

Anti-trafficking and humanitarian operations: transferring learnings for a better world

Kezban Yagci Sokat

Department of Marketing and Business Analytics, San Jose State University, San Jose, California, USA and
Mineta Transportation Institute, San Jose, California, USA, and

Maria Besiou

Kühne Logistics University, Hamburg, Germany

Abstract

Purpose – The purpose of this study is twofold: first, to draw insights from the rich literature on humanitarian operations efforts to combat human trafficking; second, to inspire humanitarian operations researchers to work more on human anti-trafficking.

Design/methodology/approach – This is a conceptual paper inspired by recent relevant reports, the academic literature and the authors' years of involvement in both humanitarian operations and anti-trafficking.

Findings – Humanitarian supply chains and human trafficking supply chains very often operate in the same environments and hence face similar challenges. The paper highlights the overlaps between the two domains and demonstrates how two decades of learnings from humanitarian supply chain literature can help improve the understanding of the more recent academic field of human trafficking supply chains significantly.

Research limitations/implications – This study is conceptual and illuminates numerous opportunities for research in anti-trafficking.

Practical implications – By inspiring more research on anti-trafficking, this paper hopes to facilitate enhancements to human trafficking operation to prevent more cases and protect victims.

Social implications – There is an opportunity to increase the effectiveness of anti-trafficking activities, disrupt human trafficking and enlarge the "humanitarian space."

Originality/value – To the best of the authors' knowledge, this is the first paper to discuss human trafficking operations in relation to humanitarian supply chains.

Keywords Modern slavery, Human trafficking, Humanitarian operations, Operations management

Paper type Research paper

1. Introduction

The modern world has not completely stamped out slavery. The International Labor Organization (ILO) estimates that 49.6 million people around the world are affected by modern slavery: 27.6 million trapped in forced labor and 22 million in forced marriages (ILO, 2022). Even these numbers may be an undercount; nonetheless, it is clear that women and children (and especially girls) are disproportionately impacted. In fact, one out of every four victims of modern slavery is a child (ILO, 2017): "Out of the 27.6 million people trapped in forced labor, 63% of the people are exploited in the private sector such as domestic work, construction or agriculture; 23% in forced sexual exploitation, and 14% in forced labor imposed by state authorities (ILO, 2022)." Women and girls account for 99% of the victims involved in the commercial sex industry and 58% in other sectors (ILO, 2022).

While the topic lingers under the surface of society, it is pervasive enough to draw political attention. For instance, the former Prime Minister of the UK (UK), Theresa May (2016),

wrote an article in July 2016 to emphasize that modern slavery is "the great human rights issue of our time" and discuss her vision for defeating it. The UK Modern Slavery Act, which went into effect in 2015, was part of that vision. Later, a European Commission study confirmed the need for similar regulations confirmed the need to introduce regulations on business and human rights at the European level (European Commission, 2020). Despite these efforts, modern slavery remains a major issue, one exacerbated by COVID-19 and its financial consequences (UNODC, 2021).

Addressing modern slavery will require a multifaceted response to human trafficking [1] networks. To that end, scholars may need to embrace response frameworks – such as recovery,

© Kezban Yagci Sokat and Maria Besiou. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licences/by/4.0/legalcode>

This research was partially funded by the Mineta Transportation Institute Future Leaders Seed Grant, the U.S. Department of Transportation and San Jose State University RSCA Seed Grant 70031.

Received 4 August 2023

Revised 6 June 2024

Accepted 17 July 2024

The current issue and full text archive of this journal is available on Emerald Insight at: <https://www.emerald.com/insight/2042-6747.htm>



Journal of Humanitarian Logistics and Supply Chain Management
15/4 (2025) 445–459
Emerald Publishing Limited [ISSN 2042-6747]
[DOI 10.1108/JHLSCM-08-2023-0066]

mitigation and preparedness – from the field of humanitarian operations. While the humanitarian operations literature has grown enormously since its first publications in 2006 (Altay and Green, 2006; Van Wassenhove, 2006), the anti-trafficking research is a recent development. In this domain, scholars mostly focus on disrupting human trafficking supply chain strategies through optimization of resources and predicting best strategies (Konrad *et al.*, 2017; Maass *et al.*, 2020; Xie and Aros-Vera, 2022; Yagci Sokat *et al.*, 2024b). However, the rising volatility of the humanitarian context—reflected in changes in the number and role of stakeholders, the disaster life cycle, disaster types, objectives, technology, types of aid and business models (Besiou and Van Wassenhove, 2020)—is creating a growing need for a more expansive research agenda. Indeed, we are already seeing the two supply chains working in unison thanks to their shared objectives and resources. For example, humanitarian operations seek to not only save as many disaster victims as possible through the humanitarian supply chain, but also to ensure that those beneficiaries achieve a decent life (e.g. by disrupting the operations of the human trafficking supply chain). Likewise, during the recovery phase (when rebuilding activities often take place), the two supply chains aim to reduce their cost without considering the labor rights of the staff working on them. Given these emerging synergies, it is time for researchers to explore how existing humanitarian operations frameworks can improve anti-trafficking efforts.

In this paper, we draw on almost two decades of knowledge from humanitarian logistics to frame the human trafficking supply chain in a way that is more familiar to humanitarian supply chain management researchers. We seek to compare and contrast these two overlapping supply chains to prompt further research that can disrupt human trafficking. For this reason, we ask the following research questions:

- RQ1.* What are the common characteristics of the humanitarian operations and human trafficking supply chains?
- RQ2.* How can insights from humanitarian operations research help address human trafficking?

In Section 2, we provide an overview of humanitarian operations and human trafficking, their general terminology,

the involved efforts and their stakeholders. In Section 3, we present our research methodology. Section 4 highlights the characteristics of humanitarian operations and human trafficking and highlights the learning opportunities that arise from the two supply chains' shared characteristics. In Section 5, we more broadly identify directions for operations management research. Section 6 concludes the paper with final remarks.

2. Context

2.1 Humanitarian operations

2.1.1 Definitions

To the best of our knowledge, humanitarian operations research dates back to 2006 with the landmark papers of Van Wassenhove (2006) and Altay and Green (2006). For this paper, we borrow Thomas and Kopczak's (2005) definition of humanitarian supply chain as:

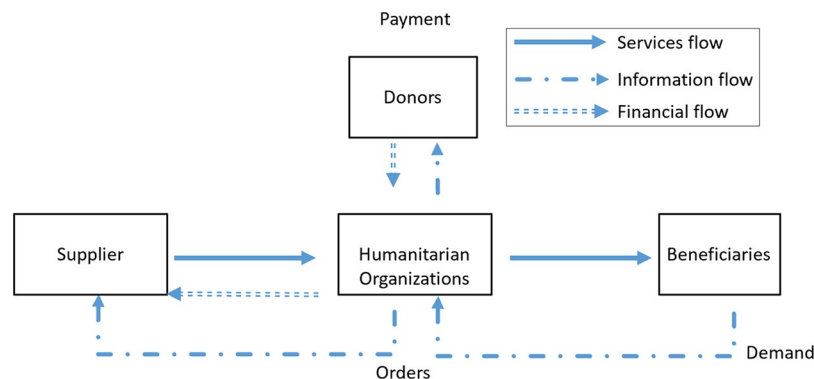
[...] the process of planning, implementing and controlling the efficient, cost-effective flow and storage of goods and materials, as well as related information, from the point of origin to the point of consumption for the purpose of alleviating the suffering of vulnerable people (Thomas and Kopczak, 2005).

All operations should follow the four humanitarian principles: humanity, neutrality, impartiality and independence (OCHA, 2012).

2.1.2 Stakeholders

Humanitarian supply chains have various stakeholders, such as beneficiaries, humanitarian organizations (HOs), donors and suppliers (Besiou and Van Wassenhove, 2021). Beneficiaries are the stakeholders who are directly impacted by humanitarian crises. They receive humanitarian goods or services provided by suppliers and filtered through HOs that depend on the financial support of donors. Figure 1 below depicts the various actors and products/services, information and financial flows among them. Note that Figure 1 is not exhaustive; there are more stakeholders in the humanitarian supply chains with distinct roles and objectives, such as the local government, military, media and private sectors (Besiou and Van Wassenhove, 2021; Tomasini and Van Wassenhove, 2009; Van Wassenhove, 2006). We refer readers to the humanitarian logistics literature (e.g. Besiou and Van Wassenhove, 2021) for more information about the stakeholders and roles.

