted attacks, kidnappings, improvised explosive devices (IEDs), gender-based violence, human trafficking, bureaucratic restrictions, and limited access to affected populations [9, 10].

The presence of non-state armed groups, criminal networks, and shifting frontlines further complicates access and delivery of humanitarian assistance to vulnerable communities [12, 13]. Furthermore, the traditional humanitarian principles of humanity, neutrality, impartiality, and independence are now frequently challenged in some of these volatile environments complicating humanitarian response efforts [5,9]. In some high-risk environments humanitarian organizations have been perceived as aligned with some political or military actors, or are caught up in polarized geopolitical dynamics, thereby increasing humanitarian personnel and operations vulnerability to attacks [12]. Contemporary examples of countries with significant security risks against humanitarian personnel and operations include Yemen, Afghanistan, Somalia, Sudan, Ukraine, Palestine-Gaza, Syria, South Sudan, Sahel region of West Africa, Democratic Republic of Congo (DRC), Myanmar and Northern Nigeria [5, 9, 10, 14].

The escalating violence targeting humanitarian workers and humanitarian efforts since the onset of 21st century necessitated decisive measures to address the growing insecurity in operational environments. To continue functioning effectively in such volatile contexts and to enhance the protection of both humanitarian personnel and aid beneficiaries, humanitarian organizations (UN, NGOs and others) were compelled to adapt to the harsh realities of these insecure settings. The requirement for robust security risk management, institutional preparedness and operations continuity planning in high-risk humanitarian operations was particularly imperative. These environments required systematic security management to meaningfully manage security risks for staff safety. This includes the development of context-specific contingency plans that guide humanitarian operations during crises. Such tools are essential not only for safeguarding humanitarian personnel but also for ensuring the continuity and effectiveness of humanitarian assistance in the face of escalating threats.

3. Conceptual Framework

This study is grounded in the intersection of humanitarian security risk management, organizational resilience, and operational continuity in insecure humanitarian environments. These three strategic domains are deeply interconnected in high-risk settings, where they collectively inform and shape the development of contingency plans to enhance preparedness, staff safety, and operational effectiveness. In this regard, the conceptual framework provides the theoretical lens through which contingency plans are examined, particularly in the context of high-risk humanitarian operations affected by conflict and instability. The increasing complexity and volatility of humanitarian operating environments have prompted a growing body of literature emphasizing the need for sustainable risk management across the spectrum of programs, including robust contingency planning for high-risk humanitarian operations. Scholars and practitioners alike argue that contingency plans should not be seen as mere administrative tools but essential components of operational resilience and continuity and staff safety in high-risk humanitarian operations[15, 16].

To provide a theoretical foundation for this research, the following key concepts are defined and examined: Humanitarian security risk management; Organizational resilience; Operational continuity; and Contingency planning. These concepts are central to understanding the dynamics of humanitarian operations in insecure environments and the critical need for effective contingency planning.

Makova refers to humanitarian security risk management as the systematic process by which humanitarian organizations identify, assess, and mitigate security threats and risks in order to enable safe and effective operations in volatile environments [9]. It involves a combination of strategies tailored to specific contexts, aiming to reduce risks to acceptable levels so that humanitarian workers can “stay and deliver” in high-risk environments [9]. Åslund describes organizational resilience in humanitarian operations as the capacity of humanitarian organizations to anticipate, prepare for, respond to, and adapt to incremental change and sudden disruptions in order to survive and thrive. It encompasses robustness, rapidity, resourcefulness, and redundancy, enabling organizations to maintain critical functions during crises [17]. Stoddard *et al* refers to operational continuity as the ability of humanitarian organizations to sustain essential functions and deliver humanitarian assistance despite disruptions caused by insecurity, conflict, or other crises. This process involves business continuity planning, remote management, risk transfer and adaptive programming to ensure that life-saving assistance reaches affected populations even in high-risk environments [18].

Contingency planning is a structured process aimed at preparing for potential disruptions by identifying risks, formulating response strategies, and allocating resources to ensure the continuity of operations [19]. These scenario-based plans are designed to respond to unexpected or high-risk events. Their function is to establish what needs to happen in specific crises [19]. In high-risk humanitarian contexts, contingency plans are essential for anticipating scenarios such as armed conflict, terrorism, civil unrest, natural disasters, or restricted access to affected populations. The contingency plans typically include relocation and evacuation, medical evacuation, business continuity, response to epidemics and natural disasters, and coordination mechanisms with both local and international actors [20]. In high-risk humanitarian environments, contingency planning plays a critical role by offering proactive and reactive organized strategies to manage emergencies, safeguard personnel, and maintain life-saving operations [21].

The critical link between contingency plans with humanitarian security risk management, organizational resilience and operational continuity is explained in following Section 4. Suffice to say at this juncture, contingency plans operationalize security risk assessments into actionable steps, embedding risk mitigation measures. Contingency planning fosters resilience through adaptive capacity, enabling organizations to absorb shocks without collapsing core functions. Importantly, contingency plans safeguard critical operations and support continuity plans. Therefore, contingency plans bind security risk management, resilience strategies, and continuity frameworks together by transforming reactive responses into proactive readiness [19].

This study focuses on contingency plans. However, to enrich the study a causal link shall be made between contingency plans and SOPs, both important components of crisis preparedness and management. SOPs are formal, written instructions designed to ensure consistency, quality, and accountability in the execution of specific tasks or processes [22]. In humanitarian operations, SOPs serve as essential tools for guiding staff behaviour, clarifying roles and responsibilities, and supporting decision-making under pressure, particularly in high-risk or rapidly evolving environments [23]. Effective SOPs are context-specific, regularly reviewed, and integrated into staff training and simulation exercises to enhance preparedness and operational reliability [24]. Critical SOPs in high-risk environments include Kidnapping and Abduction, Staff and Vehicle tracking (Travel Security), Curfew and Movement Restrictions, Emergency Communication, Security Briefing, Warden system, Incident Reporting & Response, Checkpoints, Training and Coordination mechanisms with both local and international actors, including in peacekeeping operations.

Contingency plans and SOPs are interdependent components of crisis preparedness and management. Contingency plans and SOPs serve complementary roles within security risk management, operational readiness and continuity frameworks, especially in humanitarian security contexts. Contingency plans are scenario-based plans designed to respond to unexpected or high-risk events. Their function is to establish what needs to happen in specific emergencies [19]. SOPs are detailed, step-by-step instructions that guide routine and emergency procedures. They tell responders how to carry out the tasks envisioned in a contingency plan [22,23,24]. Therefore, effective crisis preparedness and management necessitates the parallel development of contingency plans and standard operating procedures (SOPs), tailored to the specific operational context. This ensures that responses are both structured and adaptable to the unique challenges of each operational environment.

4. Linking Contingency Planning to Humanitarian Security risk management, Organizational Resilience, and Operational Continuity in High-Risk Contexts

Contingency plans in high-risk humanitarian operations are the practical tools that operationalize three strategic concepts of security risk management, organizational resilience, and operational continuity into actionable protocols. They translate theory into action, ensuring that humanitarian organizations can stay safe, resilient, and operational even in the most insecure environments [19,20]. Contingency plans are the operational expressions of humanitarian security risk management. They translate security risk assessments into actionable protocols that protect staff, assets, and beneficiaries in volatile environments [19,20]. By embedding risk mitigation measures, adaptive capacity, and continuity safeguards into organized procedures, contingency plans enable humanitarian agencies to maintain critical functions, protect personnel, and uphold humanitarian commitments even in emergencies [19,20].

Contingency plans outline responses to potential threats (e.g., armed conflict, natural disasters, or targeted violence), helping organizations anticipate and mitigate risks. In high-risk environments, such as conflict zones critical contingency plans include relocation and evacuation, medical and casualty evacuation, business continuity, response to epidemics and natural disasters and measures to protect humanitarian personnel under duty of care. Contingency plans are complemented with SOPs. SOPs are detailed, step-by-step instructions that guide routine and emergency procedures. They tell responders how to carry out the tasks envisioned in a contingency plan. SOPs provide clear, actionable steps for staff to follow during security incidents, ensuring consistency and reducing confusion under pressure [22,23,24]. Together, contingency plans and SOPs form the backbone of a security risk management framework, enabling organizations to operate safely in volatile environments. Without these tools, security risk management becomes reactive rather than proactive [15, 16].

Organizational Resilience is about adapting and sustaining operations through crises. It is the ability to withstand shocks, adapt quickly, and keep delivering in crises situations. Contingency plans institutionalize this adaptability by embedding preparedness, flexibility, and learning into daily operations [17]. Specifically, contingency plans enhance resilience by preparing organizations to adapt quickly to disruptions, ensuring critical functions continue even in insecure humanitarian environments [17]. Complementing contingency plans are SOPs which institutionalize best practices and lessons learned, reinforcing organizational memory and enabling rapid, coordinated responses. These two tools, contingency plans and SOPs, foster a culture of preparedness, which is essential for resilience in unpredictable humanitarian environments. They operationalize resilience by embedding flexibility and preparedness into daily operations of humanitarian organizations [17].

Significantly, ensuring operational continuity in insecure contexts where disruptions are not hypothetical but are expected, is crucial. In this regard, linking contingency planning to operational continuity frameworks ensures that essential services (e.g., food distribution, medical services, protection services) can continue even during crises such as security relocations and evacuations, response to natural disasters and pandemics, access

restrictions, or security incidents. Contingency plans ensure that essential services are maintained even during crises while SOPs guide staff on how to adjust operations (e.g., remote management, relocation, or scaling down) to minimize disruption. Together, contingency plans and SOPs support continuity of aid delivery, even in high-risk or rapidly changing environments. They are the blueprint for continuing operations when normal systems are constrained [18].

