COUNTERING TRAFFICKING IN PERSONS IN BANGLADESH

AN ECOSYSTEM APPROACH USING WEAK-SIGNAL ANALYSIS

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PREAMBLE

This report summarizes an empirical ecosystem analysis of trafficking in persons (TIP) in Bangladesh using weak-signal analysis. Parts of this analysis have been previously presented to the United States Agency for International Development (USAID) and the USAID Mission in Bangladesh during briefings scheduled by USAID on August 25, 2020, December 9, 2020, April 21, 2021, and August 10, 2021.

The United States (US) Department of State has requested that more research on TIP be published in the peer-reviewed professional literature. Consistent with this request, parts of the analysis presented in this report have already been published in the peer-reviewed professional literature, and other parts are either currently under review in the peer-reviewed professional literature or have been submitted.

While cross-cutting recommendations are included in Section 3 of this report, detailed geographically-targeted interventions specific for the most vulnerable 50 percent (32) zilas are presented in Annex 1 as "dashboard one-pagers." Annex 2 is a description of our methodology and the limitations associated with the analysis. Annex 3 provides a detailed analysis of the TIP tier rankings in the US Department of State's annual TIP report and was published in the Journal of Human Trafficking. Annex 4 provides a detailed analysis of the role of child marriage in TIP and includes analysis currently under review in the peer-reviewed professional literature.

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ACRONYMS

CTC	Counter-Trafficking Committees
CTIP	Counter Trafficking in Persons
DHS	Demographic and Health Surveys
DoS	Department of State
GDP	Gross Domestic Product
GNI	Gross National Income
GSI	Global Slavery Index
ILO	International Labour Organization
MHA	Ministry of Home Affairs
MICS	Multiple Indicator Cluster Surveys
NGO	Non-governmental Organization
SCP	Situational Crime Prevention
SDG	Sustainable Development Goal
TIP	Trafficking in Persons
TVPA	Trafficking Victims Protection Act
UDHR	United Nations Universal Declaration on Human Rights
UN	United Nations
UNICEF	United Nations Children's Fund
US	United States
USAID	United States Agency for International Development
USD	United States Dollars
USG	United States Government
U5	Under 5 years of age
U15	Under 15 years of age
U18	Under 18 years of age
VE	Violent Extremism

EXECUTIVE SUMMARY

Over the last two decades, Bangladesh's ranking in the United States (US) Department of State's annual Trafficking in Persons (TIP) Report has fluctuated between Tier 2 and the Tier 2 Watch List. The annual TIP Report is the US government's principal diplomatic tool for engaging foreign governments on human trafficking. Placement into one of the tier levels is based not on the magnitude of the country's trafficking problem, but on the extent of governments' efforts towards the elimination of human trafficking. Law enforcement metrics on prosecutions, convictions, and identified victims are presented in the TIP Report, and have been used by the US government as evidence of progress towards countering TIP (CTIP).

While prosecuting traffickers and rescuing those who have experienced trafficking have an important role in the overall CTIP strategy, we have found no evidence at the global scale that prosecutions result in meaningful reductions in TIP. Accordingly, our analysis supports a complementary approach that is aimed not towards prosecuting traffickers, but towards preventing future trafficking to create meaningful reductions in TIP. Our approach is grounded in the criminology theory of situational crime prevention (SCP) and is focused towards the "Prevention" part of the "3P" paradigm for addressing TIP (Smith, 2000). SCP focuses on the criminal setting and begins with an examination of the circumstances (the "ecosystems") that allow for particular types of crime. By gaining an understanding of these ecosystems, mechanisms are then introduced to change the ecosystems, reducing the opportunities for crime.

Consistent with SCP, our analysis applies an ecosystem model that uses "weak-signal analysis" to identify the characteristics of ecosystems in which TIP occurs. Every population has a complex mosaic of characteristics derived from their demographics, environmental resources, geographical location, ethnic history, wealth, social norms, income-producing activities, religious sects, access to markets, educational levels, etc. Individual indicators are not assumed to have direct causal relationships to TIP, rather it is the combinations of indicators that hold predictive value. Just as there is no single cause for TIP, there is no single solution. Our analysis is consistent with the observation that many anti-trafficking policies have had limited success at reducing human trafficking because they tend to be applied uniformly and do not account for varying sociocultural and economic conditions. Scalability requires an "adaptive approach" with interventions customized to each geographic location.

An additional advantage of an ecosystem approach is that the analysis is agnostic. We do not pre-select and combine indicators that we think are related to TIP, nor do we limit our analysis to any single survey or type of data. We input as much relevant data as available and allow the analysis to reveal the combinations of indicators and their relative weightings that are most characteristic of ecosystems where the problem occurs. Previously hypothesized relationships are often confirmed, but the discovery of unexpected relationships is just as common. These discoveries of unexpected relationships lead to a more sophisticated understanding of TIP, and in turn, offers new opportunities for more nuanced and effective interventions.

Globally, we find that the traditional economic hypotheses that TIP arises from elevated poverty and unemployment appears to be an oversimplification. Economic measures, such as unemployment and poverty rates, have only weak relationships with both prevalence estimates and tier rankings. Our data analysis in Bangladesh is consistent with this larger scale finding and reveals more nuanced circumstances.

Our analysis reveals that in Bangladesh, vulnerability is highest among lower-middle to middle class societies with moderate levels of income and education, who adhere to the traditional gender norms of a male-dominated patriarchal society and have access to an urban center. Economic measures such as gross domestic product (GDP) per capita, poverty levels, and unemployment correlate less strongly with cases of TIP than measures of gender inequality. Populations that have high vulnerability to TIP are characterized as more rural, where a strong patriarchal culture supports traditional gender roles, but they are not necessarily areas with poor female education or health. Such populations characteristically have access to a city or larger town, which comes with higher rates of education, wealth, and access to technology that allows exposure to TIP.

Populations with high levels of TIP have high levels of child marriage and gender inequality. The treatment of a child as a commodity is consistent with the definition of human trafficking, regardless of whether that child is being exchanged in a transaction for money, goods, social status, protection, or family honor. As Bangladesh is among the highest child marriage rates in the world, it also has the opportunity to take a leadership role in ending the practice. Females in Bangladesh have closed the education gap within a generation; however, many of the societal norms that support gender inequality stubbornly persist. Future efforts to reduce TIP would benefit from complementing female empowerment with efforts targeted at reducing gender inequality. Specifically, the engagement of males before age ten, when gender roles and expectations begin to be imprinted (Blum et al., 2017), is needed to complement improving education and opportunities for females. In addition to promoting further reductions to TIP, a reduction in gender inequality will likely also benefit economic development, democratic governance, resistance to extremism, and human rights protection.

Weak-signal analysis provides a means for predicting vulnerability to TIP. It can also reveal the underlying causal relationships associated with the vulnerability. As such, it can be used to identify vulnerable populations and increase their resilience to TIP with geographically-targeted, customized interventions. While attempts at universal solutions have had limited success, geographically-targeted, customized interventions hold strong promise for providing significant reductions in victimization.

This report presents a TIP vulnerability map for Bangladesh, a vulnerability measure for each zila based on weak-signal analysis, cross-cutting recommendations, and recommendations for geographically-targeted interventions. The vulnerability measure is translated into projected TIP prevalence and projected numbers of potential victims for each zila. In allocating resources for CTIP, decision-makers are often looking to reduce the number of victims in the most cost-efficient manner. They may want to prioritize areas with the highest density of potential victims, as measured by a combination of prevalence rate and population. Prevalence estimates can be misleading when used by themselves. For example, a zila with a low prevalence rate but high population can contain more TIP victims than a zila with a high prevalence rate and low population. We thus include projected numbers of potential victims with prevalence to account for population differences.

Our focus is on prevention, with the goal of undertaking proactive measures to reduce vulnerability. Although our projections accurately identify areas of known TIP, the analytical objective is to identify ecosystems where populations are most likely to fall victim in the future. Where vulnerability is high, TIP may also be occurring under-reported. In addition to focusing resources in locations where TIP has already been reported, we recommend prioritizing preventative policies in the set of locations where TIP vulnerability is high.

The annexes of this report include a description of the analytical methodology, limitations associated with the analysis, and a zila-by-zila analysis of TIP vulnerabilities and related-metrics with recommendations for potential geographically-targeted intervention for zilas being considered for part of the Fight Slavery/TIP program.

I. INTRODUCTION

In this report, we begin with an evaluation of human trafficking in Bangladesh in relation to the tier rankings in the United States (US) Department of State (DoS) Trafficking in Persons (TIP) Report, further referred to as the TIP Report. We follow this with an evaluation of the relationship between child marriage and TIP. Next, we provide an analysis of vulnerability to TIP based on an ecosystem approach and weak-signal analysis. The final section of the report includes cross-cutting recommendations and conclusions. Geographically-targeted interventions specific for the most vulnerable zilas are presented in Annex 1.

II. ANALYSIS

The analysis section consists of three parts:

a) an evaluation of TIP in Bangladesh in relation to the tier rankings in the annual TIP Report;
b) an evaluation of the relationship between child marriage and TIP in Bangladesh; and
c) an analysis of vulnerability to TIP based on an ecosystem approach and weak-signal analysis.

A. BANGLADESH IN THE US DOS'S ANNUAL TIP REPORT

The US government's (USG) principal diplomatic tool to engage foreign governments on human trafficking is the TIP Report (US DoS, 2020a). The report is produced annually in accordance with the Trafficking Victims Protection Act (TVPA) of 2000 (Smith, 2000). Division A of TVPA established US anti-trafficking policy to (1) prevent trafficking, (2) protect trafficking victims, and (3) prosecute and punish traffickers (known as the "3 Ps").[1] The Trafficking Victims Protection Reauthorization Act of 2003 added a requirement to the original law that foreign governments provide the DoS with data on trafficking investigations, prosecutions, and convictions (Smith, 2003). Since 2004, law-enforcement metrics on prosecutions, convictions, and identified victims have been annually reported in the TIP Report (Smith, 2003).

In 2020, after exhausting its allowed time on the Tier 2 Watch List (Grassley, 2018), Bangladesh's ranking was raised to Tier 2 in the TIP Report (US DoS, 2020a). Bangladesh retained its Tier 2 status in 2021 (US DoS, 2021). The TIP Report uses a ranking system in which the best-ranked countries are identified as Tier 1 and the worst ranked as Tier 3 (Grassley, 2018). Under the TVPA, Tier 3 countries are subject to potential restrictions on certain types of US foreign aid and other US and multilateral funds. Placement of each country into one of the tiers is based not on the magnitude of the country's trafficking problem, but on the extent of governments' efforts to meet the TVPA's minimum standards for the elimination of human trafficking (22 USC 7106). The minimum standards used to determine a country's ranking are their efforts towards: 1) prohibiting severe forms of TIP and punishing acts of such trafficking; 2) prescribing punishment commensurate with that for grave crimes; 3) prescribing punishment that is sufficiently stringent to deter and reflects the heinous nature of the offense; and 4) making serious and sustained efforts to eliminate severe forms of TIP.[2]

Figure 1 shows Bangladesh's rankings in the TIP Report since 2009. The blue bar shows the tier where Bangladesh was placed that year. For comparison, we have included the global average tier ranking, computed both by averaging the tier ranking for each country (dark grey), and by the percentage of global population at each tier level (light grey). The latter average reflects how many people are living in each tier. The purpose of normalizing the data to the number of people is to account for the differences in population size among nations. For example, while only nine percent of countries are in Tier 3, these those countries contain 25 percent of the global population. The dotted blue line represents the overall trendline for Bangladesh during this period, following its fluctuations between Tier 2 and the Tier 2 Watch List.

[1] In addition, the DoS employs a fourth "P," partnerships, "as a complementary means to achieve progress across the 3Ps and enlist all segments of society in the fight against modern slavery." US DoS, Policy Issues, "Human Trafficking," at https://www.state.gov/policy-issues/human-trafficking/.

[2] In determining if serious and sustained efforts are being made (standard #4), 12 criteria are considered as indicators.

Figure 1: Bangladesh TIP Report Tier Ranking

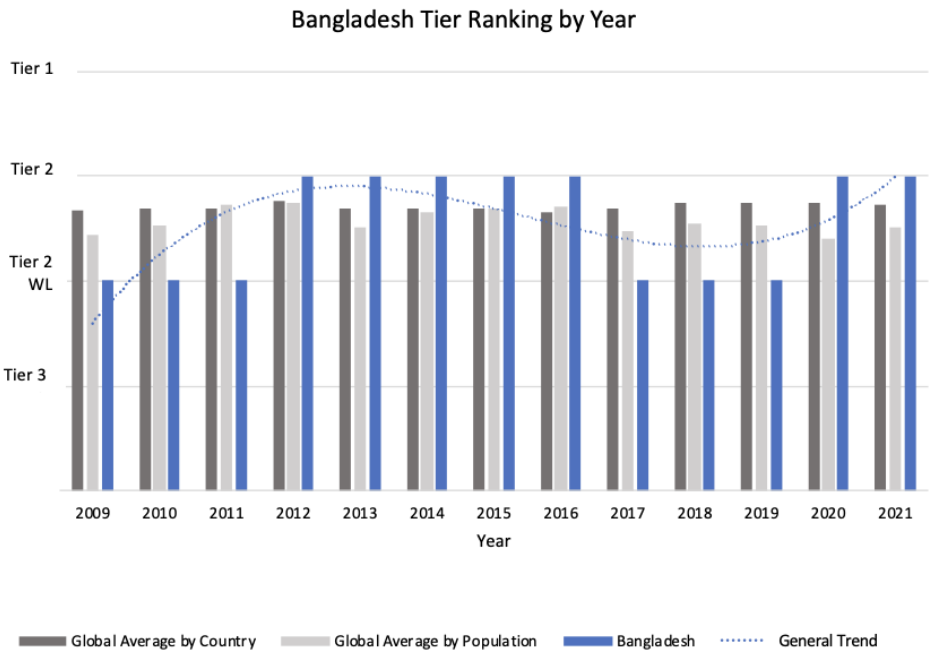

Figure 1 caption: Over the last two decades, Bangladesh's ranking in TIP Report has fluctuated between Tier 2 and the Tier 2 Watch List. In 2020, after exhausting its time on the Tier 2 Watch List under the Trafficking Victims Protection Reauthorization Act of 2017, Bangladesh moved back to Tier 2 and remained there for 2021.

The 2021 TIP Report's prioritized recommendations for Bangladesh include the need to "increase prosecutions and convictions for trafficking offenses, particularly of labor traffickers and complicit government officials, while strictly respecting due process." Bangladesh did not report any TIP prosecutions in 2017 and 2018. During most of the last six years, it has reported between 300 and 500 prosecutions annually. When normalized, the current (2020) prosecution rate is statistically typical of Tier 2 countries and within the range of Tier 1 countries. Bangladesh has 1.7 prosecutions per million citizens, compared to a median rate of 2.3 prosecutions per million citizens for Tier 2 nations.

Conviction rates for Bangladesh, however, are low. When convictions and prosecutions are averaged over three years to reduce the effects of the time-delay between prosecution and conviction, Bangladesh averages 0.05 convictions per prosecution. This rate of convictions per prosecution is lower than nearly 90 percent of Tier 2 countries, for which the median rate is 0.38. The average yearly rate of TIP victims identified for Bangladesh was 15.9 per million population. The median rate for Tier 1 countries was 13.7 and the median rate for Tier 2 countries was 9.4. When adjusted to population size, compared to other Tier 2 countries, the government of Bangladesh has a victim-identification rate near the upper-25th-percentile.

Figure 2 displays the law-enforcement metrics for Bangladesh and other Tier 2 nations in the form of a box and whisker plot. The box-and-whisker format shows both the data distribution and critical statistics. Each dot represents a nation that was ranked as a Tier 2 nation in the 2021 TIP Report. The lower and upper hinges define the shaded box area, which includes the values for the middle 50 percent of the Tier 2 nations. The line separating the darker and lighter sides of the shaded box is the median

value for all Tier 2 nations. The "whiskers" stretching from either end of the box show the minimum and maximum values, which are either the furthest values or else 1.5 standard deviations from the hinges. Values that lie outside of the whiskers are statistical outliers. Bangladesh lies within the middle "box" of the Tier 2 nations for both prosecutions and identified victims. However, it lies well below nearly all Tier 2 nations in convictions.

Figure 2: Bangladesh Prosecutions, Convictions, and Identified Victims

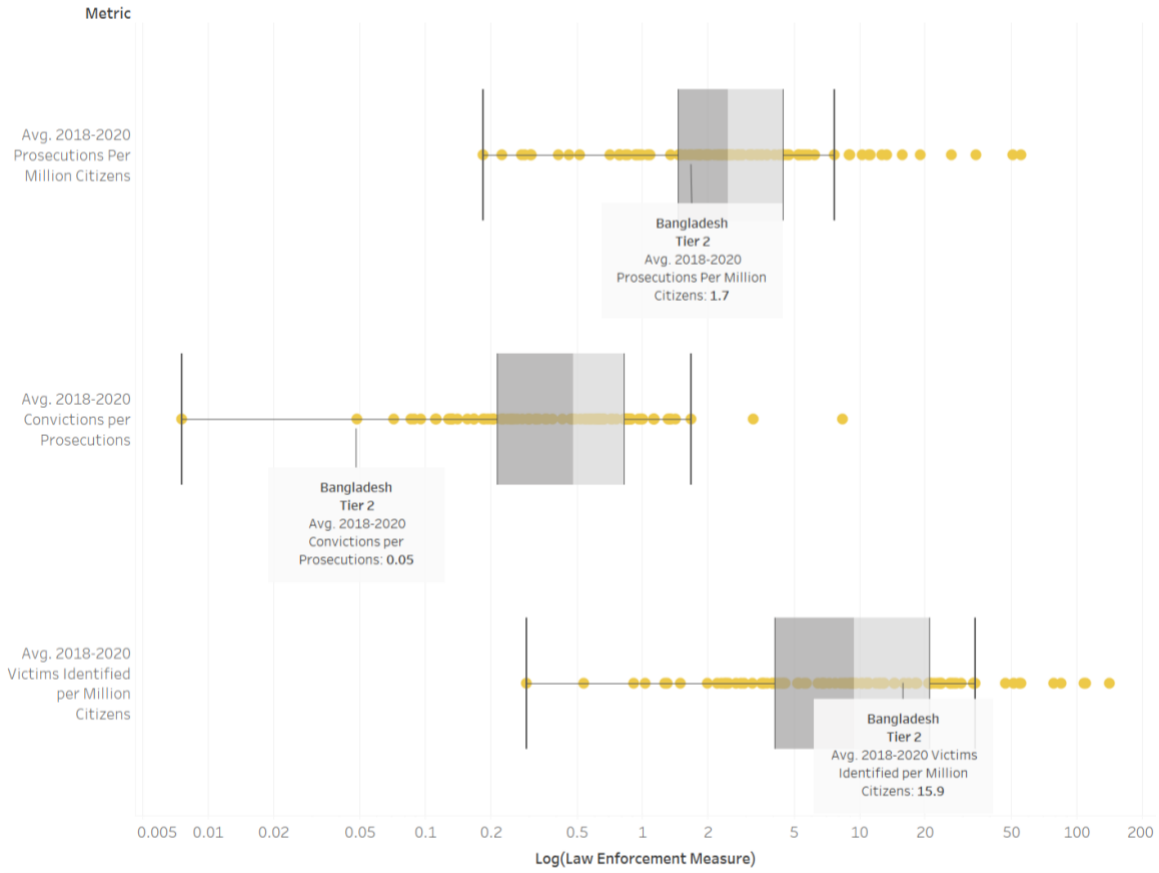

Figure 2 caption: In 2020, Bangladesh reported 517 prosecutions, compared to 312 in 2019, none in 2018 or 2017, 302 in 2016, and 481 in 2015. The government reported seven convictions in 2020, compared to 25 in 2019, eight in 2018, one in 2017, three in 2016, and four in 2015. Bangladesh has a lower conviction per prosecution rate than nearly 90 percent of Tier 2 countries. We have normalized the number of convictions to the number of prosecutions. Both the number of convictions and the number of prosecutions are averaged over three years to reduce the effects of the time-delay between prosecution and conviction. The statistical relationships are similar if we normalize the prosecutions to the estimated size of the TIP population.

While the TIP Report is intended to measure a nation's efforts towards reducing TIP, the Global Slavery Index (GSI) attempts to measure the magnitude of TIP within a nation (Walk Free Foundation, 2016 and 2018). A logical assumption would be that nations with stronger countering TIP (CTIP) efforts, as indicated by their tier level, would, over time, achieve lower rates of TIP prevalence. Consistent with such an assumption, the correlations between GSI prevalence estimates and TIP tier rankings are statistically significant (van der Vink et al., 2021a). The GSI reports provide an estimate of the prevalence of human trafficking, quantified as the number of victims per 1,000 population in a country. The GSI estimate of prevalence in Bangladesh changed from 9.5 victims in 2016 to 3.7 in 2018. The average 2018 GSI prevalence estimate for Tier 2 countries is 4.8 victims per 1,000 population.

The assignment of nations to various tier levels by the TIP Report, when viewed globally, only weakly correlates with the law-enforcement statistics within the reports. In addition, increases in prosecution do not typically correlate with decreases in GSI TIP prevalence estimates (van der Vink et al., 2021a). Nevertheless, some have presented law-enforcement metrics as evidence that government efforts stemming from the Palermo Protocol are working (US DoS, 2019). Others argue that viewing TIP as a law-and-order problem requiring an aggressive criminal justice response has resulted in "hundreds of millions of dollars being invested with no appreciable reduction in the absolute number of people trafficked worldwide" (e.g., Chuang, 2006).

Prosecuting traffickers and rescuing those who have experienced trafficking is an important component of an overall CTIP strategy. There is, however, no evidence that prosecutions result in meaningful reductions in TIP. Our analysis supports a complementary approach that is aimed at preventing future trafficking instead of prosecuting traffickers to create meaningful reductions in TIP. Our approach is grounded in the criminology theory of situational crime prevention (SCP) and is focused towards the "prevention" part of the "3P" paradigm for addressing TIP (Smith, 2000).[3]

SCP focuses not on apprehending criminals, but on reducing criminal opportunities. It employs a preventive approach by reducing opportunities for crime, and it has helped law-enforcement organizations realize significant reductions in the occurrence of crime and in the number of people who have experienced crime (e.g., Eck and Clarke, 2019). SCP focuses on the criminal setting and begins with an examination of the circumstances (the "ecosystems") that allow for particular types of crime. By gaining an understanding of these ecosystems, mechanisms are then introduced to change the relevant ecosystems, reducing opportunities for the harmful activities. SCP is considered an essential part of the United Nations (UN) Economic and Social Council's Guidelines for the Prevention of Crime (Resolution 2002/13) (UN Office on Drugs and Crime, 2010).

There are varied definitions of TIP, and this, combined with its sensitive nature, makes victim identification and quantification difficult. The varied definitions also lead to a large range of prevalence estimates across different institutions. Both the DoS and the Philippines use the definition of human trafficking presented in Article 3 of the Palermo Protocol. The DoS estimates that there are 25 million victims of labor and sex trafficking worldwide (US DoS, 2020b). The International Labour Organization (ILO) published its first estimate in 2005 of 12.3 million persons trafficked as a minimum at any given time between 1995 and 2004. In 2012, the ILO estimated that 20.9 million people were suffering forced labor at any given point in time over the ten-year period 2002-2011, reporting a standard error of 1.4 million at a 68 percent level of confidence (ILO, 2012). In 2016, the ILO and the Walk Free Foundation estimated 40.3 million people were "in modern slavery, including 24.9 million in forced labor" (ILO, 2017), a decrease from the earlier GSI estimate of 45.8 million victims in 2016 (Walk Free Foundation, 2018; Walk Free Foundation, 2016). The GSI published prevalence estimates by nation in 2012, 2014, 2016, and 2018. As with the DoS national estimates, the GSI national estimates have also been subject to criticism (e.g., Gallagher, 2014) and their 2012 and 2014 estimates have been withdrawn due to changes in their methodology.

The GSI estimate includes forced marriage, child marriage, and child soldiers. The DoS and earlier ILO estimates treat these human rights abuses separately. The difference between estimates can be

[3] The "3P" paradigm consists of Prevention, Protection, and Prosecution, as shown in the 2018 TIP Report.

attributed not only to differences in scope of definition, but also to the inherent uncertainty of such estimates; specifically:

1) Ambiguity and differences exist in the terms human trafficking, TIP, modern slavery, slavery, slavery-like practices, etc.;
2) Victims of human trafficking generally self-identify and therefore include subjective assessments that are affected by different sociocultural norms;
3) The population of victims is largely a hidden population, and it is therefore difficult to obtain a representative sample for statistical analysis; and
4) In any given survey, the number of self-identified alleged victims is generally small and extrapolations from small numbers have significant uncertainty.

In addition, international definitions may not be fully consistent with national definitions and the local customs and laws of a particular country. For example, forced marriage is prohibited through the prohibitions on slavery and slavery-like practices, including servile marriage. By extension, child marriage can be considered to be forced marriage, as one or both parties by definition are not able to express free and informed consent (ILO, 2017). In many countries, however, parties under the age of 18 (U18) are legally allowed to marry. In the US, there is no federal law regarding child marriage, and each state has its own regulations.

The discrepancies in definitions and inherent ambiguity in victim identification can make estimating TIP prevalence complex and subjective. While methods that attempt to measure prevalence are imperfect, they still have merit and show statistically significant relationships with other related measures (van der Vink et al., 2021a).

