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**What is the Link between Natural Disasters
and Human Trafficking and Slavery?**

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What is the Link between Natural Disasters and Human Trafficking and Slavery?

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Abstract

A popular supposition is that natural disasters generate immediate criminal activity by human traffickers. There is little evidence to support this idea. It is clear that natural disasters can dramatically increase vulnerability, which then increases the probability that a person may be lured or forced into slavery. This research looks closely at individual disasters, as well as global statistical data, to explore the link between natural disasters and human trafficking and slavery. There is a clear sequence of changes that occurs when slavery crime alters in the wake of a disaster, which has not previously been clearly described.

Keywords: natural disasters; human trafficking; slavery

Introduction - Boxing Day Tsunami, 2004, Myanmar

An undersea mega-thrust earthquake, registering a magnitude of 9.1-9.3, occurred off the coast of Sumatra in Indonesia on the morning of 26 December 2004. Caused by a rupture along the fault where the Burma tectonic plate meets the Indian tectonic plate, it was the third largest earthquake ever recorded. This underwater seismic activity set off a number of massive tsunami waves, some reaching 30 meters in height when they approached shorelines. There was very little warning, and in many countries the devastation brought by these extremely large waves was catastrophic – more than 227,000 people died. In Myanmar the tsunami waves were less powerful, between 40 centimetres and 2.9 meters, but still large enough to cause significant damage along the coastline.

In the days immediately after the tsunami I received several email fundraising alerts from an anti-human trafficking NGO based in California. These alerts described how human traffickers were flooding into the coastal villages of Myanmar and taking children away for exploitation. The descriptions were vivid and included the use of helicopters and aircraft to abscond with stolen children. I had recently been in Myanmar and knew fairly well the realities of human trafficking there. I found it very hard to believe this tale of flying traffickers swooping in to steal babies, and fortunately did have a way to check the truth of it. A long-time colleague and friend in Myanmar was a key United Nations official, herself Burmese, and after some effort, I reached her on her satellite phone as she helped direct the relief efforts along the coast.

There were no airplanes full of traffickers, nor helicopters, not even boats. My colleague explained that the infrastructure was destroyed, and debris blocked nearly all possible entry points. Yes, a UN helicopter had managed to land with the first group of emergency aid workers,

but roads, airstrips, docks, harbours, and bridges were demolished or blocked. People were flowing out of the area, not trying to get in. The story of flying traffickers snatching children was just that – a story used to play on donor emotions and raise funds for the NGO. Leaving aside the unscrupulous and mercenary exploitation of both the disaster and the public willingness to support emergency aid, I was struck by rapid spread of this idea – the certainty that a rush of trafficking and enslavement always and instantly follows a natural disaster. Why did this idea, this assumption, always flourish on the heels of a catastrophe? There seemed to be a rush to believe, an emotional investment in the drama of disaster, and the result was something akin to a moral panic.

In light of this, my broad research questions became, firstly, was there any truth to this assumption that disasters created an immediate increase in trafficking crime; and secondly, if that was not true, then what was the actual situation of contemporary slavery and human trafficking within the context of natural disasters? These are not just academic questions - we must expect more such events – the progress of climate change is clear, and significant storm systems are increasing in number and strength¹. Populations are ever more vulnerable to the impact of such storm-linked disasters for a number of reasons including coastal deforestation, so it seems reasonable that we should seek clarity on the relationship between slavery and natural disasters.

A Tale of Three Cyclones

A tsunami is a fairly rare occurrence, but, sadly, natural disasters are not. It is possible to examine a number of similar natural disasters and consider what impact they might have on human rights generally, and trafficking and enslavement in particular. A first step is to compare the impact of two cyclones and one hurricane² in terms of reported damage and threats and changes to local populations. Since cyclones and hurricanes build up at sea and are at their most destructive when they make landfall, they produce coastal damage not unlike that of a tsunami.