Contingency plans are vital tools in high-risk operational contexts. They ensure operational continuity by providing structured responses to unexpected events such as attacks, natural disasters, pandemics or civil unrest, thereby minimizing disruptions to critical operations. In high-risk humanitarian situations, having pre-established protocols supports faster and more confident decision-making by leaders and team on the grounds. Additionally, these tools facilitate coordination and communication by aligning all stakeholders from field staff to headquarters thus minimizing miscommunication and duplication of efforts. Critically, demonstrating preparedness through contingency planning builds confidence among staff, partners, donors and communities, reinforcing the organization's commitment to safety and sustainability and preparedness to complex emergencies in high-risk environments [17, 19, 20, 25, 26, 27].

5. Contingency Planning in High-Risk Humanitarian Operations

Contingency planning refers to the structured process of preparing for potential disruptions by identifying risks, developing response strategies, and allocating resources to ensure continuity of operations [19,20,28]. Contingency plans are crucial in high-risk humanitarian contexts because they provide structured, proactive and reactive strategies to manage emergencies, protect staff, and ensure the continuity of life-saving humanitarian operations [20,28].

5.1. Key Components of Effective Contingency Planning

Effective contingency planning is essential for humanitarian organizations operating in insecure and unpredictable environments. A well-designed contingency plan not only enhances organizational resilience and operations continuity but also ensures the safety and security of humanitarian personnel and operations. Based on literature, organizational guidelines, humanitarian practitioners and field practices, the following components are identified as critical to robust contingency planning:

- **Context-Specific Risk Assessment:** Context-specific risk assessment is critical in contingency planning for high-risk environments because it ensures that preparedness measures are tailored to the unique threat landscape, operational dynamics, and vulnerabilities of a given humanitarian setting [19, 28]. Grounding contingency plans in contextually relevant information and stakeholder input, humanitarian organizations enhance decision-making, improve resource allocation, and strengthen inter-agency coordination. The aim is to reduce exposure to harm and increasing operational resilience in volatile and insecure environments [20, 28]. Therefore, a foundational element of any contingency plan is a thorough and regularly updated risk assessment (security, medical or hazard). This involves identifying potential threats such as armed conflict, natural disasters, or civil unrest and analysing their likelihood and potential impact. Risk assessments must be tailored to the specific operational context and informed by local information, historical data, and stakeholder consultations[27, 28,].
- **Scenario Planning and Response Triggers:** Contingency plans should include scenario-based planning, outlining possible emergency situations and corresponding response strategies. Each scenario should be linked to clearly defined triggers, specific indicators or thresholds that activate the plan. This ensures timely and coordinated responses, minimizing confusion during crises[21]. In this regard, security risk assessments directly shape scenario planning by identifying plausible threats to model preparedness responses and significantly the activation triggers which define thresholds for initiating, for example, relocation, evacuation, lockdown, or medical interventions[21].

- **Evacuation and Relocation Procedures:** In high-risk humanitarian operations contingency plans must incorporate comprehensive security evacuation and relocation protocols tailored to protect staff and, where applicable, their dependents during volatile scenarios. The protocols should outline clearly defined relocation or evacuation routes assessed for safety and accessibility and the designated secure assembly points equipped for temporary staging. Also outlined are detailed transportation logistics, including vehicle availability, fuel reserves, and coordination with national or contracted assets. Effective relocation or evacuation planning also requires coordination and collaboration with other humanitarian actors on joint approaches. Significant alignment with on-ground security personnel, who facilitate movement, provide situational updates and information and manage perimeter control during transit. To ensure operational readiness, organizations should conduct regular drills and simulations that familiarize personnel with procedures, test inter-agency coordination, and identify gaps in execution. This enhances confidence, speed, and cohesion when a real crisis demands swift action [20, 21, 29, 30].
- **Medical Evacuation (MEDVAC) and Casualty Evacuation(CASEVAC):** Medical Evacuation (MEDVAC) and Casualty Evacuation (CASEVAC) are critical components of contingency planning in high-risk operations. They ensure rapid and safe transport of injured personnel to appropriate medical facilities, which is essential for reducing mortality and maintaining operational continuity. These systems are especially vital in high-risk environments where delays in medical care can be fatal, and they require coordinated planning, trained personnel, and reliable logistics [31, 32].
- **Communication and Coordination Protocols:** Clear and reliable communication protocols are vital for effective crisis response. This includes emergency communication systems. Plans should specify communication channels, roles and responsibilities, and backup systems in case of network failure. Coordination mechanisms with local authorities, UN agencies, and other humanitarian actors should also be established to avoid duplication and ensure a unified response [29].
- **Resource Prepositioning and Logistics:** Ensuring the availability of essential supplies such as food, water, medical kits, and fuel is critical during emergencies. Prepositioning resources in strategic locations can significantly reduce response time. Plans should also address supply chain continuity and alternative procurement strategies in case of access disruptions [33].
- **Staff Training and Capacity Building:** Contingency plans are only effective if staff are adequately trained to implement them. Regular training sessions, simulations, and refresher courses help build institutional memory and ensure that personnel can respond confidently and competently under pressure [34].
- **Monitoring, Review, and Adaptation:** Given the dynamic nature of humanitarian contexts, contingency plans must be living documents. Regular reviews, after-action evaluations, and feedback loops are essential for identifying gaps, incorporating lessons learned, and adapting to evolving risks [35]

5.2 Key Contingency Plans in High-Risk Humanitarian Operations

In high-risk humanitarian operations, contingency planning is essential to ensure the safety of humanitarian personnel, continuity of operations, and effective delivery of assistance. Contingency plans must ensure that humanitarian assistance delivery remains flexible, responsive, and resilient even when conditions on the ground may change rapidly and some areas become insecure and inaccessible. Contingency plans in humanitarian operations are both proactive and reactive. They are designed to anticipate risks and respond effectively when those risks materialize. Proactive elements are prepared in advance to reduce vulnerability and ensure readiness. Reactive elements are triggered in response to actual events or threats. Critical contingency plans typically developed and maintained in high-risk humanitarian environments must cover security emergencies, operational continuity, natural disasters and health emergencies.

5.2.1 Security Contingency Plans.

Security contingency plans are essential in high-risk humanitarian operations because they protect personnel, assets, operations and ensures continuity in volatile and unpredictable environments. The plans must as of

necessity not only respond to security threats and risks in the environment but must also anticipate them. Security contingency plans ensure that humanitarian organizations are not reactive but proactively prepare for potential emergency scenarios before they unfold. This proactive approach strengthens organizational resilience, anticipates disruption and minimizes it, enabling a faster and more coordinated response when crises arise. The following security contingency plans are considered critical for humanitarian organizations in high-risk environments

- **Relocation and Evacuation Plans:** These are risk avoidance measures designed to minimize or eliminate exposure to threats and risks by temporarily removing or restricting individuals from certain situations, places, events, or timings. This includes relocating and or evacuating staff and operations to safer areas while maintaining program continuity. Relocation is defined as the official transfer of personnel and or eligible family members from their usual place of residence, assignment, or work to another location within their country of assignment to avoid risk until the situation stabilizes [36, 37, 38, 39]. Evacuation is the official transfer of personnel and or eligible family members from their place of assignment for security reasons, to a location outside their country of assignment (such as a safe haven country, home country, or third country) to avoid risk. This generally applies to foreign international staff [36, 37, 38, 39]. Key actions for relocations or evacuations include identifying indicators and trigger events, identifying relocation and evacuation locations and operational sites, means of relocation or evacuation, relocation or evacuation routes, pre-assessing infrastructure and security of new locations. Assignment of roles and responsibilities include defining critical and non-critical staff and preparing relocation and evacuation kits and data backups. Critically, relocation and evacuation communication protocols and coordination and collaboration with other humanitarian actors must be agreed and activated when necessary [36, 37, 38, 39].
- **Alternate Work Modalities and Hibernation plans:** These are risk avoidance measures designed to ensure the continuation of programs without needing to implement security relocation or evacuation [36, 37, 38]. Key actions for alternate work modalities include defining indicators and triggers, protocols for sheltering in place when relocation or evacuation is not possible, enabling remote work capabilities, provision of remote working tools, training staff on virtual tools and procedures and establishing communication and reporting lines. Key actions for hibernation plans include, triggers, stocking essential supplies (food, water, medical), secure premises and communication tools [36, 37, 38, 39].
- **Medical Evacuation (MEDEVAC):** Contingency plans for medical evacuation (MEDVAC) are a must in high-risk humanitarian operations due to the unpredictable nature of conflict zones, natural disasters, and insecure environments generally. Injuries and other health emergencies from a variety of causes must be prepared for. MEDVAC contingency plans ensure timely and coordinated responses to medical emergencies, minimizing delays that could exacerbate injuries or lead to preventable fatalities using dedicated medical assets. They consider most of the possible events and account for logistical constraints such as security threats, terrain and weather which can severely impact evacuation processes. MEDVAC can be by road, sea or air using specialist transport. Key actions in MEDVACs include establishing protocols for emergency medical response and identifying health facilities with required capacities. Also key is identifying evacuation providers (air, land or sea/river) and assigning responsibilities at different levels for the coordination of the MEDVAC. Coordination with local emergency services and local authorities including security entities to the extent available must be included in the plans [28, 31, 32, 37].
- **Casualty Evacuation (CASEVAC):** Casualty evacuation is the immediate ad hoc evacuation of casualties using any available means to the nearest available medical facility. Contingency plans for casualty evacuation (CASEVAC) are important in high-risk humanitarian operations because they ensure rapid and organized response to emergencies, minimizing delays that could worsen casualties' conditions. Key actions include establishing protocols for emergency casualty evacuation, identifying health facilities with required capacities and identifying CASEVAC service providers with required assets (air, land or sea/river). Other critical actions are assigning responsibilities at different levels for the coordination of the CASEVAC and coordination with local emergency services and local authorities including security entities if needed. [28, 31, 32, 37].