Figure 1 Humanitarian supply chain



Source: Figure courtesy of Besiou and Van Wassenhove (2021)

2.1.3 The disaster management lifecycle

In humanitarian operations, the disaster management cycle has four phases: response, recovery, mitigation/rehabilitation and preparedness (Tomasini and Van Wassenhove, 2009). Mitigation refers to the activities that aim to reduce vulnerability, such as identifying risk factors, high-risk locations, screening service providers and engaging with vulnerable people. Preparedness focuses on preparing for the disaster and includes planning (pre-positioning resources), training and education. The third stage, response, refers to immediate and short-term response activities such as search and rescue, delivery of relief items (e.g. medicines, water and food, shelter) and debris cleanup. The last stage, recovery, aims to restore life back to normal as much as possible after the disaster. We refer readers to Coppola (2006) for more information about the disaster management cycle.

2.2 Human trafficking

2.2.1 Definitions

Before discussing how research on humanitarian operations can support the disruption of human trafficking, we present the terms used in the latter domain that we will be using in this paper. Certain terms have region-specific interpretations and due to cultural coding or preferences people might use different terminology. Refer to Bonilla and Mo (2019) for a more detailed overview of the relevant terminology descriptions and their evolution.

Modern slavery is an umbrella term for several human rights issues such as forced labor, bonded labor, human trafficking and slavery-like practices (where a person cannot refuse or leave due to threats), violence, coercion, deception or abuse of power. Common practices concerning children include forced child labor, child soldiers, forced marriages, and commercial sexual exploitation. “Human trafficking” and “modern slavery” are used nearly synonymously (Bonilla and Mo, 2019), but the term “modern slavery” has gained more attention with recent regulatory measures around the world, such as the 2015 UK Modern Slavery Act (UK Government, 2015) and the 2018 Australian Modern Slavery Act (GRI, 2019).

In this paper, we focus on human trafficking defined by the United Nations’ Protocol to Prevent, Suppress and Punish Trafficking in Persons (UNODC, 2000) as:

The recruitment, transportation, transfer, harboring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation. Exploitation shall include, at a minimum, the exploitation of the prostitution of others or other forms of sexual exploitation, forced labor or services, slavery or practices similar to slavery, servitude or the removal of organs.

Granted, one issue with the UN’s definition is that the emphasis on “trafficking” has created a public perception that all trafficking requires transportation of victims. That element is common, but not compulsory (Yagci Sokat, 2022a). In fact, there are victims who are confined to their homes – an unfortunately common practice in familial trafficking (White et al., 2023).

When the purpose of human trafficking is sexual exploitation, it is referred to as “sex trafficking”; when the purpose involves labor or services, it is broadly referred to as

“labor trafficking.” Labor exploitation occurs when an employer is unfairly benefiting from the employee’s work. Common examples of workplace problems include unfair wages or wage theft, as well as substandard working and living conditions. When the victim of labor trafficking is a minor, the case is considered child labor trafficking.

These definitions of human trafficking reveal that human trafficking supply chains parallel common supply chains – just that the former focus on the exchange and usage of people rather than products. Similar analogies have appeared in modern slavery studies by New (2015), Caruana et al. (2021) and others. In fact, there is significant research from the last decade that presents modern slavery as a kind of management practice (Crane, 2013) and address the modern slavery in supply chains (Gold et al., 2015; Kougkoulos et al., 2021; New, 2015). We refer readers to Szablewska and Kubacki (2023) for a detailed review of research on modern slavery in supply chains.

2.2.2 Stakeholders

Human trafficking is a complex phenomenon that involves many stakeholders who are directly or indirectly affected by it and have a mandate (self- or regulation-imposed) to disrupt it. Stakeholders who are directly affected include the victims, their family members, friends and communities. Examples of those who are indirectly affected include other employees of an organization and the consumers of the products made with exploited labor. There are various groups that are mandated (whether by mission or regulation) to address human trafficking, such as law enforcement, government officials and nongovernmental organizations (NGOs).

For example, in the USA, anti-trafficking efforts involve an interplay of federal, state, county and local levels. Law enforcement agencies (such as the police, sheriff’s office, FBI, Customs and Border Patrol) are generally the first professionals that victims interface with during their exploitation. These law enforcement bodies are essential in identifying and rescuing victims, connecting them to necessary resources and maintaining unique data about cases for investigators. Meanwhile, the justice system can address victim protection by compensating them, preventing re-victimization and addressing poly-victimization (i.e. victim of multiple issues). The justice system at the federal, state, county and local levels encompasses a broad range of actors and institutions such as prosecutors, defense lawyers and judges. NGOs are financed by donors and undertake a wide array of activities in anti-trafficking efforts: from service provision (such as legal aid, shelter and food) to prevention (through improved education and legislative advocacy) (Heiss and Kelley, 2017). As a result, they are involved in nearly every step of anti-trafficking efforts. Finally, government agencies introduce legislation, train inspectors and provide support to victims after their rescue/exit from the supply chain. Such agents encompass federal/state legislators, the Department of Labor, the Department of Children and Families and the Department of Homeland Security, which work together to identify, protect and serve trafficking victims, as well as arrest and prosecute their traffickers. Governments are best equipped to develop and implement programs and strategies that address the root causes of human trafficking.

International organizations – such as the International Organization for Migration (IOM), the ILO and the U.N. Office

on Drugs and Crime – also partake in counter-trafficking efforts by providing protection and assistance to trafficking victims, engaging in prevention activities (such as information campaigns) and government capacity-building, and supporting civil society institutions and frontline professionals in their anti-trafficking efforts. These organizations also contribute to the collection of qualitative and quantitative data that aids research for evidence-based policymaking.

There are many other stakeholders as well, such as health care, transportation and education professionals who might encounter and identify victims of human trafficking. Community resources such as faith-based organizations and community groups can help with outreach and connecting victims to resources. Businesses can aid anti-trafficking by monitoring their supply chains and ensuring human rights in their operations (from this point on since our goal is to disrupt the human trafficking supply chains, we will refer to it as anti-trafficking supply chains). Consumers can help indirectly by adopting ethical purchasing behaviors and pressuring companies to follow certain standards. Finally, the survivors and perpetrators of human trafficking constitute the most directly involved groups of stakeholders. Typically, survivors who manage to escape their abusers can provide the most important insights on how the crime happens, what resources are needed and what strategies should be developed to fight against trafficking.

Figure 2 presents the stakeholders of the anti-trafficking supply chain along with their relationships. In this paper, we aim to compare the humanitarian and anti-trafficking supply chains. Thus, the structure of Figure 2 mirrors Figure 1 above. As mentioned in Section 2.2.1, there are previous supply chain representation efforts for modern slavery in the literature that we diverge from such as but not limited to New (2015) and Caruana *et al.* (2021).

2.2.3 Turning the 4Ps of human trafficking into an anti-trafficking cycle

While there have been multiple international treaties acknowledging the problem of trafficking, the global fight against human trafficking was greatly shaped by two efforts in

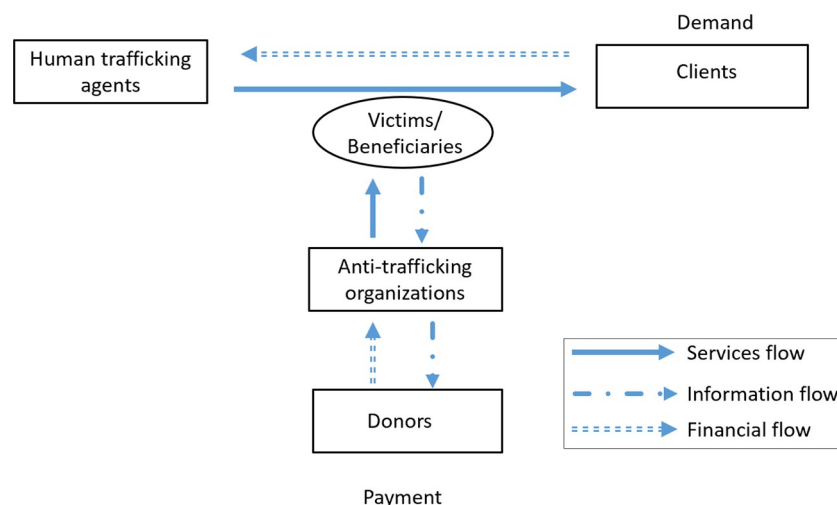
2000: the Trafficking Victims Protection Act in the USA and the UN Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children (known as the Palermo protocol) (Victims of Trafficking and Violence Protection Act, 2000; United Nations, 2000; Goździak and Vogel, 2020; Hudlow, 2015). The Palermo Protocol is the first globally agreed-upon legislation to thoroughly define human trafficking. The goal of these two efforts was to disrupt the human trafficking supply chain by following the 3Ps paradigm of *prevention, protection and prosecution*. In 2009, USA Secretary of State Hilary Clinton added *partnership* as a fourth P to serve as a “pathway to progress in the effort against modern-day slavery.”