At the global scale, the traditional economic theory that TIP arises from elevated poverty and unemployment appears to now be an oversimplification. Today, TIP and TIP tier rankings are more reflective of governance and social freedoms than economic factors (e.g., Perry and McEwing, 2013, Cho, 2015, van der Vink et al., 2021a).

Bangladesh has a Democracy Index typical of Tier 2 nations (Figure 3). However, the country's ranking in Ease of Doing Business, Press Freedom, and Corruption are well below the typical range for Tier 2 nations (Figure 3). The clear differences between the median governance measures for each tier level suggest that, at the national scale, governance, corruption, and bureaucracy influence TIP. The strong statistical relationships revealed through our analysis between these metrics and the TIP tier rankings and prevalence estimates suggest that problems with governance, transparency, and corruption should be addressed as part of the overall CTIP strategy. See Annex 3 for additional detail.

Figure 3: TIP Tier Rankings and Governance Measures for Bangladesh

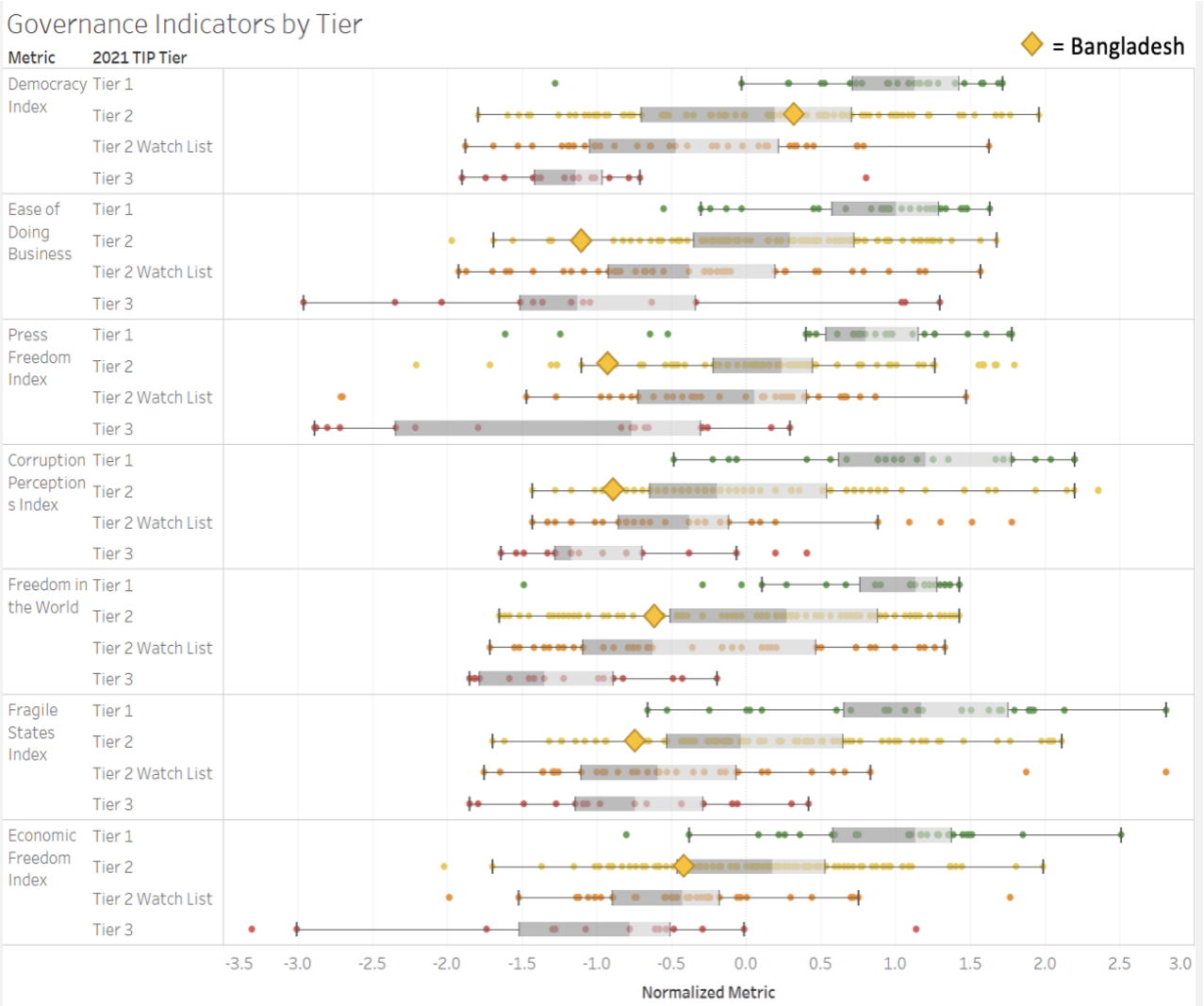

Figure 3 Caption: Compared to other Tier 2 nations, Bangladesh places on the lower end of most governance indicators. Presented in this figure are: a) Democracy Index: a measure of democracy based on electoral process and pluralism, civil liberties, the functioning of government, political participation, and political culture (Economist Intelligence Unit, 2020); b) Ease of Doing Business: measures business-related metrics including handling permits and utilities, getting credit, and dealing with trade and contracts for 2020 (World Bank, 2020); c) Press Freedom Index: a measure of press freedom composed of survey responses from experts and data on abuse and violence against journalists for 2021 (Reporters without Borders, 2021); d) Corruption Perceptions Index: a composite index based on how corrupt a country's public sector is perceived to be by experts and business executives for 2020 (Transparency International, 2020); e) Freedom in the World: N index assessing political rights and civil liberties of individuals for 2021 (Freedom House, 2021); f) Fragile States Index: uses the Fund for Peace's Conflict Assessment System Tool to measure conflict drivers and dynamics for 2021 (Fund for Peace, 2021); and g) Economic Freedom Index: measures economic freedom under the categories of rule of law, government size, regulatory efficiency, and open markets for 2021 (Heritage Foundation, 2021).

B. CHILD MARRIAGE AND HUMAN TRAFFICKING IN BANGLADESH

While Bangladesh has among the highest child marriage rates in the world, it also has the opportunity to take a leadership role in ending the practice. The government has set national goals, enacted domestic legislation, and become a party to international agreements. The Prime Minister committed Bangladesh

to end marriage for children under age 15 (U15) by 2021 and for all girls under age 18 (U18) by 2041. The Child Marriage Restraint Act of 2017 prohibits the marriage of children and defines the age of a child. The Dowry Prevention Act of 2018 prohibits the payment of dowries. Internationally, Bangladesh is party to the series of UN conventions that provide a basis for prohibiting child marriage and classifying it as a slavery-like practice. Bangladesh is also among the selected countries covered under the UNFPA-United Nations Children's Fund (UNICEF) Global Programme to Accelerate Action to End Child Marriage (UNICEF, 2020).[4]

Attempts to address child marriage and child, early, and forced marriage are interwoven with TIP through a fabric of international agreements, domestic laws, and cultural traditions that contain different definitions on the age of a child, the minimum age of marriage, the age of free and informed consent, and the factors that constitute special circumstances. There is general agreement that trafficking and child marriage intersect when marriage is used both in conjunction with force, fraud, coercion, or abuse of power, and as a means to subject spouses to conditions of slavery, often in the form of domestic or sexual servitude (e.g., UN Office on Drugs and Crime, 2020). When applied to different social norms, however, the definitions of these terms and the description of circumstances contain sufficient ambiguity to create inconsistencies regarding enforcement and interpretation.

At the international level, child marriage can be considered a violation of human rights under a series of linked international agreements to which Bangladesh is party:

- The United Nations Universal Declaration on Human Rights (UDHR) states in Article 16 (2): "Marriage shall be entered into only with the free and full consent of the intending spouses" (UN, 1948).
- The Convention on Consent to Marriage, Minimum Age for Marriage, and Registration of Marriages refers in its preamble to UDHR Article 16 (2), reaffirms the consensual nature of marriages (Article 1),[5] requires the parties to establish a minimum marriage age by law (Article 2),[6] and requires parties to ensure the registration of marriages (Article 3) (UN, 1964).
- The non-binding recommendation accompanying the Convention, "Recommendation on Consent to Marriage, Minimum Age for Marriage and Registration of Marriages," recalls Article 2 of the Supplementary Convention on the Abolition of Slavery, the Slave Trade, and Institutions and Practices Similar to Slavery and specifies (Principle II) that any minimum age "shall not be less than fifteen years of age" except "for serious reasons, in the interest of the intending spouses" (UN, 1965). The exception for undefined "serious reasons" makes enforcement difficult.

[4] The National Plan of Action to End Child Marriage (2018-2019) consists of a) enhancing the agency and voice of adolescent girls, b) investing in and supporting adolescent girls through community engagement and positive behavior, c) increasing resources and opportunities for adolescent girls, d) strengthening legislative and policy frameworks to protect and promote the rights of adolescent girls, and d) generating and using robust data and evidence.

[5] The Convention on Consent to Marriage, Minimum Age for Marriage, and Registration of Marriages is a treaty agreed upon in the United Nations on the standards of marriage. The treaty was opened for signature and ratification by General Assembly resolution 1763 A (XVII) on 7 November 1962 and entered into force 9 December 1964.

[6] The Convention on Consent to Marriage, Minimum Age for Marriage, and Registration of Marriages also contains the statement that "No marriage shall be legally entered into by any person under this age, except where a competent authority has granted a dispensation as to age, for serious reasons, in the interest of the intending spouses."

Additionally, it can be argued that child marriage is a "practice similar to slavery" under the UN Supplementary Convention on the Abolition of Slavery, the Slave Trade, and Institutions and Practices Similar to Slavery (UN, 1956). Although child marriage is not specifically addressed in the convention, and no "suitable" minimum age is specified, child marriage is implicitly prohibited through Article 1(C), Article 1(D), and Article 2.

- Article 1(C) prohibits a woman to be promised or given in marriage without the right to refuse.
- Article 1(D) prohibits "any institution or practice whereby a child or young person under the age of 18 years, is delivered by either or both of his natural parents or by his guardian to another person, whether for reward or not, with a view to the exploitation of the child or young person or of his labour."
- Article 2 states "with a view to bringing to an end the institutions and practices mentioned in article 1 (c) of this Convention, the States Parties undertake to prescribe, where appropriate, suitable minimum ages of marriage, to encourage the use of facilities whereby the consent of both parties to a marriage may be freely expressed in the presence of a competent civil or religious authority, and to encourage the registration of marriages."

Finally, the UN Sustainable Development Goal (SDG) 5 is to achieve gender equality and empower all women and girls. Target 5.3 for that goal is to "eliminate all harmful practices, such as child, early and forced marriage and female genital mutilations." To measure progress towards Target 5.3, the UN uses indicator SDG 5.3.1, "the proportion of women aged 20–24 years who were married or in a union before age 15 and before age 18" (UN, 2015).

As previously noted, the USG generally follows the definition of TIP contained in the Palermo Protocol. The Protocol defines the meaning of "child" as any U18 person (Article 3(d)) and specifies that means are not relevant if the act involves a child (Article 3(c)). The TIP Report references child marriage as a contributing factor to girl's vulnerability to exploitation but does not consider it a form of human trafficking and does not include child marriage in its calculation of TIP victims.

In 2017, the ILO began counting forced marriage in their slavery statistics (ILO, 2017) under the general recommendation that "child marriage is considered to be a form of forced marriage, given that one and/or both parties have not expressed full, free and informed consent" (Article VI.B.20, CEDAW, 2014). The recommendation, however, contains the caveat that "marriage of a mature, capable child below 18 years of age may be allowed in exceptional circumstances, provided that the child is at least 16 years of age and that such decisions are made by a judge based on legitimate exceptional grounds defined by law and on the evidence of maturity, without deference to culture and tradition" (CEDAW, 2014).

In Figure 4, each dot represents a nation. The vertical axis is the percentage of females aged 15-49 ever U18 married, divorced, or in an informal union (UN Department of Economic and Social Affairs, 2017; UN World Marriage Data, 2017).[7] The horizontal axis is the 2018 GSI estimate of the prevalence of

[7] Many western nations were missing U18 child marriage rates in the UNICEF Multiple Indicator Cluster Surveys. The missing values were imputed using the linear relationship between the U15 (U15 = 0.423 * Child Marriage Practice - 1.232, R-squared = 0.716) and U18 values (U18 = 1.141*Child Marriage Practice + 4.7, R-squared = 0.809) from the UN Child Marriage Practices survey (UN World Marriage Data, 2017). The latter survey measures the percentage of women aged 15-19 ever married, divorced, widowed, or in an informal union. Thus, there are discrepancies between the age groupings of the two datasets, but given the high r-squared values in the relationship between the rates, the interpolation was suitable.

"modern slavery" within each country (Walk Free Foundation, 2018). Each dot is colored by that nation's tier assignment in the 2018 TIP Report (US DoS, 2018). The dashed horizontal lines are the median child marriage rates for the countries in each TIP tier level. Even though child marriage rates are not incorporated in the calculation of TIP tier levels, there is an association. Tier 1 countries have on average two to three times lower child marriage rates than Tier 2 and 3 countries.[8]

Figure 4: Child Marriage, TIP Prevalence, and TIP Tier Rankings

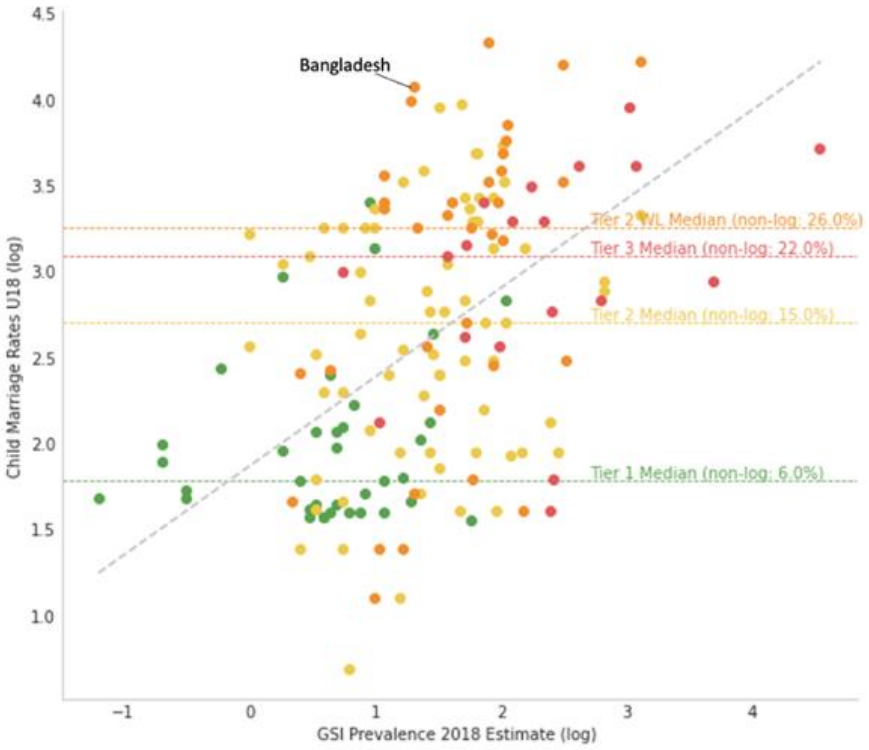

Figure 4 caption: Child marriage and TIP are interrelated within a common ecosystem (van der Vink et al., 2021b). The GSI prevalence 2018 estimate is the GSI estimate of the prevalence of "modern slavery" within each country. The Child Marriage Rates U18 values are estimates of the of the percentage of U18 females ever married, divorced, or in an informal union, based on the 2017 UN Department of Economic and Social Affairs and UNICEF Multiple Indicator Cluster Surveys (MICS) data. Each dot represents a nation, colored by that nation's tier ranking in the 2018 TIP Report. The dashed horizontal lines are the median child-marriage rates for the countries in each TIP tier level.

While the reporting of child marriage rates, the estimating of human trafficking prevalence, and the designation of TIP tier levels are distinct activities pursued by different organizations operating under different mandates, our analysis in Figure 4 demonstrates that these metrics and the associated phenomenon they attempt to measure are inter-related within a common ecosystem. Countries with higher child marriage rates typically have higher rates of human trafficking and are assigned worse TIP tier levels. Statistically, the chances of the "null hypothesis" being true, that child marriage and human trafficking are not related, is less than one in ten million.[9]

[8] It is notable that seven of the ten countries with the highest U18 child marriage rates are on the Tier 2 watchlist.

[9] The data distributions were skewed, so a logarithmic transformation was applied to both variables (Child Marriage Rates and GSI Prevalence Estimates) for a more accurate statistical analysis. The relationship in Figure 4 has an equation of log(U18) = 0.518 x log(GSI) + 1.868 and an R-squared value of 0.188.

While many claim that not all child marriages are TIP, the ecosystem of opportunities it creates for TIP and other negative impacts is large. There is increasing pressure to set a minimum age for marriage and to classify marriage under that age as TIP. The hope is that by recognizing child marriage as a form of TIP, it will raise awareness and provide increased leverage for enforcement (e.g., Redfern, 2019). The argument for including child marriage as a form of slavery similar to TIP can be logically presented. Children, by definition, cannot provide free and informed consent. The treatment of a child as a commodity is consistent with the definition of human trafficking, regardless of whether that child is being exchanged in a transaction for money, goods, social status, protection, or family honor.

C. VULNERABILITY TO TIP IN BANGLADESH

Just as there is no single cause for TIP, there is no single solution. Even when causes appear similar, solutions that work in one location seldom work in another location owing to the vast array of varying sociocultural and economic conditions. The lack of effective universal solutions has frustrated anti-trafficking efforts and limited their success (e.g., Betz, 2009).

From an analytical perspective, TIP can be classified as a "wicked problem,"[10] the type of problem that defies a single solution and is characterized by a myriad of dynamically interconnected variables. Causal relationships are seldom direct, and the circumstances that foster the problem vary from location to location. While "wicked problems" may defy single and universal solutions, they can be addressed through an ecosystem approach (Eck and Clarke, 2019; Clarke, 1995). In using such an analytical approach, we parameterize the ecosystem in which TIP exists to reveal through weak-signal analysis the combinations of characteristics that allow TIP to occur. Once we identify the characteristics of the ecosystem that supports TIP, we can formulate geographically-targeted interventions to disrupt that support system and mitigate TIP in a more effective manner.

We do not assume that any characteristic by itself is predictive of TIP. It is combinations of characteristics that create vulnerability to TIP, and these characteristics vary from location to location. Vulnerability to TIP is not the same as TIP prevalence. Socioeconomic ecosystems can be vulnerable and as-yet unexploited, or the exploitation can be unrecognized.

Analytically, weak-signal analysis provides a means for identifying underlying causal relationships among multiple interrelated variables. Understanding the ecosystem that makes populations vulnerable to TIP, allows us to formulate geographically-targeted interventions that, in turn, can be used to disrupt that ecosystem and make populations less vulnerable. Ecosystem approaches have been proposed for addressing the sex trafficking of children (Finigan-Carr et al., 2019) and for building resilience to trafficking within communities (Gardner et al., 2020).[11]

We begin with millions of data values from diverse, mostly open-source datasets from non-governmental organizations (NGOs), media, the USG, and statistical authorities of local governments. These datasets include detailed national census data, health and educational survey data, remote-sensing

[10] The original use of the term "wicked problem" is attributed to design theorist Horst Rittel.

[11] Despite popular belief, research primarily shows that SCP does not necessarily lead to crime displacement (Clarke, 1995; Hesseling, 1994; for a discussion of the literature and the general conclusions on crime displacement, see Crime Prevention and Criminal Justice Module 2 on Crime Prevention). Ref: https://www.unodc.org/e4j/en/cybercrime/module-9/key-issues/situational-crime-prevention.html

data, web-scraped data, and data from both formal and informal media sources.[12] These millions of data values were distilled into over half a million indicator values covering over 1,500 measures for 544 upazilas over 20 years, representing demographics, governance, land-use, natural resources, education, health, economics, ethnicity, religion, infrastructure, conflict, gender equality, female empowerment, societal norms, and other human-social-cultural-behavioral characteristics. While datasets may be of varying quality and completeness, each has the potential to carry information that reflects a characteristic of a population, either by itself or, more commonly, through combinations with other datasets.

While there are extensive human-social-cultural-behavioral datasets for Bangladesh, detailed data on known cases of human trafficking are relatively scarce. The Bangladesh Police Department collects data on TIP, but these data are only released sporadically and without geographic information. Annual reports from the Bangladesh Ministry of Home Affairs (MHA) are released inconsistently and several years in arrears. For this analysis, data on known TIP case statistics were taken from the available MHA annual reports (Bangladesh MHA, 2016 and 2018) and augmented using government reports, NGO reports, academic literature, and both formal and informal media reports from 2019-2020.[13] The TIP cases in the MHA reports come from counter-trafficking committees (CTCs) within the 64 zilas.[14] CTCs are formed by the Bangladesh government to support CTIP programs, help TIP survivors, and protect witnesses. The reported cases are in some process of the justice system. To account for delays in the justice system, we sum the reported cases for 2016 and 2018. The number of cases is normalized to population per 100,000 to adjust for differences in population size among zilas. Using the literature, survey, and media reports, data were collected on source, transit, and destination locations within the country to supplement case data.

A detailed technical summary of weak-signal analysis is included in Annex 2. In mathematical terms, we use singular-value decomposition, combined with varimax rotation and squared-factor loadings as an unsupervised self-learning algorithm to identify key attributes and their relative weightings (OECD, 2008). In non-mathematical terms, we begin with a wide range of socioeconomic indicators (in this case, over 1,500) to capture the full spectrum of factors that are associated with a population. The algorithm then identifies the optimal combinations of these indicators (in this case, 18) that are predictive of TIP, while eliminating the combinations that are neither conducive nor preventative. The higher the value of the composite vulnerability measure, the higher the vulnerability for TIP activity.

Figure 5 shows the optimal combination of indicators used to generate the TIP vulnerability measure, along with their respective weightings. A positive weighting indicates a direct, positive relationship with TIP, and a negative weighting indicates an inverse relationship. Table 1 lists the indicators that were used to generate the vulnerability measure, along with possible interpretations of their significance.

[12] Bangladesh survey data sources include the Bangladesh Multiple Indicator Cluster Surveys (BBS and UNICEF, 2014; BBS and UNICEF, 2019), the Bangladesh Integrated Household Survey (IFPRI, 2016), and the Bangladesh Demographic and Health Survey (NIPORT and ICF, 2020).

[13] Although the reports are produced annually, only the 2016 and 2018 reports were available at the time of this analysis (July 2021).

[14] Two zilas do not have CTCs.

Figure 5: TIP Vulnerability Measure for Bangladesh

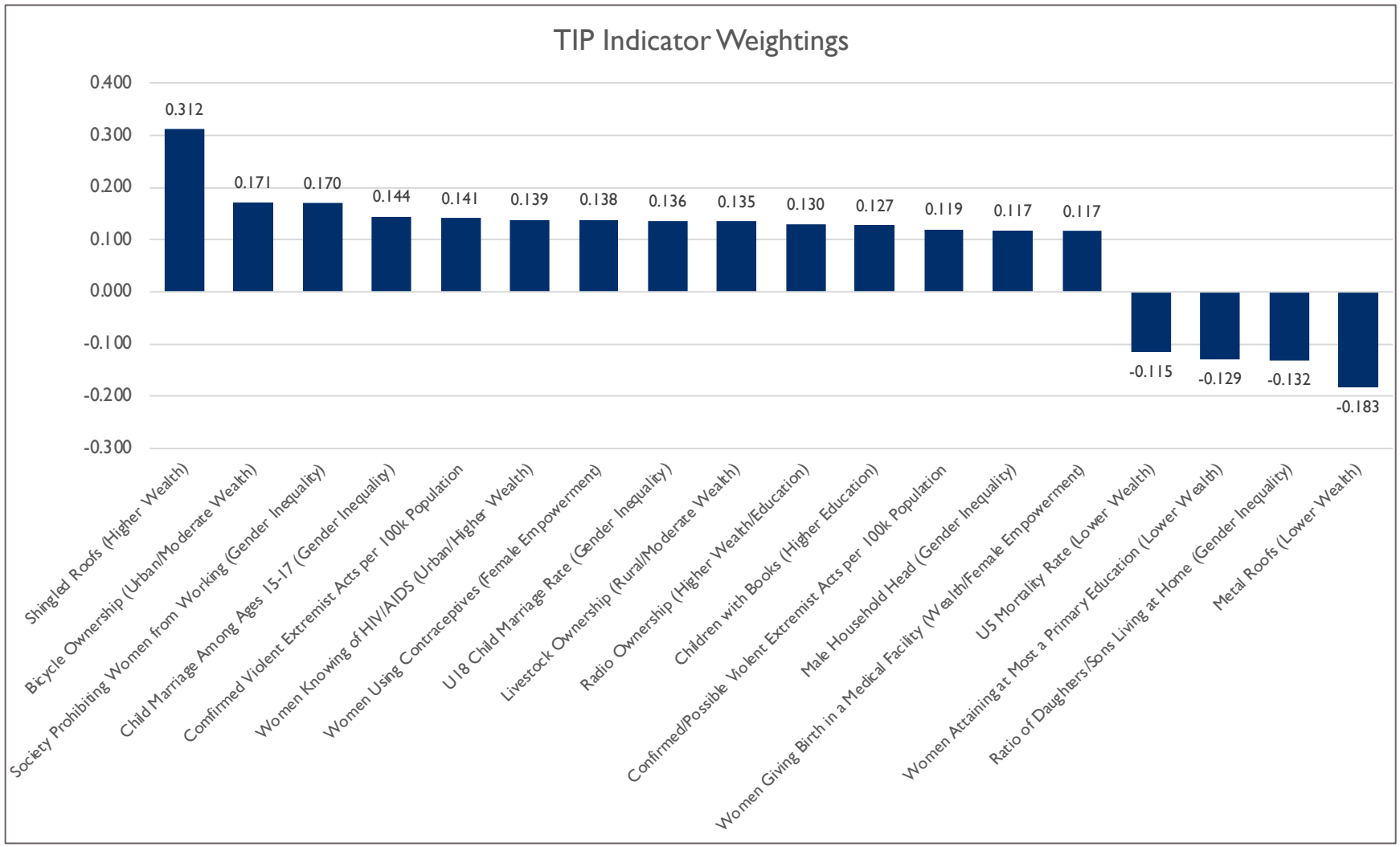

Figure 5 caption: Beginning with over 1,500 measures, the TIP Vulnerability Measure for Bangladesh is composed of a relatively small subset of indicators that represent the optimal combination characteristic of the TIP ecosystem. To explain as much of the data as possible while avoiding an overly complicated measure, various threshold values for indicator weightings are used to identify the optimal subset of indicators. The weighted values of the selected indicators are then used as input to the composite measure to generate vulnerability measures for each province. The outputs are sets of indicators (weak-signals) that are proxy measures for the underlying causal relationships. The higher the vulnerability measure, the increased vulnerability for TIP activity.

