

De-escalating Violence and Hunger

Gemini Deep Research

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Prompt

How can humans and AI models act to de-escalate scenarios of widespread violence and hunger?

Reasoning

Understanding the Core Challenges

I'm starting my research by focusing on the fundamental causes and escalating factors behind widespread violence and hunger. My aim is to build a solid understanding of these complex issues before exploring solutions.

Initial Research Focus

My initial research will concentrate on identifying the socio-political, economic, and historical contexts that drive widespread violence, as well as factors like climate change, conflict, and economic instability that contribute to widespread hunger. I'll be looking for information from authoritative sources such as international organizations and academic institutions.

Next Steps in Research

After gaining a foundational understanding of the drivers, I will then move on to investigate human-led strategies for de-escalation, followed by the potential applications of AI, and finally, how humans and AI can collaborate effectively while considering ethical implications.

Researching websites

Drivers of Violence and Hunger Identified

I've successfully gathered initial information on the primary drivers of widespread violence and hunger. For violence, I've identified socio-political factors like entrenched conflicts, the rise of non-state actors, political instability, and power imbalances. Economic drivers include poverty, unemployment, and illicit gains. Historical grievances and environmental degradation also play a significant role, alongside the concerning potential for technological advancements like AI to be misused in attacks. For hunger, key drivers include climate change leading to extreme weather and agricultural disruptions, ongoing conflicts that disrupt food systems and displace populations, and economic instability marked by inflation and unaffordable healthy diets. Supply chain disruptions, social inequalities, and a diminishing capacity to respond to crises further exacerbate hunger.

Moving Towards Solutions

Having established a comprehensive understanding of the root causes and escalating factors, I am now shifting my focus to identifying established human-led strategies. This includes exploring diplomatic approaches for conflict de-escalation and peacebuilding, as well as humanitarian interventions for mitigating widespread hunger.

Next Research Steps

My next steps will involve searching for information on human-led conflict de-escalation strategies, peacebuilding approaches, diplomacy, mediation, negotiation, and UN peace operations. Concurrently, I will investigate humanitarian interventions for hunger, including food aid, sustainable agriculture programs, policy advocacy for food security, and early warning systems for food crises.

Researching websites

Deepening Understanding of Drivers

I've further refined my understanding of the drivers of widespread violence and hunger. For violence, I've noted that conflict is increasingly waged by non-state actors, with regionalization making conflicts more protracted. Organized crime and urban violence now account for more deaths than armed conflicts, and social media plays a crucial role in spreading xenophobic speech and inciting violence. Power imbalances and media framing are also significant factors in conflict escalation. For hunger, I've confirmed that climate change and conflict are the main causes of acute food insecurity, with geopolitical instability, social inequalities, and diminishing response capacity further exacerbating the issue. The inability to afford healthy diets affects billions, particularly in low-income countries.

Focusing on Human-Led Strategies

My current focus is on detailing human-led strategies for de-escalation and hunger mitigation. I have initial information on humanitarian diplomacy, negotiation, and UN Peacekeeping for conflict, and various interventions like investing in smallholder farmers, climate-smart agriculture, and early warning systems for hunger. I'm now looking to expand on specific peacebuilding approaches, diplomatic tools, and the specifics of food aid and sustainable agricultural practices.

Transitioning to AI's Role

Once I have a more comprehensive understanding of human-led strategies, I will transition to exploring how AI models can contribute. My next steps will involve investigating AI's potential in predictive analysis for conflict escalation, detecting disinformation, and sentiment analysis to inform de-escalation efforts. I will also research how AI can optimize humanitarian aid logistics, enhance crop yield prediction, and improve resource allocation to combat hunger, specifically seeking out academic papers and reports from relevant organizations.

Researching websites

Refining Understanding of Strategies and AI's Role

I've made good progress in understanding both human-led strategies and the potential of AI. For human-led conflict resolution, I have detailed information on various models like Thomas and Kilmann, Dual Concern, and the Interest-Based Relational Approach, as well as practical applications in de-escalation and regulated communication. I also have a good grasp of UN Peacekeeping's strategies. Regarding hunger, I've noted climate-smart agriculture practices. For AI, I have insights into its use in early warning systems for conflict, real-time data analysis, and humanitarian logistics, including optimizing transportation and predicting crop yields. I'm now looking to deepen my understanding of specific food aid types and their implementation, and to explicitly cover AI's role in disinformation detection and sentiment analysis.

Addressing Gaps and Future Actions

While I have a solid foundation, there are still some specific areas I need to explore further. I need to explicitly detail the types and implementation of food aid. For AI, I want to ensure I cover disinformation detection and sentiment analysis more thoroughly, and broaden my understanding of resource allocation beyond just logistics. A key area for future investigation is the collaboration between humans and AI, looking for frameworks and real-world examples of how AI insights augment human decision-making in crisis management. Finally, I will delve deeper into the ethical implications and practical limitations of AI in these sensitive contexts.

Next Steps in Research

My immediate next steps involve searching for specific types of food aid and their implementation, more explicit examples of AI in disinformation detection and sentiment analysis for peacebuilding, frameworks and real-world examples of human-AI collaboration in crisis management, and a thorough investigation into the ethical implications, biases, and practical limitations of AI in humanitarian and conflict zones.

Researching websites

Comprehensive Understanding of Drivers and Strategies

I've significantly advanced my understanding of the drivers of widespread violence and hunger, as well as the human-led strategies to address them. For violence, I've noted the increasing role of non-state actors, the regionalization of conflicts, and the impact of organized crime and urban violence. I've also highlighted how power imbalances and media framing contribute to escalation, with social media playing a role in spreading xenophobic content. For hunger, I've confirmed that climate change and conflict are primary drivers, exacerbated by geopolitical instability, social inequalities, and a diminishing capacity to respond to crises. I've also gained a good understanding

of human-led strategies, including various conflict resolution models and UN Peacekeeping operations, as well as climate-smart agriculture for hunger mitigation.

AI's Role in Crisis Management

I've gathered substantial information on how AI can contribute to de-escalation and hunger mitigation. For conflict, AI is being used for disinformation detection, sentiment analysis in diplomatic communications, and identifying social frictions. In the context of hunger, AI is optimizing humanitarian aid logistics, predicting crop yields, and improving resource allocation. I've also found compelling real-world examples of human-AI collaboration, such as using satellite imagery for damage assessment, crowdsourced crisis mapping, real-time alerts, and AI-driven drones for search and rescue.

Addressing Ethical Considerations and Limitations

I've thoroughly explored the ethical implications and practical limitations of AI in these sensitive contexts. Key concerns include privacy, the potential for additional harm, limitations on human autonomy, and unfair resource distribution due to biases in AI tools. Technical limitations like data quality and infrastructure deficiencies in conflict zones, risks to civilian safety, geopolitical implications, and the lack of international regulatory frameworks have also been identified. It's clear that while AI offers powerful tools, careful consideration of these challenges is crucial.

Finalizing Research on Food Aid Modalities

While I have a strong foundation across all research areas, I'm making one final targeted search to explicitly detail the different modalities of food aid, such as in-kind assistance, cash transfers, and vouchers, to ensure a comprehensive understanding of their implementation. After this, I anticipate having sufficient information to conclude my research.