Prevention efforts aim to prevent new cases by criminalizing the perpetrators. Hence, depending on the human rights at stake, prevention models emphasize law enforcement/criminal justice, migrants’ rights or general civil rights (Steiner *et al.*, 2018). A migrants’ rights model aims to prevent various types of exploitation, but mostly labor trafficking. A human rights model aims to prevent nonlabor types of exploitation, primarily sex trafficking.

Protection efforts to combat modern slavery call for “three Rs”: *rescue, rehabilitation and reintegration* (Bennett-Murphy, 2012). Rescue refers to the removal of a victim from a trafficking situation (Williams *et al.*, 2010). Rehabilitation is the restoration of the victim to their former state so they are free from the physical, psychological and social impact of abuse or exploitation (Sanlaap and Terres des Hommes, 2009; Pandey *et al.*, 2013). Reintegration was originally used to discuss efforts for returning victims to their home communities, but the field later transitioned to “integration” to account for individuals who do not wish to return to their country of origin (Zimmerman *et al.*, 2011). The European Council on Refugees and Exiles’s (ECRE) definition of integration discusses integration or reintegration as (ECRE, 2002):

Integration [and reintegration] are long-term and multidimensional stages of either integrating into a host country or reintegrating into a home country setting, which are not achieved until the individual becomes an active

Figure 2 Anti-trafficking supply chain: general representation



Source: Figure created by authors

member of the economic, cultural, civil and political life of a country and perceives that he or she has oriented and is accepted.

Prosecution represents the punishment of perpetrators of human trafficking. The Palermo Protocol (United Nations, 2000) and some of its successors have received criticism for putting more emphasis on the criminal justice approach of prosecution rather than prevention and protection (Steiner *et al.*, 2018).

Partnership refers to the collaboration and coordination among different stakeholders to facilitate prevention, protection and prosecution. When the US Secretary of State Hilary Clinton inducted partnerships as the fourth P, she included governments, international organizations, NGOs and the private sector in the combat against human trafficking (Clinton, 2009). Given the various actors in play, partnerships are an important part of moving beyond mitigation and pursuing the abolition of modern slavery (Lagon, 2015).

3. Methodology

The paper's research questions were significantly shaped by the authors' 15 years of expertise on grounded humanitarian operations, as well as the first author's interactions with experts in anti-trafficking efforts over the past couple of years. The first author attended the Health and Humanitarian Logistics Conference held in Atlanta in 2016, which provided insights into how operations research can help with anti-trafficking. She advanced her primary knowledge on the complex and hidden relationships and processes that are necessary to understand and combat human trafficking [2]. Specifically, she worked with multidisciplinary leaders – such as law enforcement, criminal justice experts, service providers and survivors – in one of the largest counties in the USA and one of the most well-known anti-trafficking states [3]. This paper also benefited from her/his involvement in multiple anti-trafficking task forces, such as the County Human Trafficking Task Force Labor Trafficking Subcommittee, the County Labor Trafficking Subcommittee and the County Coalition to End Human Trafficking, where he/she regularly interacts with a wide range of experts like nonprofits, law enforcement, city attorney's offices,

representatives of governmental agencies such as the Department of Labor, Department of Justice, Department of Homeland Security and a minority of academics [4].

The paper used her/his participation in local, state, national and international initiatives on anti-trafficking as both a researcher and a liaison between the practitioner and research communities [5]; her/his involvement in multidisciplinary practitioner conferences like the County Human Trafficking Task Force Conference and HT-Radar Conference; her/his role as a trainer, speaker, advisor and mentor on local and international work with governments, nonprofits, agencies, companies, local human trafficking task forces [6] and expert research support for policy impact [7]. This robust experience helped to define the paper's approach.

The study also highly benefited from the first author's grants, which have provided her/him the opportunity to engage with various anti-trafficking stakeholders, including victims/survivors. For example, one of the grants, funded by the U.S. Department of Transportation, investigates the role of transportation in combating human trafficking in a specific State (concerning both victims and the goods that victims are handling) through a survey followed by semi-structured interviews [8]. Another grant supported by the first author's university research center seeks expert opinions on how anti-trafficking practitioners define and measure success, especially in their outreach efforts [9].

As a result, the first author's involvement in various anti-trafficking efforts significantly helped with identifying the gaps and cross-learning opportunities. Figure 3 shows the research map.

4. Findings: humanitarian supply chains and anti-trafficking supply chains as complex systems

4.1 Humanitarian supply chains as complex systems

Van Wassenhove and Besiou (2013) study complex problems with multiple stakeholders with an example of humanitarian logistics. They find that complex problems are generally marked by 1) dynamics and 2) stakeholders with conflicting goals are common characteristics. Besiou and Van Wassenhove (2015)

Figure 3 Research map



Source: Figure created by authors

discuss the three categories of characteristics that are common among various socially responsible operations, including humanitarian operations:

- 1 complexity due to uncertainty, constraints and trade-offs;
- 2 unfamiliar context due to stakeholders with conflicting goals, as well as an array of external and internal systematic factors; and
- 3 counter-intuitive behavior of the system.

In Table 1 below, we bring the characteristics from these two works together when it comes to humanitarian operations, while at the same time we add political instability in the factors external

to the system (Dube *et al.*, 2016), and the local humanitarian organizations in the factors internal to the system (Ruesch *et al.*, 2022). In addition, we supplement the counter-intuitive behavior with the increased lack of safety of humanitarian aid workers. Of course, we select characteristics from the humanitarian operations literature that overlap with the human trafficking literature, as we will discuss in the next subsection.

4.2 Anti-trafficking supply chains as complex systems
Van der Watt and Van der Westhuizen (2017) highlight various factors that contribute to the complexity of human trafficking,

Table 1 Humanitarian operations and human trafficking: common characteristics

Common characteristics	Humanitarian operations	Human trafficking
1.a Complexity		
Uncertainty	Disaster time, place and magnitude Diversity of stakeholders	Exploitation time, place and magnitude Diversity of stakeholders
Constraints	Limited time to respond and funding	Limited funding and awareness/ understanding
Trade-offs	– Short- and long-term benefits	– Protecting the victim vs punishing the perpetrator – Short- and long-term benefits, especially policy changes
1.b Dynamism	– Entity diversity	– Adaptive measures from traffickers to judicial actions and government policies, especially among those involved in larger criminal organizations – Changing the role: victim to perpetrator (victims start recruiting other victims) – Changing the role: perpetrator to victim (human smuggling turns into human trafficking)
1.c Unfamiliar context		
Stakeholders with conflicting goals	– Affected population – Individuals and organizations that work on humanitarian relief efforts, such as private, military, governmental and nongovernmental organizations, donors	– Affected population (victims) – Perpetrators of the crime (from single perpetrators to larger international organizations) – Nation states, governmental and non-governmental organizations, law enforcement, justice system, private companies and consumers
Factors external to the system	Political instability	– Change in country/state policy on human trafficking can lead to unpredictable changes within the human trafficking (e.g. banning Massage parlors in a county, resulting in multiple parlor openings in the border counties) – Underestimated/neglected stakeholders: organizations serving different types of victims compete for the same resources; criminal networks compete for the same victims
Factors internal to the system	Neglected stakeholders: local humanitarian organizations	Neglected stakeholders: lack of awareness about/ misidentification of victims as perpetrators
1.d Counter-intuitive behavior and relations		
Counter-intuitive	– Deliberate attacks on the aid workers	– Complex relationships that frequently exist between the victims and the perpetrators of the crime (i.e. use of physical, emotional and sexual violence by traffickers to control victims) – Victims' decision to stay with the trafficker or go back to the same environment post exit (revictimization) – trafficker allowing a victim to temporarily get services in a shelter to recruit more victims from that shelter

Source: Table created by authors

such as the nature of the crime as a process and not an event; the range of perpetrators involved in the crime (from single perpetrators to large international organizations); the various ways in which humans are exploited (sex, labor, domestic, organs, etc.), and a variety of contextual factors (social, economic and cultural). In addition, the basic definition of human trafficking, what it entails and awareness of public change based on the region and country (Bryant and Landman, 2020; Dahlstrom, 2020). As a result, different regions have different priorities on combating human trafficking, such as punishing the perpetrator versus protecting the victim.