- **Mass Casualty:** Mass casualty are events in which the number of people injured or affected exceeds or overwhelm the capacity of local health care facilities to provide adequate care in a timely manner. They are often sudden and chaotic. Typically, mass casualty plans in high-risk humanitarian settings must prepare for: armed conflict or mass shootings incidents; terrorist attacks or bombings; natural disasters (e.g., earthquakes, floods, cyclones); and large-scale transportation accidents (e.g., vehicle accidents, plane crashes, train derailments). Mass casualty contingency plans are essential in high-risk humanitarian settings, as they provide a structured, rapid, and effective framework for responding to incidents that overwhelm local healthcare capacity. Coordinating resources, prioritizing patient care, and ensuring clear communication among responders, mitigate chaos and enable timely, life-saving interventions improving survival chances. Core components typically include triage protocols to classify injuries by severity, rapid deployment of medical personnel and supplies, establishment of treatment and evacuation zones, liaison with local health facilities and partners, and adaptive monitoring to respond to evolving conditions. Robust preparedness in these areas allows for efficient and scalable management of mass casualty events, even in insecure or resource-constrained environments [37, 40, 41, 42].
- **Response to Civil Unrest:** Civil unrest incidents in high-risk humanitarian environments often stem from a complex mix of factors which include political instability, economic hardship, ethnic or religious tensions, humanitarian aid delivery perceptions, security forces and armed groups presence, environmental stressors and social media and misinformation. In high-risk humanitarian environments, a well-developed response to civil unrest contingency plan is essential to mitigate threats that can erupt and escalate rapidly, placing humanitarian staff, vulnerable populations such as refugees, IDPs, and other affected communities at immediate risk. The key actions include proactive risk assessments, coordinated engagement with local authorities and communities, and the establishment of clear safety and communication protocols. Timely responses are supported by early warning systems, secure access controls, and robust logistical readiness, including trained personnel and pre-positioned resources. Ongoing community engagement fosters trust and mitigates tensions, while regular plan reviews and simulation exercises ensure preparedness, adaptability, and continuous improvement in volatile environments. Monitoring social and political developments through early warning systems enables timely activation of response measures, while security protocols and access controls safeguard personnel and assets [28, 37, 43, 44, 45].

5.2.2 Operational Continuity Plans

Operational continuity plans are critical in high-risk humanitarian operations because they ensure that life-saving activities (Food, health, protection) can continue even in the face of disruptions due to insecurity, natural or health emergencies. Operational continuity plans reduce vulnerability, enhance resilience, and protect both personnel and affected communities. In high-risk humanitarian operations like conflict zones or disaster-prone areas, operational continuity plans represent not just best practices but are lifelines in emergency situations. Critical operational continuity plans include

- **Business Continuity Plans (BCP):** Humanitarian operations frequently take place in volatile and high-risk environments where disruptions due to armed conflict, terrorist attacks, forced displacements, natural disasters, pandemics, or cyberattacks are frequent and often unpredictable. In such contexts, Business Continuity Plans (BCPs) serve as essential operational safety net, enabling humanitarian organizations to maintain their core functions such as food distribution, medical care, protection services, and emergency response even when standard operational systems are compromised. Key actions in developing a BCP are thorough risk assessments to identify threats and their impact on critical services. To be prioritized are vital functions, such as food distribution, medical care, protection activities, and logistics that must remain operational during crises. Equally important is engaging relevant stakeholders, including staff, partners, and affected communities, in both the development and testing phases of the plan. Significantly, BCPs must be routinely reviewed and updated to reflect evolving risks, operational shifts, and lessons learned from past disruptions, ensuring continued relevance and effectiveness in volatile contexts. A well-structured BCP outlines contingency measures that reduce downtime, preserve logistical integrity, and ensure

uninterrupted delivery of life-saving services. It also supports inter-agency coordination and security procedures, which are critical during evacuations, relocations, or infrastructure failures [44, 46, 47, 48, 49].

- **IT and Communications Backup:** In emergencies, real-time communication is vital for coordination, security alerts, and decision-making. IT and Communication backup plan helps to maintain access to data, coordination tools, and communication channels when primary systems fail. Backup systems (e.g., satellite phones, cloud-based data storage, offline communication protocols) ensure that teams stay connected even if local infrastructure is damaged or compromised. It also prevents data loss, which is crucial for tracking aid delivery, beneficiary information, and security incidents [37, 50].
- **Supply Chain Plans:** Humanitarian supply chains are often fragile and exposed to risks like road closures, access restrictions, border restrictions, or supplier failures. Supply chain contingency plan ensures the continuous flow of essential goods like food, medicine, fuel, and shelter materials. Alternative routes and pre-identified suppliers help avoid delays that could cost lives. This ensures that aid reaches affected populations even when the primary supply chain is disrupted [51, 52, 53, 54].

5.2.3 Natural Disasters and Health Emergencies Contingency plans

In high-risk humanitarian operations, contingency planning for natural disasters and health emergencies is an essential lifesaving endeavour. Natural disasters and health emergencies plans ensure that humanitarian organizations are not caught off guard, allowing for rapid mobilization of resources, protection of vulnerable populations, and continuity of essential services. By preparing in advance, humanitarian organizations can reduce the impact of crises, protect staff and communities, and maintain operational effectiveness even in the most challenging environments [55, 56, 57]. Natural disasters and health emergencies contingency plans are normally planned for the following depending on context, country or location

- **Flooding, Cyclone, Tsunami, and Earthquake Preparedness:** Contingency planning for natural disasters is essential in high-risk humanitarian environments to ensure rapid, coordinated responses that save lives, protect humanitarian operations, and reduce disruption to vulnerable communities. Preparedness ensures timely, coordinated responses that minimize loss of life, protect critical infrastructure, and maintain continuity of humanitarian assistance. The plans outline clear protocols for managing incidents to protect both affected populations and humanitarian staff. When preparing contingencies for flooding, cyclones, tsunamis, and earthquakes, it is essential to adopt a multi-hazard approach that integrates risk mapping, early warning systems, and community-based preparedness. Key considerations include identifying vulnerable populations and infrastructure, pre-positioning emergency supplies, and establishing clear evacuation routes and safe shelters tailored to each hazard's characteristics such as elevated shelters for floods and structurally reinforced buildings for earthquakes. Coordination among local authorities, humanitarian actors, and technical organizations is critical to ensure timely response and resource mobilization. The contingency plans should also incorporate communication protocols, rapid damage assessments, and continuity strategies for essential services, while factoring in seasonal patterns, historical data, and the potential for cascading impacts across sectors [56,57]
- **Pandemic and Epidemic Response Plans:** Contingency planning for natural health emergencies ensures rapid, coordinated responses that save lives. Preparedness ensures timely, coordinated responses that minimize loss of life, protect critical infrastructure, and maintain continuity of humanitarian assistance delivery. The plans outline clear protocols for managing disease outbreaks such as cholera, Ebola, or COVID-19 to contain the spread and protect both affected populations and humanitarian staff. When preparing contingency plans for pandemic and epidemic response, key considerations include establishing robust surveillance and early detection systems. This ensures rapid case identification and implementing scalable isolation and treatment protocols. Plans must account for supply chain continuity for essential medical equipment, personal protective equipment (PPE) and pharmaceuticals, while integrating infection prevention and control (IPC) measures across health facilities and community settings. Coordination with public health authorities, humanitarian actors, and local stakeholders is vital to harmonize messaging, enforce public health measures, and maintain trust. Risk communication strategies should be culturally

sensitive and adapted to evolving epidemiological trends. Additionally, contingency frameworks must address continuity of essential services, workforce protection, and adaptive operational modalities such as remote programming and mobile health units [55,56].

- **Mental Health and Psychosocial Support (MHPSS).** Recognizing the psychological toll of emergencies, MHPSS plans provide structured support for both staff and affected communities. MHPSS contingency planning must prioritize the integration of MHPSS into broader emergency response frameworks, ensuring that mental health needs are not sidelined during crises. Key considerations include mapping existing services, identifying vulnerable groups (e.g., displaced populations, frontline workers, children), and establishing referral pathways for specialized care. Plans should promote community-based interventions, psychological first aid (PFA), and safe spaces for emotional support, while training staff in basic MHPSS principles. Coordination with protection, health, and education sectors enhances reach and sustainability. Importantly, contingency plans must be culturally and contextually grounded, leveraging local coping mechanisms and ensuring that interventions are inclusive, non-stigmatizing, and accessible across gender, age, and ability [55,56].

6. Applicability of the Contingency Plans in High-Risk Humanitarian Operations

Developing and implementing effective contingency plans depends on a variety of factors and most significantly the context and organization mandate. The following contingency plans are sampled for their criticality and applicability in high-risk humanitarian environments.

6.1. Security Contingency plans

Security contingency plans are critical tools for ensuring safety and security of humanitarian personnel and operations in volatile environments. The plans provide structured guidance for responding to a range of security threats and disruptions, ensuring continuity of operations and the safety of personnel. Key security contingency plans such as relocation, evacuation, alternative work modalities, hibernation, response to civil unrest, MEDEVAC, and CASEVAC have been tested across numerous high-risk humanitarian operations over the past decades, with varying degrees of success. In diverse humanitarian operations, these plans have proven essential in ensuring staff safety, operational continuity, and the protection of affected populations. The following examples on their applicability at policy and operational levels are informative and relevant.