Researching websites

Comprehensive Understanding of Aid Modalities

I've now completed my research on food aid modalities, gaining a detailed understanding of in-kind assistance, cash transfers, and vouchers. I've explored their advantages and disadvantages, such as the dignity and cost-effectiveness of cash transfers versus the utility of in-kind aid when markets are non-functional, and the controlled flexibility offered by vouchers. This final piece of information ensures a thorough coverage of human-led strategies for hunger mitigation.

Research Saturation Achieved

I've reached saturation across all eight key areas of my research. This includes a comprehensive understanding of the drivers of widespread violence and hunger, human-led strategies for de-escalation and hunger mitigation, the specific applications of AI in these contexts, and the critical aspects of human-AI collaboration. I've also thoroughly investigated the ethical implications, biases, and limitations associated with using AI in such sensitive scenarios.

Ready to Synthesize and Report

With all the necessary information gathered and analyzed, I am now ready to synthesize my findings and generate a comprehensive report on how humans and AI models can act to de-escalate scenarios of widespread violence and hunger.

A Strategic Framework for De-escalating Widespread Violence and Hunger: Integrating Human Action and Artificial Intelligence

Executive Summary

This report provides a comprehensive analysis of the urgent, interconnected global challenges of widespread violence and hunger. These crises are not isolated phenomena but are profoundly linked by overlapping socio-economic, political, and environmental factors. While traditional forms of conflict may be declining, a rise in violence perpetrated by non-state actors, organized crime, and domestic issues, exacerbated by digital platforms, demands adaptive responses. Concurrently, a persistent global food crisis, driven by climate change, geopolitical instability, and deep-seated inequalities, continues to inflict immense suffering.

The analysis underscores a dual imperative: strengthening human-led interventions while strategically integrating advanced Artificial Intelligence (AI) capabilities. Human-centric strategies, encompassing diplomacy, peacebuilding, and comprehensive humanitarian aid, remain foundational. Concurrently, AI offers transformative potential in areas such as predictive analytics for early warning, optimized logistics for aid distribution, and precision agriculture for enhanced food security.

However, the effective and ethical deployment of AI necessitates careful consideration of its limitations, including inherent biases, privacy concerns, and the risk of exacerbating digital divides. The report advocates for a collaborative human-AI framework where AI augments, rather than replaces, human judgment and empathy. Recommendations emphasize enhanced international cooperation, targeted investment in responsible AI development, fostering integrated human-AI response mechanisms, and promoting holistic resilience-building and sustainable development initiatives to address the fundamental drivers of these global challenges.

1. Introduction: The Interconnected Crises of Violence and Hunger

Global Context and Urgency of the Challenges

The global landscape is currently marked by a paradoxical increase in conflict and violence, even as the absolute number of war deaths has seen a decline since 1946. This contemporary rise in violence is primarily waged by non-state actors, including political militias, criminal organizations, and international terrorist groups.¹ In 2016, more countries experienced violent conflict than at any point in nearly three decades, highlighting a significant shift in the nature of global insecurity. Beyond armed conflicts, organized crime has become a more lethal threat, with almost half a million people killed in homicides globally in 2017, significantly surpassing deaths from armed conflicts or terrorist attacks.¹ This escalating violence, particularly its regionalization and interlinking of political, socio-economic, and military issues across borders, renders traditional forms of resolution less effective and protracts conflicts.¹

Simultaneously, the world is grappling with a severe food crisis, characterized by the UN Secretary-General as a "hellscape of hunger and heartache" for the most vulnerable populations.² In 2022, climate change and ongoing conflicts were identified as the primary causes of acute food insecurity, affecting approximately 174 million people.² The scale of the challenge is immense, with around 2.33 billion people experiencing moderate or severe food insecurity in 2023, a figure that has remained persistently high since the onset of the COVID-19 pandemic in 2020.³ The urgency of addressing these intertwined crises is further underscored by critical global targets: if current homicide rates continue to climb, Sustainable Development Goal 16, which aims to significantly reduce all forms of violence and related death rates, will not be met by 2030.¹ Furthermore, the reality of chronic hunger affecting one in ten people globally is projected to worsen with accelerating climate change, indicating a dire future without concerted action.²

The current global situation reveals a fundamental shift in the nature of conflict, moving away from conventional interstate warfare towards more diffuse, often internal, and less predictable forms of violence. This includes the significant impact of organized crime and domestic violence, which, while distinct from traditional armed conflict, contribute substantially to overall lethal victimization, with women and girls bearing a disproportionate burden.¹ This evolution in conflict dynamics necessitates an adaptation of de-escalation strategies. A state-centric diplomatic approach alone is insufficient; instead, interventions must become more localized and involve multiple stakeholders to address non-state actors, criminal networks, and underlying societal vulnerabilities such as misogyny and inequality. The rapid dissemination of xenophobic speech and incitement to violence through social media further complicates de-escalation efforts, enabling swift radicalization and mobilization outside traditional state control.¹

Moreover, the crises of climate, conflict, and hunger are not merely co-occurring but are locked in a reinforcing feedback loop. Climate change degrades environments, leading to resource scarcity—particularly water and land—which intensifies competition and fuels conflict.² Conflict, in turn, devastates agricultural systems, displaces populations, and obstructs humanitarian aid, thereby exacerbating hunger.² This creates a downward spiral where each crisis amplifies the others, trapping vulnerable populations. Consequently, solutions cannot be developed in isolation. Addressing widespread violence requires simultaneously tackling climate change and food insecurity, and vice-versa. A holistic, integrated approach is essential to break this cycle, focusing concurrently on climate adaptation, peacebuilding, and the development of resilient food systems. The fact that a significant portion of the global population cannot afford a healthy diet, even in the absence of direct conflict, highlights a systemic vulnerability that climate shocks and conflict readily exploit.³

Purpose and Scope of the Report

This report aims to provide a comprehensive analysis of the complex drivers underpinning widespread violence and hunger. It explores existing human-led strategies for de-escalation and mitigation, while critically examining the current and prospective roles of Artificial Intelligence (AI) in addressing these crises. The report proposes a strategic framework for synergistic human-AI action, emphasizing ethical deployment and sustained human oversight. The scope encompasses both conflict resolution and humanitarian aid, recognizing their profound interdependencies in fostering global peace and food security.

2. Understanding the Drivers of Widespread Violence

Socio-Political, Economic, and Historical Roots of Conflict

Contemporary conflicts are deeply rooted in a complex interplay of socio-political,

economic, and historical factors. Entrenched conflicts, particularly those involving non-state actors, are often driven by unresolved regional tensions, a breakdown in the rule of law, and the absence or co-optation of state institutions.¹ Illicit economic gain frequently acts as a powerful motivator, and the scarcity of resources, exacerbated by climate change, further fuels these conflicts.¹

At a more granular level, major root causes include profound political, economic, and social inequalities, extreme poverty, and economic stagnation.⁴ Poor government services, high unemployment rates, and environmental degradation also contribute significantly to instability.⁴ A critical factor is the presence of "horizontal inequalities," which refer to significant group differences in economic, political, and social power. When these disparities are substantial, consistent, and increasing over time, they become a major catalyst for conflict, as relatively deprived groups may seek redress through violence when political avenues are unavailable.⁴ The "failure of the social contract" hypothesis posits that economic decline and deteriorating state services erode public trust in government authority, leading to widespread violence.⁴ Furthermore, historical grievances and past acts of aggression are not easily forgotten; dismissing these facts can generate insecurity, fear, and exacerbate tensions, leading to further conflict escalation.⁷

The economic factors contributing to violence extend beyond mere poverty; they also encompass the presence and distribution of wealth, as well as the absence of alternative economic opportunities. While extreme poverty and high unemployment are undeniable drivers, the prospect of private motivation, such as employment as soldiers or enrichment through illicit activities, can also incentivize individuals to fight, particularly young, uneducated men.⁴ Similarly, resource riches can paradoxically be associated with conflict, as various groups vie for control over valuable assets.⁴ This indicates that effective de-escalation strategies must address both structural poverty and the broader political economy of conflict. This involves not only poverty alleviation programs but also disrupting illicit financial flows, creating legitimate and diverse economic opportunities, especially for youth, and establishing equitable resource governance mechanisms. Without addressing these underlying economic incentives, interventions may offer only temporary relief, failing to tackle the fundamental causes of prolonged conflict.