The dynamic nature of the crime adds additional complexity to anti-trafficking efforts. Sometimes law enforcement may misidentify victims as perpetrators; victims might be scared or ashamed to identify themselves as victims or they might not even know that they are being victimized (Auguste *et al.*, 2024; Yagci Sokat *et al.*, 2024a). Victims might be forced to conduct illegal activities by traffickers knowingly or unknowingly (Aronowitz and Chmaitilly, 2020; Einbond *et al.*, 2023). It is also common for perpetrators to have a history of victimization themselves, wherein they shift from being a victim to a perpetrator by recruiting other victims into human trafficking (Aronowitz and Chmaitilly, 2020). For example, a primary strategy in youth trafficking involves appealing to other youths by flaunting luxurious lifestyles.

Gerassi *et al.* (2017) discuss many of the challenges of working in a coalition for anti-trafficking, such as divisive goals, tensions, stagnated action, group inefficiency and inconsistent funding. Beyond funding, nonprofits also compete for populations to serve. To ensure their competitiveness, organizations need to maintain a unique expertise area, such as labor trafficking or child trafficking. Securing grants requires that organizations demonstrate success, which generally flows from the number of victims identified and/or served.

The complicated relationship dynamics between traffickers and their victims illuminate the issue of counterintuitive behavior for anti-trafficking supply chains. For example, due to physical abuse or emotional and/or financial dependency, a victim might decide to stay with the perpetrator (Aronowitz, 2015) and end up being revictimized, even after exiting their situation.

5. Findings: learning opportunities

In the following sections, we draw on humanitarian operations research to delineate potential learning opportunities and future research directions.

5.1 Management cycle: disaster management lifecycle vs anti-trafficking cycle

Humanitarian organizations have worked on emergency management for decades: Indeed, the disaster management cycle has been a key management principle in the globe. Kovács and Spens (2007) present the perspectives of actors – both within and outside the disaster region – involved in relief operations in different stages of the disaster management cycle. For example, while the immediate response focuses on short-term demand management with disruptions, recovery, mitigation and preparedness focus on strategic planning of relief operations. Similarly, each P in the anti-trafficking cycle

has a different short-(e.g. prosecution) and long-term (e.g. prevention) indication for anti-slavery efforts. We see value in highlighting the overlaps and interactions between these two domains to enhance the management of the 4P paradigm.

Critical activities in the mitigation and preparedness phases of the disaster management cycle, such as assessment, planning and training and education are aligned with the “prevention” and “protection” of the 4Ps in human trafficking. Similar to the disaster management cycle, training activities can prevent new cases of human trafficking or help victims to lessen the impact of exploitation on people.

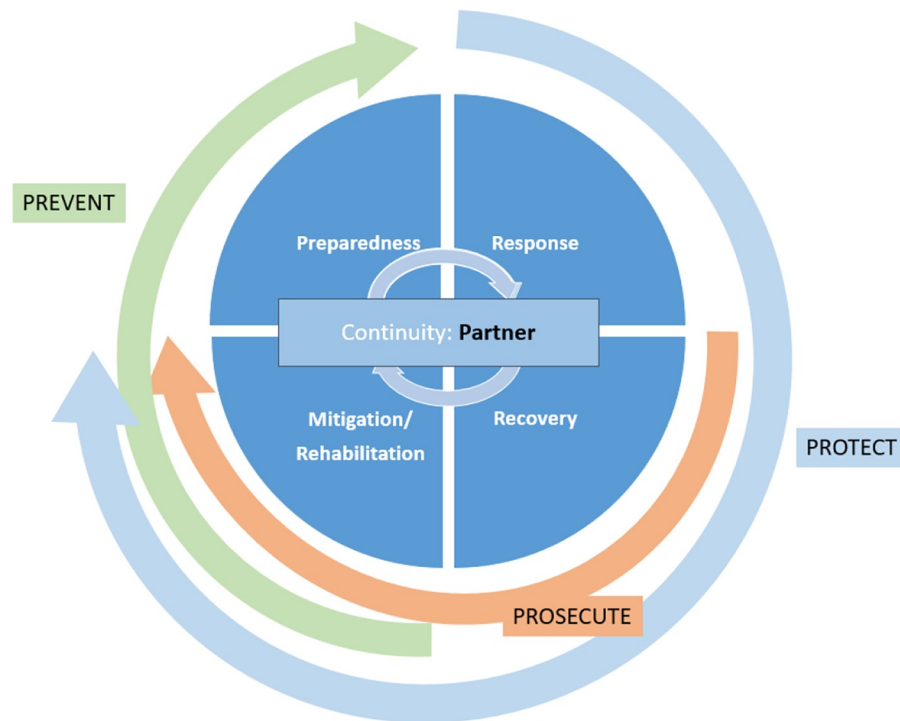
The response phase activities in the disaster management cycle – such as search and rescue, and delivery of medicines, water, food, shelter – resemble the immediate activities of “protection,” such as notifying the anti-trafficking groups of potential victims, calling hotlines and meeting the basic needs of the victims/survivors. Of course, those activities require coordination among the different HOs that are performing the needs assessments and delivery to avoid duplication. Granted, search-and-rescue has different facets in the context of human trafficking. The “rescue” of victims can happen in various ways, but generally requires considerable coordination with law enforcement. For example, law enforcement can identify victims at sting/undercover operations (where an undercover police officer poses as a victim; Newton *et al.*, 2008), as well as try to arrest and prosecute traffickers. Of course, those efforts can take years depending on the level of crime (i.e. large-scale organized crime vs small-scale street trafficking). Once rescued, victims will often be transported to a safe location, potentially a transitional shelter before a long-term facility. The exact details of the rescue operation will depend on the coexistence of other crimes, especially those unintentionally committed by the victim. But on the whole, these activities aim to protect victims from further harm.

In the disaster management cycle, recovery phase activities (e.g. rebuilding infrastructure and re-establishing communities) seek to return the population to at least the pre-disaster status quo; these rehabilitation and reintegration activities seek to protect victims, help them achieve a better life, and prosecute the perpetrators of human trafficking. Examples of such activities include law enforcement investigations; effective placement in stable and long-term environments; access to educational, vocational and economic opportunities, and potential immigration paperwork for survivors. These actions correspond to the protection and prosecution stages in the anti-trafficking cycle (see Table A1 for specific examples of mitigation, preparedness, response and recovery activities).

The last P, “partnership,” is a continuity element that should take place in each phase of anti-trafficking efforts. Figure 4 shows the relationships between the phases of emergency management and the anti-trafficking cycle.

5.2 Linking disasters with human trafficking

Just like disasters, human trafficking can take place at any time, in any place and affect a range of individuals involved. However, there are some conditions that increase the “opportunities” for human trafficking. Fittingly, disasters constitute one such condition (Hepburn, 2012). Humanitarian crises create a vulnerable environment for both disaster survivors and the initial responders. Traffickers stand ready to

Figure 4 Disaster management cycle and anti-trafficking cycle

Source: Figure created by authors

exploit the deterioration of social, economic and security conditions, as well as the new demand for services that traffickers and their victims can offer to incoming foreign entities (Smith and Miller-de la Cuesta, 2011). Thus, the intersection of disasters and human trafficking should be a future focus.

For example, one of the most devastating natural disasters in the humanitarian operations literature, Hurricane Katrina, is also associated with one of the largest cases of human trafficking in the USA. Hurricane Katrina hit parts of the USA in late August 2005, devastating multiple states, displacing over 400,000 people and creating many economic, social and security problems. During the disaster response, the US government sought to fasten the transition to recovery activities by making various regulatory changes (e.g. suspending health and job safety standards, as well as loosening requirements for worker eligibility and identity). These regulatory suspensions created the ideal environment for exploitation and trafficking. Researchers estimate that over 3,700 people were victims of human trafficking after Hurricane Katrina (Hepburn, 2012). There were multiple publicized cases of labor trafficking, such as Signal International [10], Audubon Communities Management [11] and Million Express Manpower [12].