We do not assume the indicators are necessarily direct causes of vulnerability, rather we interpret them as proxy measures that reflect more complex societal phenomena that are difficult to measure directly. For example, we cannot directly measure gender inequality. However, certain manifestations of gender inequality, such as high female child marriage rates and violence towards women can be measured. For each location, we interpret the causes of vulnerability using the specific indicator values for that location and our interpretation of those indicators. The definitions of each indicator, along with our interpretation and other phenomena with which they have strong statistical relationships, are included in Table 1. The interpretations of the indicators are illustrations and are not intended to be exhaustive.

Our analysis confirms that the causes of TIP are multiple. Because the underlying causal relationships associated with TIP vary with each socioeconomic landscape, it is unlikely that a one-size-fits-all intervention approach for TIP will be successful. Scalability will require an adaptive approach with interventions customized to each geographic location. Our analysis is consistent with the observation that anti-trafficking policies have had limited success at reducing human trafficking because they tend to be applied universally and do not account for the unique circumstances present in the country (e.g., Betz, 2009).

Table 1: Indicators in the TIP Vulnerability Measure

INDICATOR & DESCRIPTION
Shingled Roofs: Percentage of households with a shingled roof Roofing material is generally considered a proxy measure for wealth and economic mobility (UN Global Pulse, 2014). In Bangladesh, shingled roofs have a positive relationship with the fourth and fifth wealth quintiles, which are the two wealthiest quintiles.
Bicycle Ownership: Percentage of households that own a bicycle Bicycles are generally considered a "less expensive good" (Po et al., 2012). High rates of bicycle ownership typically cluster among the middle wealth quintiles and usage among quintiles may vary, as bicycles are used both as a cheap transportation option for poorer households and as a leisure activity for wealthy households. Bicycles are also a more attractive option in urban locations, as the city's high traffic levels force people to look for alternative transportation options.
Women: No Income Due to Society: Percentage of women who do not do any work or business that brings in cash, additional food, etc. because society constrains them The percentage of women who have no income and cite society as their deterrent to doing so is often a proxy indicator for gender inequality (Revenga, 2020). Along with societal constraints on income, there are often constraints on other aspects of a woman's life including decision-making and financial freedom.
Age 15-17 Child Marriage: The percentage of women who are married between ages 15 to 18 Child-marriage rates are generally described as U15 and U18, and the U18 rate includes the U15 marriages. This indicator differentiates between those who are married after the age of 15 but before 18, which is a more extreme form of child marriage. Child marriage is a strong indicator of societal gender inequality. Populations may have high levels of female empowerment (e.g., education), but still have systemic societal gender inequality.
Confirmed Violent Extremist (VE) Acts per 100k Population: Confirmed VE events normalized by population (per 100,000) This indicator consists of the number of violent events linked to groups listed as or affiliated with a terrorist or VE organization by the US DoS Foreign Terrorist List, South Asian Terrorism Portal, or as part of the Global Jihadist Movement (Carson and Suppenbach, 2017) and normalized by zila population. The events were collated from the Global Terrorism Database (START, 2019), the Armed Conflict Location and Event Data Project (Raleigh et al. 2010), and the Uppsala Conflict Data Project Global Event Database v20.2 (Petersson & Öberg, 2020).

INDICATOR & DESCRIPTION
Women Knowing of HIV/AIDS: Percentage of women who have ever heard the term HIV/AIDS HIV/AIDS knowledge is indicative of higher wealth in a population, as wealthier populations are more able to afford better health facilities and educational opportunities which could increase exposure to information on HIV (Yaya, S., 2016; Gebremedhin, S. et al., 2017; Fenny, A. et al., 2017). HIV/AIDS knowledge has also been associated with more urban populations, as proximity to urban centers allows increased access to educational opportunities on sexual health and HIV, as well as exposure to mass media.
Women Using Contraceptives: Percentage of women who have ever used contraception in their lifetimes Contraceptive use has traditionally been interpreted as measure of female empowerment. However, in Bangladesh, contraceptive use correlates positively with child-marriage rates and other measures of societal gender inequality. This indicator is an example of where efforts in improving female empowerment (e.g., incentivizing females to remain in school) may not have yet translated into gender equality improvements.
U18 Child Marriage Rate: Percentage of women (aged 15-49) married under the age of 18 As with the U15 child marriage, the U18 child marriage rate is a strong indicator of societal gender inequality. Populations may have high levels of female empowerment (e.g., education), but still have systemic societal gender inequality.
Animal Ownership: Percentage of households that own animals The percentage of households owning animals can serve as a proxy indicator for rural areas (Mosites, E., 2016). In Bangladesh, animal ownership is also a proxy indicator for middle wealth (third wealth quintile), as the poorest may not be able to afford them and the richest are not employed in sectors that need them.
Radio Ownership: Percentage of households that own a radio Radio ownership is a proxy for access to information. Radio ownership has strong positive relationships with education indicators, such as literacy rate and school attendance rates. It is also a measure of urban versus rural populations.
Children with Books: Percentage of children who own books Children's access to books is a proxy indicator for increased overall literacy outcomes and higher education levels (Mol, S. & Bus, A., 2011; Neuman, S., 1999).
Yes/Maybe VE Acts per 100k Population: Confirmed as "Yes" or "Maybe" VE events normalized by population (per 100,000) This indicator consists of the number of violent events linked to groups that are either listed as or affiliated with a terrorist or VE organization by the US DoS, South Asian Terrorism Portal, the Global Jihadist Movement (Carson and Suppenbach, 2017) or included as perpetrators in the Global Terrorism Database. The Yes/Maybe designation captures a larger set of VE activity than confirmed VE acts.
Male Household Head: Percentage of household heads that are male Generally, this indicator suggests levels of gender inequality, as male household heads may have control of various aspects of a woman's life, including decision-making, usage of free-time, job opportunities, and freedom of movement (World Bank Blogs, 2019).
Birth in Medical Facility: Percentage of women who gave birth in a medical facility Birth in a medical facility is considered an indicator of female empowerment (UN Statistical Division, 2021). In Bangladesh, this indicator may also reflect societal gender inequality and attitudes towards women, as the societal norms may or may not support birth in a medical facility.
Under Five (U5) Mortality [-]: The probability of a child born in a specific year or period dying before reaching the age of five U5 mortality can serve as an indicator of child and human health. It can also serve as a metric to assess the amount and quality of health infrastructure and medical facilities present (World Health Organization, 2020).

INDICATOR & DESCRIPTION
Women: Max Primary Education: [-] Percentage of women whose highest level of education is completed primary Dropout rates in primary school are near equal for males and females, but the problems are "more acute among socio-economically disadvantaged groups, such as rural populations, ethnic minorities, slum-dwellers, and the poor" (Tietjen, K., 2003).
Daughters/Sons at Home [-]: Ratio of daughters to sons who are currently living with their mother Female-to-male ratios are a measure of gender equality that can be used to track gender gaps. In Bangladesh, daughters move out of their family home primarily upon marriage, while sons may leave for education or migrant labor opportunities. Child marriage can be used to send a daughter away and free resources, reflected in a lower "daughter" ratio as child marriage increases (Mahmud, S. et al., 2012). The Bangladesh family structure is patrilineal, so married sons usually live in their family homes with their wives.
Metal Roofs [-]: Percentage of households with a metal/tin roof Roofing material is a proxy indicator of wealth (UN Global Pulse, 2014). In Bangladesh, metal roofs correlate most closely with the lowest wealth quintile. The inverse relationship is consistent with the finding that areas most vulnerable to TIP are not those of the lowest wealth quintile, but rather the lower-middle and middle wealth quintiles.

Our TIP vulnerability measure has a high predictive value for TIP in Bangladesh, as confirmed by CTC-reported prosecutions, government reports, NGO reports, and the academic literature. Although the final vulnerability measure is composed of a relatively small subset of indicators that represent the optimal combination characteristic of the TIP ecosystem, the analysis reflects the full sociocultural-economic ecosystem. Indicators that were excluded from the final measure are indicators that: a) do not have significant associations with TIP, either in a positive or negative capacity, or b) that correlate so strongly with those in the final measure that their inclusion would be redundant.

We have confirmed our analysis through "hind-casting," which consists of testing the model against known occurrences in the past. The purpose of hind-casting is to see if the model correctly predicts areas of known TIP when the parameters for those areas are used as input for the model. When the TIP vulnerability measure is hind-casted with CTC-reported trafficking cases per 100,000 population, we see that the vulnerability measure is a strong, statistically significant predictor of TIP.[15] When our vulnerability measure was hind-casted, it correctly identified among the top eight, the six zilas with the highest prevalence of the 38 zilas that reported trafficking cases in 2016 or 2018. The probability of this occurring by random chance is approximately one in 50,000.

Figure 6 is a map that applies the vulnerability measure to the population. Each vulnerability measure is combined with the population to reveal concentrations of populations that have the combinations of characteristics where TIP occurs, as identified through weak-signal analysis. We refer to this as the population's vulnerability to TIP and can translate it into a probabilistic assessment predictive of the number of people within a population that are likely to experience TIP.

The vulnerability map is analogous to the vulnerability maps that are used for natural hazards and should be interpreted in a similar fashion. First-generation hazard vulnerability maps simply used the locations of known past events to predict future vulnerability. As the understanding of the ecosystem in which natural hazards occur improved, scientists were able to identify vulnerability in locations where events were previously unknown. Over time, these projections were validated with new events, and the

[15] The TIP vulnerability measure has an R-squared value = 0.37 with the CTC-reported trafficking cases per 100,000 population, and the p-value is less than 0.05, allowing us to reject the null hypothesis that the relationship occurred by chance.

number of hazard victims were dramatically reduced because of proactive measures to reduce vulnerability. The vulnerability analysis for TIP in Bangladesh follows the same developmental logic. By analyzing the ecosystem in which TIP is occurring, we can assess the potential of other locations to support TIP activity and reduce victimization through proactive measures. The corresponding values used in the map, along with a ranking for each zila and estimates of prevalence, are presented in Table 2.

The scale is a relative ranking with areas that are most vulnerable to TIP shown in red and areas that have the lowest vulnerability shown in blue. The higher the vulnerability, the increased likelihood for TIP activity. The map is composed of 176,449 pixels, each with an area of 30 seconds x 30 seconds (approximately 1km^2). We forgo the approach of displaying our results on land area and instead display our results referenced to population. Such a display helps identify hotspot areas, where there may be large concentrations of vulnerable populations. Two messages are conveyed simultaneously: the color shade indicates the vulnerability index of the location, and the density of color indicates the sizes of vulnerable populations.

Figure 6: TIP Vulnerability Map for Bangladesh

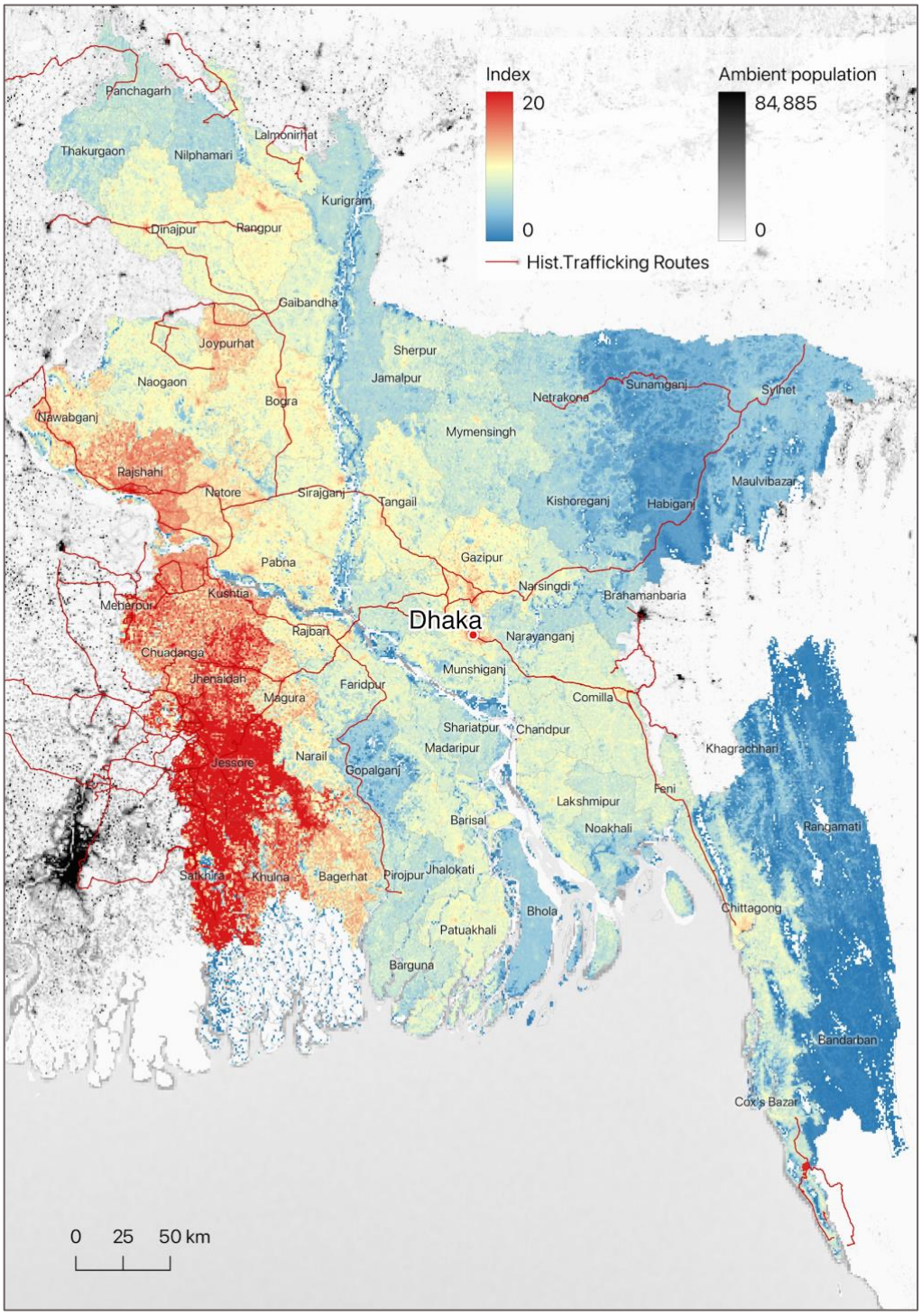

Figure 6 caption: Geospatial presentation of vulnerability to TIP, applying a composite measure to values at the zila level and to population estimates at the scale of approximately 1km^2 (Rose et al., 2020). The map is composed of 176,449 discrete values. Historical trafficking routes are shown as red lines (Shamim and Kabir, 1998 quoted in Gazi et al., 2001). Rohingya refugee camps in Cox's Bazaar are colored in red (Site Management Sector, Office of the Refugee Relief and Repatriation Commissioner, Inter-Sector Coordination Group, 2021). The 2019 ambient population outside Bangladesh is shown in grayscale (Rose et al., 2020). District and zila boundaries are shown in grey and labeled (Bangladesh Bureau of Statistics, 2018).

Table 2 includes the vulnerability measure, the projected prevalence (per 1,000 population), and the projected number of TIP victims for each zila. The prevalence rate and number of victims are projected from the vulnerability measure. In allocating resources for CTIP, one is often looking to reduce the number of victims in the most cost-efficient manner. One therefore may want to prioritize areas where there is the combination of prevalence rate and population that represents the highest density of potential victims. Prevalence estimates can be misleading when used by themselves. For example, a zila with a low prevalence rate but high population can contain more TIP victims than a zila with a high prevalence rate and low population. We therefore include projected victims with projected prevalence to account for population differences.

Table 2: TIP Vulnerability Measures by Zila

ZILA	VULNERABILITY MEASURE	PROJECTED PREVALENCE	PROJECTED VICTIMS	POPULATION	RANKING
Satkhira	8.64	15.7	31,261	1,985,959	1
Jessore	7.7	12.4	34,349	2,764,547	2
Jhenaidah	6.28	8.7	15,332	1,771,304	3
Khulna	5.81	7.7	17,814	2,318,527	4
Meherpur	5.82	7.7	5,048	655,392	5
Rajshahi	4.98	6.2	16,142	2,595,197	6
Chuadanga	5.12	6.4	7,274	1,129,015	7
Kushtia	4.91	6.1	11,899	1,946,838	8
Bagerhat	4.29	5.2	7,716	1,476,090	9
Joypurhat	4.26	5.2	4,737	913,768	10
Magura	4.2	5.1	4,689	918,419	11
Nawabganj	3.97	4.8	7,923	1,647,521	12
Natore	3.95	4.8	8,182	1,706,673	13
Pabna	3.56	4.3	10,943	2,523,179	14
Rangpur	3.44	4.2	12,120	2,881,086	15
Bogra	3.39	4.2	14,124	3,400,874	16
Naogaon	3.42	4.2	10,873	2,600,157	17
Gazipur	3.35	4.1	14,005	3,403,912	18
Rajbari	3.58	4.4	4,573	1,049,778	19
Dinajpur	3.32	4.1	12,199	2,990,128	20
Narail	3.61	4.1	3,169	721,668	21
Dhaka	2.95	3.7	44,802	12,043,977	22
Tangail	3.18	3.9	14,200	3,605,083	23
Sirajganj	3.13	3.9	12,051	3,097,489	24
Patuakhali	3.18	3.9	6,056	1,535,854	25
Barisal	2.98	3.7	8,693	2,324,310	26
Lalmonirhat	3.06	3.8	4,798	1,256,099	27

ZILA	VULNERABILITY MEASURE	PROJECTED PREVALENCE	PROJECTED VICTIMS	POPULATION	RANKING
Faridpur	2.95	3.7	7,114	1,912,969	28
Gaibandha	2.88	3.6	8,681	2,379,255	29
Comilla	2.7	3.5	18,810	5,387,288	30
Chittagong	2.57	3.4	25,708	7,616,352	31
Lakshmipur	2.83	3.6	6,234	1,729,188	32
Chandpur	2.71	3.5	8,445	2,416,018	33
Mymensingh	2.53	3.3	17,066	5,110,272	34
Narsingdi	2.64	3.4	7,642	2,224,944	35
Feni	2.69	3.5	4,997	1,437,371	36
Sherpur	2.7	3.5	4,732	1,358,325	37
Munshiganj	2.66	3.4	4,987	1,445,660	38
Madaripur	2.67	3.5	4,037	1,165,952	39
Barguna	2.63	3.4	3,057	892,781	40
Manikganj	2.53	3.3	4,652	1,392,867	41
Cox's Bazar	2.43	3.3	7,462	2,289,990	42
Thakurgaon	2.5	3.3	4,609	1,390,042	43
Noakhali	2.36	3.2	9,948	3,108,083	44
Pirojpur	2.53	3.3	3,716	1,113,257	45
Panchagarh	2.45	3.3	3,233	987,644	46
Narayanganj	2.22	3.1	9,102	2,948,217	47
Shariatpur	2.33	3.2	3,665	1,155,824	48
Netrakona	2.17	3	6,798	2,229,642	49
Kurigram	2.11	3	6,206	2,069,273	50
Nilphamari	2.08	3	5,465	1,834,231	51
Jhalokati	2.22	3.1	2,110	682,669	52
Brahamanbaria	1.97	2.9	8,238	2,840,498	53
Jamalpur	1.96	2.9	6,634	2,292,674	54
Kishoreganj	1.78	2.8	8,039	2,911,907	55
Gopalganj	1.78	2.8	3,235	1,172,415	56
Sylhet	1.56	2.6	8,963	3,434,188	57
Khagrachhari	1.74	2.7	1,679	613,917	58
Bhola	1.58	2.6	4,662	1,776,795	59
Maulvibazar	1.46	2.5	4,879	1,919,062	60
Sunamganj	1.07	2.3	5,686	2,467,968	61
Rangamati	1.09	2.3	1,383	595,979	62
Habiganj	0.71	2.1	4,391	2,089,001	63

ZILA	VULNERABILITY MEASURE	PROJECTED PREVALENCE	PROJECTED VICTIMS	POPULATION	RANKING
Bandarban	0.43	2	761	388,335	64

Table 2 caption: Corresponding rankings for the zilas. The ranking color corresponds to the predominant pixel color in the map (Figure 6). For Cox's Bazar, we differentiate between the vulnerability of the host population and the vulnerability of the Rohingya.

Several of the zilas most vulnerable to TIP share a border with the West Bengal, a state in India. Bangladesh has been previously recognized as a source area for trafficking and India is the largest destination (US DoS, 2020). It has been estimated that approximately 15,000 women and children are trafficked from Bangladesh into India every year, reaching Kolkata, Mumbai, Pune, and other cities (Rahman, 2011). Language, cultural similarities, and a permeable border between West Bengal and Bangladesh contribute to the high vulnerability of the western zilas.

The reported trafficking cases are consistent with our vulnerability map. When trafficking case data are normalized to 100,000 population, five of the highest seven case zilas have a border with India.[16] The high vulnerability of zilas along the western border is consistent with the recognition of West Bengal as a major sex trafficking hub throughout the Indian subcontinent and across the Middle East (e.g., Bhalla, 2017; Sumra, n.d.). Sonagachi, in central Kolkata, is one of the largest red-light districts in Asia. Approximately 50,000 sex workers are estimated to work in West Bengal, with half of them or more in Kolkata (Sarkar et al., 2008).

Cox's Bazar recorded the highest trafficking cases per capita of any zila in Bangladesh in 2016 and 2018. The high levels of sex and labor trafficking are largely associated with the population of Rohingya refugees. The Rohingya are not considered citizens of Bangladesh and are therefore not afforded full rights under the Bangladeshi constitution. The Bangladeshi High Court has not entertained anti-trafficking cases filed by Rohingya refugees. Additionally, there have been allegations that some Bangladeshi officials facilitate trafficking of Rohingya (US DoS, 2020a).

While one might speculate that rural, poor populations would be most vulnerable to the promise of false opportunities that result in TIP, our data analysis reveals more nuanced circumstances. Vulnerable zilas have higher values for indicators associated with gender inequality and VE than the remaining zilas. The traditional narrative that poverty is the main driver for human trafficking may be an oversimplification. GDP per capita, poverty levels, female paid employment levels, and wealth quintiles correlate less strongly with both the vulnerability index and with cases of TIP than measures of gender inequality.[17]

In Bangladesh, vulnerability is highest among lower-middle to middle class populations with moderate levels of income and education, who adhere to the traditional gender norms of a male-dominated patriarchal society and have access to an urban center. Populations that have high vulnerability to TIP are characterized as more rural, where a strong patriarchal culture supports traditional gender roles, but do not necessarily live in areas with poor female education or health. Such populations

[16] The weak-signal analysis treats Cox's Bazar separately because the area is occupied by Rohingya refugees from Myanmar, so its socioeconomic characteristics are anomalous.

[17] There is a slight positive correlation between GDP per capita and TIP case numbers.

characteristically have access to a city or larger town, which often brings higher rates of education, wealth, and access to technology, which allows for exposure to TIP.

Positive relationships between vulnerability to TIP and radio ownership, bicycle ownership, shingled roofs, and children with books suggest linkages between TIP and moderate wealth and education. The positive relationship between vulnerability to TIP and women knowing of HIV/AIDS, women giving birth in a medical facility, and women using contraceptives, combined with a negative relationship with U5 mortality suggests that TIP is less prevalent among the most impoverished zilas. While there may be under-reporting from that socioeconomic group, they may also be outside the sphere of access to traffickers. In Bangladesh, potential victims looking for a better life may present themselves to traffickers, but it takes wealth and mobility to place oneself in environments with exposure to traffickers.

Positive relationships between vulnerability to TIP and the percentage of women earning no income due to societal constraints reflects a lack of social and economic mobility among women, which suggests high levels of gender inequality. High U18 and 15-17 female child marriage rates also signify gender inequality. A high percentage of male household heads is emblematic of a patriarchal society.