The Escalating Role of Non-State Actors, Organized Crime, and Terrorism

The landscape of conflict has dramatically shifted, with conflicts increasingly waged between non-state actors such as political militias, criminal organizations, and international terrorist groups.¹ Organized crime and gang violence now account for a significantly higher number of fatalities than armed conflicts or terrorist attacks, with political instability often engendering these criminal activities.¹ Terrorism, in particular, is primarily driven by existing conflicts, with over 99% of terrorist-related deaths occurring in countries already embroiled in violent conflict or experiencing high levels of political terror.¹ In economically developed nations, social alienation, a lack of economic opportunity, and state involvement in external conflicts are identified as major drivers of terrorist activity.¹

A significant development in conflict dynamics is the escalating role of the digital information environment. Social media platforms, in particular, play a crucial role in the dissemination of xenophobic speech and the incitement to violence.¹ These platforms provide extremist groups with unprecedented access to the general public, facilitating more efficient and effective recruitment, propaganda dissemination, and even the purchase of weapons and unregulated money transfers.¹ The way media frames situations can sensationalize or distort conflicts, thereby exacerbating hostilities, whereas responsible reporting has the potential to mitigate negative public sentiments and reduce tensions.⁸ This highlights a potent new vector for conflict escalation: the rapid, borderless spread of misinformation, hate speech, and radicalizing content through online channels. This can swiftly shift public opinion, polarize groups, and mobilize individuals for violence, bypassing traditional gatekeepers and accelerating the conflict cycle. Consequently, de-escalation efforts must incorporate a robust digital component, focusing on countering disinformation, promoting digital media literacy, and potentially collaborating with technology companies to mitigate the spread of harmful content, all while carefully balancing freedom of speech considerations. This also implies that advanced data analytics, while capable of monitoring and mitigating tension, can also be misused for harmful propaganda.

Psychological and Social Factors Influencing Conflict Dynamics

Beyond the structural drivers, psychological and social factors profoundly influence conflict dynamics. Conflicts frequently arise from fundamental differences in needs, perspectives, values, and competition over scarce resources.⁷ At the individual level, personality differences and varying conflict styles can contribute to disputes. At the

group level, poorly defined roles, divergent attitudes, and unequal power dynamics often trigger conflict.⁷ Environmental factors, such as changes in resource availability and misunderstandings stemming from poor communication, can also act as triggers.⁷

Social psychology permeates all aspects of intractable conflicts. Attitudes, historical narratives, and identity play pivotal roles in both the emergence and resolution of disputes. Overcoming deeply entrenched negative perceptions of the "other side" is critical for successful negotiations.⁷ Understanding the perspectives of all parties involved fosters empathy during discussions, which is essential for finding common ground.⁷

3. Understanding the Drivers of Widespread Hunger

The Profound Impact of Climate Change and Environmental Degradation

Climate change and environmental degradation are increasingly recognized as critical factors exacerbating conflict, contributing significantly to global food insecurity, and posing a direct threat to international peace and security.² The escalating disruptions driven by climate change are overwhelming the adaptive capacity of global food systems.⁵ The year 2023, recorded as the hottest year ever, underscores the accelerating climate chaos that imperils food production worldwide. This chaos manifests through destructive floods and droughts, oceanic changes disrupting fishing, rising sea levels degrading land and freshwater sources, and shifting weather patterns that ruin harvests and foster the proliferation of pests.² Furthermore, environmental degradation, such as rising population pressure coupled with declining agricultural productivity, can directly lead to disputes over land and water, thereby triggering conflict.⁴

Geopolitical Instability, Economic Shocks, and Supply Chain Disruptions

Geopolitical instability significantly exacerbates disruptions within food systems. Resource scarcity, intensified by climate change and population growth, fuels conflicts and tensions over vital resources like land, water, and food.⁵ Trade wars and protectionist policies disrupt global food flows, artificially creating shortages and causing price spikes.⁵ Political instability in key agricultural regions directly impairs production and export capacities.⁵ Conflict itself stands as a primary driver of hunger, leading to mass displacement, destruction of agricultural infrastructure, damage to essential facilities, and even deliberate policies of food denial.² Notably, all 14 countries most affected by acute food insecurity in 2022 were impacted by conflict.² Persisting food price inflation continues to erode economic gains for many, rendering healthy diets unaffordable for billions, particularly in low-income countries.³ The breakdown of international cooperation and multilateral institutions further weakens the global capacity to coordinate effective responses to food crises.⁵

Social Inequalities and Vulnerabilities within Food Systems

Social inequalities profoundly amplify the impacts of food system disruptions. Vulnerable populations, already facing food insecurity and poverty, are disproportionately affected by breakdowns in supply chains.⁵ Rising food prices push more individuals into hunger and malnutrition, which in turn can lead to social unrest and migration.⁵ This dynamic widens the gap between the wealthy and the poor, fostering a two-tiered food system where access to nutritious food becomes increasingly inequitable.⁵ The erosion of social safety nets and the weakening of public health systems further undermine community resilience and exacerbate the consequences of food insecurity.⁵ In 2022, over 2.8 billion people could not afford a healthy diet, a stark reality where 71.5% of the population in low-income countries faced this challenge compared to only 6.3% in high-income countries.³ When tensions are high, institutions are weak, and populations are marginalized, women and girls often bear the highest price.² Compounding these issues, nearly a third of all food produced globally is wasted, while hundreds of millions continue to suffer from hunger every night.²

The systemic fragility of global food systems is a critical factor. The adaptive capacity of these systems is overwhelmed by climate disruptions, while geopolitical instability, trade wars, and protectionism disrupt global food flows.⁵ This confluence of factors points to a fundamental vulnerability, where multiple, interconnected shocks—be they climatic, conflict-related, economic, or political—converge to create cascading

failures. The issue extends beyond localized production failures to encompass the fragility of global supply chains, trade mechanisms, and the weakening of international cooperation. The emergence of a "two-tiered food system" highlights how these systemic fragilities disproportionately affect already vulnerable populations, exacerbating existing inequalities rather than distributing risk. Addressing hunger, therefore, requires moving beyond immediate emergency food aid to focus on building systemic resilience. This involves diversifying food sources, strengthening local and regional food systems to reduce reliance on global flows, reforming trade policies to prevent artificial shortages, and investing in climate-smart agriculture on a global scale. It also critically necessitates robust international cooperation and multilateral institutions to coordinate effective responses, especially given their current weakening.⁵

Furthermore, widespread hunger is often a symptom of issues related to affordability and access, rather than a mere lack of global food availability. The observation that "almost a third of food is wasted while hundreds of millions of people go to bed hungry every night" ², coupled with the fact that over 2.8 billion people could not afford a healthy diet in 2022 ³, reveals a critical disconnect. Despite sufficient global food supplies, flawed agricultural policies, inequitable distribution systems, and rising food prices severely limit access for many.³ This problem is particularly acute in low-income countries, where healthy diets are largely unaffordable.³ Interventions must therefore target economic access and distribution inefficiencies, not solely focus on increasing production. This includes implementing social safety nets such as cash transfers and school feeding programs, addressing food price volatility, supporting local economies, and reforming policies to ensure equitable distribution. Eliminating food waste becomes not only an environmental imperative but a direct strategy for increasing food availability without increasing production, thereby improving overall access.²

The table below provides a concise overview of the interconnected drivers of widespread violence and hunger, highlighting their shared roots and reinforcing cycles.