Another prominent example is the Syrian War, which produced a displacement crisis that left millions of people vulnerable – both within Syria and in the countries that took in refugees. The effects of the war and the resulting refugee crisis have endangered human rights (Seifert *et al.*, 2018) and increased the vulnerability for human trafficking (e.g. from refugees' lack of legal protection, income, and safe working

conditions, as well as sexual and gender-based violence and gaps in the anti-trafficking response) (Jones and Ksaifi, 2016). Beyond multiple observed cases of sexual and labor exploitation, the war has engendered other forms of slavery such as forced marriage, forced begging and forced armed labor, especially among children (ICMPD 2015, 2016). The worst forms of child labor have included working in dangerous environments without protective equipment, operating dangerous machinery and being exposed to inflammable and explosive materials. While not officially reported, organ removal and sale have been suspected. Finally, also, many cases of human smuggling were reported (ICMPD, 2016). The U.N. Protocol against Smuggling of Migrants by Land, Sea and Air defines human smuggling as “facilitation, transportation, or procurement of the illegal entry of a person or persons across an international border.” The person involved in human smuggling is aware of the illegal aspect and is generally cooperating. The differences between human trafficking and human smuggling are sometimes very subtle; many smuggling cases end up in exploitation. Recovery and mitigation efforts should consider the potential implications of and relationship between smuggling and trafficking.

The ongoing COVID-19 pandemic is another recent example of heightened vulnerability following a global crisis. Epidemics provide wider opportunities for perpetrators to exploit people in need (Yagci Sokat and Altay, 2021). The economic distress and social injustice stemming from the COVID-19 pandemic are expected to produce more exploitation than previous epidemics. With the stay-at-home and shelter-in-place orders, the pandemic produced new and heightened vulnerabilities, especially for

families (Yagci Sokat, 2022a). There have been increased reports of intimate partner violence and child maltreatment, which are risk factors for human trafficking. Moreover, school closures led to a significant rise in children's internet use, which exacerbated the risk for sexual exploitation via technology. In the USA, there has even been a rise in school-aged children selling magazines on public transportation (Yagci Sokat, 2022a; Yagci Sokat, 2022b). There have also been cases where perpetrators offer free masks on trains to initiate conversation with girls between ages 14 to 16 (Yagci Sokat, 2022a).

In line with these examples, our own experience shows that the vulnerability to human trafficking is generally higher in slow-onset crises compared to sudden-onset crises, as well as in man-made crises compared to natural ones (since the former typically last longer) (see Figure 5).

Different groups are more vulnerable during different disasters and represent different types of operational problems. For example, Hurricane Katrina occurred in a developed country and the main victims were foreign national adults. This situation underlines the importance of government entities reviewing state procurement contracts, especially in certain industries such as construction and debris cleaning, to ensure that contract pricing aligns with the expected work load. In the case of the Syrian refugee crisis, women and children were easier targets for the perpetrators. For example, in Lebanon, the individual who coordinated the informal settlements of Syrians known as “shawish” was reported to force children to work in the farms, towns and cities (Jones and Ksaifi, 2016). Oftentimes, traffickers use the bad camp conditions to exploit their victims. Practitioners can help minimize the risk of human trafficking by using strategies such as improving camp design, providing good lighting and ensuring that external parties cannot access the distribution of goods and services (GPC, 2021). Meanwhile, additional measures could be taken to better identify and assist migrants in crisis preparedness, response and recovery. Such examples include building capacity for humanitarian workers to better identify and serve human trafficking victims, as well as raising awareness among migrants of the potential risks of human trafficking and safe migration within and from a host country. It is critical that refugees are protected by getting access to long-term camps and housing (Bhimani and Song, 2016). Another key factor is ensuring that donors and the affected communities understand the existing trafficking trends, alongside the increased risks and vulnerabilities during crises.

The number of disasters and the economic losses from them increased in 2020 compared to the past two decades (Cred Crunch, 2021), and this may have a great impact on human trafficking as well. Many humanitarian operations researchers and practitioners may not be aware of the additional risk of human trafficking while planning their programs. Table 2 shows the potential activities for identifying human trafficking during each stage of the disaster management cycle (Tomasini and Van Wassenhove, 2009). Moreover, proper needs assessments, that include assessing the human trafficking risk, would be crucial for planning response, recovery and mitigation actions.

An essential facet of integrating human trafficking in to the disaster management cycle is fostering coordination among stakeholders before, during and post-crises. In 2017, the Global Protection Cluster (GPC) established the Task Team on Anti-Trafficking in Humanitarian Action to develop policies and best practices to address human trafficking in humanitarian responses to internally displaced people settings (GPC, 2021). Understanding the efforts of the GPC, especially this action and relation to Child Protection and Gender-Based Violence, can improve the protection needs assessment, threats, capacity and vulnerabilities. In short, bolstering coordination between the protection cluster (covering child protection and gender-based violence) and other clusters (such as health) can be valuable for identifying and supporting trafficking victims.

5.3 Role of operations management research

When we revisit the common characteristics of humanitarian operations and human trafficking, we see many opportunities for operations management researchers to address the complex, uncertain, dynamic and unexpected behaviors of human trafficking. With human trafficking emerging as a primary humanitarian crisis (Bush, 2003), humanitarian operations researchers have an opportunity to apply and hone their insights, and thereby contribute to a better world.

An increasing number of disasters offers human traffickers more chances to traffic victims. Yet, there is limited research on how knowledge from the operations management literature – such as capacity expansions, disaster risk assessments and socially responsible operations (Besiou and Van Wassenhove, 2015) – could support anti-trafficking efforts. For example, based on probabilities and limited budget available, experts could build a mathematical model to estimate how many staff members are needed at specific security points to interview

Figure 5 Risk and vulnerability to human trafficking by disaster type

	Natural	Man-made	Risk and vulnerability to human trafficking increases
Sudden Onset	Earthquake Hurricane Tornado	Terrorist Attack Coups Chemical leak	
Slow Onset	Famine Drought Poverty	Political Crisis Refugee Crisis	
Risk and vulnerability to human trafficking increases			Human trafficking during and post-crises

Source: Figure created by authors

Table 2 Integrating human trafficking into the disaster management cycle

PREPARE Train humanitarian responders to identify human trafficking cases Develop policies on how to respond to human trafficking post-disaster Create risk assessment for high-risk industries (e.g. construction, hospitality and health care) and initiate outreach	RESPOND Assess vulnerability for human trafficking, domestic violence and child abuse, especially for unaccompanied children Outreach to direct survivors, especially those who face a high risk for human trafficking Coordinate with service providers and local taskforces
MITIGATE Include trafficking risk in disaster plans Educate the public about the danger of human trafficking, especially post-disaster	RECOVER Follow up with disaster survivors, especially those who interacted with the trafficking (protection) services Provide trauma counseling

Source: Table created by authors

potential victims. In addition, experts could estimate the vulnerability to human trafficking depending on the disaster type, location and victim's gender.

Looking at Figure 4 and the anti-trafficking cycle, it is clear that the four stages intersect with one another and may occur concurrently. In this vein, the field needs more studies to clarify whether resources are better spent on one stage or another (e.g. protection or prevention). With the humanitarian operations literature focusing more on understanding the value of preparedness for disaster response (Stumpf *et al.*, 2023), the anti-trafficking literature should also analyze the benefits of prevention and the best allocation of limited resources for prevention activities. Policymakers and donors would benefit tremendously from anti-trafficking studies that holistically model the whole anti-trafficking cycle and determine the best allocation of resources to maximize the “return-on-investment.”