In chronological order, the first storm of interest is Cyclone *Narsing*, sometimes referred to as the Bangladesh Cyclone, a category 5 (the highest category) storm of April 1991. *Narsing* formed in the Bay of Bengal and accelerated northward making landfall in the Chittagong region of Bangladesh with winds up to 250 km/h (155 mph). The storm surge produced waves 6.1 metres (21 ft.) high, overwhelming the coastline, and causing some 139,000 deaths. The death toll was reduced by early warnings that led to 2 to 3 million people evacuating the coast ahead of impact. Around one million homes were swept away, and about 10 million people were made

¹ Vecchi, G.A., and T.R. Knutson. 2011. Estimating annual numbers of Atlantic hurricanes missing from the HURDAT database (1878–1965) using ship track density. *J. Climate* 24(6):1736–1746. www.gfdl.noaa.gov/bibliography/related_files/gav_2010JCLI3810.pdf.

² Cyclones and hurricanes are fundamentally the same type of tropical storm. They are rapidly rotating storm systems featuring a low-pressure centre, a closed low-level atmospheric circulation, strong winds, and a spiral arrangement of thunderstorms that produce heavy rain or squalls. These tend to be called ‘hurricanes’ in the Northern hemisphere and ‘cyclones’ (sometimes ‘typhoons’) in the Southern hemisphere. While essentially the same, the direction of rotation differs according to the hemisphere – hurricanes spin counter-clockwise, cyclones spin clockwise.

homeless. A large international relief and re-building effort was launched in the aftermath of the cyclone. What cannot be found is any contemporaneous report or record of human trafficking or enslavement in the wake of this disaster. Of course, no record doesn't mean no occurrence of human trafficking, and the dramatic increase in vulnerability and precarity in the wake of the disaster did likely lead to some forms of victimisation. But it is also worth noting that 'human trafficking' as a human rights issue had very little currency in the early 1990s, though this would change markedly by the late 1990s. There are other reports of human trafficking in Bangladesh in roughly the same time period – instances of the trafficking of Bangladeshi boys to the Gulf States and their enslavement as camel jockeys, and the enslavement of children in Bangladesh as domestic servants and for child labour³. But whatever the caveats, there seems to be no record or report of human trafficking or enslavement specifically linked to or occurring in the aftermath of the Bangladesh Cyclone of 1991.

The Odissa Cyclone (Category 5) formed in the Andaman Sea in October 1999. Winds peaked at 260 km/h (160 mph) when making landfall on the Indian state of Odissa (formally Orissa), and generated a storm surge of 6 metres (20 ft.) – though this is only an estimate since all wave-measuring instruments along the coastline were destroyed by the surge. Fatalities caused by the cyclone are not clear, with different agencies putting the total between 8,000 and 30,000 dead. Around 1.6 million people were made homeless, and the deaths of more than 400,000 livestock were reported. As in Bangladesh, these casualties were reduced by warnings that led to large-scale evacuations.

In contrast to the lack of reports of human trafficking or enslavement after Cyclone *Narsing*, there are a handful of references to trafficking after the 1999 cyclone, though they are not found until some years after the event. One of these comes from an NGO-generated research report⁴ provided to the Indian Ministry of Women and Children in 2016. This report states that: 'The severe cyclone in Odisha in 1999, repeated floods in Bihar (Kosi river area), and the Naxalite movement in Jharkhand have all contributed to increased trafficking of women and minor girls' (p.36). In this case the cyclone is just one of several events or situations (including an armed revolt) that are thought to have increased vulnerability, but there is no indication that the trafficking mentioned occurred immediately in the aftermath of the cyclone. Widespread destruction fosters precarity and that could include vulnerability to human trafficking. What is missing is any evidence of the immediate exploitation of the disaster by traffickers.

³ Center for Women and Children's Study Report, Zahiduzzaman Faruque, "Women, Children Trafficking in Bangladesh", *Kyodo*, 5 May 1998.

⁴ "Trafficking in women and girl children for commercial sexual exploitation: An inter-state exploratory study in Jharkhand, Odisha, and West Bengal", Report submitted to Ministry of Women and Child Development, Government of India, New Delhi, by Social Awareness Institution (SAI), Cuttack, Odissa, 2016.