Table 1: Interconnected Drivers of Violence and Hunger

Driver Category	Specific Drivers of Widespread Violence	Specific Drivers of Widespread Hunger	Interconnection/Shared Impact
Socio-Political	Entrenched conflict, non-state actors,	Political instability, breakdown of	Political instability directly disrupts both

	breakdown of rule of law, political instability, horizontal inequalities, failure of social contract, social alienation, political terror, domestic violence, gender inequality ¹	international cooperation, social inequalities, erosion of social safety nets, gender inequality ²	peace and food supply chains. Weak governance and inequality exacerbate both conflict and food insecurity.
Economic	Illicit economic gain, extreme poverty, economic stagnation, high unemployment, private motivation for war, resource riches ¹	Trade wars, protectionist policies, food price inflation, unaffordable healthy diets, social inequalities, lack of financing ²	Economic deprivation can drive individuals to conflict; conflict devastates economies, leading to hunger. Resource competition fuels both.
Environmental	Resource scarcity exacerbated by climate change, environmental degradation, green war hypothesis ¹	Climate change (floods, droughts, ocean changes, rising seas, shifting weather patterns, pests), environmental degradation ²	Climate change-induced resource scarcity fuels conflict and directly impairs food production, creating a vicious cycle of violence and hunger.
Informational/Technological	Social media dissemination of xenophobic speech/incitement, internet for recruitment/propaganda, disinformation ¹	Cyberattacks on critical food infrastructure ⁵	Digital platforms can be used to escalate conflict through disinformation, and cyber threats can directly disrupt food systems.

4. Human-Led Strategies for De-escalation and Mitigation

Diplomacy, Mediation, and Peacebuilding Initiatives

Human-led strategies are paramount in de-escalating violence and fostering peace. **Humanitarian diplomacy** involves leveraging diplomatic channels, such as embassies, Ministries of Foreign Affairs, and international organizations, to persuade decision-makers and opinion leaders to act in the interests of vulnerable populations, while adhering to humanitarian principles and international law.¹¹ Effective humanitarian diplomacy follows a structured approach, beginning with defining and prioritizing the issues at stake, followed by mapping relevant actors and stakeholders to understand their interests and motives.¹¹ Crafting compelling narratives and messages, proposing alternatives, and developing a coherent strategy are also critical steps.¹¹

Conflict resolution techniques focus on de-escalation, which typically involves a cessation of hostilities and a reduction of open aggression. Strategies such as reciprocal "tit for tat" can build trust in collaborative contexts, while allowing time for emotional self-control can prevent mutual escalation.¹² Regulated communication, often facilitated by mediation, is crucial, utilizing methods like "I-messages" and nonviolent communication to depersonalize discussions.¹² The interest-based relational approach, developed by Fisher and Ury, advocates for separating the people from the problem, focusing on underlying interests rather than fixed positions, finding options for mutual gain, and insisting on objective criteria.¹² Peacebuilding efforts extend beyond immediate conflict management to address the underlying causes of conflict and support post-conflict reconstruction.¹³

Humanitarian Aid, Sustainable Agriculture, and Food Security Policies

Mitigating widespread hunger requires a multi-faceted approach. **Funding and awareness campaigns** are vital, encouraging donations to trusted organizations like the World Food Programme (WFP), Save the Children, FAO, or UNICEF, and advocating through legislative engagement and social media.¹⁰ Increased financing is particularly critical for low- and middle-income countries, which face significant challenges in accessing necessary funds.³

Sustainable agriculture is a cornerstone of long-term food security. This involves investing in smallholder farmers by providing extension services, training, and supportive policies such as tariffs on imports or subsidies for agricultural

production.¹⁰ Promoting

climate-smart agriculture is essential, encompassing practices like planting drought-resistant crops, implementing efficient irrigation systems, building climate-resistant infrastructure, adopting soil conservation techniques (e.g., cover cropping, conservation tillage), utilizing renewable energy sources, and practicing agroforestry.¹⁰

Food waste reduction is another critical strategy, given that almost a third of global food is wasted while millions go hungry.² This includes strategic meal planning, correct food storage, donating surplus food, and utilizing leftovers.¹⁰

Social safety nets, such as school-feeding programs, play a crucial role in ensuring access to nutritious food for vulnerable populations.¹⁰ Empowering women and reducing gender inequality through education and training is also vital, as women often bear the heaviest burden during crises.²

Policy advocacy is necessary to promote international food security, support country-based food and nutrition surveillance activities, and ensure the equitable distribution, supply, and accessibility of nutritious, adequate, and affordable food for all.⁹

Regarding **aid modalities**, humanitarian actors consider various options, including cash and voucher assistance (CVA) versus in-kind goods and services.¹⁶ Cash assistance is generally preferred by recipients due to the choice and dignity it offers, its cost-effectiveness, and its ability to stimulate local economies.¹⁶ Vouchers provide more flexibility than in-kind aid but are more restrictive than direct cash transfers.¹⁶ In-kind aid remains appropriate when local markets have collapsed or security concerns make cash distribution unfeasible.¹⁶

The emphasis on sustainable agriculture, empowering marginalized groups, and reducing waste highlights a paradigm shift from reactive, symptom-focused food aid to proactive, root-cause-oriented systemic transformation. This approach recognizes that hunger is not merely a logistical problem of food distribution but a structural issue rooted in how food is produced, distributed, accessed, and consumed. The preference for cash over in-kind aid further supports this perspective, as it empowers recipients and stimulates local economies, contributing to systemic resilience rather than fostering dependency.¹⁶ Effective hunger de-escalation therefore requires long-term investment in resilient agri-food systems, policy reforms, and addressing underlying inequalities. While emergency food aid remains critical in acute crises,

sustained progress demands a focus on building self-sufficiency, economic empowerment, and climate adaptation at the community level. This implies a shift in funding priorities from purely emergency response to development and prevention, acknowledging that food security is intrinsically linked with broader development goals such as gender equality and climate action.¹⁵

The Role of UN Peace Operations and International Cooperation

The United Nations plays a critical role in de-escalation through its peace operations. **UN Peacekeeping** operates under core principles of consent from the parties involved, impartiality, and the non-use of force except in self-defense or in defense of the mandate.¹³ Over time, peacekeeping mandates have expanded significantly from merely monitoring ceasefires to include protecting civilians, supporting disarmament, demobilization, and reintegration (DDR) processes, and facilitating humanitarian assistance.¹⁴ Contemporary UN Peacekeeping operations are multidimensional, integrating military, police, and civilian components to address the complex challenges of modern conflicts.¹³