Other important research avenues derive from meaningful interactions with practitioners. Practitioners can help researchers understand the complex environment and needs of both practitioners and victims/survivors. Particularly, incorporating victims/survivors in decision making and research is gold standard mentioned for meaningful and responsible research (Konrad *et al.*, 2023; Yagci Sokat 2022a, 2022b). For example, Greer (2011) provides a monetary value estimation for slave labor to assist courts in producing restitution orders for victims of forced labor. Practitioner insights can be garnered through primary data collection (i.e. surveys and interviews), continuous feedback loops (i.e. serving as consultants) or simply working on local projects together. For example, scholars could collect initial qualitative data from service organizations to better understand the operations of nonprofits. Similar studies could be undertaken with law enforcement and criminal justice providers to illuminate the criminal side of human trafficking. Researchers could then complement those qualitative studies with quantitative models. In this vein, Kovacs *et al.* (2019) present an overview of innovative research methods in humanitarian logistics, shedding light on data collection methods and even applications for said data beyond modeling. The authors also highlight the advantages of collaborative research for both academia and practice.

Ultimately, many anti-trafficking efforts will hinge on partnerships between multiple stakeholders ensuring the successful implementation of the remaining 3Ps of the

anti-trafficking efforts. At the local and national levels, more coordination is needed to ensure effective local anti-trafficking efforts and to transfer knowledge from one community to another. Applying lessons from the humanitarian operations management research, such as the cluster approach, can be helpful for increasing the effectiveness of different local and national multidisciplinary task forces and coalitions (Ruesch *et al.*, 2022), while also avoiding the risks that can arise from the entrance of foreign forces. Potential examples include how to a) analyze different leadership structures and sustainability in a task force; b) map the challenging coordination among stakeholders who approach the same objective (e.g. protecting the affected population) from different angles (e.g. fighting against traffickers or offering basic shelter); c) improve the coordination between global and local organizations (e.g. the former have more resources to support activities; the latter have a better understanding of the local population); d) collect data and estimate the number of human trafficking victims, as well as coordinate with different stakeholders to assess the scope of the human trafficking problem in a region; e) identify all types of human trafficking through coordinated training, public awareness and outreach; f) conduct investigations; and g) assess and meet the needs of all victims to help them recover.

6. Conclusion

Human trafficking is a complex hidden crime of the century. Addressing this monumental challenge will require new approaches and deeper insights. To that end, this paper highlights the relevant overlaps between humanitarian operations and human trafficking to illuminate potential learning opportunities for management researchers. We believe that operations management researchers can significantly help alleviate human suffering by applying the lessons of humanitarian operations to the case of anti-trafficking.

Specifically, we argue that humanitarian operations research on the disaster management cycle (and specifically, the 4Ps) can be extended to the issue of human trafficking. After all, both contexts feature complex operational problems, heightened vulnerability, limited data and a diverse array of stakeholders with conflicting goals. That said, we recognize that many successful practices might not be directly translatable from one location, industry or population to another due to social, cultural, geographic and economic differences. For example, in the USA, the victims are predominantly US

citizens or permanent residents. In Europe, by contrast, the victims tend to be mostly internationals. Therefore, we encourage researchers to make a conscious effort to learn the nuances of their specific environment and work with practitioners to find appropriate solutions.

Notes

- 1 Modern slavery is an umbrella term that covers many terms such as human trafficking, forced labor, forced marriage and slavery-like practices. In this paper, we will focus on human trafficking. See Subsection 2.1 for more details in description.
- 2 This work was later invited to a closed call National Science Foundation Workshop (NSF, 2020).
- 3 References are anonymized for the review process. They will be added after the review process is completed.
- 4 His/her research was recognized by the U.S. Senate and Cook County Human Trafficking Task Force 10-year Accomplishments (CCHTTF, 2020).
- 5 She/he has served at the U.S. Department of Transportation Advisory Committee on Human Trafficking and as the Forced Labor Working Group Chair, Analytics Working Group Chair and liaison for one of the biggest transit organizations for National Outreach Survey for Transportation, under the USDOT Impact Award (NOST, 2021).
- 6 Some examples are the Turkish Government Draft National Action Plan, the Labor Trafficking Training to County, USA, mentoring transit agencies, the state department of transportation (DOT), an insurance company on their data and CSR efforts, nonprofit US expansion strategies, outreach strategies to task forces, etc.
- 7 She/he has provided research support on 2018 FOSTA/SESTA and was asked to provide recommendations and revisions on State Transparency in Supply Chain Act.
- 8 References are anonymized for the review process. They will be added after the review process is completed.
- 9 References are anonymized for the review process. They will be added after the review process is completed.
- 10 Following Hurricane Katrina, Signal International recruited over 500 guest workers from India to work for construction and rebuilding projects. The workers were promised well-paying jobs with green cards and were subjected to up to \$20,000 recruitment fees. Upon arrival to the USA, they were forced to live under unsafe conditions in trailer camps with no access to outside or visitors and were charged high fees for rent and food. Their belongings were withheld, including their passports. These issues came to light after one worker attempted suicide. Multiple lawsuits were filed by plaintiffs and the U.S. Equal Employment Commission (EEOC). In 2014, Signal International was found guilty for labor trafficking, fraud, racketeering, and discrimination. Five plaintiffs were awarded \$14 million in compensatory and punitive damages. Source: Business and Human Rights Resource Centre.
- 11 Following Hurricane Katrina, Audubon Communities Management hired approximately 50 undocumented Latino

men for painting, cleaning, wiring and laying carpets. These men were promised employer-provided housing and at least \$500 a week. The housing was subpar, no compensation was provided, and they were threatened with deportation. The issue came to light when around 30 workers visited a wage clinic. A civil action granted some of these victims U visas in April 2008. The lawsuit was filed under TVPA and Fair Labor Standards Act. The case was settled in 2009. Source: Business and Human Rights Resource Centre.

- 12 In 2005, 22 Thai national workers were recruited by Million Express Manpower, Inc., in Bangkok. The workers were promised legal visas for work in the USA and a decent hourly wage and were subjected to pay over \$11,000 in fees. Once they arrived, their visas, passports and tickets were withheld. Initially, the Thai national workers were located at a farm in North Carolina, but then transferred to New Orleans after Hurricane Katrina. In 2009, Million Express Manpower was ordered to pay back victims' recruitment fees, unpaid wages and interest paid on the loans secured to pay the recruitment fees. Source: Business and Human Rights Resource Centre.

References

- Altay, N. and Green, W.G. (2006), "OR/MS research in disaster operations management", *European Journal of Operational Research*, Vol. 175 No. 1, pp. 475–493.
- Aronowitz, A. (2015), "Victims of human trafficking: a complex issue", Dossier of analysis: Human trafficking, Centro de Estudios Internacionales—CEI Facultad de Ciencias Sociales Universidad de los Andes.
- Aronowitz, A.A. and Chmaitilly, M. (2020), "Human trafficking: women, children, and victim-offender overlap", *Oxford Research Encyclopedia of Criminology and Criminal Justice*, OUP, Oxford.
- Auguste, M., Yagci Sokat, K., Wigle, C. and Baglin, C. (2024), "Reporting on human trafficking crimes: a national transportation survey", *Journal of Transportation Security*, Vol. 17 No. 1, doi: [10.1007/s12198-024-00277-5](https://doi.org/10.1007/s12198-024-00277-5).
- Bennett-Murphy, L.M. (2012), "Haunted: treatment of a child survivor of human trafficking", *Journal of Infant, Child, and Adolescent Psychotherapy*, Vol. 11 No. 2, pp. 133–148.
- Besiou, M. and Van Wassenhove, L.N. (2015), "Addressing the challenge of modeling for decision-making in socially responsible operations", *Production and Operations Management*, Vol. 24 No. 9, pp. 1390–1401.
- Besiou, M. and Van Wassenhove, L.N. (2020), "Humanitarian operations: a world of opportunity for relevant and impactful research", *Manufacturing & Service Operations Management*, Vol. 22 No. 1, pp. 135–145.
- Besiou, M. and Van Wassenhove, L.N. (2021), "System dynamics for humanitarian operations revisited", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 11 No. 4, pp. 599–608.
- Bhimani, S. and Song, J.-S. (2016), "Gaps between research and practice in humanitarian logistics", *Journal of Applied Business and Economics*, Vol. 18 No. 1.
- Bonilla, T. and Mo, C. (2019), "The evolution of human trafficking messaging in the United States and its effect on