A recent example illustrates our findings. In June 2021, Bangladesh police arrested a trafficking gang that reportedly lured over 1,000 women and girls into the Indian sex trade through social media (Khaleej Times, 2021). The gang would invite young girls to parties, principally through TikTok, and promise to make them TikTok models and video stars. The girls were also promised well-paying jobs in call centers and service centers in India. The victims had access to engage with and skill sets to use technology and social media, sufficient financial resources to meet with the traffickers and attend parties and were looking for economic opportunities and upward mobility.

Overall, zilas that have high levels of vulnerability to TIP in Bangladesh are characterized by high levels of societal and structural gender inequality, despite some high female empowerment measures, like educational standing and health services for women. Although not directly addressed by these data, one could reasonably infer that trafficking afflicts lower-income populations within zilas that are trending upward economically. Females, perhaps disillusioned by a society that places strict expectations on their lives, may be more likely to seek alternative opportunities and fall victim to TIP, especially if they already have access to information and media and are close to an urban center.

Gender inequality has been previously associated with increased vulnerability to human trafficking (Noeleen, 2002:3; Rahman, 2011; UNODC, 2018) and VE (UNODC, 2008). Bangladesh is a male-dominated, patriarchal society. Rural areas are highly influenced by mullahs (local religious leaders), imams (mosque prayer leaders), and d'objectifs (village political elites) who promote patriarchal hierarchies and male-dominated social norms (Rahman, 2020). Several studies across nations suggest that perceived "threats to masculinity" or transgressions of entrenched norms may incite violence against women (e.g., Duvvury et al, 2002). The threat to the traditional male masculinity model may be due to long-held cultural perceptions that men hold roles in society as providers and protectors. Such roles can be threatened by programs that focus solely on empowering women. If women are provided opportunities that are not available to men, it can foster resentment and exacerbate violence against them (Rahman, 2020). Thus, it is important to also implement programs that engage communities in reassessing societal attitudes towards masculinity and traditional gender roles.

The government of Bangladesh, with help from the international community, has been making strides in improving female empowerment. Within a generation, the female education gap in Bangladesh has been eliminated, when comparing women aged 45-49 with women aged 20-24. The increase in formal education for females is twice that of males. Other benefits for women and girls have also been realized, including an increase in the age of first child from 17.7 years to 18.6 years (National Institute of Population Research and Training and ICF, 2020), and an increase in female life expectancy from 66 years to 75 years (World Bank, 2021). While many of the negative consequences associated with child marriage have been mitigated, the broader consequences of gender inequality persist. The illegal dowry system continues. Most women experience violence during their lifetime, and 17.1 percent of women in 2015 (compared with 14.9 percent of women in 2011) are restricted from contact with their families by their spouse (Bangladesh Bureau of Statistics, 2016). Despite the 2017 Marriage Act, Bangladesh still ranks among the highest child marriage rates in the world, with most girls marrying before the legal age of 18.

In looking at future interventions, it may be important to differentiate female empowerment from gender equality. UN SDG 5, "achieve gender equality and empower women and girls," links the concepts of female empowerment and gender equality. Female empowerment and gender equality share a sociocultural ecosystem, with historically little differentiation between them in the goals set by development organizations. Analyzing the two concepts as separate entities, however, may be helpful in better understanding better how various societal factors affect the achievements and conversely, the subjugation of females, and their roles in the sociocultural ecosystems of TIP. Intuitively, interventions would need to address societal norms that propagate traditional male and female responsibilities, and include young males in female-focused development initiatives before age ten, when gender roles and expectations begin to be imprinted (Blum et al., 2017).

III. RECOMMENDATIONS AND CONCLUSIONS

Detailed geographically-targeted recommendations specific to the most vulnerable zilas are presented in in Annex 1. The following consist of cross-cutting and more general recommendations that are based on the findings of our analysis and are supportive of the prioritized recommendations of the TIP Report (US DoS, 2021):

1) Consider investments in democracy, governance, and human rights as investments in CTIP

Our analysis of the relationship between the TIP reports, national GSI estimates of TIP prevalence, and various economic and governance measures demonstrates that the traditional economic hypotheses that TIP arises from elevated poverty and unemployment may now be an oversimplification. Economic measures, such as the unemployment rate, poverty rate, and GDP, have only weak relationships with both TIP prevalence estimates and the US's TIP tier rankings. Bangladesh's indicators on corruption (Transparency International, 2019), ease of doing business (World Bank Group, 2020), and press freedom (Reporters Without Borders, 2019) are low outliers for a Tier 2 nation and more similar to Tier 3 nations. The strong statistical relationships revealed through our analysis between these metrics and the TIP tier rankings and prevalence estimates suggest that problems with governance, transparency, and corruption should be addressed as part of the overall CTIP strategy. See Annex 3 for more information.

2) Include reduction of child marriage in CTIP

Our analysis reveals that child marriage and TIP are interrelated within a common socioeconomic ecosystem. Many of the same strategies that one would apply to reducing child marriage are strategies that will reduce vulnerability to TIP. See Annex 4 for more information.

3) Differentiate female empowerment from societal gender equality, and formulate strategies specifically designed to reduce societal gender inequality

Weak-signal analysis reveals several indicators strongly associated with vulnerability that reflect high gender inequality and traditional male-dominated, patriarchal norms. Indicators that reflect more narrowly female empowerment (e.g., female education) have weaker relationships. Our analysis indicates that CTIP efforts would strongly benefit from complementing efforts to increase female empowerment with interventions targeted specifically at reducing societal gender inequality. Intuitively, such interventions would need to address societal norms that propagate traditional male and female responsibilities and include young males in female-focused development initiatives before age ten, when gender roles and expectations begin to be imprinted.

4) Increase CTIP training and awareness on the Western border with India

Weak-signal analysis reveals that several of the most vulnerable zilas are along the border with Bengal, India. CTIP strategies in those areas should include: a) increasing awareness of human trafficking and safe migration practices along border regions, formal and informal border crossings, tourism areas, and transportation hubs; b) training and incentivizing police, employers, and community leaders to identify, assess, and deal with trafficking; and c) raising the roles and prevalence of women in border police offices. Such border efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

5) Increase value of on-going UNICEF and United States Agency for International Development (USAID) household surveys

Our analysis made extensive use of household surveys supported by UNICEF (MICS) and USAID (Demographic and Health Surveys [DHS]) to understand varying sociocultural ecosystems. The openly available datasets that accompany these surveys are essential sources of subnational data. However, we found the surveys lacking in that they did not include substantive questions related to TIP, and questions on attitudes towards violence against women have inconsistently appeared and disappeared from the MICS surveys over the years. We also found significant discrepancies in the methodology and findings of surveys on child marriage. MICS consistently publishes lower values nationally than the DHS, with the 2011 DHS rate being over ten percentage points higher than the 2012 MICS rate. Our time-series analysis was also limited because the surveys are not scheduled on a coordinated basis. In Bangladesh, MICS and DHS surveys have occasionally been conducted close to the same time (e.g., the DHS 2011 and MICS 2012 surveys were conducted within a year of each other), and then there have been gaps of several years between surveys.

6) Increase availability of CTC and police reporting data

As evidenced in our analysis, data collected by the CTCs are important for prioritizing and targeting CTIP efforts. The MHA releases reports that include CTC data. These data, however, need to be released in a more timely and consistent manner. Similarly, data on human trafficking collected by the Bangladesh police are also of enormous potential value. These data should be anonymized but made available in a timely manner with geographic and demographic information.

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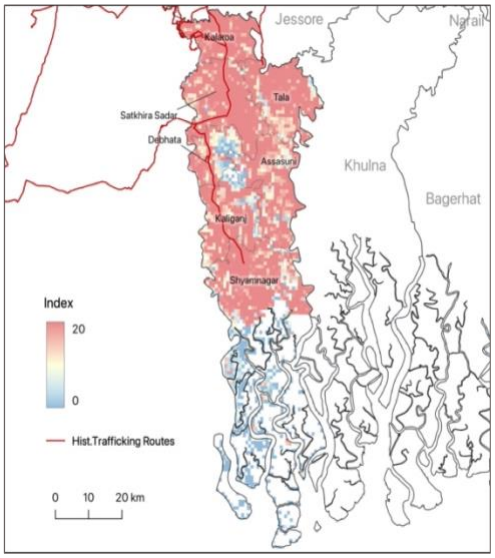
ANNEX 1. GEOGRAPHICALLY-TARGETED INTERVENTIONS BY ZILA

CONTENTS

1) Satkhira
2) Jessore
3) Jhenaidah
4) Khulna
5) Meherpur
6) Rajshahi
7) Chuadanga
8) Kushtia
9) Bagerhat
10) Joypurhat
11) Magura
12) Nawabganj
13) Natore
14) Pabna
15) Rangpur
16) Bogra
17) Naogaon
18) Gazipur
19) Rajbari
20) Dinajpur
21) Narail
22) Dhaka
23) Tangail
24) Sirajganj
25) Paktuakhali
26) Barisal
27) Lalmonirhat
28) Faridpur
29) Gaibandha
30) Comilla
31) Chittagong
32) Cox's Bazar

Satkhira, Khulna

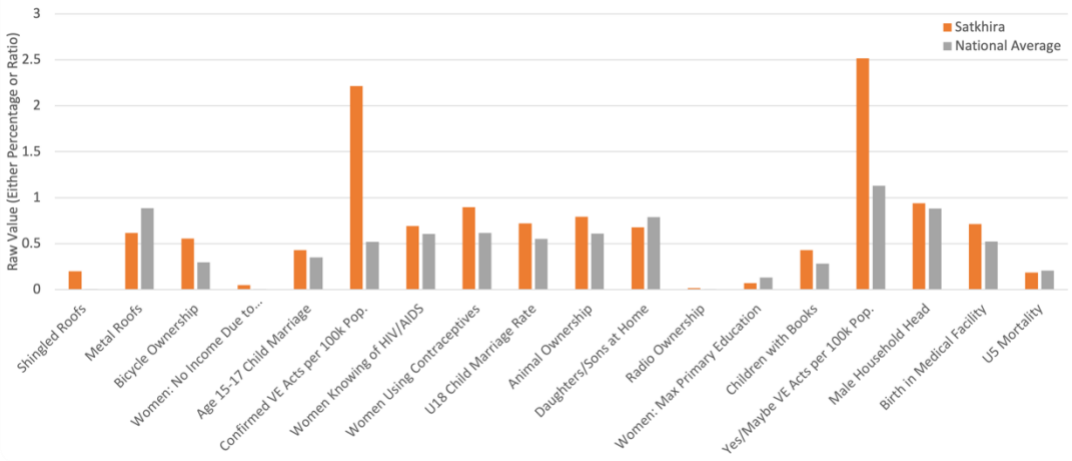


TIP Vulnerability Score:			Rank:
0.43	8.64	8.64	1/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	15.74	15.74	1/64
Number of Victims Estimate:			
761	31,261	44,802	3/64

Socio-Economic Measures

Population: 1,985,959 (#31)
Percent Urban: 9.6% (#62)
Poverty Incidence: 46.3% (#9)
Female Secondary School Completion: 69.2% (#6)
Households with Electricity: 81.6% (#49)
GNI per Capita (thousands of USD): 3.134 (#49)
Human Development Index: 0.620 (#19)
Percent of women who feel a husband is justified in beating his wife: 14.7% (#54)
Violent Extremism: 43 events since 2010 (#3)
U15 Child Marriage: 28.8% (#6)
U18 Child Marriage: 41.4 (#57)

TIP Vulnerability Measure for Zila & National Average Values



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Summary Description

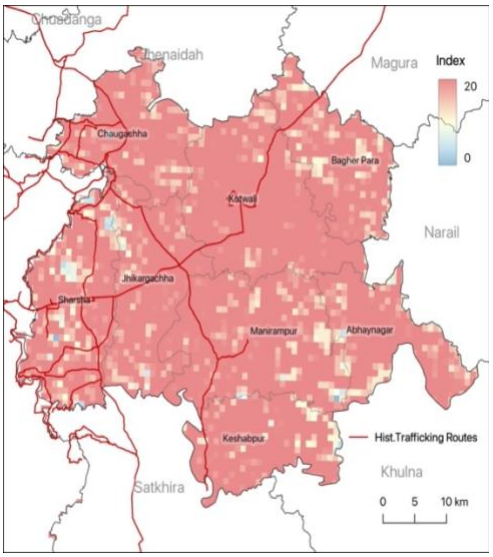
- Satkhira is the southwestern most zila in Bangladesh, sharing a long southeastern border with West Bengal and a coastline on the Bay of Bengal. The zila is geographically closest to Kolkata's metropolitan area, which is a known destination hub for trafficking. It is predominately an agricultural and aquacultural society, with high levels of unemployment and high levels of poverty.
- Satkhira is ranked as the highest vulnerability zila.
- Satkhira has high levels of VE, ranking 10th in confirmed VE events (normalized for population). Extremism contributes to greater security risks and shares a common ecosystem with TIP.
- Satkhira is one of the main centers for shrimp processing in Bangladesh. The industry is recognized as having high levels of adult and child trafficking, and large numbers of female laborers (US DoS 2021).
- While Satkhira ranks high in some female empowerment measures, it has high societal gender inequality. It has high U15 and U18 marriage rates, and high levels of women experiencing threats and physical abuse from their spouse.
- The Bhomra land port near the Indian border, which was recently constructed, is one of the main land ports in Bangladesh (after Benapole in Jessore). The land port facilitates high volumes of traffic across the border, mostly to and from Kolkata, India.

Geographically-Targeted Interventions

In Satkhira, high priority interventions include addressing exploitation within the shrimp industry, training and incentivizing border patrols to recognize trafficking, and engaging males, especially boys (age 5-10), in programs to reduce gender inequality. It is estimated that 40 percent of shrimp workers are female and 28 percent are U15 (Verité, 2016). Methods to decrease labor exploitation within the shrimp industry should include labor inspections of shrimp farming and processing plants, the development of formal and transparent recruitment practices, instituting health and safety standards for certification, and educating both law enforcement personnel and health inspectors to recognize exploitive labor practices and identify victims. Both the vulnerability associated with exploitive industries and the high levels of gender inequality could be reduced by raising the status of working females. Programs should be implemented to provide management and leadership training. So as not to inadvertently exacerbate the high level of existing gender inequality, such management and leadership training should also include males.

Satkhira is amongst the highest volume border crossing points to India and contains several traditional trafficking routes including the Bhomra Land Port, and the villages of Hijaldi, Damdam, Bhaldi, and Chanduria. In response to COVID-19, border patrolling efforts have been increased in Satkhira to limit cross-border travel. The increased border control efforts should be continued and expanded to include efforts at reducing human trafficking, specifically: a) increasing awareness of human trafficking along the border, b) training and incentivizing border patrols to identify and deal with trafficking, and c) raising the roles and prevalence of female officers within the border patrol. Such border efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

Jessore, Khulna

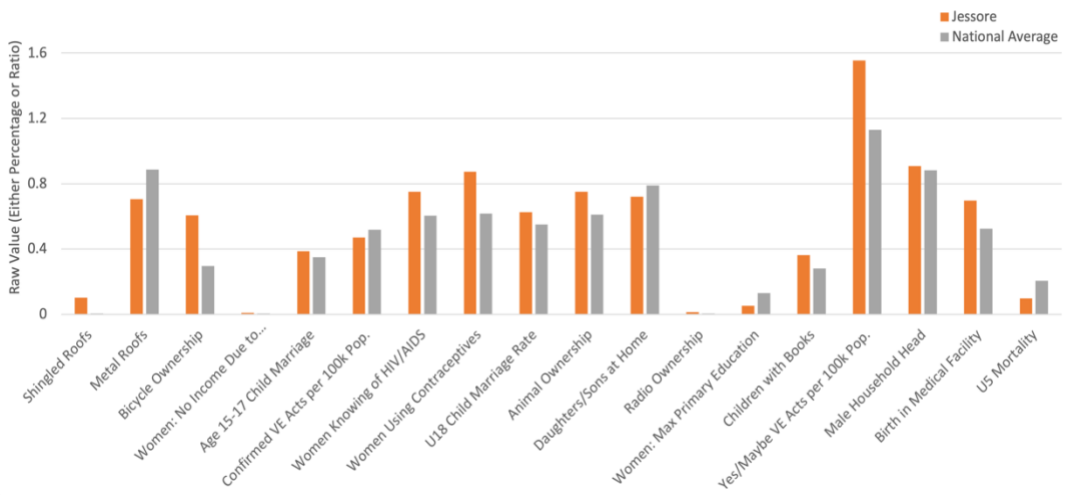


TIP Vulnerability Score:			Rank:
0.43	7.70	8.64	2/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	12.42	15.74	2/64
Number of Victims Estimate:			
761	34,349	44,802	2/64

Socio-Economic Measures

Population: 2,764,547 (#16)
Percent Urban: 18.1% (#20)
Poverty Incidence: 39.0% (#18)
Female Secondary School Completion: 68.3% (#8)
Households with Electricity: 97.5% (#12)
GNI per Capita (thousands of USD): 3.707 (#25)
Human Development Index: 0.622 (#16)
Percent of women who feel a husband is justified in beating his wife: 23.5% (#37)
Violent Extremism: 12 events since 2010 (#13)
U15 Child Marriage: 24.0% (#21)
U18 Child Marriage: 61.7 (#22)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

- Jessore is both a major transit and origin point for sex trafficking, as well as a source and destination for labor trafficking. It contains the large industrious city of Jessore.
- Almost 50 percent of total cross-border trafficking takes place through the Benapole Land Port in Jessore, making it a main transit point into India. The border of Jessore is porous and there are many known transit points throughout the zila.
- Jessore is a lower-to-middle wealth zila with high percentages of electricity and female secondary school completion rates. This suggests that the population in general has access to health and education services, but the high U15 child marriage rate suggests a zila with high gender inequality.
- VE events in this zila are typically associated with local actors rather than confirmed regional actors or transnational organizations.
- Jessore is a well-connected hub for transport across Bangladesh, with rail connections to Kolkata, Dhaka, and Khulna, along with large numbers of roads and public air transport to Dhaka and Chittagong.

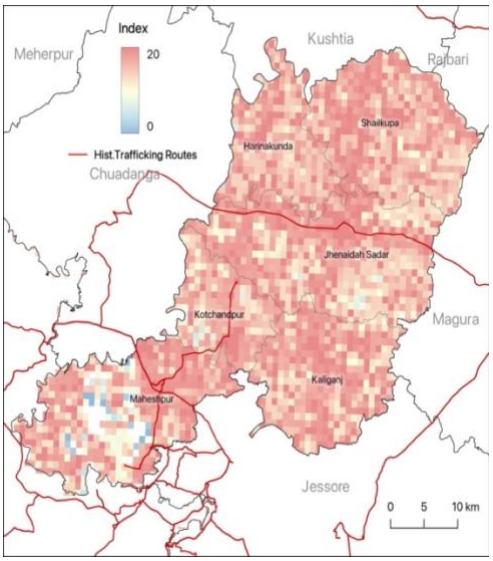
Geographically-Targeted Interventions

In Jessore, high priority interventions include programs to address human trafficking along the border with India and the Benapole Land Port, developing and instituting labor regulations and oversight for those working in the textile industry, and increasing awareness of trafficking among community leaders and law enforcement.

The Benapole Land Port should be a focal point for CTIP efforts in Jessore and southwest Bangladesh as it is an access point for cross-border trafficking into India. Around 50 percent of all cross-border trafficking between India and Bangladesh occurs via this point. The Border Patrol and Benapole Land Port Authority should include training on identifying human trafficking, increasing enforcement presence in nearby villages (specifically Shalkuna, Shikarpur, Beanpole, Goga, Chanduria, Putkhali, and Bahadurpur), and working with community leaders to identify and take steps to disrupt traffickers and to develop safe channels for migration. These efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

The textile manufacturing industry engages over 32,000 people in Jessore and is an important non-agricultural employer. The industry is particularly vulnerable to TIP as 80 percent of the workers are female. The textile industry should increase and enforce health and safety inspections, conduct and report on investigations of trafficking, hold trainings on how to recognize and report exploitation in the workforce, and support training in legal labor practices and worker advocacy.

Jhenaidah, Khulna

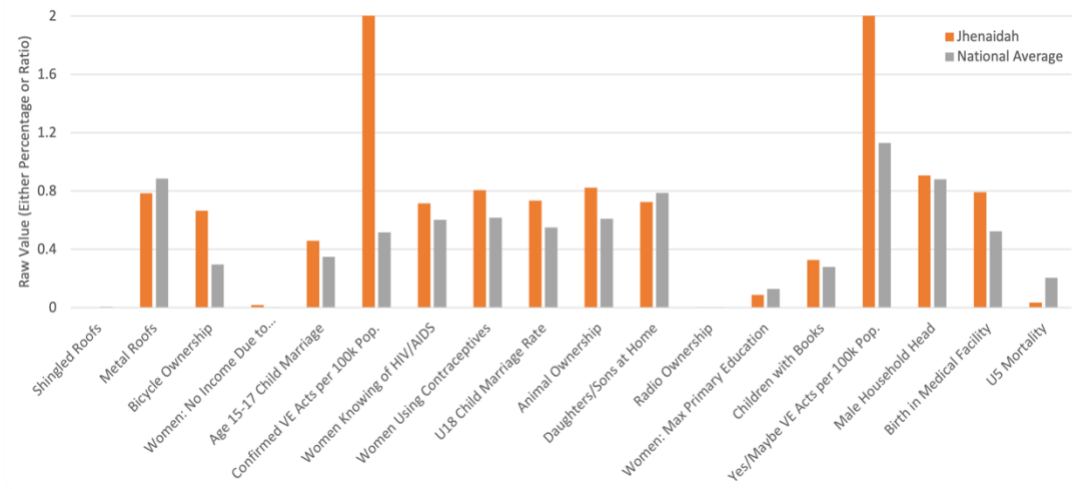


TIP Vulnerability Score:			Rank:
0.43	6.28	8.64	3/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	8.66	15.74	3/64
Number of Victims Estimate:			
761	15,332	31,261	9/64

Socio-Economic Measures

Population: 1,771,304 (#37)
Percent Urban: 16.3% (#28)
Poverty Incidence: 24.7% (#50)
Female Secondary School Completion: 67.4% (#15)
Households with Electricity: 96.2% (#16)
GNI per Capita (thousands of USD): 4.241 (#12)
Human Development Index: 0.610 (#29)
Percent of women who feel a husband is justified in beating his wife: 14.4% (#55)
Violent Extremism: 29 events since 2010 (#6)
U15 Child Marriage: 27.4% (#8)
U18 Child Marriage: 60.4 (#24)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

- Jhenaidah is located in west-central Bangladesh. Its western border with India has served as a transit point for cross-border trafficking into West Bengal. It is also a transport hub within Khulna, with many highways from surrounding regions, including the Daulatdia-Mongla Highway, which connects the Dhaka ferry system to the port of Mongla in Bagerhat and passes through several major cities.
- Most TIP cases recorded here are sexual and labor exploitation of women and children, both as a source and transit point into India.
- Jhenaidah is one of Bangladesh's hubs for VE, with the highest prevalence of VE events normalized to population. VE events occur at a rate of nearly four times the national average.
- Agriculture is the primary industry. Jhenaidah has a large mango acreage and many rice fields. There is a growing commercial and industrial sector in the city of Jhenaidah.
- Jhenaidah has the lowest U5 mortality rate in Bangladesh, the third-highest rates of births in medical facility, and relatively strong female secondary school completion. However, high U15 and U18 child marriage rates and only 38 percent of women receive paid employment, which indicates high gender inequality.
- Jhenaidah is currently receiving hundreds of millions of dollars in economic assistance from the World Bank to improve regional mobility.

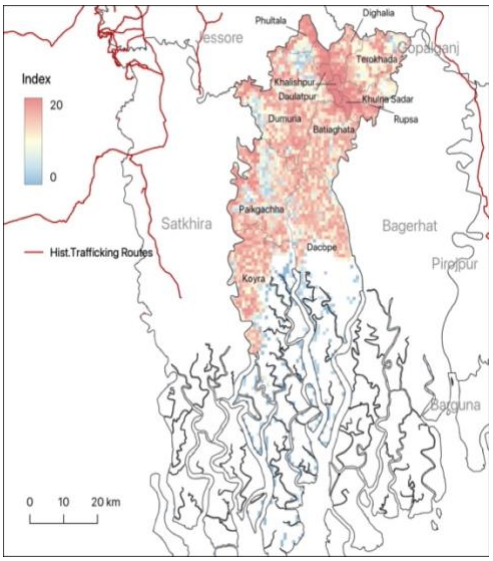
Geographically-Targeted Interventions

In Jhenaidah, high priority interventions include increasing awareness of trafficking among community leaders and law enforcement, training and incentivizing border patrols to recognize trafficking, coordinating CTIP efforts with efforts to counter VE, and reducing gender inequality.

In January 2020, Bangladesh announced the Western Economic Corridor and Regional Enhancement Project to finance upgrades of national highways from Jessore to Jhenaidah (48 km) and associated feeder roads and rural market infrastructure. Interventions could include working with the border patrol and community leaders alongside the World Bank transportation project to increase awareness of trafficking, especially along known trafficking routes. The Jhenaidah border crossing would benefit from increased training and incentivizing border patrols to identify and respond to human trafficking, particularly in the villages of Matila, Lairaighat, Samanta, and Khoshalpur.