The evolution of UN Peacekeeping mandates reflects a recognition that modern conflicts are complex, often internal, and demand more than just separating warring parties. This signifies a shift towards a more comprehensive "peacebuilding" approach. However, peacekeeping has been criticized for often failing to address the underlying causes of conflict, functioning more as a conflict *management* tool than a definitive *resolution* mechanism.¹³ This highlights a gap between the ambition of expanded mandates and the structural capacity or political will to tackle deep-seated issues. For peacekeeping to be truly effective in de-escalation, it must be integrated into broader, long-term strategies that address the socio-economic and political drivers of conflict. This entails strengthening the civilian component, which leverages diplomatic, economic, humanitarian, and legal influence ¹³, enhancing partnerships with regional organizations and host countries ¹⁴, and integrating responses to emerging global issues like climate change into peacekeeping operations.¹⁴ While peacekeeping creates an environment conducive to peace, the substantial work of true de-escalation and peacebuilding still relies on sustained political and diplomatic efforts.

International cooperation is crucial for coordinating effective responses to global food crises.⁵ Organizations like the FAO and WFP co-lead initiatives such as the Food

Security Cluster, which coordinates humanitarian food security responses.¹⁷ UN-Nutrition, another collaborative body, coordinates UN agencies to address malnutrition in all its forms.¹⁷

The following table summarizes key human-led strategies for de-escalation and mitigation, categorizing them by domain and highlighting their principles and examples.

Table 2: Key Human-Led De-escalation and Mitigation Strategies

Strategy Domain	Specific Approaches/Tactics	Key Principles/Objectives	Examples/Actors
Conflict Resolution	Humanitarian Diplomacy (define problem, map actors, understand interests, frame messages, propose alternatives, develop strategy) ¹¹	Advance humanitarian interests, persuade decision-makers, respect humanitarian principles.	Embassies, Ministries of Foreign Affairs, International Organizations
	De-escalation (cessation of hostilities, reducing aggression, reciprocal trust-building, emotional self-control) ¹²	Reduce immediate violence, create space for dialogue.	Mediators, Negotiators
	Regulated Communication (mediation, I-messages, nonviolent communication) ¹²	Facilitate dialogue, depersonalize discussions.	Roger Fisher, William Ury, Josef W. Seifert, Thomas Gordon, Marshall B. Rosenberg
	Interest-Based Relational Approach (separate people from problem, focus on interests, mutual gain, objective criteria) ¹²	Find common ground, achieve sustainable agreements.	Harvard Negotiation Project, Program on Negotiation (PON)

	UN Peacekeeping (consent, impartiality, non-use of force except self-defense, multidimensional operations, DDR, civilian protection) ¹³	Stabilize conflict zones, protect civilians, support peace processes.	UNOCI (Côte d'Ivoire), UNMIL (Liberia)
Humanitarian Response	Funding Humanitarian Efforts (donations, advocacy) ¹⁰	Alleviate food insecurity, prevent famine.	WFP, Save the Children, FAO, UNICEF
	Aid Modalities (cash, vouchers, in-kind assistance) ¹⁰	Provide appropriate and effective assistance, ensure choice and dignity, stimulate local economy.	WFP, FAO, NRC, AVSI, IRC
	Emergency Assistance, Relief, Rehabilitation, Logistic Services ¹⁵	Rapid response to crises, restore livelihoods.	WFP (e.g., Sudan floods, Cyclone Idai)
Sustainable Development/Food Security	Investing in Smallholder Farmers (extension services, training, supportive policies, subsidies) ¹⁰	Improve farming practices, increase yields and incomes, withstand crises.	Governments, International Organizations
	Climate-Smart Agriculture (drought-resistant crops, irrigation, soil conservation, renewable energy, agroforestry) ¹⁰	Adapt to climate change, improve soil health, reduce emissions.	Farmers, Agricultural organizations
	Eliminating Food Waste (strategic planning, storage, donation, utilizing leftovers) ¹⁰	Increase food availability, reduce resource strain.	Individuals, Food banks, Agricultural organizations
	School-Feeding	Encourage school	WFP, Governments,

	Programs ¹⁰	attendance, improve child nutrition, promote gender equality.	NGOs
	Empowering Women (education, training) ¹⁰	Increase productivity, independence, address gender inequality.	Various NGOs, UN agencies
	Policy Advocacy (equitable distribution, surveillance, accessibility) ⁹	Promote international food security, ensure healthy, equitable food systems.	Governments, APHA, International Food Organizations
International Cooperation	UN, FAO, WFP, Global Network Against Food Crises, Food Security Cluster, UN-Nutrition ²	Coordinate responses, tackle root causes, promote sustainable solutions, address malnutrition.	Global alliances and partnerships

5. The Transformative Potential of AI in Crisis Response

Artificial Intelligence (AI) and Machine Learning (ML) are rapidly emerging as transformative forces in global crisis response, offering capabilities that significantly augment human efforts in de-escalating violence and mitigating hunger.

AI for Conflict Prediction and Advanced Early Warning Systems

AI and ML are instrumental in the development of sophisticated Early Warning Systems (EWS) designed to predict and prevent conflicts before they escalate.²¹ Examples include the Violence Early Warning System (ViEWS) project, which forecasts the likelihood of armed conflicts, and the Early Warning Project (EWP), which assesses the risk of mass atrocities.²¹ These systems leverage AI's capacity to analyze vast amounts of complex data, including socio-economic, political, and environmental

factors, alongside information from conflict databases, social media, news outlets, and satellite imagery, to identify patterns and forecast potential crises.²² The ability to collect and analyze real-time data using AI algorithms allows for the identification of emerging conflict risks, such as spikes in inflammatory rhetoric on social media or unusual troop movements detected via satellite imagery.²² Furthermore, big data analytics can process real-time social media sentiment and geopolitical trends to determine increases in tension, providing critical insights for timely intervention.⁸

The core strength of AI in this context is its unparalleled ability to process massive and complex datasets and identify patterns at speeds impossible for human analysis. This fundamentally shifts crisis management from a reactive posture to a proactive one. Instead of responding *after* a disaster or conflict has fully escalated, AI enables "preventative intervention" and "anticipatory action".²² This predictive capability, combined with optimization tools, means that resources can be pre-positioned and interventions can be more timely and targeted, thereby significantly reducing human suffering and economic costs. This proactive capacity fundamentally alters the operational landscape for humanitarian and peacebuilding organizations, allowing for a more strategic deployment of limited human and financial resources, moving from emergency firefighting to comprehensive risk mitigation and prevention. This could lead to a more efficient and cost-effective humanitarian response globally, potentially saving more lives and freeing up resources for long-term development.²³