Eight months after the Boxing Day tsunami, Hurricane *Katrina* struck the U.S. states of Louisiana and Mississippi along the Gulf of Mexico. A Category 5 storm, *Katrina's* winds were tracked at 280 km/h (175 mph). The storm surge that hit the Mississippi coastline peaked at 8.2 metres (27 ft.). Some 500,000 people were made homeless by the storm, the majority being residents of the city of New Orleans. The population of New Orleans fell from 485,000 to 230,000, and as of 2020 had just reached 390,000. The greatest physical destruction occurred along the Mississippi coast, but the greatest loss of life was in New Orleans where levees failed and the city flooded. The US government response to Katrina, and particularly to the catastrophic flooding of New Orleans, was haphazard at best, exacerbating health risks and making many residents refugees in neighbouring states.

The mass evacuation of New Orleans and the subsequent occupation of the city by some 46,000 soldiers meant that while some crimes such as looting did occur, the police/army presence tended to meet any possible violation with an armed response. While there were reports of kidnapping and human trafficking in the immediate aftermath of the hurricane as with the Boxing Day tsunami, confirmation of these reports proved impossible. A key difference, however, in the understanding of human trafficking and slavery post-Katrina is the work done by the Greater New Orleans Human Trafficking Taskforce⁵. They explain that immediately after the hurricane:

Law enforcement and regulatory agencies were overwhelmed with basic logistical issues that made it difficult to protect citizens from exploitation. Flooded office buildings, disrupted communication, limited transportation options, and other logistical problems made it difficult to get to communities at risk of trafficking. Agencies were so overwhelmed by the immediate needs of the community that they were unable to serve everyone seeking support. In the wake of the storm, the Department of Labor had to significantly decrease the number of investigations it conducted (from 70 the year before Katrina to 33 the year after). As a result, traffickers took advantage of the people affected by the hurricane.⁶

However, those local residents whose vulnerabilities were abused were few in number when compared to a large number of people who were rapidly trafficked *into* the city for clearing wreckage and rebuilding. Many New Orleans residents were unwilling to return to the devastated city, and a serious shortage of needed labour ensued. Once more the federal government took steps which aggravated the situation. As noted by the Greater New Orleans Human trafficking Task Force:

The federal government suspended key worker protections like the Davis-Beacon Act, job safety and health standards, and requirements for employers to confirm employee identification. This led to a new population of vulnerable individuals: migrant guest

⁵ Further information to be found here: <http://www.nolatrafficking.org>

⁶ <http://www.nolatrafficking.org/natural-disasters>, accessed 15 Aug., 2020

workers and visa holders. Exploitative employers took advantage of the lack of oversight of visa programs, the diminished capacity of the [Federal] Department of Labor and other regulatory agencies, and the vulnerability of the foreign guestworkers.⁷

One result of this suspension of worker protections was one of the largest human trafficking cases in US history. The *Signal International* case also illustrates an important theme in post-disaster trafficking and enslavement. New Orleans was and is an administration centre and staging area that serves the extensive oil production by offshore drilling and pumping platforms in the Gulf of Mexico. Hurricane Katrina caused extensive damage to offshore oil rigs and the related infrastructure for pumping, processing, and refining oil. Responding to an acute shortage of skilled welders and pipefitters, within an environment of reduced worker protections, several US companies resorted to recruitment schemes that were fundamentally systems of human trafficking.

Signal International, an Alabama-based oil services company, advertised in India to recruit welders and pipefitters. Signal stated they were operating a government guest-worker programme that would lead to permanent US residency and promised high salaries. To 'enrol' in this programme required an initial deposit/fee by the worker of between US\$10,000 and US\$20,000, ostensibly to cover the expense of residency permits for themselves and family members. On their arrival in Louisiana, as explained by the *Civil Rights Litigation Clearinghouse* case profile:

'... plaintiffs [the Indian workers] were allegedly forced to pay additional fees of \$1,050 per month to live in racially segregated labor camps in Mississippi and Texas with security guards and oppressive rules, and were subject to squalid living conditions, more dangerous and less desirable work assignments than those given to American workers, and threats of both legal and physical harm if they complained about the conditions or decided not to provide labor.'⁸

Ultimately this case came to light and resulted in financial settlements for the Indian workers, but this pattern of dishonest labour recruitment and exploitation was played out many times in Louisiana, especially in demolition and construction work. Thai workers, for example, originally brought to the US for agricultural work, were transferred to New Orleans to do demolition and were found in 'worse than unsanitary living conditions in a condemned hotel, an supervisor armed with a gun and orders to shoot any outsiders who came to the site, and simply

⁷ Op. cit.