6.1.1 Relocation & Evacuation

Many humanitarian organizations operating in high-risk environments have policies and procedures that cover relocation and evacuation of their staff due to insecurity. In some high-risk environments, it is not if it happens, but when will it happen. The UN Security Policy Manual (SPM), Chapter IV, Section D. Revised Policy on Risk Avoidance (Alternate work modalities, and personnel and family restrictions (relocation and evacuation) clearly lay out the parameters of measures to avoid risk as part of UN security risk management [36]. This includes alternate work modalities, relocation and/or evacuation, and clarify roles and responsibilities of relevant United Nations Security Management System (UNSMS) actors at different levels in decisions regarding these measures [36]. International Committee of the Red Cross (ICRC) and International Federation of Red Cross and Red Crescent Societies (IFRC) have internal security frameworks that include staff evacuation protocols in response to armed conflict, natural disasters, or political instability. These are coordinated with host national societies and local authorities [58].

The UNHCR Emergency Handbook outlines procedures for staff safety, including relocation and evacuation in emergencies. It emphasizes coordination with other members of the UNSMS, United Nations Department of Safety and Security (UNDSS) and host governments to ensure staff safety while maintaining humanitarian operations [59]. IOM's internal security and crisis management policies include staff relocation and evacuation as part of broader emergency preparedness and response strategies [60]. Many international NGOs (e.g., Save the Children, Médecins Sans Frontières, OXFAM, World Vision, CARE etc.) follow inter-agency security protocols and often aligned with UN or International NGO Safety Organization (INSO) guidance for staff evacuation and relocation [61].

Various humanitarian organizations have relocated or evacuated staff from high-risk environments such as conflict or post conflict zones due to insecurity at one point. Some relocations and or evacuations have been repeated. Contemporary examples include relocations and evacuations from South Sudan (2013, 2016, 2018), Yemen (2018, 2022), Afghanistan (2021), Ethiopia's Tigray region (2020–2021), Ukraine (2022), Sudan (2023), Lebanon (2024), (Gaza 2023, 2024) due to escalating violence, political instability, or targeted threats against humanitarian staff [62,63,64,65,66,67]. Some of the relocations and evacuations were reported chaotic. For example, the August 2021 evacuation of humanitarian personnel from Afghanistan revealed severe coordination gaps, as chaotic scenes at Kabul airport shown on television channels, highlighted the disconnect between international forces primarily led by the USA and the humanitarian community [5]. Priority was given to evacuating foreign nationals, leaving many humanitarian and development personnel from lower capacity countries stranded and were last to be assisted by US led operation from Kabul in August 2021[5].

6.1.2 Alternative Work Modalities and Hibernation

During the COVID-19 pandemic which rapidly spread across the globe, humanitarian field operations in most countries if not all, including high-risk environments, adopted alternative work modalities to manage exposure to health risks. This included countries with significant displaced populations such as refugees and IDPs, like Yemen, DRC, Bangladesh, South Sudan, Sudan, Somalia, Central Africa Republic (CAR), Uganda, Chad and Syria. Most refugees and IDPs in these countries solely depended on humanitarian assistance. Humanitarian organizations shifted to remote coordination and mobile response teams to maintain life-saving services while minimizing exposure to health risks. Yet refugees and IDPs in these countries had the greatest need. In Central African Republic, South Sudan, Haiti, Gaza, Yemen, Somalia, Syria and Sudan humanitarian staff from various organizations have hibernated in secure compounds during sudden outbreaks of violence, with pre-positioned supplies and communication protocols ensuring their safety until relocation or evacuation was possible. [37, 62, 63, 64, 65, 66, 67].

6.1.3 Response to Civil Unrest

Civil unrest can escalate rapidly, disrupting access to affected populations, threatening personnel, and damaging infrastructure. Further, unexpected trigger events can ignite simmering discontent particularly in displaced camps and humanitarian assistance distribution sites. Having a contingency plan for civil unrest in high-risk environments is crucial because it ensures the safety of humanitarian staff and continuity of operations during unpredictable and volatile situations. A well-prepared civil unrest plan allows organizations to respond swiftly whether through alternative work modalities, such as work from home, or alternate locations, or by creating restricted areas or time of movements, minimizing harm and maintaining critical humanitarian assistance delivery. Examples of civil unrest involving local communities, refugees, and internally displaced persons (IDPs) that disrupted humanitarian operations and access to basic services in high-risk settings include, South Sudan- July 2018, Haiti- February 2024, Sudan – April 2023, Democratic Republic of the Congo (DRC) – October 2023 and Gaza – 2023 and 2024. Civil unrest contingency plans were activated by several organizations including humanitarians (NGO and UN) to manage staff safety amid widespread protests, looting, and armed clashes, including movement restrictions and curfews. Some responses were coordinated with national and local authorities [68, 69, 70, 71, 72].

UN agencies such as UNHCR have developed substantial expertise in managing civil unrest within refugee settings, primarily through its structured coordination frameworks and operational readiness protocols. UNHCR has managed civil unrest incidents in several refugee camps in different countries over diverse issues which include, inadequate services and living conditions, security concerns, calls for repatriation or resettlement among many other grievances. Civil unrest in refugee and IDP camps have been witnessed in South Sudan- Jamjang and Maban refugee camps, Kenya – Dadaab and Kakuma refugee camps, Jordan – Zaatari refugee camp (and other Jordanian camps) and Bangladesh – Rohingya camps in Cox's Bazar. Civil unrest has also been witnessed in Lebanon – Palestinian refugee camps (e.g., Ein el-Hilweh) and refugee settlements, and Syria and

neighbouring-country camps (e.g., IDP/transit camps in parts of Syria or in camps hosting displaced Syrians elsewhere [68, 72, 73, 74, 75].

6.1.4 MEDEVAC & CASEVAC

Medical evacuations (MEDEVAC) and casualty evacuations (CASEVAC) are critical in high-risk humanitarian operations because they ensure the rapid transfer of injured or ill personnel to medical facilities, saving lives in environments where healthcare access is limited or delayed. Without timely evacuation, injuries can become life-threatening, and humanitarian operations can be compromised when staff feel unprotected. MEDVAC plans help maintain staff morale and operational continuity by demonstrating that safety and well-being are prioritized, even in volatile and remote environments. For humanitarian organizations operating in high-risk environments, MEDVAC and or CASEVAC plans are a must as the risk of injury, illness, or security incidents is elevated due to conflict, natural disasters, or limited infrastructure. Many humanitarian organizations (UN agencies and NGOs) have policies and guidance documents covering Medical Evacuations (MEDEVAC) and Casualty Evacuations (CASEVAC). While detailed processes are internal, public materials emphasize health and protection of staff and in some instances aid beneficiaries.

The United Nations has comprehensive policies on medical evacuation and casualty evacuation. UN Staff Rules and Regulations Staff Rules 7.1 and 7.2, and Appendix D, Article 2.2(d)(iii) govern medical evacuations while Policy on Casualty Evacuation in the Field (DOS 2020.7) cover casualty evacuations [76, 77]. UN agencies are required to operationalize these policies in their organizations with their medical insurance providers. For example, UN peacekeeping missions such as United Nations Interim Force in Lebanon (UNIFIL), United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA), United Nations Organization Stabilization Mission in the DRC (MONUSCO) and United Nations Mission in South Sudan (UNMISS) operate under Standard Operating Procedures (SOPs) for MEDEVAC and CASEVAC covering all health emergencies [78,79]. World Health Organization (WHO) evacuation in emergencies guidance policy provides a comprehensive framework for planning and executing MEDEVAC operations in humanitarian emergencies [80]. International Rescue Committee (IRC)'s emergency response framework includes provisions for MEDEVAC and staff safety outlining how IRC managers can support staff safety and wellbeing in conflict zones or remote deployments [81].

Many humanitarian organizations have conducted MEDVAC and CASEVAC operations to safeguard their staff health in high-risk environments, often coordinating with local authorities, armed groups, and security forces to ensure safe passage during conflict or natural disasters. Common scenarios for MEDEVAC or CASEVAC in humanitarian high risk environments include injury in conflict zones (e.g., Yemen, Ukraine, Sudan, Syria, South Sudan, Gaza); natural disasters (e.g., cyclones, flooding tsunami in Bangladesh, Mozambique, Indonesia); epidemic outbreaks (e.g., Ebola in West Africa and COVID 19) and from field operations where local medical care is unavailable or inadequate. While specific incidents of MEDVAC and CASEVAC of UN and NGO personnel are not normally disclosed because of confidentiality requirements, there are some several examples though.

Most UN peacekeeping operations are in a volatile environment with ambushes and improvised explosive devices (IED) threats, for example, MINUSMA, MONUSCO and UNMISS. These UN peacekeeping operations require clear policies on MEDVAC and CASEVAC which are regularly drilled. MINUSMA used aeromedical teams and mobile task forces to evacuate injured personnel under hostile conditions [79]. The International Committee of the Red Cross (ICRC) and Médecins Sans Frontières (MSF) regularly conduct MEDVAC operations to evacuate wounded staff and civilians from active conflict zones such as Syria, Yemen, Sudan and Gaza. These missions often involved navigating dangerous areas to provide urgent medical care and transport to safer facilities [82, 83]. UN agencies such as UNHCR, UNICEF, IOM WFP, WHO and their NGO partners, with their significant staff presence in high-risk environments, have conducted MEDVAC or CASEVAC missions to extract staff and vulnerable populations from several dangerous areas in countries such as South Sudan, DRC, Sudan, Yemen, Somalia and Syria, amid ongoing conflict. These processes remain largely confidential and internal to the organizations for diverse reasons. The reasons include, safety and security of personnel and assets, protection

of the injured, operational integrity, ethical and legal considerations, organizational reputation and accountability and risk of misinformation or panic.

6.1.5 Mass Casualty contingency plans

Mass casualty contingency plans are for staff, aid beneficiaries and local communities. They are essential in environments prone to armed conflict, terrorism, natural disasters, or large-scale emergencies, as they enable timely mobilization of medical personnel and supplies. They also offer structured triage to prioritize treatment by severity, coordination mechanism among humanitarian actors and local health systems [84]. This allows for streamlined patient flow to prevent healthcare system overload, and dynamic decision-making to adapt to rapidly changing conditions [85]. These all contribute to efficient, life-saving response even in resource constrained situations. Further, mass casualty plans enable coordinated evacuation, safe zones, infection control, and the protection for humanitarian personnel and civilians, reducing secondary harm.