AI in Combating Disinformation and Enhancing Communication

AI offers significant potential in combating disinformation and enhancing communication, crucial elements in de-escalation. AI-powered tools can improve communication between diverse groups by providing real-time, accurate language translation, thus mitigating misunderstandings that often exacerbate negotiations.²³ AI also assists in identifying and mitigating cognitive biases that contribute to conflicts.²³ A key application is in information verification, where AI helps combat misinformation and disinformation that fuel conflicts.²³ AI tools can automate the identification of false or misleading information, flag or remove it before widespread dissemination, and track its spread and sources.²⁶ Sentiment analysis on social media platforms can monitor inflammatory rhetoric or misinformation, enabling proactive responses to potentially inciteful content.²³ Large Language Models (LLMs) are proving valuable in assisting with conflict analysis, identifying blind spots in understanding, encouraging perspective-taking, and generating options for resolving differences, thereby making

peace processes more inclusive.²⁴

AI for Optimizing Humanitarian Logistics and Aid Distribution

AI has the potential to revolutionize humanitarian missions by enhancing disaster preparedness, optimizing resource allocation, and improving response and recovery efforts.²⁵ Its ability to analyze vast datasets and forecast crises offers an unmatched scope for dealing with global emergencies.²⁹ AI-powered image analysis of satellite imagery and drone footage can rapidly assess damage extent, identify affected populations, and estimate immediate needs with significantly greater speed and accuracy than manual methods.²⁹

AI algorithms optimize transport routes, facility locations, and warehouse placements for faster, more cost-effective aid delivery. These systems can dynamically adjust routes based on real-time traffic conditions, road closures, security risks, and resource availability.²⁵ Predictive analytics enable humanitarian organizations to pre-position relief supplies and develop robust contingency plans, significantly reducing response times and mitigating disaster impacts.²⁹ AI-powered chatbots provide real-time information on available resources, shelters, and medical facilities, and can even offer psychosocial support to disaster survivors by analyzing user input and providing coping strategies or referrals to human counselors.³² The World Food Programme (WFP), for instance, utilizes AI through projects like Optimus to optimize food distribution by analyzing real-time data such as weather conditions, market prices, conflict zones, and population density, ensuring aid reaches those most in need.¹⁵

AI in Enhancing Food Security through Precision Agriculture and Forecasting

AI is revolutionizing the agricultural industry, offering tools that optimize crop yield predictions with high accuracy and efficiency, which in turn aids resource planning, risk management, and policy formulation for food security.³⁵ Precision farming leverages AI-powered sensors and algorithms to provide real-time data on soil conditions, crop health, and weather patterns, enabling farmers to optimize resource use, potentially increasing crop yields by up to 30% while reducing water usage by

20-50%.³⁶ AI systems can detect early signs of pest infestations or diseases, allowing for timely interventions that protect harvests.³⁶ Automated machinery, including self-driving tractors and intelligent harvesting robots, increases efficiency and reduces labor costs in agricultural operations.³⁶ Furthermore, AI models analyze satellite imagery, Internet of Things (IoT) sensor data, and climate modeling to forecast yields and long-term agricultural trends, providing invaluable insights for sustainable agricultural practices and increased food security.³⁵

The transformative potential of AI, however, is not without its complexities. The very technologies designed for peaceful purposes, such as predicting conflict or optimizing aid, can also be weaponized or misused to exacerbate conflict, spread propaganda, or perpetuate control. For example, predictive policing, while seemingly beneficial, can carry inherent racial and religious biases that may inadvertently lead to radicalization to violent extremism.¹ Similarly, AI can be used for "credible analysis and inclusive dialogue" but also for "disinformation and division".²⁸ This inherent "dual-use" nature of AI means that its development and deployment in sensitive contexts are not neutral acts and carry significant ethical and security risks. Without adequate guardrails, AI could further exacerbate inequalities and digital divides, disproportionately affecting the most vulnerable.³¹ This necessitates a proactive approach to regulation, transparency, and accountability to ensure AI serves humanitarian and peacebuilding goals rather than undermining them.

The table below illustrates various AI applications across crisis de-escalation and aid, detailing specific technologies, benefits, and real-world examples.

Table 3: AI Applications Across Crisis De-escalation and Aid

Application Area	Specific AI Technologies/Methods	Key Benefits/Impacts	Illustrative Examples (Organization/Project)
Conflict Prediction & Early Warning	Machine Learning (ML), Deep Learning (DL), Natural Language Processing (NLP), Satellite Imagery Analysis, Social Media Monitoring, Big Data Analytics ⁸	Proactive intervention, identification of emerging risks, forecasting crises, predicting mass atrocities.	Violence Early Warning System (ViEWS), Early Warning Project (EWP), UN (predicting crisis areas) ²¹
Disinformation &	NLP, Large Language	Countering	PeaceTech Lab

Communication	Models (LLMs), Sentiment Analysis, Automated Translation, Bias Detection, Information Verification ²³	misinformation, enhancing dialogue, fostering inclusive peace processes, clarifying worldviews.	(monitoring hate speech), NewsGuard (trustworthy news ratings), CLEAR Global (language AI for social impact) ²³
Humanitarian Logistics & Aid Distribution	ML, Predictive Analytics, Image Analysis (Satellite/Drone), Intelligent Routing Algorithms, Chatbots ²⁵	Faster response, optimized resource allocation, real-time damage assessment, efficient aid delivery, improved coordination, psychosocial support.	WFP (SKAI, Optimus), Ushahidi, Dataminr (crisis mapping, real-time alerts), Signpost AI (chatbots), Google AI Flood Forecasting, UNHCR (refugee movement mapping) ³¹
Food Security & Agriculture	ML, DL, Remote Sensing, Soil Sensors, IoT Sensors, Climate Modeling, Image Recognition ³⁵	Optimized crop yield, precision farming, early pest/disease management, improved resource planning, cost savings, increased profitability.	Farmonaut (AI-powered precision farming) ³⁶

6. Synergizing Human and AI Efforts: A Collaborative Framework

The optimal integration of AI into crisis response centers on a collaborative framework where AI serves to augment human capabilities rather than replace them.

Models for Human-AI Collaboration in Crisis Management

Effective human-AI collaboration (HAIC) focuses on scenarios where humans utilize AI to manage tasks and inform decision-making, with algorithms complementing human

managers.³⁷ This approach stands in contrast to algorithmic management (AM), where humans are primarily managed by AI.³⁷ In the sensitive domains of peacebuilding and humanitarian aid, AI must be positioned as a support to human judgment, not a substitute for the nuanced cultural, historical context, and essential human empathy required.²³ Even with AI-driven recommendations, human expertise must remain at the core of every decision.³³

This emphasis on "augmented intelligence" acknowledges AI's unparalleled capacity for data processing, pattern recognition, and optimization, while critically recognizing its limitations in areas demanding empathy, cultural nuance, moral reasoning, and complex ethical judgment.²⁸ The true value of AI lies in enhancing human capabilities, providing superior information, and streamlining processes, thereby enabling human experts to concentrate on higher-order tasks that uniquely require human skills, such as negotiation, relationship-building, and ethical decision-making. Developing effective human-AI collaboration frameworks therefore requires more than mere technical integration; it demands the creation of new organizational structures, targeted training programs, and mechanisms for building trust. Professionals in humanitarian and peacebuilding fields need to be trained not only in the use of AI tools but also in critically interpreting their outputs, understanding their potential biases, and integrating them into complex, human-centric decision-making processes. This implies a significant investment in digital literacy and capacity building within these organizations.³⁰