- public opinion”, *Journal of Public Policy*, Vol. 39 No. 2, pp. 201-234, doi: [10.1017/S0143814X18000107](https://doi.org/10.1017/S0143814X18000107).
- Bryant, K. and Landman, T. (2020), “Combating human trafficking since Palermo: what do we know about what works?”, *Journal of Human Trafficking*, Vol. 6 No. 2, pp. 119-140.
- Bush, G.W. (2003), “President addresses the UN General Assembly”, United Nations General Assembly, New York, NY, Sept. 12, 2003.
- Caruana, R., Crane, A., Gold, S., et al. (2021), “Modern slavery in business: the sad and sorry state of a non-field”, *Business & Society*, Vol. 60 No. 2, pp. 251-287.
- CCHTTF (2020), “10 Year accomplishments”, available at: www.cookcountytaskforce.org/nhtam-2020?fbclid=IwAR1TreL0yKAjsMZTCqfJOJNXkVEORGFU-lyl2sBuqDAJH1lwgvVb0Jp9tdM
- Clinton, H.R. (2009), “Partnering against trafficking. Washington Post”, available at: http://articles.washingtonpost.com/2009-06-17/opinions/36784296_1_sexual-exploitation-prostitution-human-rights
- Coppola, D.P. (2006), “Introduction to international disaster management”, Elsevier, Burlington, MA.
- Crane, A. (2013), “Modern slavery as a management practice: exploring the conditions and capabilities for human exploitation”, *Academy of Management Review*, Vol. 38 No. 1, pp. 49-69.
- Cred Crunch (2021), “Disaster year in review 2020: global trends in perspectives issue no. 62 may 2021”, available at: www.preventionweb.net/publication/cred-crunch-issue-no-62-may-2021-year-review-2020-global-trends-and-perspectives#:~:text=In%202020%2C%20389%20natural%20disasters,a%20strong%20EI%20Ni%20C3%B1o%20effect
- Dahlstrom, J. (2020), “The elastic meaning(s) of human trafficking”, *California Law Review*, Vol. 108 No. 2, pp. 379-437.
- Dube, N., van der Vaart, T., Teunter, R. and van Wassenhove, L. (2016), “Host government impact on the logistics performance of international humanitarian organisations”, *Journal of Operations Management*, Vols 47/48 No. 1, pp. 44-57.
- ECRE (2002), “Position on the integration of refugees in Europe”, London and Brussels: ECRE.
- Einbond, J., Zedalis, K. and Stoklosa, H. (2023), “A case of mistaken identity: the criminalization of victims of labor trafficking by forced criminality”, *Crim. Law Bull*, Vol. 59.
- European Commission (2020), “Study on due diligence requirements through the supply chain: final report”, Publications Office, available at: <https://data.europa.eu/doi/10.2838/39830>
- Gerassi, L.B., Nichols, A. and Michelson, E. (2017), “Lessons learned: benefits and challenges in interagency coalitions addressing sex trafficking and commercial sexual exploitation”, *Journal of Human Trafficking*, Vol. 3, pp. 285-302.
- Global Protection Cluster (2021), “An introductory guide to anti-trafficking action in internal displacement contexts”, available at: www.globalprotectioncluster.org/wp-content/uploads/Introductory-Guide-on-Anti-Trafficking-in-IDP-Contexts_2020_FINAL-1.pdf
- Gold, S., Trautrim, A. and Trodd, Z. (2015), “Modern slavery challenges to supply chain management”, *Supply Chain Management: An International Journal*, Vol. 20 No. 5, pp. 485-494.
- Goździak, E.M. and Vogel, K.M. (2020), “Palermo at 20: a retrospective and prospective”, *Journal of Human Trafficking*, Vol. 6 No. 2, pp. 30-49.
- Greer, B. (2011), “What is the monetary value of slave labor?: Restitution based on a traditional fair market valuation basis may not fully compensate human labor trafficking victims”, *N. Ill. U. L. Rev.*, Vol. 31 No. 553.
- GRI (2019), “Advancing modern slavery reporting to meet stakeholder expectations”, available at: www.globalreporting.org/media/r1ydr40k/rli-gri_advancing-modern-slavery-reporting-to-meet-stakeholder-expectations.pdf (accessed 1 December 2021).
- Heiss, A. and Kelley, J.G. (2017), “From the trenches: a global survey of anti-TIP NGOs and their views of U.S. efforts”, *Journal of Human Trafficking*, Vol. 3 No. 3, pp. 86-99.
- Hepburn, S. (2012), *Aftermath of Hurricanes Katrina and Rita: Labor Exploitation and Human Trafficking of Mexican Nationals to the Gulf Coast*, in Tiano, S. and Murphy-Aguilar, M. (Eds), Taylor & Francis, NJ.
- Hudlow, J. (2015), “Fighting human trafficking through transit monitoring: a data-driven model developed in Nepal”, *Journal of Human Trafficking*, Vol. 1 No. 4, pp. 275-295, doi: [10.1080/23322705.2015.1098521](https://doi.org/10.1080/23322705.2015.1098521).
- International Labor Organization (ILO) (2017), “Global estimates of modern slavery: forced labour and forced marriage International Labour Office (ILO)”, Geneva.
- International Labor Organization (ILO) (2022), “Global estimates of modern slavery: forced labour and forced marriage International Labour Office (ILO)”, Geneva.
- ICMPD (2015), “Targeting vulnerabilities: the impact of the Syrian war and refugee situation on trafficking in persons (a study of Syria, Turkey, Lebanon, Jordan and Iraq)”.
ICMPD (2016), “Targeting vulnerabilities: the impact of the Syrian war and refugee situation on trafficking in persons – briefing paper”, Vienna: ICMPD.
- Jones, K. and Ksaifi, L. (2016), “Struggling to survive: slavery & exploitation of Syrian refugees in Lebanon”, Freedom Fund, available at: <http://freedomfund.org/our-reports/%EF%BF%BCstruggling-survive-slavery-exploitation-syrian-refugees-lebanon/>
- Konrad, R.A., Maass, K.L., Dimas, G.L. and Trapp, A.C. (2023), “Perspectives on how to conduct responsible anti-human trafficking research in operations and analytics”, *European Journal of Operational Research*, Vol. 309 No. 1, pp. 319-329.
- Konrad, R.A., Trapp, A.C., Palmbach, T.M. and Blom, J.S. (2017), “Overcoming human trafficking via operations research and analytics: opportunities for methods, models, and applications”, *European Journal of Operational Research*, Vol. 259 No. 2, pp. 733-745.
- Koukoulou, I., Selim Cakir, M., Kunz, N., Boyd, D.S., Trautrim, A., Hatzinikolaou, K. and Gold, S. (2021), “A multi-method approach to prioritize locations of labor exploitation for ground-based interventions”, *Production and Operations Management*, Vol. 30 No. 12, pp. 4396-4411.