In addressing high gender inequality, programs should be developed to provide opportunities for females and to raise the status of working females. Such programs should engage males so as not to inadvertently exacerbate the high levels of gender inequality. To improve the status of women in the society, the zila should focus on empowering women through community programs, implementing early childhood education programs, and educating both men and women on the benefits of gender equality, especially focusing on economic and social benefits. When men are encouraged to value women as equals and are actively involved in the process of empowering women, societal attitude and structures can change more rapidly. Due to the similar ecosystems of VE and TIP, efforts to reduce VE and human trafficking should be coordinated. Access to anti-radicalization educational curricula, should be expanded, especially in the Alia madrasahs due to high population of Muslims and other public schools.

Khulna, Khulna

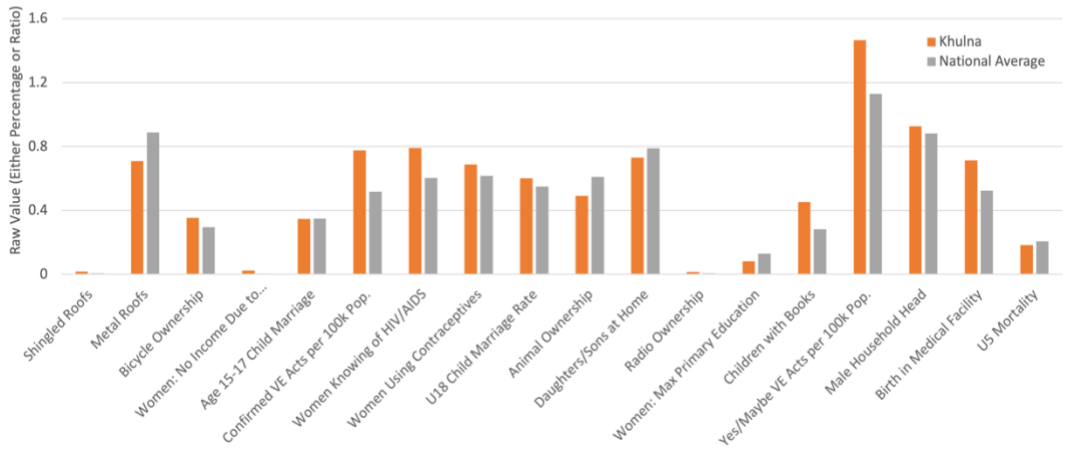


TIP Vulnerability Score:			Rank:
0.43	5.81	8.64	4/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	7.68	15.74	5/64
Number of Victims Estimate:			
761	17,814	31,261	6/64

Socio-Economic Measures

Population: 2,318,527 (#24)
Percent Urban: 33.7% (#5)
Poverty Incidence: 38.8% (#19)
Female Secondary School Completion: 65.8% (#24)
Households with Electricity: 86.4% (#40)
GNI per Capita (thousands of USD): 3.134 (#49)
Human Development Index: 0.620 (#19)
Percent of women who feel a husband is justified in beating his wife: 32.3% (#18)
Violent Extremism: 14 events since 2010 (#11)
U15 Child Marriage: 25.6% (#13)
U18 Child Marriage: 58.9 (#27)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

- Khulna is on the western side of Bangladesh and its southern border is the Bay Bengal.
- The city of Khulna is the third-largest city in Bangladesh and a major urban center for business and commerce. The city also hosts a base for the Bangladeshi Navy and the Port of Mongla, a major seaport. The rest of zila contains farmland and a UNESCO World Heritage Site, the Sundarbans (a mangrove forest), which is a leading destination for small tourism.
- Khulna has a significantly higher number of VE events per capita than other districts and zilas (both confirmed and unconfirmed).
- While Khulna has a large number of educational institutions (two universities and eight government colleges), female education levels are only slightly above average.
- Khulna is mainly a transit point for TIP, serving as a source at times, with the majority being sex TIP of women and children.
- A high percentage of women responded that they do not work due to societal constraints and high child marriage rates indicate gender inequality.

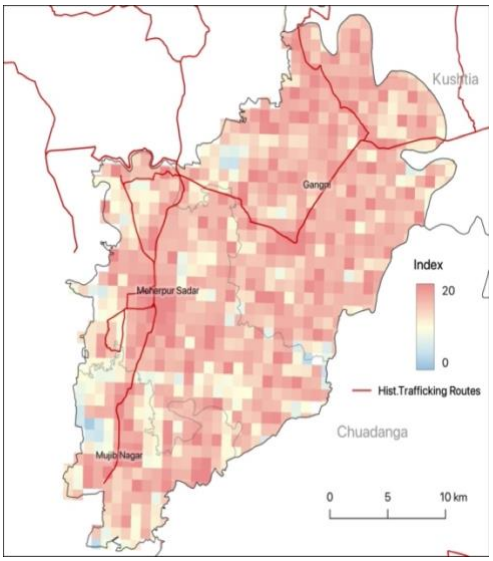
Geographically-Targeted Interventions

In Khulna, high priority interventions include enhanced trainings for officials and police on identification of human trafficking and victim services, empowering women within the educational and economic sectors, and encouraging female participation within the economy and educational attainment. Khulna mainly serves as a transit location for cross-border trafficking of women and children to India (Kolkata). The city itself has a large population and several transit hubs from the highways to the Mongla port. Trainings should be enhanced for officials and police to recognize human trafficking. The transit trafficking for the zila is mostly sex trafficking for women and children. An expansion of victim services that victims can be referred to should also be expanded and offered to both men and women who have experienced trafficking.

There is a large amount of VE, which shares a similar ecosystem as TIP and promotes instability and security concerns with the zila. Due to the similar ecosystems of VE and TIP, efforts to reduce VE and human trafficking should be coordinated, especially in the Kotwali (Khulna Sadar) upazila, where many of the recorded VE events have occurred. There are many colleges and universities in Khulna, but factions of the Bangladesh Chhatra League recruit and organize from these educational institutions. Anti-radicalization programs should occur at every level of education in Khulna, especially at the university level.

It is also noted that while men have impressive educational levels in Khulna, women are not attending universities or completing secondary school at the same rate. Programs to encourage the education of females and the eventual hiring of women being acceptable in the society are needed to give women autonomy and choice within their lives.

Meherpur, Khulna

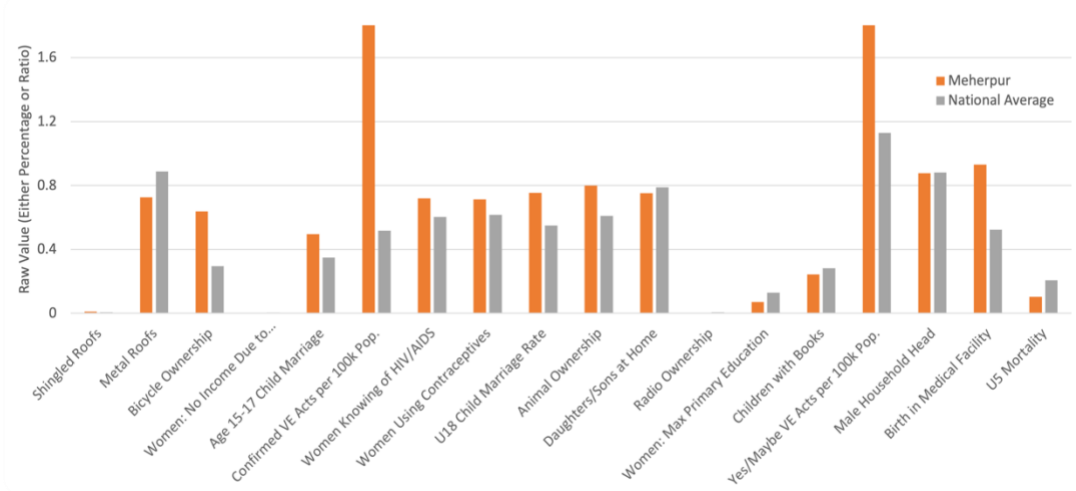


TIP Vulnerability Score:			Rank:
0.43	5.82	8.64	5/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	7.70	15.74	4/64
Number of Victims Estimate:			
761	5,048	31,261	41/64

Socio-Economic Measures

Population: 655,392 (#61)
Percent Urban: 11.6% (#54)
Poverty Incidence: 15.2% (#61)
Female Secondary School Completion: 69.0% (#7)
Households with Electricity: 97.5% (#12)
GNI per Capita (thousands of USD): 4.241 (#12)
Human Development Index: 0.610 (#29)
Percent of women who feel a husband is justified in beating his wife: 10.7% (#57)
Violent Extremism: 6 events since 2010 (#24)
U15 Child Marriage: 25.9% (#12)
U18 Child Marriage: 54.8 (#37)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

- Meherpur is the smallest zila by area and one of the least populated in Bangladesh. It is in southwestern Bangladesh and shares a lengthy border with India in the northern reaches of the Khulna Division.
- Meherpur has nearly three times the national average in VE events, signifying high levels of instability.
- Meherpur is one of the wealthiest regions in Bangladesh, ranking 61st in its poverty rate, as well as 12th overall in GNI per capita.
- Meherpur ranks strongly in measures of female empowerment, ranking both seventh in female secondary school completion rate and below average in women maximum primary education. However, gender inequality is high, as it ranks high in U15 and U18 child marriage and 44th in ratio of daughters-to-sons at home, which signifies that the culture follows the patrilineal practice of brides moving into the home of the groom and his family once married.

Geographically-Targeted Interventions

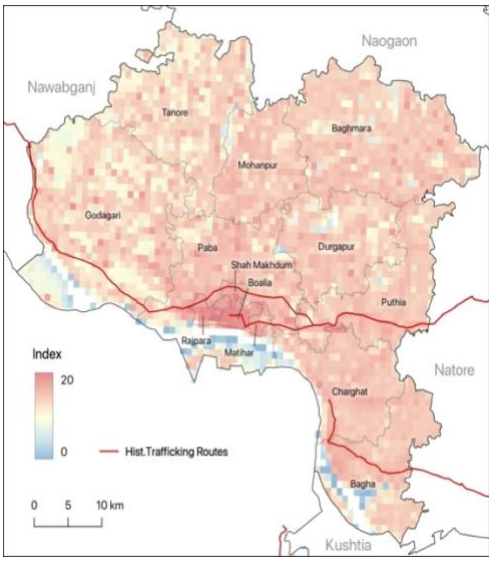
In Meherpur, high priority interventions include increasing training and awareness of trafficking among community leaders and law enforcement, improving the resiliency of crops and housing to extreme weather (droughts), and developing labor regulations and oversight in the brick kiln industry. As a border and transit zila for trafficking into India, training and incentivizing border control and police to recognize human trafficking needs to be expanded, particularly in Meherpur Sadar upazila and the border towns of Mujibnagar, Shalka, and Sholmari.

The brick kiln industry is major industry for labor exploitation, especially of children, within the zila. There are 65 kilns in the area. Increasing monitoring and inspection within these brick factories, training the work force on labor exploitation practices, and placing harsh legal penalties on entrapping hiring practices and child labor are vital programs. Building support systems for trafficking and exploitation survivors, where victims can easily access emotional and financial resources is also beneficial to empowering women and children within the industry.

Meherpur is one of the most agricultural and rural regions in the country, and it is highly vulnerable to extreme weather events. Severe weather conditions contribute to population vulnerability, which causes causing displacement, loss of income, and unexpected expenses. Expanding markets for drought-resistant crops and instituting programs for appropriate land use would increase resiliency these events.

To address high gender inequality, programs should be developed to provide opportunities for females and to raise the status of working females. Such programs should engage males so as not to inadvertently exacerbate the high levels of gender inequality.

Rajshahi, Rajshahi

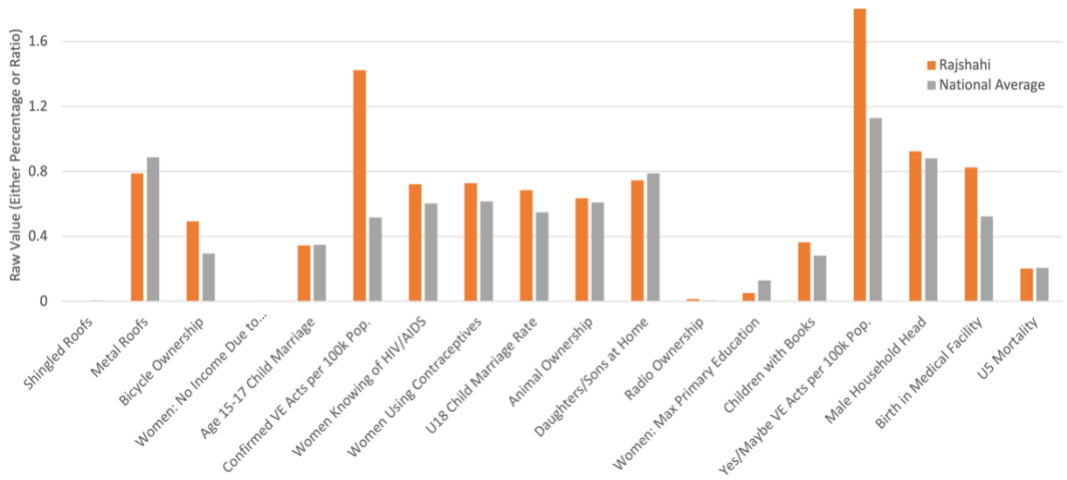


TIP Vulnerability Score:			Rank:
0.43	4.98	8.64	6/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	6.22	15.74	7/64
Number of Victims Estimate:			
761	16,142	31,261	8/64

Socio-Economic Measures

Population: 2,595,197 (#18)
Percent Urban: 32.2% (#7)
Poverty Incidence: 31.4% (#32)
Female Secondary School Completion: 68.3% (#9)
Households with Electricity: 95.3% (#21)
GNI per Capita (thousands of USD): 3.151 (#46)
Human Development Index: 0.578 (#52)
Percent of women who feel a husband is justified in beating his wife: 17.4% (#49)
Violent Extremism: 39 events since 2010 (#4)
U15 Child Marriage: 34.1% (#3)
U18 Child Marriage: 42.7 (#54)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

- Rajshahi is on the southwestern border along the Ganges River, which separates it from India. The large city of Rajshahi is a major industrial and commercial center and has the second-largest university. There are direct train and main highway routes to Dhaka.
- Rajshahi is a major source and transit point for human trafficking in Bangladesh.
- Rajshahi ranks near average in terms of wealth, as measured by the GDP and GNI, and has an even percentage of households within each wealth quintile.
- Rajshahi is known for its silk industry and it zila produces many agricultural products including rice, mangoes, and watermelons.
- Rajshahi has high levels of VE, ranking third in total number of VE events since 2010.
- Several high-tech parks have been or are being constructed in the region including Bangabandhu Sheikh Mujib Hi-Tech Park and Barendra Silicon City. These projects may provide increased employment opportunities and economic growth in the zila.
- Societal gender inequality is high. The U15 child marriage rate is the third-highest in the country.

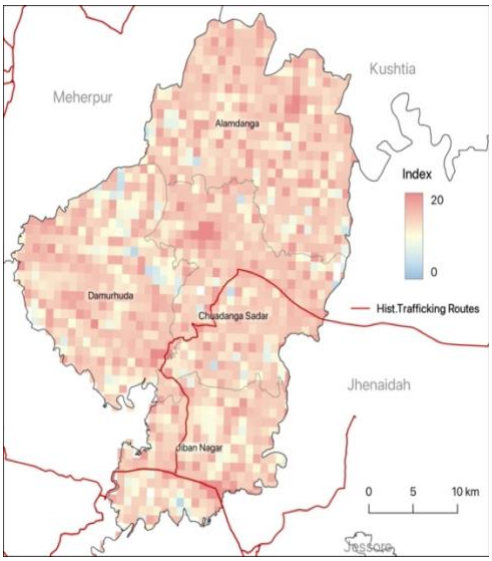
Geographically-Targeted Interventions

In Rajshahi, high priority interventions include improving employment opportunities for women in the silk industry; increasing awareness of trafficking among community leaders, universities, and the law enforcement; and reducing societal gender inequality. One of the largest non-agricultural employers is the silk industry, which currently employs around 100,000 people. Textile industries have had instances of labor exploitation and trafficking. Increasing inspections and monitoring of the silk industry, training the work force on labor exploitation practices, and placing harsh legal penalties on entrapping hiring practices and child labor are vital programs, along with the provision of support systems for victims. Programs and trainings that incentivize hiring women will help improve female economic opportunities and help mitigate the patriarchal societal views. Supporting women worker's rights groups and reducing the wage gap between men and women would also help reduce societal gender inequality. Programs to address societal gender inequalities should include young males (age 5-10).

Rajshahi has the largest number of total higher education institutions (146 colleges), including the well-known Rajshahi College. USAID can utilize this existing infrastructure to increase education efforts on the dangers of human trafficking and labor exploitation. Supporting female vocational training courses and practical education will increase female employment opportunities. The educational resources Rajshahi already possess could be utilized to encourage this. Men must be included in these programs so as not to inadvertently exacerbate the high level of existing gender inequality.

As a border and transit zila for trafficking into India, training and incentivizing border control and police to recognize human trafficking needs to be expanded, particularly at Padma River and the Godagari border point.

Chuadanga, Khulna

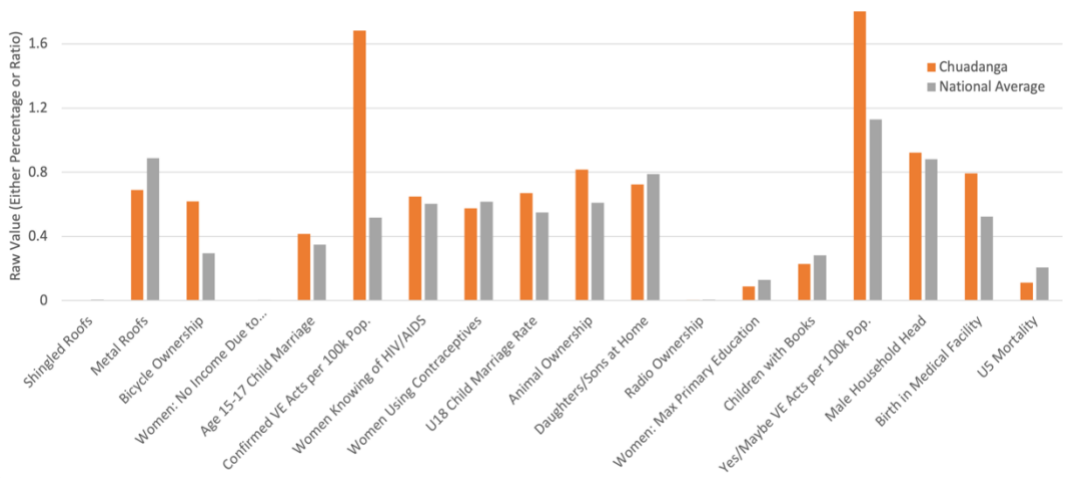


TIP Vulnerability Score:			Rank:
0.43	5.12	8.64	7/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	6.44	15.74	6/64
Number of Victims Estimate:			
761	7,274	31,261	32/64

Socio-Economic Measures

Population: 1,129,015 (#52)
Percent Urban: 26.0% (#9)
Poverty Incidence: 27.7% (#38)
Female Secondary School Completion: 63.0% (#35)
Households with Electricity: 97.8% (#10)
GNI per Capita (thousands of USD): 4.241 (#12)
Human Development Index: 0.610 (#29)
Percent of women who feel a husband is justified in beating his wife: 15.1% (#53)
Violent Extremism: 10 events since 2010 (#17)
U15 Child Marriage: 25.4% (#14)
U18 Child Marriage: 67.2 (#9)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

- Chuadanga is in west-central Bangladesh and shares a border with India. It was the first capital of Bangladesh and has a history of political violence.
- Chuadanga is a high-risk zila for TIP, but it only ranks 32nd out of 64 zilas for victims recorded, which suggests a lack of recognition and underreporting of TIP within the zila.
- Chuadanga is generally recognized as a transit zila for sex trafficking, but also has been documented as a source.
- Despite a high urban population, the percentage of people employed in agriculture is above the national average, at 66 percent.
- Female educational achievement is lower than the surrounding zilas. Chuadanga has a low children alphabet knowledge rate, a lower than the national average percentage of children with books, and the fifth-fewest public primary schools out of any zila, indicating a need for better early education and more value placed on child development.
- The VE prevalence is high, double the national average.
- Societal gender inequality is high, as the U15 and U18 child marriage rates are within the top 15 zilas.

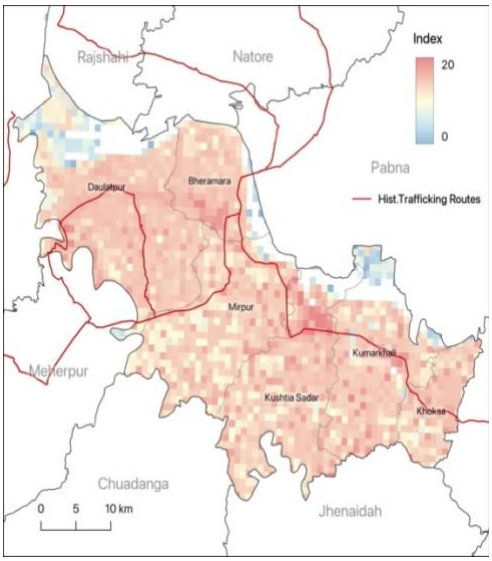
Geographically-Targeted Interventions

In Chuadanga, high priority interventions include improving agricultural opportunities for females, investing in greater numbers of public schools, increasing awareness of trafficking among community leaders and law enforcement, and reducing societal gender inequality. Chuadanga has one of the lowest number of teachers when adjusted for population. Hiring more teachers, especially female teachers, in public education systems is needed to improve educational achievement. Chuadanga should also construct more public schools, especially at the primary level, and offer incentives for teachers. Alongside the increased number of schools and teachers, programs are needed to increase awareness of human trafficking and to address gender inequality and labor rights.

Chuadanga has average levels of female employment, but the lowest agricultural wage rates for women of all zilas in Bangladesh. Agriculture is the main source of employment and livelihood in Chuadanga. Investing in agricultural training, co-ops, improved machinery, and advanced irrigation systems will help females gain valuable skills. Increasing women's access to training materials and farming techniques, including drought and heat-resistant crops, as Chuadanga has the second-highest mean maximum temperature, will increase female wages and socioeconomic standing, and reduce TIP vulnerability.

As a border and transit zila for trafficking into India, training and incentivizing border control and police to recognize human trafficking needs to be expanded, particularly in the transit city of Darshana.

Kushtia, Khulna

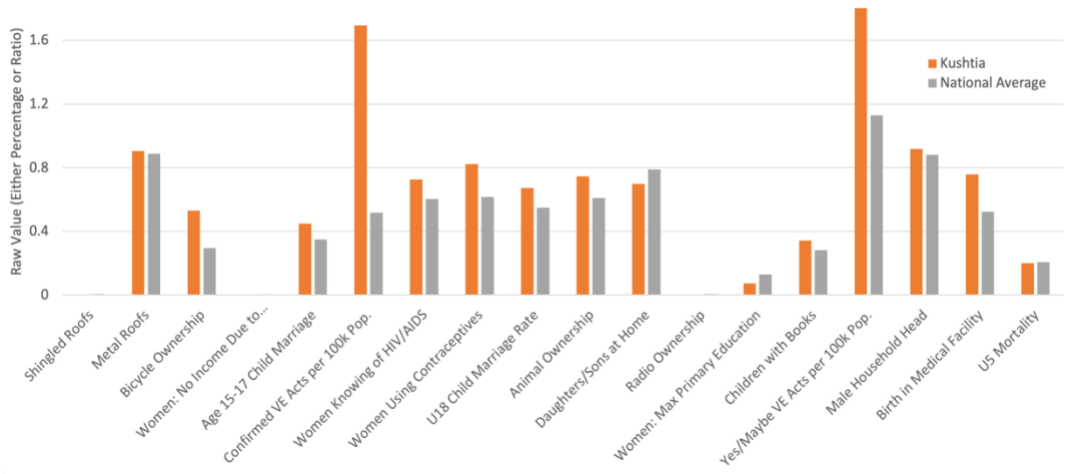


TIP Vulnerability Score:			Rank:
0.43	4.91	8.64	8/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	6.11	15.74	8/64
Number of Victims Estimate:			
761	11,899	31,261	16/64

Socio-Economic Measures

Population: 1,946,838 (#32)
Percent Urban: 12.8% (#49)
Poverty Incidence: 3.6% (#64)
Female Secondary School Completion: 67.4% (#14)
Households with Electricity: 98.0% (#9)
GNI per Capita (thousands of USD): 4.241 (#12)
Human Development Index: 0.610 (#29)
Percent of women who feel a husband is justified in beating his wife: 5.4% (#61)
Violent Extremism: 30 events since 2010 (#5)
U15 Child Marriage: 22.5% (#28)
U18 Child Marriage: 58.4 (#30)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

- Kushtia is a highly developed district in western Bangladesh that shares a border with India along its northwestern edge. The zila lies on the upper Ganges River and connects to Kolkata, India and Rajshahi by train.
- Kushtia is a highly vulnerable zila for TIP. However, there were no reported TIP cases within the region, nor any reported victims, which suggests a possible lack of reporting or recognition of TIP.
- High rates of bicycle, motorcycle, and TV ownership, high rates of electricity access, a high GNI, and the nation's lowest poverty incidence reflect the relative wealth and infrastructure of the zila.
- Kushtia is one of Bangladesh's hubs for VE.
- Measures of female empowerment are high in education, female views on society, and maternal health, which indicates strong health and educational infrastructure.