There are several examples of mass casualty incidents. For example, the Beirut port explosion in 2020. A chemical explosion injured over 6,000 people and damaged hospitals and other infrastructure. The Lebanese Red Cross activated mass casualty protocols, including triage tents and ambulance coordination. This led to the rapid deployment and pre-established protocols enabled efficient casualty distribution across functioning facilities[85]. The Ebola outbreak(2014-2016) in West African countries of Guinea- Conakry, Liberia and Sierra Leone resulted in thousands of deaths and overwhelmed local health systems. Humanitarian organizations such as WHO, MSF (Doctors Without Borders), and the Red Cross played critical roles in providing medical care, establishing treatment centres, and managing mass casualties [86]. The response involved mass casualty planning to triage and treat suspected Ebola patients, manage health worker safety, and coordinate international support amid high risks of infection and community resistance [86].

The Nepal earthquake (2015) caused over 9,000 deaths and thousands of injuries. Humanitarian agencies like the UN agencies such as OCHA, WFP, UNICEF, WHO, FAO among many others and NGOs such as MSF, CARE International, World Vision, OXFAM, Save the Children, Plan International and national organizations rapidly mobilized mass casualty response plans [87]. These included setting up triage zones, emergency medical teams, and evacuation procedures, often in challenging terrain and aftershocks, highlighting the importance of adaptable mass casualty strategies in high-risk environments [87].

United Nations Mission in South Sudan (UNMISS) (2013-present) during ongoing post conflict instability, has frequently responded to mass casualty incidents resulting from intercommunal violence, armed clashes, and ethnic conflicts. Humanitarian personnel have been deliberately targeted as well in some situations in South Sudan. The peacekeeping mission has established field hospitals and triage centres to treat civilians and personnel injured in hostilities. The response involves mass casualty management, evacuation procedures, and coordination with local health services, frequently under high security threats, logistical challenges and complex environment [88].

6.2. Operational Continuity Plans

Operational continuity plans are critical in high-risk humanitarian operations because they ensure that essential activities can continue or quickly resume despite disruptions caused by conflicts, natural disasters, or health emergencies. These plans provide a structured framework for ensuring the safety and security of humanitarian personnel, protection of vital assets, and maintaining the delivery of life-saving services to vulnerable populations under unpredictable and dangerous conditions. One of the most critical operational continuity plan is the Business Continuity Plan (BCP), a must for all humanitarian organizations in high-risk environments.

6.2.1 Business Continuity Plans (BCP)

Business Continuity Plans (BCPs) are essential because they enable organizations to swiftly respond to emergencies, ensuring the safety and security of staff, the protection of assets, and the uninterrupted delivery

of critical humanitarian services to vulnerable populations. In high-risk humanitarian environments, providing predefined procedures and contingency measures, BCPs help minimize operational disruptions, facilitate rapid recovery, and maintain organizational integrity and stakeholder confidence during crises such as conflicts, natural disasters, or epidemics. Effective BCPs are vital for safeguarding lives of the affected population, sustaining humanitarian efforts, and upholding organizations' mandates in volatile and insecure humanitarian environments. Key decisions include remote management hubs (e.g., relocating or evacuation to safer locations), pre-positioning of supplies and training of staff to ensure continuity of critical functions. Significant use of local partners and communities to maintain field-level service delivery, contingency staffing rotations in and out of high-risk areas, local procurement and logistics networks and coordination with other humanitarian actors [44, 46, 47, 48, 49].

The United Nations, non-governmental organizations (NGOs) and independent humanitarian organizations such as IFCR, Red Cross, MSF, have established policy frameworks and guidelines for operational continuity and resilience in high-risk humanitarian environments. For example, the core elements of UN policy on the Organizational Resilience Management System (CEB/2014/HLCM/17) include business continuity management (BCM). It sets out policies and standards for business continuity to be developed to ensure that UN entities can sustain critical functions in these countries during emergencies. The policy emphasizes preparedness, resilience, and recovery planning across UN agencies [89]. The UN Security Policy Manual also provides policies and standards for security, including operational resilience, to protect UN personnel and ensure continuity of operations in high-risk environments [90]. For UNHCR, business continuity planning guidelines provide a structured approach to ensure that critical operations can continue during and after disruptive events [91].

Various NGOs follow Inter-Agency Standing Committee (IASC) guidelines which coordinate humanitarian response standards and emphasize the importance of risk management and operational continuity in their "Guidelines on Humanitarian Programme Cycle (HPC) and related documents" [92]. Significantly, the Sphere global standards set minimum standards for humanitarian response, especially in disaster and conflict settings, including standards for preparedness, risk reduction, and operational resilience. The Sphere standards emphasize the importance of contingency planning and operational continuity in humanitarian response [44].

UN agencies and NGOs have activated BCPs in many high-risk humanitarian operations when:

- a) The security situation deteriorated to unacceptable levels requiring relocation or evacuation of staff or other extraordinary temporary work modalities
- b) Health pandemic (e.g., significant community transmission considered a serious risk to staff and communities (e.g., Ebola and COVID 19)
- c) Expected excessive weather conditions e.g., Cyclone, Tsunami and Earthquake.

Contemporary examples where business continuity plans (BCPs) and operational continuity strategies have been activated by UN agencies and NGOs in high-risk environments are in several countries. In high-risk operational contexts like Syria, Yemen, South Sudan, Sudan, Myanmar, Afghanistan, Somalia, Libya, and the DRC, UN agencies and NGOs frequently activate BCPs to safeguard personnel and maintain critical operations. For example, UNHCR has developed and activated BCPs in countries like Afghanistan, South Sudan, Sudan, Bangladesh and Yemen, where operations were disrupted by conflict, political instability or natural disasters as cyclones [91]. In South Sudan (2016-2024), during ongoing post conflict instability, UNHCR activated its contingency and business continuity plans to safeguard staff, protect assets, and maintain essential operations such as refugee assistance and protection services. This included relocating staff to secure locations, establishing emergency communication protocols, and ensuring the continuity of critical functions despite volatile security conditions [93].

In Afghanistan following the Taliban's swift takeover in August 2021, UN agencies and NGOs implemented business continuity plans because of the unprecedented security environment. UN agencies and NGOs activated pre-established BCPs to maintain critical operations amid the deteriorating security environment. These plans included, remote work arrangements, relocation and evacuation of staff, emergency communication protocols and coordination with UN security management system (UNSMS), de facto authorities and hosting countries for staff safety. For example, WFP activated its contingency plans to secure staff safety, ensure critical food distribution, and relocate staff from high-risk areas. These measures included alternative supply routes, remote operations, and emergency communication systems [94]. UNDP's Business Continuity Management framework was successfully applied during the COVID-19 pandemic and in conflict zones like Libya and Myanmar, ensuring uninterrupted procurement, and program delivery [95].

6.2.2 Natural Disasters and Health Emergencies Contingency plans

Natural disasters and health emergencies can rapidly disrupt humanitarian operations, threaten staff safety, and hinder humanitarian assistance delivery to vulnerable populations. Natural disasters and health emergencies contingency plans for humanitarian personnel, aid beneficiaries and local communities **are** critical because they enable organizations to respond swiftly and effectively. This ensures the continuity of essential services, and safety and security of personnel minimizing the impact of unforeseen crises. Natural disasters and health emergencies contingency plans provide predefined procedures, resource allocation strategies, staffing levels and communication protocols that help organizations adapt to unpredictable emergency situations and maintain operational resilience [55, 56, 57].

UN agencies and NGOs have established policy frameworks and guidelines for developing and implementing contingency plans for natural disasters and health emergencies, most of the times, jointly coordinated with diverse stakeholders. The focus is on protecting their staff, aid beneficiaries and local communities during natural disasters and health emergencies through contingency planning, evacuation procedures, health precautions, and risk mitigation strategies. For example, UN Security Management System (UN SMS) Security Policy Manual provides comprehensive policies for staff safety and security, including contingency planning for natural disasters and health emergencies [90]. It emphasizes the importance of risk assessments, emergency preparedness, and evacuation procedures to protect UN personnel globally [90]. WHO has specific policies on staff safety during health emergencies, including pandemic preparedness, infection control, and contingency planning for health crises impacting personnel [96]. NGOs and independent organizations like the ICRC and MSF have comprehensive policies that include contingency plans for natural disasters and health emergencies affecting staff safety and operational continuity and these are primarily internal documents [37, 44].

There are many case studies that illustrate how humanitarian organizations have implemented natural disasters and health emergencies contingency plans in high-risk environments with success. For example, The World Health Organization (WHO) activated and continuously adapted its global health emergency contingency plans in response to COVID-19. This included establishing Incident Management Support Teams (IMSTs), deploying Rapid Response Teams (RRTs), and coordinating international efforts for vaccine distribution, testing, and treatment [97]. The WHO's evolving contingency planning was critical in supporting many countries, particularly in the developing countries, to respond to the health crisis effectively [97].