⁸ <https://www.clearinghouse.net/detail.php?id=14377>; accessed 15 August 2020.

no paychecks at all, and hunger.’⁹ A New York Times exposé¹⁰ revealed the details of this trafficking case.

Looking across all three of these deadly storms, none seem to reflect any cases of predatory trafficking in the immediate wake of the storm. There are no cases found for Typhoon Narsing in 1991; likewise, no immediate cases can be found for Cyclone Odisha in 1999, although there are assertions that the increased vulnerability caused by the storm may have led to trafficking sometime after the event. For Hurricane Katrina, no immediate trafficking cases are noted, but during the New Orleans ‘rebuilding’ period a significant number of cases of human trafficking into labour exploitation can be found.

If we re-visit the Boxing Day tsunami, we find it also fits the pattern emerging in the three cyclones explored above. An in-depth study¹¹ of the impact of the tsunami on human rights was undertaken by the Human Rights Center and the East-West Center at the University of California Berkeley and published ten months after the tsunami. The authors noted, that ‘Immediately following the tsunami, international aid agencies feared that human traffickers might seize the opportunity to compel those most vulnerable (women, children, and migrant workers) into situations of forced labor’ (p.1). In this extensive study they did find a number of human rights violations exacerbated by the tsunami including: ‘arbitrary arrests, recruitment of children into fighting forces, discrimination in aid distribution, enforced relocation, sexual and gender-based violence, loss of documentation, as well as issues of restitution, and land and property tenure soon emerged in certain tsunami-affected areas’ (p.1). Leaving aside the possibility that ‘recruitment of children into fighting forces’ might be considered trafficking, the report states clearly that: ‘Researchers did not find any confirmed cases of human trafficking of tsunami survivors’ (p 22). In their conclusions and recommendations, the authors note that: ‘The longstanding issues of child sexual exploitation and trafficking of women and children may worsen with the economic fallout of the tsunami’ and recommend that ‘The issue of trafficking ... must be more closely followed and appropriate sanctions put into place for the traffickers as well as enhanced support for those who are trafficked’ (p. 72). In the section of the report focussing on Myanmar, the authors suggest that ‘the potential for trafficking could increase as the southern provinces move into the reconstruction phase of the tsunami crisis’ (p. 88), a supposition that reflects the potential for similar exploitation similar to that of New Orleans during its reconstruction phase.

In the four natural disasters examined above, two clear patterns emerge when the focus is on human trafficking and enslavement. The first pattern is that the frightening stories concerning traffickers arriving coincident with each disaster and making off with vulnerable children and

⁹ Butler, Amanda, ‘Trafficking the US: After Hurricane Katrina’, 26 February 2015. Posted at: <https://www.sorenandamanda.com/2015/02/26/trafficking-in-the-u-s-after-hurricane-katrina/>. Accessed 16 Aug., 2020.

¹⁰ “Low pay and broken promises greet guest workers” *New York Times*, 28 February 2007

¹¹ Fletcher, L., Stover, E., and Weinstein, H. (eds) *After the Tsunami: Human Rights of Vulnerable Populations*, Human Rights Center/East-West Center, Berkeley, October 2005

adults, cannot be found to have actually happened. The second pattern, and one that can be supported by evidence from other types of disruption, such as armed conflict, is that where infrastructure is destroyed, law enforcement breaks down, communications are broken, people are forced to flee their homes and/or are made homeless, and jobs and businesses and other services come to an abrupt halt or collapse, then a collection of serious vulnerabilities obtain for the subject population. One of those vulnerabilities is likely to be an inability to protect oneself against trickery, capture, and exploitation. There is a repetition within these events that suggests a regularity in the sequencing and outcomes of the relationship between such disasters and human trafficking and slavery. I will return to this phenomenon, but first it is important to look more broadly than this handful of cases.