Leveraging AI to Augment Human Decision-Making and Operational Efficiency

AI provides objective, data-driven insights that can dispel myths and foster more informed decision-making.²³ In conflict resolution, AI can assist with blind spot analysis, scenario planning, and broader inclusivity efforts, helping mediators and diplomats explore various outcomes without escalating tensions.²³ The scalability of AI systems allows for continuous monitoring of global hotspots, processing massive datasets that would be unmanageable for human analysts alone.²³ Automating tasks such as data analysis and resource optimization significantly reduces costs, freeing up valuable human and financial resources for other critical peacebuilding activities.²³ In humanitarian logistics, AI-driven insights help organizations identify weak points in supply chains, optimize transport routes, and simulate multiple disaster scenarios to build stronger preparedness plans.³³ Real-time data integration enables responders to adjust strategies instantly as ground conditions shift, ensuring aid reaches those in

need promptly.³³

Real-World Examples and Case Studies of Integrated Approaches

Numerous real-world examples demonstrate the power of integrated human-AI approaches in crisis response:

- **Conflict Prediction & Peacebuilding:** The United Nations employs AI-powered tools to analyze social media and news reports, predicting potential crisis areas.²³ Organizations like PeaceTech Lab utilize AI to monitor hate speech and prevent violence.²³ Large Language Models (LLMs) are also assisting human mediators in complex conflict analysis, helping to identify blind spots and generate options for resolution.²⁸
- **Humanitarian Logistics & Aid:** The World Food Programme's (WFP) SKAI project uses AI and satellite imagery to provide real-time damage assessments and optimize humanitarian aid delivery.³¹ WFP's Optimus project further refines food distribution by analyzing real-time data, including weather, market prices, and conflict zones.³²
- **Disaster Response:** AI models can analyze rainfall data and river flow patterns to predict flooding events days in advance, as seen with Google AI for Flood Forecasting in India and Bangladesh, enabling timely evacuations and resource allocation.³⁴ AI-driven drones played a crucial role during Hurricane Harvey in 2017, locating stranded individuals in flooded areas and mapping critical zones for rescue operations.³⁴
- **Refugee Support:** The United Nations High Commissioner for Refugees (UNHCR) leverages AI to map refugee movements, predict settlement trends, and analyze needs, as demonstrated during the Syrian Refugee Crisis where AI tools helped predict where new refugee camps would be required.³⁴
- **Crisis Mapping:** AI-powered systems process crowdsourced data from social media, SMS reports, and local news to generate real-time crisis maps, exemplified by partnerships like Ushahidi and Dataminr.³²
- **Communication:** AI-driven translation tools, such as those developed by CLEAR Global, ensure that affected communities receive critical information in various languages.³² AI chatbots, like Signpost AI, provide real-time information on resources, shelters, and medical facilities, and can even offer psychosocial support to disaster survivors.³²

While AI thrives on an abundance of data, a persistent challenge in humanitarian contexts is data fragmentation. Data is often disparate, siloed across organizations, and inconsistent.²⁵ This fragmentation significantly hinders the realization of AI's full potential, as AI models require clean, comprehensive, and well-structured datasets for accurate predictions and optimizations. The lack of "AI-ready" data impedes not only AI adoption but also broader automation and advanced analytics efforts.²⁵ Effective human-AI collaboration is therefore contingent upon robust data infrastructure and a culture of data sharing and standardization across organizations. This requires investing in common data platforms, interoperable systems, and clear data governance policies. Without addressing this foundational challenge, AI applications will remain limited in scope and impact, unable to provide the holistic insights necessary for complex crisis de-escalation. This represents a long-term investment demanding sustained commitment from all stakeholders.²⁵

7. Ethical Considerations and Practical Limitations of AI Deployment

The deployment of AI in sensitive humanitarian and conflict contexts presents significant ethical considerations and practical limitations that must be carefully addressed to ensure responsible and beneficial outcomes.

Addressing Bias, Privacy, and Data Protection Concerns

AI systems can inherently carry racial and religious biases, which, if unaddressed, could inadvertently contribute to radicalization or violent extremism.¹ If these systems are trained on biased data, they risk perpetuating existing inequalities or misinterpreting crucial cultural nuances, leading to inequitable outcomes.²³ A major concern in humanitarian contexts is privacy, particularly the risk of personal or sensitive data being inadvertently shared with unauthorized third parties.³⁸ Furthermore, AI tools designed to allocate aid, while aiming for efficiency, might disproportionately direct resources to areas with "better data," thereby marginalizing populations that are most in need but least represented in available datasets. This can lead to an unfair distribution of scarce resources.²⁹ Addressing these ethical

challenges urgently requires the development of specific, comprehensive guidelines, along with robust training and auditing methods for AI tools.³⁸

The rapid pace of AI development often outstrips the rate at which ethical frameworks and guidelines can be established and updated. This creates a situation where the humanitarian and peacebuilding sectors may be accumulating an "ethical debt" by deploying AI tools without sufficiently robust and up-to-date ethical guidelines, training, and auditing mechanisms.³⁸ This gap between technological innovation and ethical governance raises significant concerns about unintended harms, particularly for vulnerable populations who may have limited agency or recourse. Therefore, proactive and continuous ethical foresight is paramount. This means moving beyond reactive policy-making to anticipatory governance, involving diverse stakeholders, including affected communities and experts from low- and middle-income countries, in the design and oversight of AI systems.³⁸ It also necessitates dedicated funding for ethical AI research and development within humanitarian contexts to ensure that innovation is coupled with responsibility.

Navigating Dual-Use Risks and the Widening Digital Divide

AI and machine learning technologies possess a dual-use nature, meaning they have the potential to enhance cyber, physical, and biological attacks, even if initially designed for peaceful purposes.¹ Technologies intended for humanitarian aid or peacebuilding could be repurposed for surveillance, repression, or cyber warfare.²³ Without adequate guardrails and robust governance, AI could exacerbate existing inequalities and widen the digital divide, disproportionately affecting the most vulnerable populations who lack access to technology or digital literacy.³¹ Bridging this digital divide requires significant investments in infrastructure development and digital literacy programs.³⁰

Ensuring Human Oversight, Accountability, and Cultural Nuance

Over-reliance on AI in sensitive areas like diplomacy carries the risk of undermining human judgment and empathy, which are indispensable in complex human interactions.²³ AI models may lead to the oversimplification of moral reasoning and the

loss of cultural nuance, particularly in conflicts rooted in deeply held sacred values or fundamentally different belief systems.²⁸ A critical approach to AI use is therefore essential, ensuring that it enhances human interactions and augments judgment while actively mitigating potential harms.²⁸ Responsible AI use mandates alignment with core humanitarian values and a strict adherence to the principle of 'do no harm'.²⁵ This includes ensuring the transparency and accountability of AI systems, making clear who is responsible for AI errors or unintended consequences.²⁹ The rapid evolution of AI technology means that existing guidelines can quickly become outdated, necessitating continuous adaptation and a flexible regulatory environment.³⁸

A critical paradox emerges in data-driven aid: the tension between efficiency and equity. While AI optimizes resource allocation and aid delivery, its effectiveness is often predicated on the availability and quality of data.²⁵ In contexts of widespread violence and hunger, data infrastructure is frequently weakest in the most vulnerable and marginalized areas. If AI systems are trained on, or prioritize data from, better-documented regions, they risk exacerbating existing inequalities by overlooking those most in need but least represented in the data.²⁹ This creates a fundamental tension between the pursuit of operational efficiency and the humanitarian principles of impartiality and equitable distribution. Simply deploying AI without addressing underlying data disparities can lead to a "digital divide" in aid delivery. Solutions must include significant investment in data collection infrastructure in underserved regions, ensuring data quality and representation from all affected populations. Furthermore, AI models must be designed with explicit fairness metrics and robust human oversight mechanisms to actively counteract potential biases and ensure that aid reaches those based on genuine need, not merely data availability.