In Bangladesh, Cox's Bazar refugee camps are highly vulnerable to natural disasters such as cyclones, floods, and landslides due to their geographical location, dense population, and fragile infrastructure. UNHCR, IOM and their partners have developed comprehensive multi hazard contingency plans to respond to natural disasters such as cyclones, monsoon flooding, landslides and disease outbreaks to reduce risks, protect lives, and ensure a coordinated, efficient response to natural disasters and health emergencies in Cox's Bazar refugee camps. The plans are activated regularly [98]. The contingency plans include early warning systems, evacuation procedures, pre-positioning of relief supplies, emergency infrastructure (e.g., flood-resistant shelters,) and community

engagement and training. The contingency plans further include coordination and communication, health and medical response, post-disaster recovery planning and establishment and dissemination of timely alerts to refugees and staff about impending disasters through sirens, mobile alerts, and community networks [98]. For example, natural disasters contingency plans were activated in Cox's Bazar in July 2021 when heavy monsoon rains triggered flash floods and landslides, affecting more than 12,000 refugees and damaging or destroying approximately 2,500 shelters. In September 2024, also in Cox's Bazar, monsoon rains from September 12 to 14 caused significant flooding and landslides in the refugee camps, displacing 7,404 Rohingya refugees and damaging 1,177 shelters necessitating activation of natural disasters contingency plan [98].

In 2022, UNHCR supported 20 country operations with contingency planning and preparedness [99]. In Horn of Africa, UNHCR supported Level 2 emergencies declared in Ethiopia, Kenya, Somalia, and Djibouti due to drought-induced displacement [99]. The operations received assistance in risk analysis, contingency planning, and addressed preparedness gaps. The support was part of a broader effort to strengthen emergency preparedness and response mechanisms globally, especially in the face of increasingly complex crises driven by conflict, climate change, and other overlapping risks [99]. UNHCR response to the Ukraine crisis included rapid deployment of staff and emergency provisions and real-time review of emergency response [99]. In Mozambique, UNHCR response to cyclones Idai in 2019 and Gombe in 2023, included anticipatory actions and supply chain enhancements in coordination with other UN agencies and NGOs [98, 99].

The International Federation of Red Cross and Red Crescent Societies (IFRC) developed a comprehensive Disaster Response and Contingency Planning Guide to support national societies in high-risk regions. Key elements include hazard-specific instructions for earthquakes, floods, epidemics, and civil unrest, community-based preparedness through volunteer networks, early warning systems and simulations to test readiness and coordination mechanisms with government and international agencies [100]. This approach was successfully applied in several countries. For example, IFRC activated its contingency plans for floods and cyclone response in Mozambique, Zimbabwe, and Malawi following Cyclone Idai in 2019. The IFRC pre-positioned supplies included emergency kits, water, sanitation, and health services. Volunteers played a vital role in community engagement and health interventions [100].

7. The Challenges in High-Risk Humanitarian Operations

Humanitarian organizations operating in high-risk environments such as armed conflict zones, post-conflict fragile states facing political, economic, and social instability, and disaster-prone regions encounter significant challenges in designing and executing effective contingency plans. The gap between well-developed contingency plans and the realities encountered during emergencies in high-risk humanitarian settings is driven by a combination of contextual and operational factors [20,28,37,44]. Contextually, humanitarian organizations face rapidly evolving security environments, political and bureaucratic constraints, and complex community dynamics that can undermine the relevance or feasibility of planned actions. Infrastructure breakdowns and unpredictable environmental conditions, such as natural disasters or seasonal changes, further complicate implementation [20,28,101,102]. Operationally, many plans rely on assumptions that may not hold true in real crisis situations and are developed without sufficient input from field level staff who understand local realities. Inadequate training, limited simulations, and resource constraints, such as shortages in funding, experienced personnel, or logistics can hinder execution. Additionally, poor coordination, unclear communication channels, and weak monitoring systems prevent timely adjustments and learning [20, 28, 101,102].

In diverse high-risk humanitarian operations, it has been observed that significant challenges arise despite good written contingency plans due to:

- **Contextual Disconnect:** Contextual factors are particularly relevant in high-risk environments, such as armed conflict where security situation most of the time is volatile, fluid and unpredictable. Plans may not be tailored to the local context (e.g., conflict, security, community and cultural dynamics, terrain,

infrastructure). Plans designed at a macro level may not account for specific local challenges. This over reliance on HQ-developed templates without field customization has been a significant cause of implementation failure in some organizations. Even comprehensive plans may overlook specific scenarios, operational nuances, or local contextual factors, leading to gaps during actual crises [20, 28, 37, 44]. The chaotic scenes seen on television at Kabul airport in August 2021, with thousands trying to leave the country are examples where some humanitarian organizations did not timely contextualise contingency plans with the evolving security situation.

- **Rapidly Changing Situations:** Conflict zones and natural disasters evolve quickly, making static plans obsolete. Security threats can escalate suddenly (e.g., armed conflict, terrorism, improvised explosive devices (IED) attacks, civil unrest e.g., looting, demonstrations) and weather conditions may deteriorate unexpectedly, affecting access and logistics. As emergencies can unfold unpredictably, this requires flexibility and real time decision making that pre-established plans may not accommodate. Information gaps or misinformation can lead to poor decisions. In these contexts, adaptive planning and real-time decision-making are more valuable than rigid adherence to static plans [20,28,37,44]. The Afghanistan crises -August 2021, Ukraine - February 2022, Sudan- April 2023, South Sudan- 2013 and 2016, Gaza - October 2023 and Syria, 2011 and Dec- 2024, are examples of security situations which changed rapidly. This required flexibility and real time decision making that some humanitarian organizations did not have.
- **Poor Coordination and Communication:** Contingency plans do not address weak coordinating mechanisms of security approaches between the diverse stakeholders (UN, NGOs, state authorities, peacekeeping forces, international forces) at different levels (national, regional, and local). Multiple agencies (UN, NGOs, local authorities) may have overlapped or conflicting protocols, mandates or priorities. Rapid changes can lead to misalignment between partners, causing delays or duplication of efforts. Communication breakdowns, especially in remote or insecure areas, can delay decision-making. During emergencies, communication breakdowns can hinder coordination among agencies, staff, and affected populations. For example, internet or mobile network outages can disrupt the activation of contingency plans [20, 28, 37, 44]. During the Afghanistan crisis in August 2021, some of the chaotic scenes seen at Kabul airport was attributed to poor coordination and communication among humanitarian agencies and international forces [5].
- **Lack of Realistic Testing and Drills:** Contingency plans remain theoretical unless tested through regular drills, which help identify weaknesses and improve preparedness. Plans may look good on paper but if not tested under realistic, high-pressure scenarios may yield unsatisfactory results. Further, staff may lack sufficient training or awareness of the plans, not familiar with their roles or the procedures during an actual crisis leading to confusion and delays during actual events. UN agencies such as a UNHCR Emergency Response Preparedness guide emphasizes that contingency planning must be tested through simulations. It cautions that without testing, plans may be shelved and ignored, especially if they assume unrealistic response capacities [20, 28, 37, 44].
- **Resource Constraints:** Funding for humanitarian activities has generally been depressed in many countries due to a variety of reasons including reduced donor funding and many humanitarian crises that need to be funded [5]. Many plans may assume availability of resources such as transport, medical supplies and personnel. Insufficient funding limits efficacy of the contingency plans. This particularly affects preparedness activities, stockpiling, training and simulations. Limited personnel with contingency planning expertise can also be a significant constraint for some organizations. Lack of vehicles, fuel, medical supplies, or secure locations can render plans unfeasible impeding full implementation of contingency measures [20, 28, 37, 44]. NGOs, particularly local NGOs have been particularly affected by the limited funding situations leading to some significant staff reductions or closure of some projects/programs. In such situation, security funding for contingency planning and preparedness strategies may not be available or prioritized [5].
- **Human Factors:** Stress, fear, and fatigue can impair judgment and execution. Leadership hesitancy or unclear authority lines can delay critical actions in crises situations [20, 28, 37, 44].

Some significant documented failures of contingency plans include the chaotic relocation and evacuation in Afghanistan in 2021. The chaotic evacuation of humanitarian personnel from Afghanistan in August 2021 captured on televisions exposed critical failures in international coordination. The rapid Taliban takeover overwhelmed even well-placed relocation and evacuation contingency plans for most humanitarian organizations. Scenes broadcast from Kabul Airport revealed a lack of structured collaboration between U.S.-led international forces and humanitarian agencies. While U.S. forces prioritized evacuating their own nationals and others allies from the developed countries, many humanitarian staff especially from countries with limited logistical capacity were left stranded. A USAID evaluation later confirmed that the agency lacked a clear role and faced planning and communication challenges during the withdrawal. The European Parliament also called for improved coordination and legal pathways for at-risk Afghans, underscoring the broader systemic gaps in evacuation planning [5, 103,104].

In South Sudan, in July 2016 the United Nations Mission in South (UNMISS) peacekeeping forces in Juba were accused of failing to protect civilians and humanitarian personnel in their hour of need. The peacekeeping force was accused of failing to relocate staff to safe zones despite being approached several times [105]. Several female humanitarian personnel were victims of gender-based violence including some who were raped by South Sudan government forces at Terrain hotel, Juba [106, 107, 108, 109]. The UNMISS Force Commander was held accountable and removed from command after the response of the peacekeeping force was labelled chaotic and ineffective. This was despite the fact the mandate provided for the protection of civilians and humanitarian personnel and that there were well documented contingency plans and standard operating procedures (SOPs) on protecting civilians including use of force if need be [109].

The West Africa Ebola (2014–2016) epidemic in Guinea- Conakry, Liberia, and Sierra Leone resulted in thousands of deaths and overwhelmed local health systems. Humanitarian organizations such as WHO, MSF (Doctors Without Borders), and the Red Cross played critical roles in providing medical care, establishing treatment centres, and managing mass casualties. The response faced significant challenges across the three countries affected. Early escalation and readiness were uneven across countries leading to initial containment measures and incident-management capabilities not being quickly activated at the scale needed, impacting timelines for isolation, tracing, and treatment [110].

The above examples show that while well-written contingency plans are essential, their true effectiveness depends on continuing testing, adaptation, resource readiness, and capacity building. Critically embedding flexibility, real-world testing, and local context considerations into planning and execution, humanitarian organizations can significantly improve their response during actual emergencies. Contingency planning must be grounded in the principles of risk anticipation, scenario-based preparedness, and rapid response coordination with diverse actors. Addressing these factors through inclusive planning, regular updates, and robust feedback mechanisms is essential to improving the effectiveness of contingency plans in humanitarian operations [20, 28, 101, 102].