Exploring the Relationship between Natural Disasters and Slavery

In this brief section I use data derived from the Global Slavery Index¹² as well as a series of other data sources that provide nation-state level information for 167 countries on natural disasters, armed conflict, gender suppression, and the presence of the infectious diseases cholera and yellow fever. Looking at the simple relationship between human trafficking/slavery and natural disasters in Table 1, we see what appears to be a strong link.

TABLE 1- Simple Regression: Disasters and Slavery

Source	SS	df	MS	Number of obs = 167		
-----+-----				F(1, 165) =	60.97	
Model	184.187311	1	184.187311	Prob > F	= 0.0000	
Residual	498.417774	165	3.02071378	R-squared	= 0.2698	
-----+-----				Adj R-squared	= 0.2654	
Total	682.605085	166	4.11207883	Root MSE	= 1.738	
-----+-----						
logGSI	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-----+-----						
disasters	.2274033	.029122	7.81	0.000	.1699034	.2849032
_cons	9.626986	.1560641	61.69	0.000	9.318846	9.935126

Table 1 presents the bi-variate relationship between the *prevalence* of slavery in 167 countries and whether these countries had suffered a *natural disaster* within recent years. In this

¹² *Global Slavery Index*, Walk Free Foundation, 2016

simple two-variable example, regressing the natural log of the 2014 GSI *slavery prevalence* measure on the number of *disasters* by country suggests the occurrence of a natural disaster dramatically increases the prevalence of slavery¹³, and that disasters might explain up to 27% of the variance or difference in the prevalence of slavery across countries. However, to imagine that the complexities of trafficking and slavery, or of the human and societal response to natural disasters, might be explained with only two variables is simplistic. If anything, this table suggests how wrong we would be if we were to assume any simple explanation might be derived from a moral panic. Nothing is that simple.

Table 2 demonstrates how other coincident or pre-existing factors might shape the prevalence of slavery in the face of a natural disaster. The dependent variable has been changed to a direct measure of the prevalence of slavery for each country (% of national population enslaved) as opposed to the natural log of slavery prevalence, and other known predictors of slavery are included in the equation.

TABLE 2 – Disasters and Slavery: Introduction of Other Possible Predictors

Source	SS	df	MS	Number of obs	=	156
				F(4, 151)	=	3.51
Model	3.63684349	4	.909210873	Prob > F	=	0.0091
Residual	39.1622997	151	.259352978	R-squared	=	0.0850
				Adj R-squared	=	0.0607
Total	42.7991432	155	.276123504	Root MSE	=	.50927

ESP2016	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ARMEDCON1	.2138558	.1040169	2.06	0.042	.0083394	.4193721
MISSINGWOMEN	.614693	.294095	2.09	0.038	.0336204	1.195766
Disasters	-.0092709	.0092249	-1.00	0.317	-.0274975	.0089557
YFCOL	.0808623	.0660392	1.22	0.223	-.0496179	.2113424
_cons	.4260295	.0572689	7.44	0.000	.3128776	.5391814

There are a number of fundamental conditions that are known to create a context in which slavery flourishes. One of these is war and conflict. The rule of law evaporates in conflict and normal protections for personal liberty disappear. Note that the presence or recent history of armed conflict is a much stronger predictor of the prevalence of slavery in a country than the occurrence of a natural disaster. We should recall, as well, that Myanmar and India were experiencing internal armed conflicts before the arrival of the cyclones discussed above.

¹³ Specifically, that a one-unit increase in disasters corresponds to a 22.7% increase in trafficking/enslavement.

Likewise, systematic gender suppression places one-half of a population into a situation of extreme vulnerability and potential exploitation. One concise measure of gender suppression is the variable ‘missing women’, drawn from the *Social Institutions and Gender Index* (SIGI) along its ‘restricted physical integrity’ dimension.¹⁴ ‘Missing women’ is a simple demographic measure that shows the sex ratio amongst 0-4 year-old children, reported as the number of males per 100 females. It is a measure that illuminates both the practice of female infanticide and low parental investment in female children within a population. India, Bangladesh, and Myanmar all have relatively high levels of ‘Missing Women’.