- Kovács, G. and Spens, K.M. (2007), "Humanitarian logistics in disaster relief operations", *International Journal of Physical Distribution And Logistics Management*, Vol. 37 No. 2, pp. 99–114, doi: [10.1108/09600030710734820](https://doi.org/10.1108/09600030710734820).
- Kovacs, G., Moshtari, M., Kachali, H. and Polska, P. (2019), "Research methods in humanitarian logistics", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 9 No. 3, pp. 325–331, doi: [10.1108/JHLSCM-12-2019-082](https://doi.org/10.1108/JHLSCM-12-2019-082).
- Lagon, M.P. (2015), "Traits of transformative anti-trafficking partnerships", *Journal of Human Trafficking*, Vol. 1 No. 1, pp. 21–38.
- Maass, K.L., Trapp, A.C. and Konrad, R. (2020), "Optimizing placement of residential shelters for human trafficking survivors", *Socio-Economic Planning Sciences*, Vol. 70.
- May, T. (2016), "Defeating modern slavery", Home Office 31 July, available at: www.gov.uk/government/speeches/defeating-modern-slavery-theresa-may-article
- New, S.J. (2015), "Modern slavery and the supply chain: the limits of corporate social responsibility?", *Supply Chain Management: An International Journal*, Vol. 20 No. 6, pp. 697–707.
- Newton, P.J., Mulcahy, T.M. and Martin, S.E. (2008), *Finding Victims of Human Trafficking*, University of Chicago, National Opinion Research Center, Bethesda, MD.
- NOST (2021), "NOST team", available at: www.unitedagainstslavery.org/nost-team
- NSF (2020), "NSF report for the workshop on decision analytics for dynamic policing CMMI-1917624", available at: https://cosmos.uta.edu/workshop/_files/NSFCMMI-1917624-Workshop-Report-22May2020.pdf
- OCHA (2012), "OCHA on message: humanitarian principles", available at: <https://reliefweb.int/report/world/ocha-message-humanitarian-principles-enar>
- Pandey, S., Tewari, H.R. and Bhowmick, P.K. (2013), "Antecedents and reintegration of sex trafficked victims in India: a conceptual framework", *International Journal of Criminal Justice Sciences*, Vol. 8 No. 1.
- Ruesch, L., Tarakci, M., Besiou, M. and Van Quaquebeke, N. (2022), "Orchestrating coordination among humanitarian organizations", *Production and Operations Management*, Vol. 31 No. 5, pp. 1977–1996, doi: [10.1111/poms.13660](https://doi.org/10.1111/poms.13660).
- Sanlaap and Terres des Hommes (2009), "Real lives, real options: a study exploring the livelihood options for trafficked survivors in rural and urban areas", Kolkata: Sanlaap.
- Seifert, L., Kunz, N. and Gold, S. (2018), "Humanitarian supply chain management responding to refugees: a literature review", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 8 No. 3, pp. 398–426.
- Smith, C.A. and Miller-de la Cuesta, B. (2011), "Human trafficking in conflict zones: the role of peacekeepers in the formation of networks", *Human Rights Review*, Vol. 12 No. 3, pp. 287–299.
- Steiner, J.J., Kynn, J., Stylianou, A.M. and Postmus, J.L. (2018), "Providing services to trafficking survivors: understanding practices across the globe", *Journal of Evidence-Informed Social Work*, Vol. 15 No. 2, pp. 151–169.
- Stumpf, J., Besiou, M. and Wakolbinger, T. (2023), "Supply chain preparedness: how operational settings, product and disaster characteristics affect humanitarian responses", *Production and Operations Management*, Vol. 32 No. 8, pp. 2491–2509.
- Szablewska, N. and Kubacki, K. (2023), "Empirical business research on modern slavery in supply chains: a systematic review", *Journal of Business Research*, ISSN 0148-2963, Vol. 164, p. 113988, doi: [10.1016/j.jbusres.2023.113988](https://doi.org/10.1016/j.jbusres.2023.113988).
- Thomas, A.S. and Kopczak, L.R. (2005), "From logistics to supply chain management: the path forward in the humanitarian sector", *Fritz Institute*, Vol. 15, pp. 1–15.
- Tomasini, R. and Van Wassenhove, L.N. (2009), *Humanitarian Logistics*, Palgrave Macmillan, Basingstoke, UK.
- UK Government (2015), "Modern slavery act", available at: www.legislation.gov.uk/ukpga/2015/30/contents/enacted
- United Nations (2000), "Protocol to prevent, suppress and punish trafficking in persons, especially women and children, supplementing the United Nations convention against transnational organized crime", available at: www.osce.org/odihr/19223?download=true
- UNODC (2021), "The effects of the COVID-19 pandemic on trafficking in persons", available at: www.unodc.org/documents/humantrafficking/2021/The_effects_of_the_COVID-19_pandemic_on_trafficking_in_persons.pdf (accessed 23 December 2021).
- UNODC (2000), "United Nations convention against transnational organized crime", Vienna.
- van der Watt, M. and van der Westhuizen, A. (2017), "(Re) configuring the criminal justice response to human trafficking: a complex-systems perspective", *Police Practice and Research*, Vol. 18 No. 3, doi: [10.1080/15614263.2017.1291560](https://doi.org/10.1080/15614263.2017.1291560).
- Van Wassenhove, L.N. (2006), "Humanitarian aid logistics: supply chain management in high gear", *Journal of the Operational Research Society*, Vol. 57 No. 5, pp. 475–489.
- Van Wassenhove, L.N. and Besiou, M. (2013), "Complex problems with multiple stakeholders: how to bridge the gap between reality and OR/MS?", *Journal of Business Economics*, Vol. 83 No. 1, pp. 87–97.
- Victims of Trafficking and Violence Protection Act (2000), "Victims of Trafficking and Violence Protection Act 2000. § 106–386, 22 U.S.C. § 7101", available at: www.state.gov/documents/organization/10492.pdf
- White, C.N., Robichaux, K., Huang, A., et al. (2023), "When families become perpetrators: a case series on familial trafficking", *J Fam Viol*, doi: [10.1007/s10896-023-00522-w](https://doi.org/10.1007/s10896-023-00522-w).
- Williams, T.P., Alpert, E.J., Cafferty, E., Konstantopoulos, W. M., Wolferstan, N., Castor, J.P., et al. (2010), "Sex trafficking and health care in metro Manila: identifying social determinants to inform an effective health system response", *Health and Human Rights in Practice*, Vol. 12 No. 2, pp. 135–147.
- Xie, X. and Aros-Vera, F. (2022), "An interdependent network interdiction model for disrupting sex trafficking networks",

Production and Operations Management, Vol. 31 No. 6, pp. 2695–2713.

Yagci Sokat, K. (2022a), “Understanding the role of transportation in human trafficking in California”, *Transportation Research Interdisciplinary Perspectives*, Vol. 15, p. 100673, doi: [10.1016/j.trip.2022.100673](https://doi.org/10.1016/j.trip.2022.100673).

Yagci Sokat, K. (2022b), “Addressing forced labor in supply chains in California”, *Transportation Research Interdisciplinary Perspectives*, Vol. 16, p. 100735.

Yagci Sokat, K. and Altay, N. (2021), “Serving vulnerable populations under the threat of epidemics and pandemics”, *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 11 No. 2, p. 176.

Yagci Sokat, K., Auguste, M., Wigle, C. and Baglin, C. (2024a), “Forced labor and transportation: multi-disciplinary”, *Perspectives” Transportation Research Interdisciplinary Perspectives*, Vol. 23, p. 100999.

Yagci Sokat, K., Chi, M. and Hudlow, J. (2024b), “Transit monitoring capacity expansion: analytics for combating human trafficking”, *Transportation Research Interdisciplinary Perspectives*, Vol. 24, p. 101032.

Zimmerman, C., Hossain, M. and Watts, C. (2011), “Human trafficking and health: a conceptual model to inform policy, intervention and research”, *Social Science & Medicine*, Vol. 73 No. 2, pp. 327–335, doi: [10.1016/j.socscimed.2011.05.028](https://doi.org/10.1016/j.socscimed.2011.05.028).

Further reading

Business and Human Rights Resource Centre (BHRC) (2016), “Signal International lawsuits (re trafficking of Indian workers in USA)”, available at: www.businesshumanrights.org/en/latest-news/signal-international-lawsuitsre-trafficking-of-indian-workers-inusa-2/ (accessed 23 December 2021).

Larson, P.D. (2021), “Security, sustainability and supply chain collaboration in the humanitarian space”, *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 11 No. 4, pp. 609–622.

Starr, M.K. and Van Wassenhove, L.N. (2014), “Introduction to the special issue on humanitarian operations and crisis management”, *Production and Operations Management*, Vol. 23 No. 6, pp. 925–937.

United States Advisory Council on Human Trafficking (2020), “Annual report 2020”, available at: www.state.gov/united-states-advisory-council-on-human-trafficking-annual-report-2020/

United States Advisory Council on Human Trafficking (2021), “Annual report 2021”, available at: www.state.gov/united-states-advisory-council-on-human-trafficking-annual-report-2021/

Waterfield, B. (2010), “Haiti earthquake: Lancet accuses aid groups of ‘jostling’ for publicity”, *The Telegraph* (22 Jan).

Appendix

Table A1 Mitigation, preparedness, response and recovery activities for combating human trafficking

<i>Mitigation</i>	<i>Preparedness</i>
Outreach to at risk populations	Training of key personnel (medical, law enforcement, etc.)
Human rights training for at risk populations (can provide examples, anecdotes, etc.)	Creating and disseminating trafficking awareness materials
Proactive law enforcement investigations into worksites and potential trafficking situations	Outreach and partnerships between anti-trafficking stakeholders
Supply chain transparency and audits	
Education and services to prevent re-victimization	
<i>Response</i>	<i>Recovery</i>
Relocation of the victim to a safe place	Investigation
Connecting the victim with a victim service provider and/or survivor advocate	Effective placement in the long-term housing
Ensuring immediate needs of the victims	Immigration paperwork
	Re-uniting with the family

Source: Table created by authors

Corresponding author

Kezban Yagci Sokat can be contacted at: kezban.yagcisokat@sjsu.edu