8. Improving Contingency Planning and Execution in High-Risk Operations

There are several reputable resources that offer valuable insights into improving contingency planning and execution in high-risk humanitarian operations. These resources collectively support a more agile, inclusive, and evidence-based approach to contingency planning. The following processes have been identified by humanitarian practitioners, researchers, academics and case studies among others, as critical in improving contingency planning and execution.

- **Contextualization and Local Engagement** To ensure effective emergency response, contingency plans must be tailored to the local context to ensure relevance and effectiveness. Contingency plans should be tailored to local conditions by considering local threats, cultural, geographic, and political realities, as well as

infrastructure limitations and community capacities. It is crucial to define the context-specific indicators and triggers, and localizing contingency planning, support functions and community inclusion at the center [30, 35, 37, 44]. Engaging all stakeholders helps identify specific threats, leverage local knowledge, and develop adaptable strategies, ultimately leading to more culturally appropriate, feasible, and resilient response efforts. Involving local communities, affected communities, authorities, and civil society in planning and training fosters trust, ownership, and coordination, which are crucial for successful implementation during crises such as natural disasters or health pandemics. Importantly plans should be regularly tested with drills and continuously updated based on feedback from communities and partners [30, 35, 37, 44].

- **Regular, Realistic Simulations:** Conducting regular, realistic simulations of contingency plans in high-risk humanitarian operations is critical for ensuring operational readiness, minimizing response delays, and ensuring the safety and security personnel and beneficiaries. These simulations help validate the effectiveness of protocols under pressure, identify gaps in coordination and communication, and reinforce institutional memory across rotating teams. By replicating potential crisis scenarios such as security relocations and evacuations, medical emergencies, or natural disasters emergencies, humanitarian organizations can enhance decision-making speed and confidence and foster inter-agency collaboration. Significantly, implementation of After-Action Reviews (AARs) to refine plans based on lessons learned from simulations and real incidents [93, 101, 111, 112].
- **Field-Driven and Adaptive Planning:** Involve field staff in contingency plans development to ensure contextual relevance. Effective contingency planning should be grounded in the insights and experiences of those who are directly involved in or affected by the situation on the ground. Involving field-based staff, local responders, aid beneficiaries, local community members and leaders in the development of emergency plans ensures that the strategies are contextually relevant, practical, and culturally appropriate. Utilizing local knowledge is essential for accurately identifying critical safety and security features such as safe locations where people can seek sanctuary during a crisis and the most secure and accessible evacuation routes [113, 114, 115, 116].

Designing flexible contingency plans that incorporate decision trees and adaptable strategies allows responders to respond effectively to rapidly changing situations. Decision trees are recommended as they provide clear, step-by-step guidance for different scenarios, enabling teams to make informed decisions quickly. Adaptive strategies ensure that contingency plans are not rigid but can evolve based on real-time information, emerging threats, or changing environmental conditions. Contingency plans must account for rapid security, safety and political shifts, ensure safe and verifiable exit routes, pre-arranged civilian evacuation corridors, and real-time decision-making arrangements with all stakeholders [93, 113, 114, 115, 116].

- **Inter-Agency Coordination Mechanisms:** Enhanced inter-agency coordination is vital for delivering cohesive and effective responses in crisis contexts. UN agencies, NGOs, local authorities, and other operational partners should engage in joint contingency planning guided by established coordination bodies, such as United Nations Department of Safety and Security (UNDSS), International NGO Safety Organization (INSO) or humanitarian clusters. These frameworks must facilitate aligned operational objectives, standardize protocols, and enable shared access to critical safety and security information. Resource sharing including personnel, communications assets, and logistics capacities can significantly reduce duplication and enhance efficiency. Establishing regular inter-agency meetings, joint simulation exercises, and real-time information exchange mechanisms fosters trust and improves operational interoperability. Ensuring inclusive participation from local actors enhances contextual relevance and strengthens community-level response outcomes [113, 114, 115, 116].
- **Clear Roles and Decision-Making:** In contingency planning, it is critical to establish clearly defined roles and decision-making protocols to ensure rapid and coordinated action during emergencies. Plans should specify individual responsibilities across functions such as incident management, security, and communications and identify who has the authority to trigger key responses like evacuation, relocation, or

Business Continuity Plan activation. A well-structured chain of command must be communicated to all staff, along with the procedures and platforms for effective communication and escalation. Embedding decision criteria and situational triggers within the plan supports consistent, informed choices, while routine training ensures personnel can execute their roles confidently under pressure [112, 113, 114, 115, 116].

- **Prepositioned Resources:** Strategic prepositioning of resources is a cornerstone of effective contingency planning, especially in high-risk or logistically constrained environments. Essential supplies such as food, water, shelter materials, fuel, medical kits, and communication equipment should be stockpiled in secure, geographically strategic locations to enable rapid deployment during emergencies. Formal agreements with local transport providers and medical facilities enhance the reliability and speed of response operations, facilitating access to life-saving services and mobility during crises. Establishing robust logistics networks that include alternative supply routes, warehousing options, and coordination mechanisms mitigates bottlenecks and distribution delays. Additionally, contingency plans must account for potential resource shortages by incorporating scalable procurement strategies, buffer stocks, and adaptive sourcing arrangements to maintain operational continuity under pressure [37, 44 112, 113, 114, 115, 116].
- **Enhanced Communication Protocols:** Robust and redundant communication systems are essential to maintaining operational continuity during crises. Contingency plans must establish clear protocols and multiple communication channels such as radios, satellite phones, and secure messaging platforms to ensure reliable information flow across field teams, command centres, and partner agencies. These protocols should include escalation procedures, priority messaging formats, and backup systems to safeguard against infrastructure failure [112, 113, 114, 115, 116].
- **After-Action Reviews (AARs):** Post-incident learning is critical. Conducting After-Action Reviews (AARs) following every emergency, simulation, or security event allows organizations to identify operational strengths, uncover systemic gaps, and refine contingency procedures. AAR outcomes should be documented, circulated, and used to drive regular updates to plans, adapting to evolving threats, changing environments, and stakeholder feedback[112, 113, 114, 115, 116]
- **Use of Technology:** Technology integration strengthens situational awareness and decision-making. Real-time monitoring tools such as GPS tracking, satellite communications, and secure mobile applications enhance field coordination and safety oversight. Digital platforms should be leveraged for centralized plan dissemination, staff onboarding, and simulation-based training, fostering organizational preparedness and responsiveness across all operational tiers[112, 113, 114, 115, 116]

9. Recommendations

Contingency planning in high-risk environments involves proactive preparation through risk assessments, clear protocols for rapid response, training, adaptability to respond to evolving threats and community participation to enhance situational awareness and legitimacy. An analysis of humanitarian contingency planning including best practices, case studies, field experience and diverse literature, the following recommendations have been identified to strengthen institutional preparedness and operational resilience in insecure humanitarian contexts.

9.1. Institutional Preparedness

Institutional preparedness enhancements for contingency planning in high-risk environments are essential because they convert reactive responses into proactive, coordinated actions that protect lives, sustain essential services, and accelerate recovery when crises happen. By establishing clear governance, decision rights, activation triggers, and cross-functional roles, organizations can activate plan actions rapidly, pre-position critical resources, and maintain supply chains and IT capabilities despite disruption. Key actions for institutional preparedness include

- **Developing Context Specific and Decentralized Plans:** Humanitarian organizations should prioritize the creation of contingency plans tailored to the specific risks, cultural dynamics, and operational realities of

each location. These plans must be informed by localized threat assessments, community engagement, and historical incident data to ensure relevance and effectiveness. Critically, to enhance responsiveness, field teams should be empowered to adapt and activate plans in real time, supported by decentralized decision-making structures that reduce reliance on central command. This is achieved through localized risk profiling, community centric planning, flexible SOPs, empowered field leadership and establishing mechanisms for continuous learning and plan refinement based on field-level insights and incident reviews [6,7, 8, 15].

- **Institutionalize Regular Risk Assessments and Plan Reviews:** Organizations must establish a routine cycle of risk assessments and contingency plans updates, incorporating feedback from field staff, local partners, and affected communities. This ensures that contingency measures remain relevant and responsive to evolving threats. Importantly, use of harmonized tools across humanitarian agencies to assess threats, vulnerabilities, and capacities, ensures interoperability and shared understanding particularly in crises situations[28, 35, 37, 44].
- **Developing Scenario-Based Contingency Plans:** Incorporate multi-hazard scenarios (e.g., armed conflict, terrorism, civil unrest, natural disasters, epidemics) with clear triggers and response thresholds. It is important to use credible, locally relevant scenarios and each scenario specific activation triggers, required actions, and designated roles, tied to SOPs and resource needs. The contingency plans must be practical and action-focused and regular drills must be conducted [28, 35, 37, 44].
- **Integrating Business Continuity Planning (BCP):** Integrate BCP frameworks into contingency planning to protect critical functions, staff, and supply chains. This includes risk assessments, business impact analysis, recovery targets, IT disaster recovery, and supplier risk management. This approach defines priorities, activation triggers, governance, and roles, while mapping operational interdependencies and embedding context-specific SOPs. It enables faster, coordinated responses, minimizes disruptions, and strengthens resilience through ongoing learning from drills and incidents [28, 34, 35, 37, 44].
- **Strengthening Early Warning Systems:** Strengthening early warning systems (EWS) means building an integrated capability that blends formal data streams with local intelligence and community feedback to anticipate disruptions and timely trigger contingency protocols proactively. This is achieved through continuous data collection from local and or environmental sources, predictive analytics to produce reliable forecasts and risk scores. Further, early warning systems must have clear alerting protocols delivered through multiple channels to decision-makers and communities, and predefined activation protocols to ensure rapid action such as deploying supplies, mobilizing staff, and informing stakeholders[28, 34, 35, 37, 44].
- **Staff Training and Simulation Exercises:** Regular training and scenario-based simulations should be integrated into organizational practice to build staff capacity and confidence. These exercises should include evacuation drills, communication protocols, and ethical decision-making in crisis situations [28, 34, 35, 37, 44].
- **Advocate for Donor Support and Flexible Funding:** Organizations should engage with donors to secure flexible funding that allows for investment in preparedness activities, including contingency planning, staff training, and security infrastructure. Donor policies should support adaptive programming in high-risk environments [28, 34, 35, 37, 44].