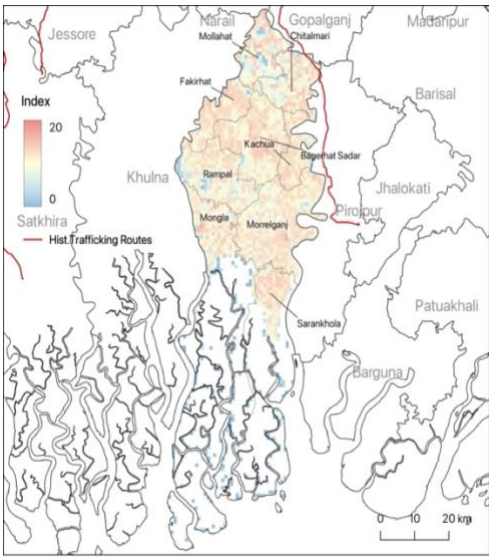
Geographically-Targeted Interventions

In Kushtia, high priority interventions include increasing awareness of trafficking among community leaders and law enforcement and reducing societal gender inequality. Kushtia is considered a transit zila for trafficking with several established trafficking routes to the Western border. While the Bangladesh government claims that Kushtia is a leader in TIP prevention with monthly committee meetings and local programs bringing awareness to TIP, the low numbers of reported TIP victims and cases suggest that TIP is perhaps under-recognized or under-reported within the zila. The monthly meetings should continue with the local community leaders and expand to schools to increase awareness of trafficking and safe migration channels. Educational programs that address gender inequality should include males, especially boys (age 5-10).

As Kushtia is mainly a transit point for TIP, investments should be made in training and incentivizing border patrol and law enforcement to identify and respond to human trafficking cases, especially at known trafficking routes, such as through the Lalon Shah Bridge on the border to Pabna. Best practices, such as the rotation of border guards, should be implemented.

In Kushtia, the overall economy is strong, and the economic conditions are relatively stable. Women, however, are poorly represented in management and engineering roles. Increasing vocational training for women, along with stronger female recruiting efforts, could encourage upward mobility for women. Men must be included in these programs so as not to inadvertently exacerbate the existing gender inequality.

Bagerhat, Khulna

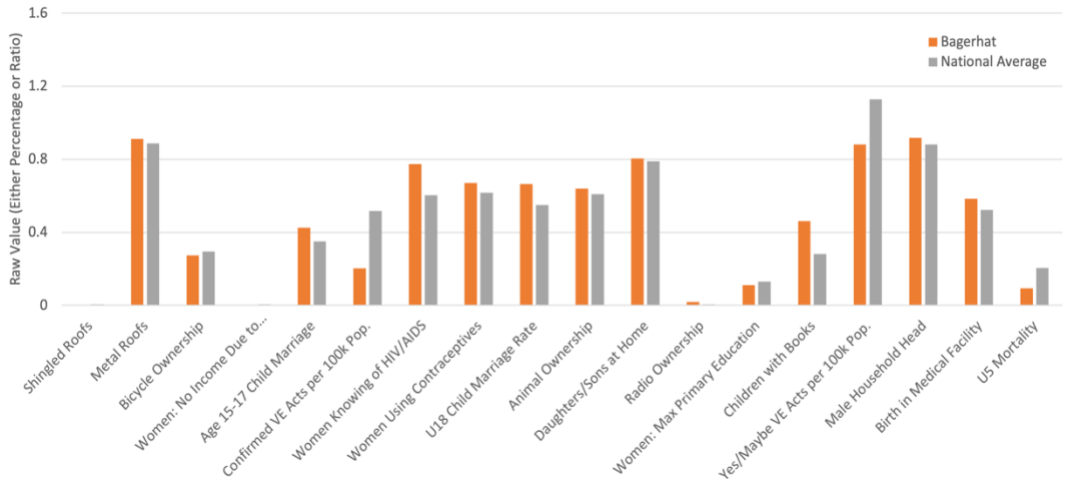


TIP Vulnerability Score:			Rank:
0.43	4.29	8.64	9/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	5.23	15.74	9/64
Number of Victims Estimate:			
761	7,716	31,261	29/64

Socio-Economic Measures

Population: 1,476,090 (#42)
Percent Urban: 12.8% (#51)
Poverty Incidence: 42.8% (#13)
Female Secondary School Completion: 66.6% (#18)
Households with Electricity: 81.0% (#50)
GNI per Capita (thousands of USD): 3.134 (#49)
Human Development Index: 0.620 (#19)
Percent of women who feel a husband is justified in beating his wife: 48.6% (#4)
Violent Extremism: 3 events since 2010 (#34)
U15 Child Marriage: 24.0% (#22)
U18 Child Marriage: 75.4 (#1)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

- Bagerhat is in southern Bangladesh, situated on the Bay of Bengal and divided throughout by rivers to the bay. Its southern half is covered by the Sundarbans National Forest. The Sixty Dome Masjid, a UNESCO World Heritage Site, is in the northern part of the district.
- Bagerhat is among the most vulnerable zilas for TIP in Bangladesh. Bagerhat contains elements of most forms of trafficking. It is considered a source area for cross-border sex TIP, and a source/destination for child and adult labor exploitation. Bagerhat is also a destination for sex trafficking.
- The Port of Mongla is the second-busiest commercial seaport after Chittagong and one of the main drivers of the economy.
- Low TV ownership and electricity access rates reflect a lack of connectivity in this rural zila.
- The district is mostly agricultural, with previously-high rates of fish and shrimp farming that have been declining in recent years due to environmental factors, such as climate change.
- Bagerhat has a large population that is not particularly wealthy, with the largest proportion of the population in the third wealth quintile (35 percent).

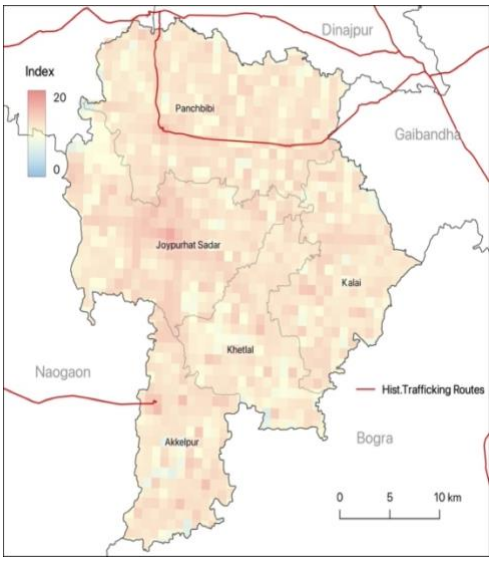
Geographically-Targeted Interventions

In Bagerhat, high priority interventions should include addressing exploitation within the shrimp industry and engaging males, especially boys (age 5-10), in programs to reduce gender inequality. Bagerhat produces the second-largest amount of shrimp. The decline of shrimp farming due to extreme weather and land loss to a government power plant is threatening the livelihoods of many residents.

Methods to decrease labor exploitation within the shrimp industry should include labor inspections of shrimp farming and processing plants the development of formal and transparent recruitment practices, the institution of health and safety standards for certification, and the education of law enforcement personnel and health inspectors to recognize exploitive labor practices and identify victims. Both the vulnerability associated with exploitive industries and the high levels of gender inequality could be addressed by raising the status of working females. Programs should be implemented to provide management and leadership training for females. Such management and leadership training should also include males so as not to inadvertently exacerbate the high level of existing gender inequality.

Bagerhat has higher levels of gender inequality, with above average levels of U15 and U18 child marriage, high percentages of women experiencing spousal abuse, and below average female employment. To combat these inequalities, education efforts focused on changing men's perceptions about women's role in society is needed. Such programs should engage young males (age 5-10).

Joypurhat, Rajshahi

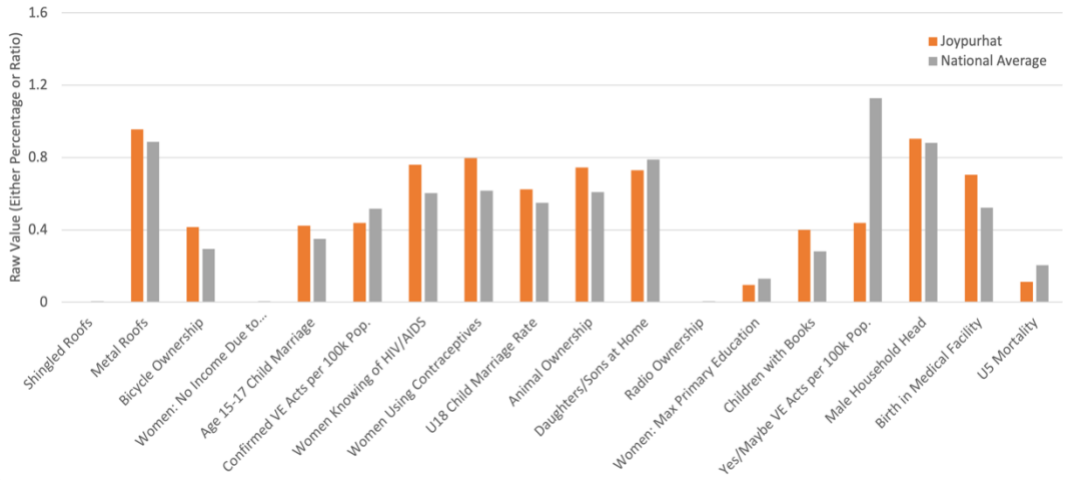


TIP Vulnerability Score:			Rank:
0.43	4.26	8.64	10/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	5.18	15.74	10/64
Number of Victims Estimate:			
761	4,737	31,261	46/64

Socio-Economic Measures

Population: 913,768 (#57)
Percent Urban: 13.6% (#45)
Poverty Incidence: 26.7% (#40)
Female Secondary School Completion: 66.4% (#21)
Households with Electricity: 97.8% (#10)
GNI per Capita (thousands of USD): 3.429 (#34)
Human Development Index: 0.614 (#22)
Percent of women who feel a husband is justified in beating his wife: 23.5% (#36)
Violent Extremism: 6 events since 2010 (#24)
U15 Child Marriage: 20.2% (#33)
U18 Child Marriage: 60.2 (#25)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

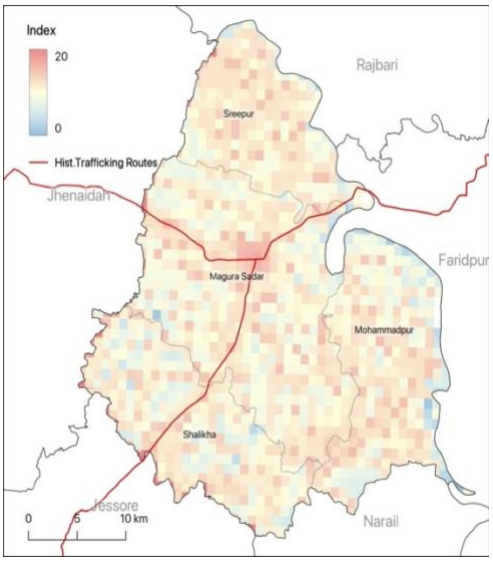
- A small zila by population and area in northwestern Bangladesh, Joypurhat shares a border with India along its northwestern edge.
- Joypurhat is a highly vulnerable zila to TIP, ranking 10th in our vulnerability measure.
- Joypurhat's main industry is agriculture, and mainly seasonal crops are grown; sugarcane is the most valuable. It is home to the Joypurhat sugar mill, which is largest government-controlled sugar mill in Bangladesh.
- Wealth in Joypurhat is spread out unequally, as the percentage of households in the third wealth quintile is significantly lower than the upper and lower quintiles.
- Despite relatively average child marriage rates, Joypurhat ranks third in the percentage of women that do not work because of their husband won't allow them, and seventh in the percentage of women who give their earnings to their husband, which indicate levels of societal inequality and a highly patriarchal system.
- Indicators of female empowerment, including overall levels of female education and health, are generally high in Joypurhat. However, this empowerment does not seem to have yet evolved into improved societal equality for women.

Geographically-Targeted Interventions

In Joypurhat, high priority interventions include improving employment opportunities for females, increasing awareness of trafficking among community leaders and law enforcement, and reducing societal gender inequality. Only four percent of businesses are headed by women, compared to the national average of seven percent. Increasing financial opportunities for women can be encouraged by supporting female business owners with training programs and networking events. Financial education courses and education on personal finance for women would help improve autonomy, management of household finance, and microfinance programs. Such programs should include sugarcane production due to its high value. They should also include males, especially boys (age 5-10). When males are encouraged to value women as equals and are actively involved in the process of empowering women, societal attitude and structures can change more rapidly.

To address the high TIP vulnerability associated with the sugarcane industry, programs should be developed for inspections of sugarcane fields and processing plants, formal and transparent labor recruitment practices, health and safety standards for certification, and the education of workers, law enforcement personnel, and health inspectors to recognize exploitive labor practices and identify victims. Joypurhat has several established trafficking routes within the zila but no reported cases of TIP, which suggests that the justice and law enforcement systems are perhaps not recognizing or prioritizing cases involving TIP. Programs are needed to improve the awareness of human trafficking and incentivize police and the legal system to identify and prosecute TIP. Specific efforts might include incentivized funding for local police units, anti-corruption training, merit-based promotion practices, and active recruitment of female police officers.

Magura, Khulna

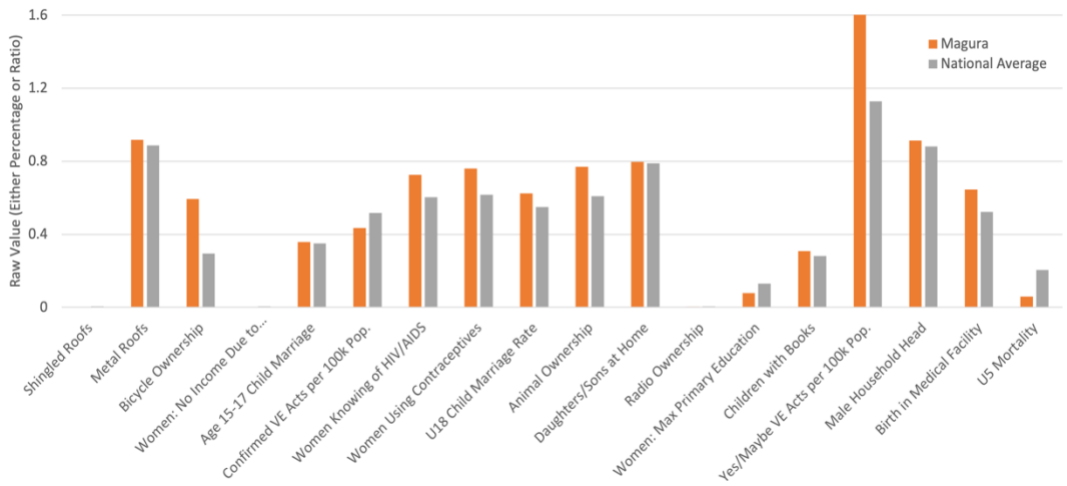


TIP Vulnerability Score:			Rank:
0.43	4.20	8.64	11/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	5.11	15.74	11/64
Number of Victims Estimate:			
761	4,689	31,261	48/64

Socio-Economic Measures

Population: 918,419 (#56)
Percent Urban: 14.8% (#36)
Poverty Incidence: 45.4% (#11)
Female Secondary School Completion: 67.1% (#16)
Households with Electricity: 95.5% (#20)
GNI per Capita (thousands of USD): 3.707 (#25)
Human Development Index: 0.622 (#16)
Percent of women who feel a husband is justified in beating his wife: 26.5% (#30)
Violent Extremism: 4 events since 2010 (#28)
U15 Child Marriage: 26.7% (#9)
U18 Child Marriage: 56.9 (#34)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

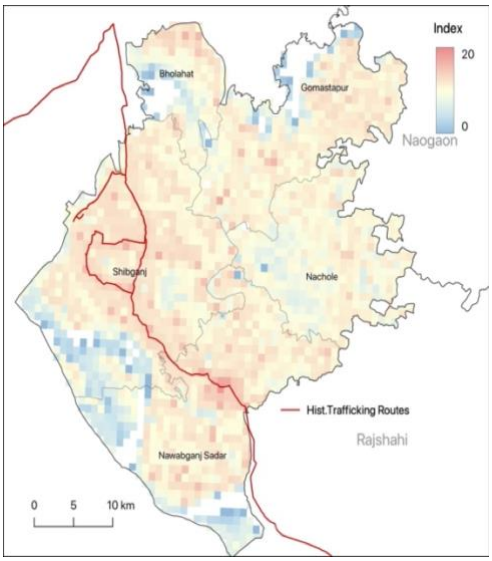
- A small zila by population and area in southwestern Bangladesh, Magura is landlocked and has no international borders.
- Magura is a highly vulnerable zila for TIP, ranking 11th in Novametrics' vulnerability measure. However, the case prevalence and victim numbers may suggest a lack of TIP recognition and/or reporting.
- Magura has a rural population mainly employed in agriculture, and over 73 percent of households own a farm. The most common crops are rice, wheat, and jute.
- Women's empowerment measures, such as secondary school completion and birth in medical facility, are higher than the national average.
- U15 marriage rates are among the highest in the country, as are levels of U18 child marriage, which suggests high levels of gender inequality. The above-average percent of females who believe a husband is justified in beating his wife also reflects gender inequality.

Geographically-Targeted Interventions

In Magura, high priority interventions include improving women's ability to work by providing childcare, continuing to advocate for law enforcement's monitoring and training on human trafficking, and reducing societal gender inequality. Magura reported the largest percentage of women not working to provide childcare for children, measured at 80 percent of the total female non-working population. A lack of proper childcare facilities may be limiting women's economic and social mobility. Investments in childcare and educational facilities should not only seek to take care of children, but also potentially perform dually as early childhood education centers. Employment training programs should also include males, so as not to inadvertently exacerbate gender inequality.

Although Magura is not commonly recognized as a trafficking zila, the low prevalence and victim numbers suggest that TIP may be unrecognized in the zilas. Several established trafficking routes go through the zila, and there is a new railroad project underway that will increase exposure. In response to the high vulnerability and increasing exposure from the railroad, investments should be made in training and incentivizing local law enforcement, NGOs, and news organizations to identify and respond to human trafficking cases. Expanding aid for victims to pursue legal action, particularly through services like the National Legal Aid Service Organization could help to raise awareness of TIP issues and disincentivize future traffickers.

Nawabganj, Rajshahi

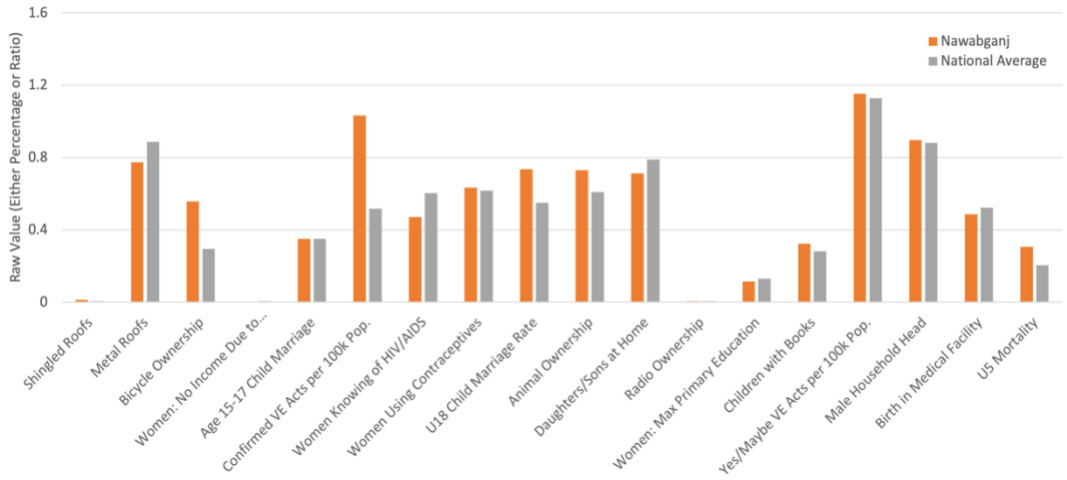


TIP Vulnerability Score:			Rank:
0.43	3.97	8.64	12/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	4.81	15.74	12/64
Number of Victims Estimate:			
761	7,923	31,261	28/64

Socio-Economic Measures

Population: 1,647,521 (#40)
Percent Urban: 21.9% (#14)
Poverty Incidence: 25.3% (#49)
Female Secondary School Completion: 66.5% (#19)
Households with Electricity: 87.9% (#36)
GNI per Capita (thousands of USD): 3.151 (#46)
Human Development Index: 0.578 (#52)
Percent of women who feel a husband is justified in beating his wife: 19.0% (#46)
Violent Extremism: 19 events since 2010 (#8)
U15 Child Marriage: 38.6% (#1)
U18 Child Marriage: 47.9 (#44)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

- Nawabganj is the westernmost district in Bangladesh and shares an extensive border with India that has several traditional trafficking routes. Strong transportation systems connect much of the zila to the rest of Bangladesh, including Dhaka. These connections provide transit for TIP.
- Nawabganj ranks 12th in Novametrics' vulnerability measure and 14th in the number of estimated TIP victims, but it has one of the lowest numbers of legal TIP cases. The discrepancy suggests that TIP is being under-litigated in the justice system.
- While the female education rates are above average, Nawabganj has the highest rate of U15 marriage (38.6 percent) in the country. It also ranks second-highest for women who do not work because their husbands do not allow them. These indicators suggest the highest level of gender inequality, which limits economic mobility and decision-making for women.
- Nawabganj is considered the mango capital of Bangladesh. Mangoes are the main crop and sustain much of the rural economy.

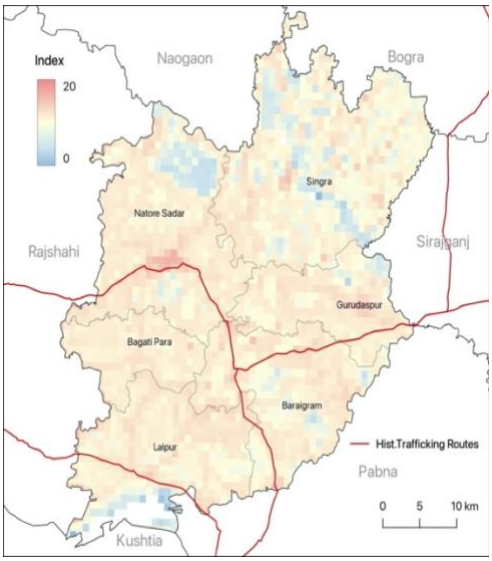
Geographically-Targeted Interventions

In Nawabganj, high priority interventions include improving agricultural opportunities for females in the mango industry, increasing awareness of trafficking among community leaders and law enforcement, and reducing societal gender inequality. Despite the large presence of the profitable mango crop, female agricultural wages are among the lowest in the country. Investments in agricultural training programs that include low-cost machinery and techniques for increasing yield are likely to improve the quality and standing of female employment. Such programs should focus on mango production, due to its high value. Such programs should also include males, especially boys (age 5-10). When men are encouraged to value women as equals and are actively involved in the process of empowering women, societal attitude and structures can change more rapidly.

The discrepancy between the high number of TIP victims and the low number of legal cases involving TIP suggests the justice and law enforcement systems of Nawabganj are not prioritizing cases involving human trafficking. Programs are needed to improve the awareness of TIP and incentivize police and the legal system to identify and prosecute it. Specific efforts might include conditional funding for local police units, anti-corruption training, merit-based promotion practices, and active recruitment of female police officers.