The following table outlines the key ethical and practical considerations for AI deployment in humanitarian contexts, along with suggested mitigating actions.

Table 4: Ethical and Practical Considerations for AI in Humanitarian Contexts

Category of Concern	Specific Issue	Implication for De-escalation/Aid	Mitigating Action/Principle
Ethical Risks	Bias (racial, religious, perpetuating inequalities) ¹	AI systems may make unfair decisions, leading to radicalization or marginalization.	Robust data protection, ethical guidelines, training, auditing, fairness metrics.
	Privacy (sensitive	Inadvertent exposure	Comprehensive data

	data sharing) ³⁸	of vulnerable individuals' personal information.	protection guidelines, secure data management, consent protocols.
	Unfair Distribution (data-driven marginalization) ²⁹	Resources disproportionately allocated to areas with better data, neglecting others.	Investment in data collection in underserved regions, human oversight to override algorithmic bias.
	Loss of Cultural Nuance, Oversimplification of Moral Reasoning ²⁸	AI may misinterpret complex human contexts, leading to ineffective or harmful interventions.	Emphasize human oversight, integrate local expertise, design AI for cultural sensitivity.
Practical Limitations	Data Quality & Availability (fragmentation, "AI-readiness") ²⁵	Inaccurate predictions/optimizations due to incomplete or inconsistent data.	Investment in robust data infrastructure, standardization, data sharing protocols.
	Model Complexity (requiring substantial resources) ³⁵	High computational and expertise requirements limit accessibility for many organizations.	Develop user-friendly interfaces, foster capacity building, promote open-source solutions.
	Infrastructure Deficiencies (digital divide) ³⁰	Limited connectivity and technological access hinder AI deployment in critical areas.	Investment in digital infrastructure, promote digital literacy, ensure equitable access.
	Lack of Trust in AI outputs ²⁵	Reluctance to integrate AI insights into critical decision-making processes.	Transparency in AI models, rigorous validation, clear communication of limitations.
Governance Oversight Challenges	Dual-Use Risks (repurposing for harm) ¹	Technologies for peace could be used for surveillance, repression, or cyber	Develop and enforce international regulatory frameworks, ethical

		warfare.	design principles.
	Autonomy vs. Human Judgment (over-reliance) ²³	Erosion of human decision-making capacity and accountability.	Position AI as an augmentation tool, prioritize human oversight and final decision-making.
	Accountability (who is responsible for AI errors) ²⁹	Ambiguity in assigning responsibility for unintended consequences.	Establish clear accountability frameworks, ensure transparency of AI systems.
	Speed of AI vs. Guideline Development (outdated frameworks) ³⁸	Ethical guidelines become rapidly irrelevant due to technological advancements.	Proactive, adaptive governance, continuous ethical foresight, multi-stakeholder engagement.

8. Recommendations for Policy and Practice

Addressing the complex, interconnected crises of widespread violence and hunger requires a concerted, multi-pronged approach that strategically integrates human ingenuity with the transformative potential of AI, underpinned by robust ethical considerations.

Strengthening International Cooperation and Governance Frameworks

It is imperative to develop and enforce international regulatory frameworks for AI, particularly concerning dual-use technologies and autonomous systems. Such frameworks are critical for mitigating risks and promoting peacebuilding efforts.³⁹ Enhanced collaboration between states, the private sector, and civil society is necessary to formulate imaginative and bold responses to the complex threats posed by modern conflicts.¹ Furthermore, strengthening partnerships between UN

Peacekeeping operations, regional organizations, and host countries will amplify their impact and sustainability.¹⁴ A renewed commitment to increasing funding for initiatives that prioritize food security and nutrition is essential, alongside fostering robust international cooperation to coordinate global food crisis responses effectively.³

Investing in Responsible AI Development and Robust Data Infrastructure

Prioritizing ethical considerations alongside technological innovation is paramount in the development of AI for humanitarian action.²⁹ Significant investment in robust data infrastructure is required to enhance data collection, management, and analysis, thereby making data "AI ready" for effective utilization.²⁵ This includes developing specific, comprehensive ethical guidelines, providing thorough training, and implementing rigorous auditing methods for AI tools deployed in humanitarian contexts.³⁸ Fostering collaboration among diverse stakeholders is also crucial to generate collective insights and overcome the persistent challenge of data fragmentation.²⁵

Fostering Integrated Human-AI Response Mechanisms and Capacity Building

Implementing human-AI collaboration models where AI augments human decision-making and operational efficiency, rather than replacing human judgment and empathy, is key to success.²³ This necessitates investing in digital literacy and specialized training for humanitarian and peacebuilding professionals, enabling them to critically interpret AI outputs and integrate them effectively into their complex work.³⁰ Leveraging AI for proactive strategies, including advanced early warning systems for both conflict and food crises, and optimizing humanitarian logistics and aid distribution, will significantly enhance response capabilities.²²

Promoting Resilience and Sustainable Development through Holistic Approaches

A fundamental shift towards addressing the root causes of violence and hunger,

recognizing their deep interconnectedness, is essential.¹ This involves investing in climate adaptation and resilience measures, particularly through climate-smart agriculture, to mitigate the environmental drivers that exacerbate both hunger and conflict.² Strengthening social safety nets, empowering vulnerable populations (especially women and girls), and promoting equitable access to resources and healthy diets are critical for building long-term resilience.² Ultimately, the focus must be on long-term systemic solutions, such as sustainable food systems and peacebuilding initiatives that address underlying inequalities, rather than solely relying on short-term emergency relief.⁹

9. Conclusion: Charting a Path Towards a More Peaceful and Food-Secure Future

De-escalating widespread violence and hunger in an increasingly complex global environment demands a sophisticated, integrated approach that synergizes human ingenuity, empathy, and diplomatic skill with the unparalleled analytical and operational capabilities of Artificial Intelligence. This report has demonstrated how AI can serve as a powerful tool for conflict prediction, enhancing communication, optimizing humanitarian logistics, and revolutionizing agricultural practices. Its capacity to process vast datasets, identify subtle patterns, and provide real-time insights can significantly augment human decision-making, enabling proactive interventions and more efficient resource deployment.

However, the analysis also underscores that AI is not a panacea. Its transformative potential is inextricably linked to robust human oversight, the establishment of comprehensive ethical frameworks, and a steadfast commitment to addressing the root causes of these crises. Concerns regarding inherent biases in AI systems, privacy implications, the dual-use dilemma of technology, and the risk of exacerbating digital divides must be proactively managed. The paradox of data-driven aid, where efficiency gains might inadvertently marginalize those with less data, highlights the critical need for equitable data infrastructure and human-centric design.

Ultimately, charting a path towards a more peaceful and food-secure future hinges on a concerted global effort. This effort must encompass significant investment in both human capacity—through enhanced training, digital literacy, and diplomatic skill—and ethical technological innovation. By fostering resilience, promoting sustainable

development, and ensuring that AI is developed and deployed responsibly, equitably, and with a deep understanding of complex human contexts, the international community can move closer to alleviating the profound suffering caused by widespread violence and hunger.

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