9.2. Operational Resilience Measures

Operational resilience is about an organization's ability to continue delivering critical operations during and after disruptive events, while contingency planning is the process of preparing specific, actionable plans to respond to those disruptions. In this regard, contingency plans are the tactical execution of broader resilience strategies. Operational resilience is built through a coordinated set of measures that ensure critical functions survive, adapt to, and recover from shocks. It combines prepositioning of assets, robust evacuation pathways, regular cross-agency exercises, and formalized coordination, while also strengthening supply chains, staff safety, IT and data resilience, and proactive community engagement [28, 35, 37, 44]. The critical aspects include

- **Preposition Emergency Supplies and Assets:** Strategically locate stocks and deployable assets in proximity to high-risk zones to reduce response time and logistical bottlenecks.
- **Enhance MEDVAC/CASEVAC Protocols:** Establish clear medical evacuation pathways, including coordination with host governments and third-party providers, tailored to volatile environments.
- **Conduct Regular Simulation Exercises:** Test contingency plans through inter-agency drills, tabletop exercises, and field simulations to identify gaps and improve coordination. Organizations should participate in joint simulation exercises to have a shared understanding of the plans when activated.
- **Strengthen Inter Agency Coordination Mechanisms:** Formalize roles, responsibilities, and communication channels among humanitarian actors, including UN, NGOs, and local authorities. Improved inter-agency coordination and information sharing mechanisms are essential for effective response in insecure environments. Humanitarian organizations must participate in joint planning efforts and contribute to shared security analysis platforms.
- **Advocate for Donor Support and Flexible Funding:** Organizations should engage with donors to secure flexible funding that allows for investment in preparedness activities, including contingency planning, staff training, and security infrastructure. Donor policies should support adaptive programming in high-risk environments.

9.3 Staff Safety and Security and Community Engagement

Staff safety and security and community engagement are critical pillars of contingency planning in high-risk environments because they directly influence operational continuity, limit exposure to threats and build local trust, enhancing crisis responsiveness. Prioritizing staff safety and security fulfill an organization's duty of care, helps to maintain morale, and minimizes disruptions during crises. Significantly, ensuring staff safety and security through clear security risk management protocols, such as evacuation plans, communication systems and security training, protects humanitarian personnel from harm, and also preserves institutional capacity during crises situations. In regions or areas prone to natural disasters and in periods of pandemics and epidemics, community engagement is critical to the success of any contingents' plans. Engaging local communities fosters mutual understanding, enhances situational awareness, and strengthens early warning mechanisms. Together, staff safety and security and community engagement elements create a more resilient, adaptive response framework that aligns humanitarian objectives with local realities capable of sustaining operations under pressure. Key actions include

- **Staff Safety and Security:** Institutionalizing security risk management within humanitarian organizations forms the foundation of staff safety and security. Contingency planning as a core component this framework, ensures preparedness and operational continuity in crises situations. As part of this process, humanitarian organizations should conduct regular context-specific risk assessments to proactively identify threats and vulnerabilities. Contingency procedures and processes must be clearly defined, regularly updated, and effectively communicated, covering evacuation, incident response, and internal coordination. Continuous training tailored to the operational environment should reinforce personal safety, situational awareness, and emergency procedures. Staff must be equipped with essential safety gear, reliable communication tools, and access to medical support. A dynamic approach to monitoring and adapting contingency plans ensures responsiveness to emerging risks. The plans are not static but living systems that adapt to real-time threats [1, 5, 9]
- **Implementing Civil Unrest Response Frameworks:** High-risk environments, particularly those involving refugees and internally displaced persons (IDPs), are inherently volatile and susceptible to civil unrest. This instability can arise from a range of factors, including competition over scarce resources, ethnic or political tensions, unmet humanitarian needs, or perceived inequalities in aid distribution [98]. In such contexts, the potential for unrest or violence is heightened, making contingency planning not only essential but critical to ensure the safety of affected populations, humanitarian personnel, and operational continuity. The key considerations include establishing crisis/civil unrest response team with defined roles, risk and scenario planning, early warning and monitoring, triggers and protective and security measures. Importantly procedures

for staff movement restrictions, safe havens, and community liaison strategies during protests, looting, or clashes [28, 35, 37, 44]

- **Community Engagement:** Community engagement enhances the effectiveness and sustainability of contingency planning ensuring smoother implementation of contingency measures. Effective community engagement begins with mapping key stakeholders and establishing respectful, consistent communication channels. Integrating local perspectives into planning fosters community ownership and enhances operational relevance. Trust is built through transparency, accountability, and responsiveness to concerns. Leveraging local knowledge strengthens risk assessments, early warning systems, and decision-making, ensuring that operations are informed by those most familiar with the environment [30, 35, 37, 44].
- **Promoting Localized Contingency Planning and Capacity Building:** Engaging local communities and field teams in plans development ensures contextual relevance and ownership. Humanitarian actors should work closely with local communities and partners to co-develop contingency plans. Building local capacity not only improves operational effectiveness but also fosters trust and acceptance in volatile settings [28, 34, 35, 37, 44].
- **Ensuring Psychological Support and Duty of Care:** Ensuring psychological support and duty of care in contingency planning is critical in high-risk areas. Both affected populations and humanitarian staff are often exposed to traumatic events, chronic stress, and insecurity. Psychological support and duty of care are vital to protect their mental well-being, prevent burnout, and maintain operational effectiveness. Key actions include the provision of mental health resources and stress management support for staff operating in high-risk environments [28, 34, 35, 37, 44]

9.4 Monitoring, Evaluation, and Learning (MEAL)

Monitoring, Evaluation, and Learning (MEAL) is essential in high-risk environments as it ensures that contingency plans are evidence-based, adaptive, and responsive to changing conditions. MEAL helps track effectiveness, identify gaps, and improve decision-making, ultimately enhancing safety, accountability to affected communities, and impact during crises. MEAL supports adjusting plans based on what is practical, effective or not, improving the safety and impact of interventions. MEAL fosters learning from past actions, and enhancing the ability to adapt to changing circumstances, ultimately creating more resilient and effective contingency plans [28, 34, 35, 37, 44]. Key actions include

- **Monitoring:** Integrate real-time monitoring to refine contingency plans and institutional learning. This includes real time data monitoring, tracking indicators including environmental risks (e.g., security incidents, displacement trends) and community feedback mechanisms.
- **Evaluation:** Integrate post-crisis reviews to refine contingency plans, focusing evaluations to inform immediate decisions, especially during crises. Rapid assessments, adaptive evaluation design and conflict sensitive analysis are key.
- **Lessons Learned and Best Practices:** Create repositories of case studies and operational insights to inform future preparedness strategies. This includes after-action reviews and reflection sessions, knowledge sharing platforms and integration into decision-making.
- **Cross Cutting:** Cross cutting actions include risk management integration, that is, MEAL must effectively feed into risk assessments and contingency planning. Capacity building particularly training local staff and partners and ethical considerations such as informed consent, data protection, and cultural sensitivity must be incorporated in all MEAL activities.

10. Conclusion

The turn of the millennium has experienced unprecedented surge in humanitarian crises across various regions. As humanitarian crises escalate in both scale and complexity, the operational environment for humanitarian personnel has become more complex and insecure. High risk humanitarian environments are particularly dangerous with significant risks to humanitarian staff and operations. Statistics from Aid Worker Security Reports and Database on major attacks on aid workers 1997 to 2024 and United Nations Secretary General

annual reports on the safety and security of humanitarian workers are authoritative reports that lay bare the insecurity in high-risk humanitarian environments since the onset of the 21st century. This paper has explored how humanitarian actors can enhance their preparedness and response capabilities through the development of effective contingency plans (CPs). Drawing on academic literature, organizational reports, practitioners' experience, and field-based case studies, the research identified essential components of robust contingency planning, examined recurring operational challenges, and outlined best practices for CPs formulation.

Central to the findings of this study is the imperative for contingency plans to be context-specific, adaptable, and regularly updated, grounded in local realities and informed by continuous risk assessments and staff training. Generic or too centralized plans often fail to reflect the nuanced dynamics of field operations particularly in high-risk humanitarian operations. Significantly, localized risk assessments supported by community engagement and real-time information sharing across multiple stakeholders ensure that contingency measures remain relevant and actionable. This underlines the importance of decentralizing contingency planning processes and equipping humanitarian field teams with the authority and tools to adjust procedures and processes in response to evolving situations.

Very important is the institutional integration of contingency planning through targeted training, simulation exercises, and feedback mechanisms involving multiple stakeholders in most situations. Despite persistent challenges such as access limitations, staff safety and security concerns, multiple stakeholders, and coordination weaknesses, proactive planning can substantially mitigate the impact of these challenges. Ultimately, the capacity of humanitarian organizations to operate safely and effectively in volatile contexts hinges not only on policy and technical frameworks but also on a sustained commitment to preparedness, inter-agency collaboration, and adaptive learning. By investing in these areas, humanitarian organizations can better ensure the safety and security of personnel, operational continuity, and uphold their mandates to assist the most vulnerable populations during times of crises.

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