Nawabganj, like many other border zilas, would also benefit from increased training of border patrols on identifying and responding to human trafficking cases, particularly within the border towns of Biswanathpur, Chowka, Monakosha, Kiranganj, Radhanagar, and Zaminpur, all within Shibganj upazila. These towns are major points of crossing for known trafficking routes. Such efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

Natore, Rajshahi

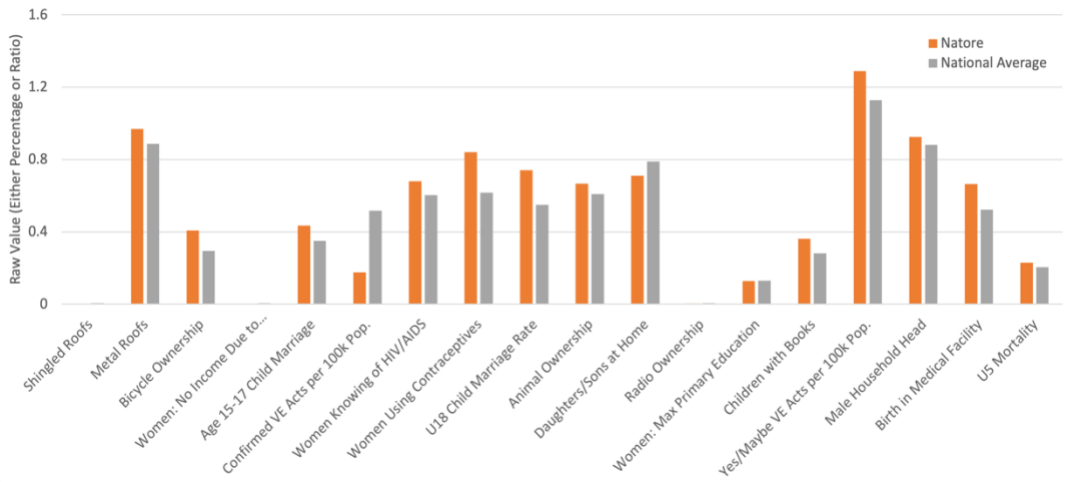


TIP Vulnerability Score:			Rank:
0.43	3.95	8.64	13/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	4.79	15.74	13/64
Number of Victims Estimate:			
761	8,182	31,261	26/64

Socio-Economic Measures

Population: 1,706,673 (#39)
Percent Urban: 14.4% (#42)
Poverty Incidence: 35.1% (#25)
Female Secondary School Completion: 61.0% (#48)
Households with Electricity: 95.2% (#23)
GNI per Capita (thousands of USD): 3.568 (#28)
Human Development Index: 0.606 (#33)
Percent of women who feel a husband is justified in beating his wife: 41.9% (#9)
Violent Extremism: 4 events since 2010 (#28)
U15 Child Marriage: 30.7% (#4)
U18 Child Marriage: 47.9 (#44)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

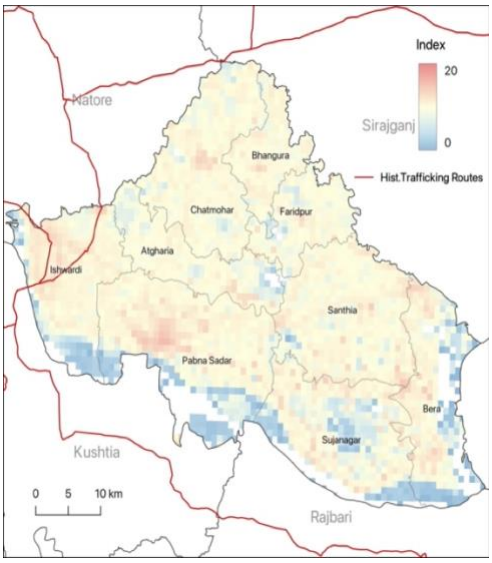
- Located in western Bangladesh, Natore is a mostly rural, agricultural zila with direct access to the major industrial city of Rajshahi.
- Natore has low levels of female empowerment and high levels of societal gender inequality. Natore ranks high for U15 marriage and U18 marriage and has low levels of female secondary education completion. It has the ninth-largest percentage of women who feel a husband is justified in beating his wife and 69 percent of females give some or all their earned money to their husband.
- High bicycle and radio ownership reflect access to technology and transportation.
- High percentages of births in medical facilities, antenatal care, and contraceptives suggest strong women's health infrastructure, which implies that gender inequality in the zila may be due to social rather than physical barriers.
- Regional wealth is moderate, as much of the economy is agricultural. Sugarcane is an important cash crop, and it is the second-highest zila in sugarcane production.

Geographically-Targeted Interventions

In Natore, high priority interventions include improving agricultural opportunities for females in sugarcane industry, increased educational opportunities for females, encouraging females to continue schooling, and reducing societal gender inequality. With close proximity to the growing and developing city of Rajshahi, the zila should expand secondary and technical education to educate the future workforce and offer special incentives for girls to stay in secondary school. Education access can be improved through female enrollment initiatives and reducing the cost of attendance for low-income students. Floating schools have been successful in Natore, by increasing access to lower-income populations that may not have considered schooling without it. The zila should implement local programs encouraging residents to register births and obtain birth certificates and marriage registrars should be trained by local authorities to recognize false reporting of girls' ages to decrease illegal child marriage within the zila.

In Bangladesh, sugarcane or farming land controlled by females usually yields lower outputs, is generally less productive, and products sold by females are valued lower. Given the high gender inequality observed in Natore, women are likely not realizing the gains received from the sugarcane industry despite high employment rates, as men are retaining control over the decisions and economic mobility of these women. Interventions might include: funding processing machinery and farm equipment, offering quality training on productive sugarcane practices, providing access to high yield setts and methods to sustainably create them, and working with transportation services to increase the distribution range of products and raise market value. Such programs should also include males, so as not to inadvertently exacerbate gender inequality.

Pabna, Rajshahi

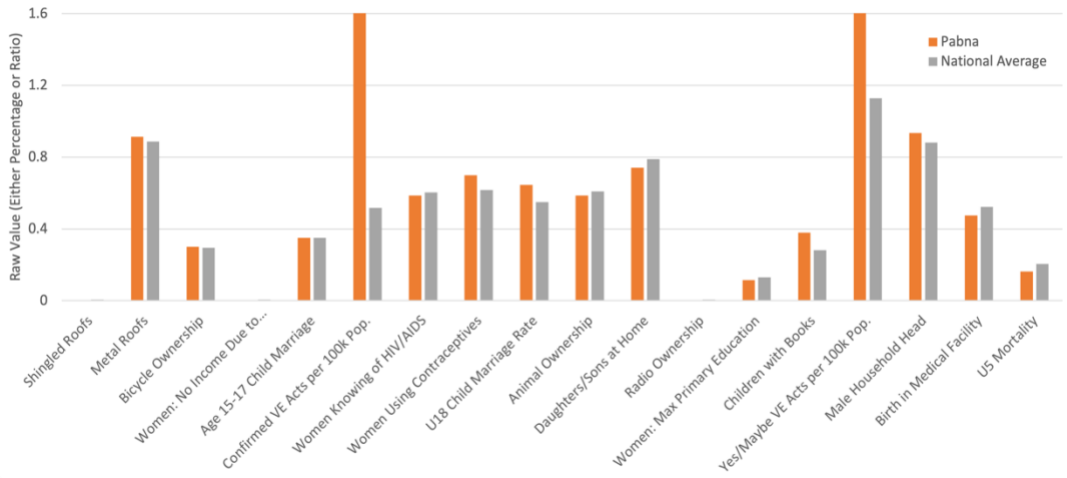


TIP Vulnerability Score:			Rank:
0.43	3.56	8.64	14/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	4.34	15.74	16/64
Number of Victims Estimate:			
761	10,943	31,261	17/64

Socio-Economic Measures

Population: 2,523,179 (#19)
Percent Urban: 17.1% (#25)
Poverty Incidence: 31.5% (#31)
Female Secondary School Completion: 62.9% (#36)
Households with Electricity: 95.7% (#19)
GNI per Capita (thousands of USD): 3.568 (#28)
Human Development Index: 0.606 (#33)
Percent of women who feel a husband is justified in beating his wife: 41.0% (#11)
Violent Extremism: 15 events since 2010 (#10)
U15 Child Marriage: 29.6% (#5)
U18 Child Marriage: 44.4 (#49)

VE Vulnerability Index for Zila & National Average Values



Derived from over 1,400 indicators, the zila vulnerability measure is composed of the subset of indicators and weightings that represent the optimal combination characteristic of the TIP ecosystem. The orange bars are the values for the particular zila. The grey bars represent the national averages. The statistical interpretation of these indicator combinations, their correlations with other factors, and the phenomena for which they serve as proxy measures, provide insight and evidence for summaries below.

Summary Description

- Pabna is situated in western Bangladesh. Its southeast corner lies on the confluence of the Ganges and Brahmaputra rivers. Pabna is known for its textile industry, particularly knitted fabric and handlooms, and its pharmaceutical industry, home to a number of factories for Square Pharmaceuticals, the largest pharmaceutical company in Bangladesh.
- Pabna is a hotspot for VE in Bangladesh and recorded the most confirmed VE events of all zilas, adjusted for population.
- Despite medical and transportation infrastructure, the district has low rates of births in medical facilities and antenatal care. Coupled with low education indicators, these measures suggest a lack of value placed on women's health and child development.
- Pabna has high U15 and U18 child marriage rates. Female education measures, which are a proxy for female empowerment levels, rank near the national average in female secondary school completion and max primary education.

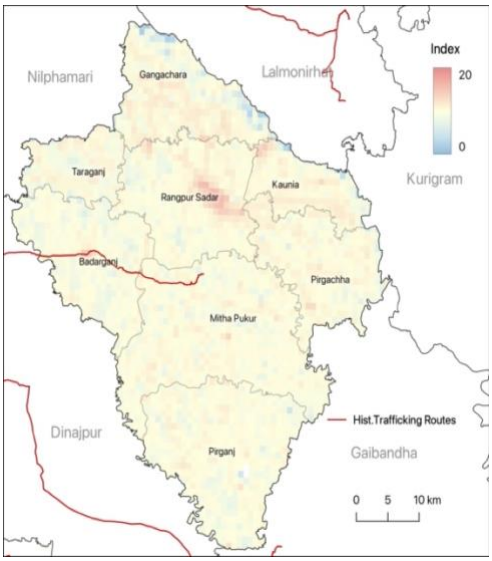
Geographically-Targeted Interventions

In Pabna, high priority interventions include improving employment opportunities for females, addressing exploitation in the textile industry, reducing societal gender inequality, and increasing awareness of trafficking transiting through the zila. Only 55 percent of the economy in Pabna is agriculture, as it has transitioned toward more industrial and commercial industries. 46,000 people are employed in textiles manufacturing, and approximately 33,000 are male. Methods to decrease labor exploitation within the textile industry should include labor inspections of factories, the development of formal and transparent recruitment practices, the institution of health and safety standards for certification, and the education of both law enforcement personnel and health inspectors to recognize exploitive labor practices and identify victims. Providing training opportunities to females to advance in the industry, particularly in high-level roles, is vital to encourage workplace gender equality. Such programs should also include men, as when men are encouraged to value women as equals and are actively involved in the process of empowering women, societal attitude and structures can change more rapidly.

Pabna has a high percentage of U15 child marriage and other proxy indicators that suggests societal gender inequality and a lack of value placed on women and children within the society. Despite having a large industrial city, women are still confined to their traditional gender roles. Programs to teach and encourage women to register their children's birth would help legally prove a girls age and decrease child marriage.

Pabna has established trafficking routes going through the Ishwardi upazila. Ishwardi would benefit from increased training of police on identifying and responding to human trafficking cases. Such border efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

Rangpur, Rangpur

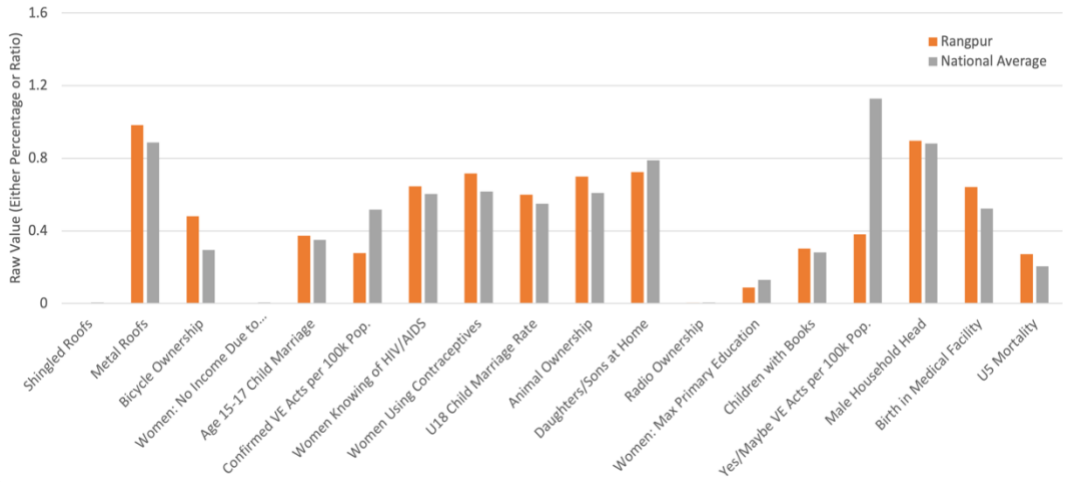


TIP Vulnerability Score:			Rank:
0.43	3.44	8.64	15/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	4.21	15.74	17/64
Number of Victims Estimate:			
761	12,120	31,261	14/64

Socio-Economic Measures

Population: 2,881,086 (#14)
Percent Urban: 16.0% (#29)
Poverty Incidence: 46.2% (#10)
Female Secondary School Completion: 62.1% (#42)
Households with Electricity: 90.3% (#29)
GNI per Capita (thousands of USD): 3.023 (#52)
Human Development Index: 0.591 (#46)
Percent of women who feel a husband is justified in beating his wife: 16.0% (#51)
Violent Extremism: 12 events since 2010 (#13)
U15 Child Marriage: 22.6% (#27)
U18 Child Marriage: 41.6 (#56)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

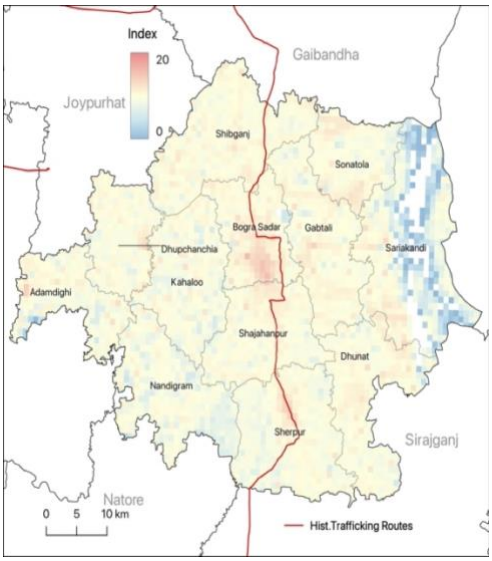
- Rangpur is located in northwestern Bangladesh. Its main city, Rangpur, is the fifth-largest city in Bangladesh and an industrial center historically known for carpet manufacturing. The main crops in the region include tobacco, rice, and wheat. The city of Rangpur serves as a major commercial hub for activities like finance and banking, residential hotels, and governmental offices. The shatranji fabric industry is also a traditional occupation.
- Rangpur ranks high in total TIP vulnerability. However, no cases of TIP nor number of victims was registered in the zila. Rangpur is listed as both a transit and source zila in the literature. This suggests a possible lack of recognition, and/or reporting and litigation in the zila.
- Rangpur is a major district for the tobacco industry in Bangladesh, and tobacco farming has been a lucrative economic opportunity for farmers. Recently, tea production has been phasing out tobacco. Tea production has been noted as an industry with high labor exploitation of women.
- Female empowerment measures are relatively high in Rangpur, like secondary school completion and a low percentage of women who feel a husband is justified in beating his wife. However, while births in medical facilities are higher than average, the U5 mortality rate is also higher than the national average. This may indicate a lack of access to medical facilities in rural areas.
- Rangpur has a high poverty rate, which suggests high levels of economic inequality in both urban and rural areas.

Geographically-Targeted Interventions

In Rangpur, high priority interventions include addressing exploitation within the tea industry, increasing awareness of trafficking from and around Rangpur city among community leaders and law enforcement, and increasing zila transportation infrastructure. Since the 1990s, the city has been growing and developing but when normalized by population, the length of roads in Rangpur are among the lowest for zilas with major urban centers. Infrastructure programs are needed to increase the connectivity of the surrounding areas and women's opportunities to attain economic opportunities and health services. Large routes going through Rangpur that would benefit from increased exits and connections to small villages in surrounding regions include the Dhaka-Tangail-Rangpur highway, the N5, the N517, and the Z5025. There is an established trafficking route leading from Rangpur city toward India. Interventions should include increasing training of police and transportation personnel on identifying and responding to human trafficking cases.

The rapidly increasing amounts of tea cultivation in the greater Rangpur area is concerning, as tea estates have been documented recruiting with coercive debt-based exploitation and trafficking in Bangladesh. Methods to decrease labor exploitation within tea gardens should include: increasing regulations and local labor laws that protect against trafficking and damaging recruitment fees; instituting health and safety standards for certification; and educating laborers, law enforcement personnel, and health inspectors to recognize exploitive labor practices and identify victims. Programs and educational trainings on exploitative labor practices should be made available in the rural areas of the zila.

Bogra, Rajshahi

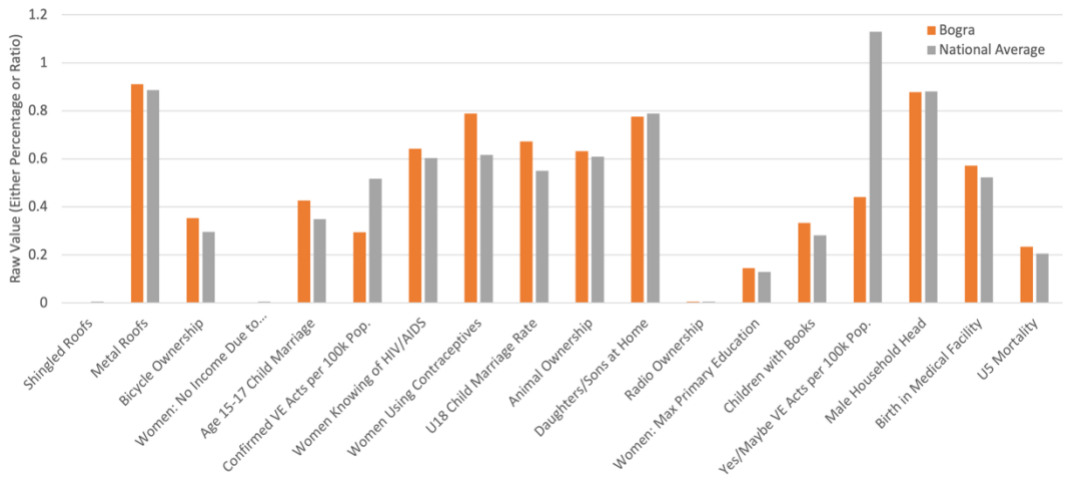


TIP Vulnerability Score:			Rank:
0.43	3.39	8.64	16/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	4.15	15.74	19/64
Number of Victims Estimate:			
761	14,124	31,261	11/64

Socio-Economic Measures

Population: 3,400,874 (#8)
Percent Urban: 19.3% (#16)
Poverty Incidence: 16.6% (#59)
Female Secondary School Completion: 61.2% (#46)
Households with Electricity: 90.0% (#31)
GNI per Capita (thousands of USD): 3.429 (#34)
Human Development Index: 0.614 (#22)
Percent of women who feel a husband is justified in beating his wife: 26.9% (#28)
Violent Extremism: 18 events since 2010 (#9)
U15 Child Marriage: 24.5% (#19)
U18 Child Marriage: 71.9 (#6)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

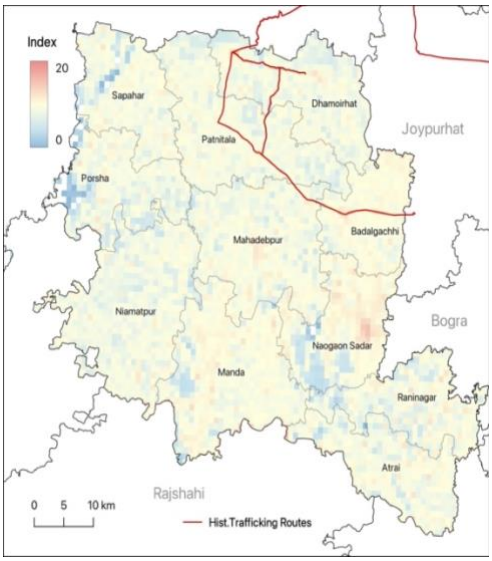
- Bogra is situated in northwest Bangladesh and its eastern edge lies along the Brahmaputra River. Its main city, Bogra, is a major commercial center for the greater zila area, with agriculture, manufacturing, and technology industries.
- Bogra is a highly vulnerable zila for TIP; it is considered as mainly a source and transit zila.
- Bogra is a center for the agricultural machinery industry in Bangladesh, which employs 12.5 percent of the city of Bogra's labor force. High mango and banana acreage reflect the agricultural activity of the region.
- A low poverty incidence rate of 16.6 percent (ranked 59th) and a GNI per capita, GDP per capita, and HDI all near national average levels indicates most of the population is in the middle class.
- Metrics of gender inequality are in the upper half of zilas, ranking sixth in U18 marriage rates and 19th in U15 marriage rates. Bogra ranks 58th in female and male agricultural wage rates, suggesting that women's work is not valued as highly as men's.
- High max education rates of primary school for both genders indicate a relative lack of access to continued education.

Geographically-Targeted Interventions

In Bogra, high priority interventions include promoting continued growth in the agricultural machinery industry, implementing programs to promote women into positions of leadership, and increasing awareness of trafficking among community leaders and law enforcement. Bogra has seen large growth in the agricultural machinery sector, supporting 90 percent of the national demand for low-cost agricultural machinery. Interventions should include investing in training programs for women to assume technical and managerial roles in Bogra's agricultural machinery industry and helping to expand operations outside of the main urban areas to increase women's access to high-paying jobs. Such investments in advanced training, managerial skills, and entrepreneurship could be implemented through Bogra's Polytechnic Institute, which is one of the largest in Bangladesh. Establishing partnerships between female farmers and agricultural machinery industries can also help increase women's agricultural output, which is significantly lower per capita than men, and help reduce the agricultural wage gap between males and females.

Bogra is a transit zila for trafficking and has a large highway through the middle of the zila that is an established trafficking route. Law enforcement efforts should be expanded to include efforts at reducing human trafficking, specifically: a) increasing awareness of human trafficking, especially along the highway, b) training and incentivizing highway patrols to identify and deal with trafficking, and c) raising the roles and prevalence of female law enforcement officers. Such law-enforcement efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

Naogaon, Rajshahi

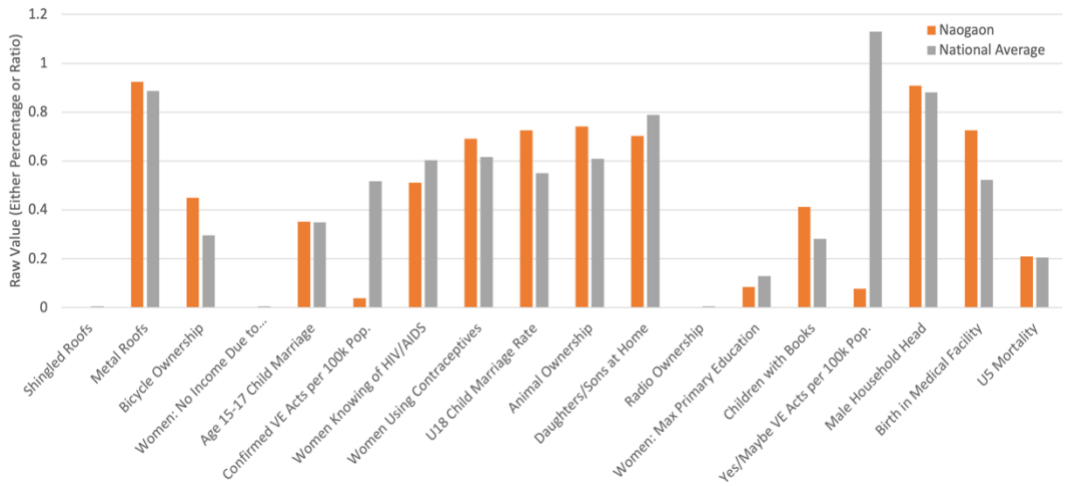


TIP Vulnerability Score:			Rank:
0.43	3.42	8.64	17/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	4.18	15.74	18/64
Number of Victims Estimate:			
761	10,873	31,261	18/64

Socio-Economic Measures

Population: 2,600,157 (#17)
Percent Urban: 10.6% (#59)
Poverty Incidence: 16.9% (#58)
Female Secondary School Completion: 62.6% (#38)
Households with Electricity: 89.6% (#32)
GNI per Capita (thousands of USD): 3.151 (#46)
Human Development Index: 0.578 (#52)
Percent of women who feel a husband is justified in beating his wife: 49.2% (#3)
Violent Extremism: 1 event since 2010 (#44)
U15 Child Marriage: 37.5% (#2)
U18 Child Marriage: 53.5 (#39)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

- Naogaon is a large zila in northwestern Bangladesh and its northern edge borders India.
- While Naogaon has high TIP vulnerability, Naogaon has a high number of reported cases, yet no identified victims. Naogaon is largely considered a transit zila for cross-border trafficking into India.
- Traditionally, Naogaon has been known for its rice paddies, but many farmers have been switching to more lucrative mango cultivation in recent years.
- Naogaon has some of the highest U15 and U18 child marriage rates, as nearly 40 percent of U15 girls are married, which reflects societal gender inequality. Additionally, nearly 50 percent of women believe husbands are justified in beating their wives, showing that gender inequality is deeply ingrained in the local culture among both men and women.
- Indicators reflect a lack of female mobility and access to information. High births in medical facilities reveal that there is infrastructure to support women's health, so barriers to female empowerment are more likely social than physical.
- Naogaon ranks last in confirmed normalized VE events, which indicates that the presence of domestic and international terrorist groups is extremely low.