The third variable (YFCOL) added to this table simply records whether there has been an outbreak of cholera or yellow fever or both in all countries in the global data within the last five years. The presence of these two highly infectious, potentially epidemic, diseases points to a lack of basic public health support as well as the potential for a disease disaster. When added to the analysis, conflict, gender suppression, and the presence of infectious diseases are seen to be much *more powerful* predictors of enslavement, and the statistical link between natural disasters and human trafficking/slavery *ceases to be statistically significant*. A final table confirms how natural disasters fail to explain the prevalence of slavery within countries.

TABLE 3 – Disasters and Slavery: Introduction of GDP Measure

Source	SS	df	MS	Number of obs	=	146
				F(5, 140)	=	10.33
Model	7.00302802	5	1.4006056	Prob > F	=	0.0000
Residual	18.9866269	140	.135618764	R-squared	=	0.2695
				Adj R-squared	=	0.2434
Total	25.989655	145	.179239	Root MSE	=	.36826

ESP2016	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ARMEDCON1	.1430385	.0812154	1.76	0.080	-.0175288	.3036058
MISSINGWOMEN	.1430154	.2234016	0.64	0.523	-.2986615	.5846924
Disasters	-.0028385	.0068019	-0.42	0.677	-.0162861	.0106091
YFCOL	.0224642	.0519223	0.43	0.666	-.0801889	.1251174
PCGDP	-.0000102	1.88e-06	-5.45	0.000	-.0000139	-6.52e-06
_cons	.5878239	.0567748	10.35	0.000	.4755771	.7000708

The variable PCGDP represents the per capita Gross Domestic Product of a country. PCGDP measures how much economic production can be attributed to each individual citizen. This translates into a measure of prosperity since it reflects GDP market value per person and is

¹⁴ <https://www.genderindex.org/methodology/>; accessed 15 Aug., 2020.

often used as a measure of a country's economic productivity. In this analysis it illuminates any differences between richer (such as the USA) and poorer countries (such as Bangladesh or Myanmar). Note that when PCGDP is introduced into the regression all other variables except armed conflict cease to be significant predictors of slavery prevalence. Note as well that this is an inverse relationship – as PCGDP goes up, slavery and trafficking go down.

This brief look at national-level data suggests that: 1. any influence of natural disasters on the prevalence of slavery or human trafficking is transitory; and 2. that the existing social, economic, and human rights situations within country will set the stage for *how* the impact of a natural disaster will play out in terms of human rights in general and human trafficking and slavery in particular.

What are the actual interactions between disasters and human trafficking and slavery?

Looking at the histories of individual natural disasters, and at the general statistical relationship between natural disasters and human trafficking and slavery, suggests several themes or patterns. I assert that there are several ways in which natural disasters have an effect on human trafficking and slavery, but these are *not* the ways put forward and repeated in simplistic stories of traffickers sweeping into devastated communities and making off with vulnerable children and others. There are, rather, *four themes* that describe the practice of trafficking and slavery in the wake of natural disasters.

The first theme states that *when a natural disaster occurs in a location it brings to an end the existing patterns of criminal trafficking and slavery*. As with virtually all other activities, in the wake of a cyclone or tsunami, there is an end to 'business as usual' – including the criminal businesses of human trafficking and enslavement. Criminal enterprises rely on much the same infrastructure of buildings, communications, and transport links as legitimate businesses. Criminal traffickers will flee before catastrophe arrives just as others do. The well-being of the people they control and exploit is another question, so their victims may be moved away from the threat, or abandoned to their fates.

The second theme states that *for virtually all people who remain in the disaster zone, and many who flee, there is an onset of extreme vulnerability*. The loss of public services, of water, power, sewage, transport, medical help, law enforcement, and food supplies can lead quickly to serious danger. Public health is threatened, and infectious diseases may spread rapidly. In the absence of health services even minor injuries and illnesses can become life-threatening. Without law enforcement crimes against the person can be committed with impunity. Virtually all people within the disaster zone will have dramatically increased vulnerability to any or all of these threats. So, while they may not be caught up in human trafficking, the average person is made more vulnerable to subsequent trafficking and enslavement. Disaster increases the pool of people who might be exploited through reducing protections and safeguards.

The third theme *reflects what we know about criminal businesses - that they are adaptable, innovative, and quick to respond to changing situations*. The levels and types of risk criminal enterprises experience are rather greater than that of legitimate businesses, so they are

familiar with rapid contingency planning and response. In the event of a natural disaster, criminals are just as likely as other residents to evacuate the area; and being criminals, they are more likely to have secure transport available and portable financial resources. In addition to their own personal safety they will be looking to preserve or remove needed equipment and tools as well as key human assets. Once they have achieved self-preservation, they will consider and adapt to whatever opportunities they might perceive within the disaster and its aftermath. If the focus of their criminal enterprise has been exploiting people, they are likely to recognise the potential for the ‘recruitment’ of prime workers in the context of heightened vulnerability.

The fourth theme *describes how those involved in trafficking and enslavement may adapt to the changing conditions brought by the natural disaster, altering or adapting the type of exploitation they practice*. The situation in New Orleans after Hurricane Katrina is a good example. While pre-Katrina New Orleans was thought to have a significant number of people trafficked into commercial sexual exploitation, the market for that commerce ended abruptly with the demise of the tourist and convention trade. Immediately, however, there was an urgent demand for workers to clear wreckage, repair infrastructure, and re-build. The individuals needed to fulfil these jobs were mostly different to those who had been used in commercial sexual exploitation. So, a key result of natural disaster is the high likelihood that criminals are likely to *change* the types of exploitation they practice, if not the methods by which they ‘recruit’ and control the individuals they intend to exploit.

Conclusion: Two Testable Assertions

The few quantitative or disaster-specific studies that have looked at the possibility of natural disasters driving immediate human trafficking and slavery have failed to find such a relationship.¹⁵ However, I assert that there are two specific ways that natural disasters can and often do interact with slavery and trafficking in addition to the four themes explored above. The first assertion is that *disasters both end and begin trafficking and slavery activities*. In the same way that disasters punctuate between business-as-usual and possible chaos, those involved in the commercial exploitation through control of people will adapt to a changing context. Chaos has long been understood as a context in which slavery flourishes. The disruption of a natural disaster may temporarily hinder the business of trafficking and slavery, but unlike most businesses, crime feeds on chaos, and new modalities of trafficking and enslavement will emerge.

The second assertion is that *there is a disaster ‘snowball effect’*. While the information coming from disasters is disjointed, meagre, and often confused, once a disaster is added to an existing situation of slavery and trafficking, and the number of persons highly vulnerable to

¹⁵ Fletcher, L., Stover, E., and Weinstein, H. (eds) *After the Tsunami: Human Rights of Vulnerable Populations*, Human Rights Center/East-West Center, Berkeley, October 2005. See also: Bowersox, Zack “Natural Disasters and Human Trafficking: Do Disasters Affect State Anti-Trafficking Performance” *International Migration*, Vol. 56, (1) 2018, ISSN 0020-7985.

enslavement is dramatically increased, then the volume of slavery crime will increase over time, only to shrink when law enforcement, public safety, and personal security recovers. Put simply, disasters both terminate and initiate trafficking and slavery, and generally increase the amount and severity of exploitation over time.

The four themes and the two assertions described above create a framework for understanding how natural disasters and slavery interact. By doing so, they also suggest how plans and actions, relevant to context, might be prepared before disaster strikes in order to reduce the secondary threat of slavery and trafficking. But it is important to note that this is initial and exploratory research. There are many more natural disasters to explore and analyse, and many more national, regional, and local responses to those disasters that need to be examined and assessed. What can be stated with certainty is that the number and strength of weather-based disasters is increasing, as well as expanding into geographical areas where they have previously been rare or non-existent. A consideration of human rights, and human trafficking and slavery in particular, must be part of disaster planning.