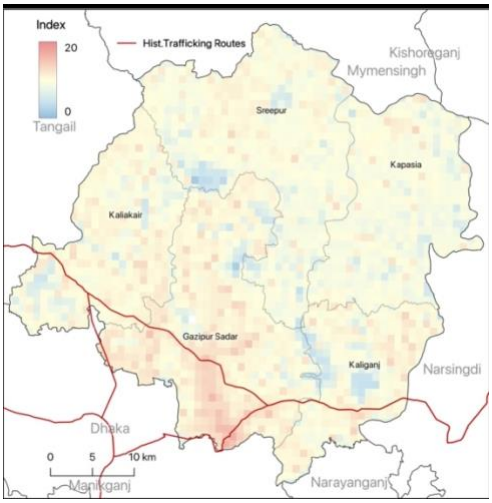
Geographically-Targeted Interventions

In Naogaon, the high priority interventions are to improve agricultural opportunities for females in the mango industry, increase awareness of trafficking among community leaders and law enforcement, and reduce societal gender inequality. The mango crop's profitability is an important agricultural opportunity for females. Investments in agricultural training programs that include low-cost machinery and techniques for increasing yield are likely to improve the quality and standing of female employment. Such programs should focus on mangoes due to their high value.

Community programs educating both men and women on the negative effects of child marriage and the economic benefits of female empowerment, especially in terms of a wife's control over household income and expenses, should be implemented. Currently, all six of Naogaon's parliamentary members are men, which means the socioeconomic decisions of the zila may not properly consider the needs of women. Promotion of voting and women in leadership roles can help increase women's autonomy and representation. Such programs should include males. When men are encouraged to value women as equals and are actively involved in the process of empowering women, societal attitude and structures can change more rapidly.

Naogaon, like many other border zilas, would also benefit from increasing training and incentivizing border patrols to recognize and respond to human trafficking, particularly in the upazilas of Patnitala and Dhamoirhat. These areas are points of crossing for established trafficking routes. Such border efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

Gazipur, Dhaka

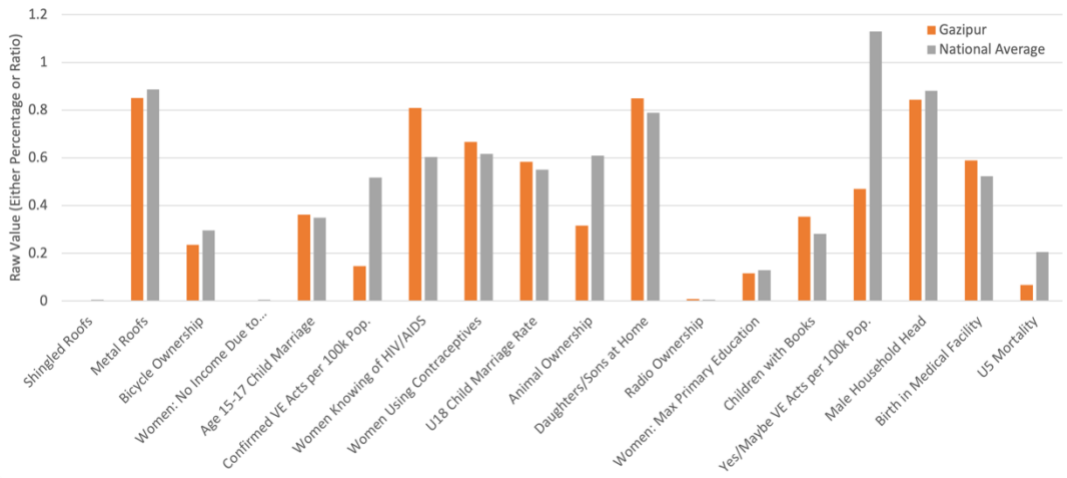


TIP Vulnerability Score:			Rank:
0.43	3.35	8.64	18/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	4.11	15.74	20/64
Number of Victims Estimate:			
761	14,005	31,261	12/64

Socio-Economic Measures

Population: 3,403,912 (#7)
Percent Urban: 33.2% (#6)
Poverty Incidence: 19.4% (#55)
Female Secondary School Completion: 61.8% (#44)
Households with Electricity: 98.9% (#5)
GNI per Capita (thousands of USD): 5.674 (#3)
Human Development Index: 0.649 (#5)
Percent of women who feel a husband is justified in beating his wife: 24.2% (#34)
Violent Extremism: 8 events since 2010 (#21)
U15 Child Marriage: 22.1% (#30)
U18 Child Marriage: 62.6 (#18)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

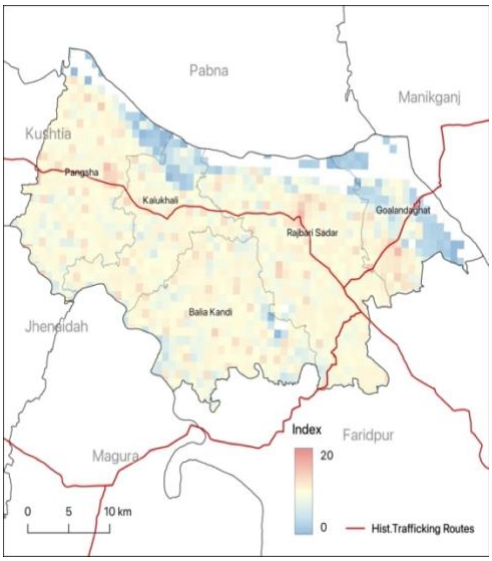
- Gazipur is in central Bangladesh, north of Dhaka. Gazipur is urban and highly populated, and most of the economy is based on the industrial and commercial sectors.
- Gazipur is a mid- to high-prevalence zila for TIP. It ranks 29th in TIP case prevalence.
- Gazipur city, the main urban area in the zila, is a major hub of the ready-made garments industry in Bangladesh. Most of the products are exported to foreign markets, with 90 percent being shipped to European and American buyers. In Gazipur alone, over 500,000 people are involved in the manufacture of ready-made garments; a little under half are women.
- Gazipur has the famous Bishwa Ijtema event every year, which is the second-largest gathering of Muslims in the world after the Arba'een Pilgrimage in Iraq. Muslims come from all over Bangladesh; it is larger than the Hajj.
- Gazipur is one of the wealthiest regions, ranking 59th in poverty rate, third in GNI per capita, fifth 5th in the HDI. 75 percent of the population lives in the two upper wealth quintiles, which suggests that the population is wealthy with limited inequality.
- Gazipur has a low percentage of females finishing secondary school and the lowest female-to-male ratio of secondary school completion, which indicates that education is valued less for females than males.

Geographically-Targeted Interventions

In Gazipur, high priority interventions include addressing labor exploitation in the garment industry, improving female education measures, and increasing awareness of trafficking among local community leaders and law enforcement going to and from Dhaka. The ready-made garment industry is internationally recognized as particularly vulnerable to child and female labor exploitation and trafficking. Investments in employment training programs that include financial and technical training are likely to improve the quality and standing of female employment. Building economic opportunities for women some of the zila's other industries, including leadership and entrepreneurial roles in local textile and handloom businesses, and in the growing information technology sector based in the Bangabandhu Hi-Tech City can also help to increase economic security and mobility. Such programs should also include males. When men are encouraged to value women as equals and are actively involved in the process of empowering women, societal attitude and structures can change more rapidly.

Due to the demand for unskilled labor, many females in Gazipur do not finish secondary school. Strong primary education initiatives are needed to help motivate female students to pursue further education. Such initiatives should consider evaluating, and increasing where necessary, safety and protections for females in schools. The education efforts should include awareness of TIP. Gazipur would also benefit from increased training of law enforcement on identifying and responding to human trafficking cases along known trafficking routes. Such efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

Rajbari, Dhaka

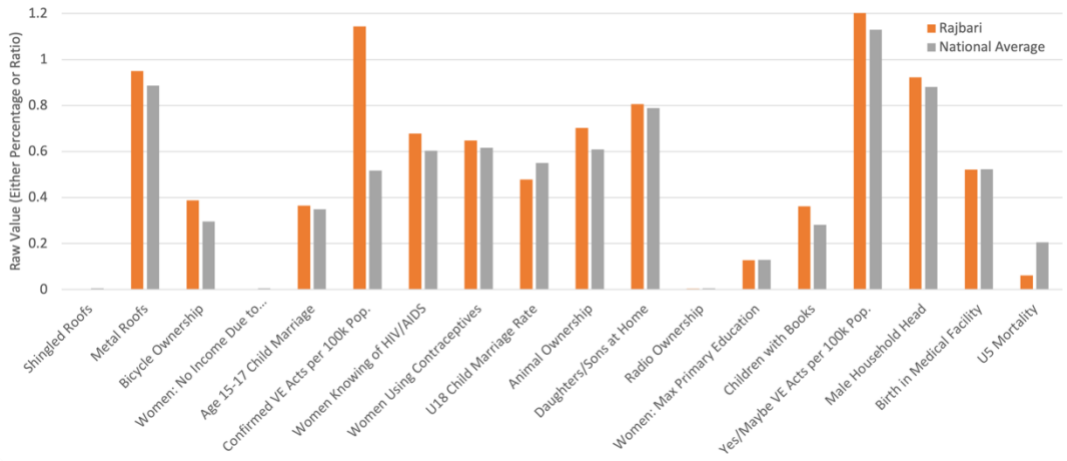


TIP Vulnerability Score:			Rank:
0.43	3.58	8.64	19/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	4.36	15.74	15/64
Number of Victims Estimate:			
761	4,573	31,261	52/64

Socio-Economic Measures

Population: 1,049,778 (#54)
Percent Urban: 14.4% (#41)
Poverty Incidence: 41.9% (#15)
Female Secondary School Completion: 67.7% (#13)
Households with Electricity: 92.1% (#28)
GNI per Capita (thousands of USD): 3.438 (#31)
Human Development Index: 0.596 (#36)
Percent of women who feel a husband is justified in beating his wife: 42.0% (#8)
Violent Extremism: 9 events since 2010 (#19)
U15 Child Marriage: 11.4% (#58)
U18 Child Marriage: 42.9 (#53)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

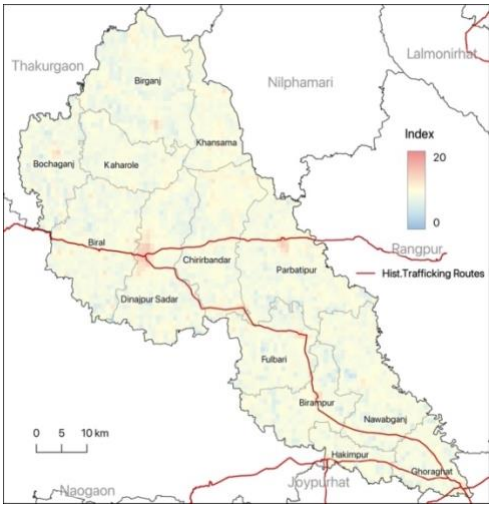
- Rajbari is in west-central Bangladesh, situated at the nexus of Dhaka, Khulna, and Rajshahi divisions. Its northern edge lies along the Ganges River.
- Rajbari has one of the world's largest brothels in the village of Daulatdia. Rajbari is a major RIP source and destination.
- Child marriage rates are low in Rajbari. However, the economic status of women is still low, as Rajbari ranking 62nd in female-male ratio of agricultural wages and 49th in female-male number of persons engaged in business.
- Rajbari ranks low in U5 mortality rates. Interestingly, the percentage of births in medical facilities is slightly below the national average, which suggests that while medical facilities may not be as accessible, society values young children.
- Poverty levels are high within the zila, with over 40 percent of the population in poverty. Wealth levels in general are near the national average for GNI per capita, HDI, and GDP per capita, which suggests high income inequality in the zila.

Geographically-Targeted Interventions

In Rajbari, high priority interventions include increasing security and awareness of human trafficking among local community leaders and law enforcement, increasing victim services in the village of Daulatdia, and monitoring and regulating legal brothels. Rajbari is an anomalous zila in terms of human trafficking, as it is a large destination point for sex trafficking, particularly because of Daulatdia's brothel. Daulatdia employs 2,000 brothel workers. The average age of a new brothel worker is 14, well below the legal age of prostitution (18). Because the brothel is legal, it can and should be subject to inspections, regulations, and enforcement from the government to combat the trafficking of young girls and women. Daulatdia police should increase security around the village and regularly inspect the brothel, and the local government should start a public service campaign warning residents about signs of trafficking and encouraging people to report any suspicious activity.

Additional ways to combat trafficking are to provide education focused on truck driving companies and shipping industries, as the brothel sits on one of the busiest trade routes in the country and a significant proportion of the demand for prostitution comes from the transportation workers. Providing comprehensive training to law enforcement, local community leaders, and sex-workers can raise awareness of human trafficking. Further health and employment training programs should be made available to the women. Offering small-scale vocational education programs for brothel employees can build skill sets that raise external employment chances.

Dinajpur, Rangpur

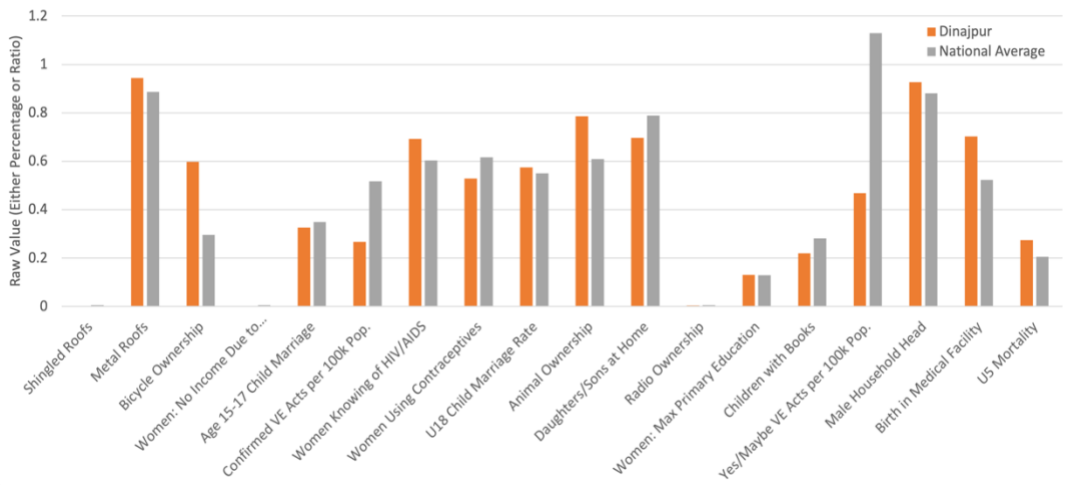


TIP Vulnerability Score:			Rank:
0.43	3.32	8.64	20/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	4.08	15.74	21/64
Number of Victims Estimate:			
761	12,199	31,261	13/64

Socio-Economic Measures

Population: 2,990,128 (#11)
Percent Urban: 14.5% (#37)
Poverty Incidence: 37.9% (#22)
Female Secondary School Completion: 66.1% (#23)
Households with Electricity: 92.5% (#27)
GNI per Capita (thousands of USD): 3.203 (#40)
Human Development Index: 0.614 (#22)
Percent of women who feel a husband is justified in beating his wife: 44.5% (#5)
Violent Extremism: 11 events since 2010 (#15)
U15 Child Marriage: 24.9% (#18)
U18 Child Marriage: 64.9 (#14)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

- Situated in northwest Bangladesh, Dinajpur is a largely agricultural district that shares its southwestern border with India.
- Dinajpur is ranked 20th in Novametrics' TIP vulnerability measure. The zila has recognized TIP victims, but there have been no legal TIP cases in the last few years, which suggests a lack of prosecution.
- Dinajpur is mainly considered a source and transit area to India.
- Dinajpur is home to the Barapukuria coal mine, which is the only active mine in Bangladesh.
- Rice production is the main crop for local farmers, with wheat, maize, lychees, and mangos being other significant products.
- Hili Land Port is a checkpoint and customs office for the movement of goods and people located on the Dinajpur-India border. The border in general is very porous.
- Dinajpur ranks fifth in the percentage of women who feel that wife-beating is justified and the U15 and U18 child marriage rates rank within the top half of Bangladesh. These indicators suggests that societal gender inequality is strong within the zila.

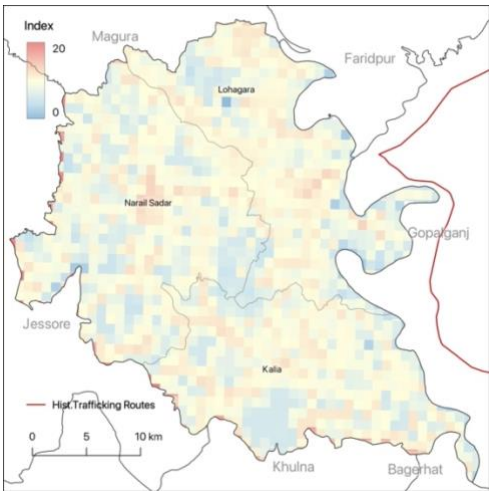
Geographically-Targeted Interventions

In Dinajpur, high priority interventions include addressing labor exploitation in the Barapukuria mine and increasing awareness of human trafficking among community leaders and law enforcement. The Hili Land Port, which is the second-largest in Bangladesh, holds a customs checkpoint for cross-border trade and movement from and to India. The port is one of the biggest ports in northwestern Bangladesh. The Indian border area of North Dinajpur has many rivers that make patrolling and enforcing the border difficult. Dinajpur is considered by some to be the zila through which most women and children are trafficked. The border is very porous in Dinajpur; over 80 percent of the border population cross to West Bengal casually, often to obtain better services, such as health care.

The only current mine in Bangladesh, Barapukuria, has poor safety and working conditions. The future economic feasibility of the mine is questionable. Proactive education and vocational training for mine employees will allow them to seek better, more stable jobs in industries like rice production or wholesaling, along with potential environmental remediation of the mine site. Labor unions in the mines should be engaged in transitioning workers and expanding skill sets.

Dinajpur, like many other border zilas, would also benefit from increased training of border patrols on identifying and responding to human trafficking cases, particularly the Parbatipur railway and the Hili Land Port. Such efforts should include training and incentivizing highway patrols to identify and deal with trafficking and raising the roles and prevalence of female border patrol officers. Such border efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

Narail, Khulna

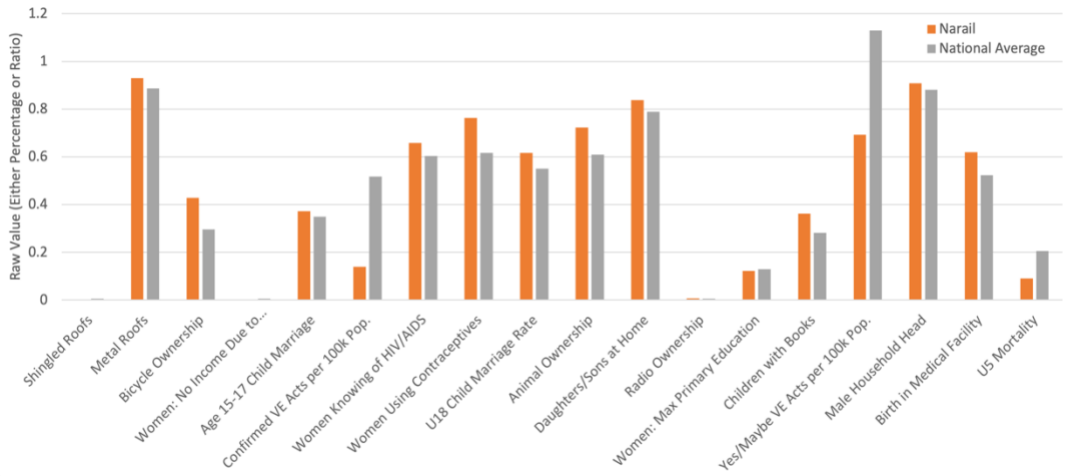


TIP Vulnerability Score:			Rank:
0.43	3.61	8.64	21/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	4.39	15.74	14/64
Number of Victims Estimate:			
761	3,169	31,261	59/64

Socio-Economic Measures

Population: 721,668 (#59)
Percent Urban: 15.7% (#32)
Poverty Incidence: 20.0% (#54)
Female Secondary School Completion: 66.5% (#20)
Households with Electricity: 84.9% (#44)
GNI per Capita (thousands of USD): 3.707 (#25)
Human Development Index: 0.622 (#16)
Percent of women who feel a husband is justified in beating his wife: 21.5% (#41)
Violent Extremism: 1 event since 2010 (#44)
U15 Child Marriage: 24.4% (#20)
U18 Child Marriage: 52.7 (#41)

VE Vulnerability Index for Zila & National Average Values



Derived from over 1,400 indicators, the zila vulnerability measure is composed of the subset of indicators and weightings that represent the optimal combination characteristic of the TIP ecosystem. The orange bars are the values for the particular zila. The grey bars represent the national averages. The statistical interpretation of these indicator combinations, their correlations with other factors, and the phenomena for which they serve as proxy measures, provide insight and evidence for summaries below.

Summary Description

- Narail is in southwestern Bangladesh and is the least vulnerable of all districts within Khulna Division. It is mostly considered a transit hub, as many highways run through it, connecting to busier western and central zilas.
- Narail is a hub for the production of small, wooden traditional river boats, known as "dungga." These boats are used for carrying trade goods and general transport. The boats are generally low-cost and low maintenance.
- Narail ranks low in poverty incidence and high in GNI per capita and HDI. The population is evenly split among the bottom four wealth quintiles.
- High rates of medical birth, antenatal care, and contraceptives reflect women's access to healthcare. However, high child marriage rates (U15) and below-average female paid employment rates suggest social norms supportive of gender inequality.

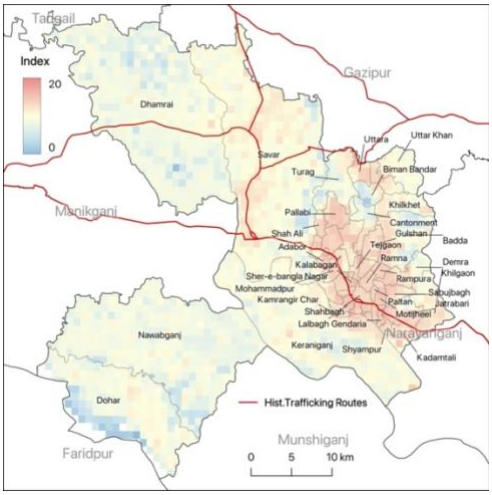
Geographically-Targeted Interventions

In Narail, high priority interventions include implementing programs supporting women's employment in the commercial and technical sectors. Narail is both a source and transit zila for TIP in southwestern Bangladesh. The reported number of TIP victims and cases in Narail is average for Khulna.

The new Padma Bridge and accompanying rail project in the district will greatly reduce travel time to Dhaka and increase economic growth and industrial development. While these infrastructure projects will create job opportunities and generate economic activity, they could also facilitate TIP transit. The district government should start two public service campaigns: one aimed at increasing birth registration rates, including detailed instructions on how to register births and the importance of having a registered birth as an adult; and second, educating citizens on signs of trafficking and encouraging citizens to report suspicious activity. Employees in the shipping and transportation industry, along with law enforcement, would benefit from increasing training and incentives to recognize and respond to human trafficking. Such efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

The train and rail project are also expected to bring new companies to Narail. Programs and incentives to increase the number of Narail women attending technical college or university would provide a workforce for these industries and reduce the low female-paid employment rate. Such training programs could be complemented with incentives for businesses to hire women, especially into upper management positions.

Dhaka, Dhaka

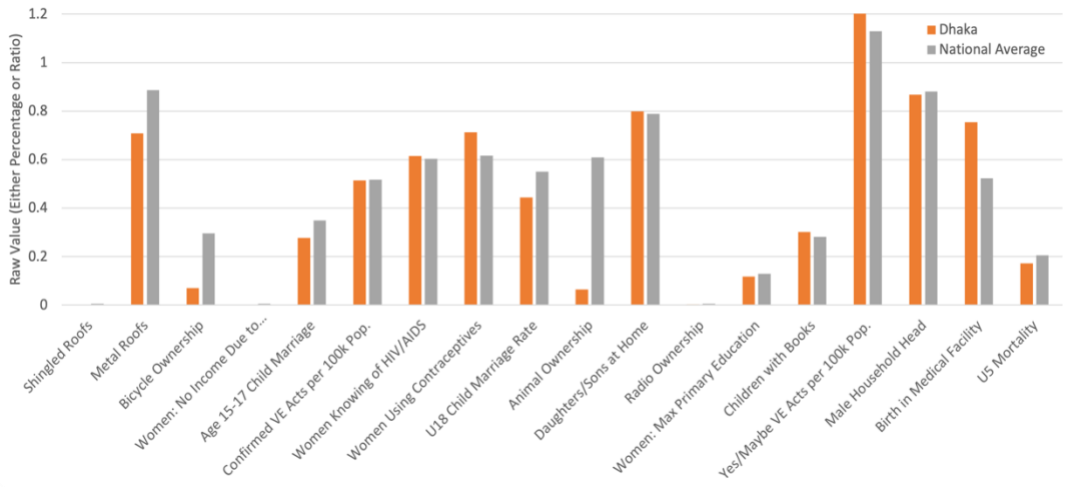


TIP Vulnerability Score:			Rank:
0.43	2.95	8.64	22/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	3.72	15.74	27/64
Number of Victims Estimate:			
761	44,802	31,261	1/64

Socio-Economic Measures

Population: 12,043,977 (#1)
Percent Urban: 77.1% (#1)
Poverty Incidence: 15.7% (#60)
Female Secondary School Completion: 56.6% (#60)
Households with Electricity: 99.7% (#2)
GNI per Capita (thousands of USD): 9.06 (#1)
Human Development Index: 0.695 (#1)
Percent of women who feel a husband is justified in beating his wife: 20.2% (#45)
Violent Extremism: 89 events since 2010 (#1)
U15 Child Marriage: 16.8% (#43)
U18 Child Marriage: 66.5 (#13)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

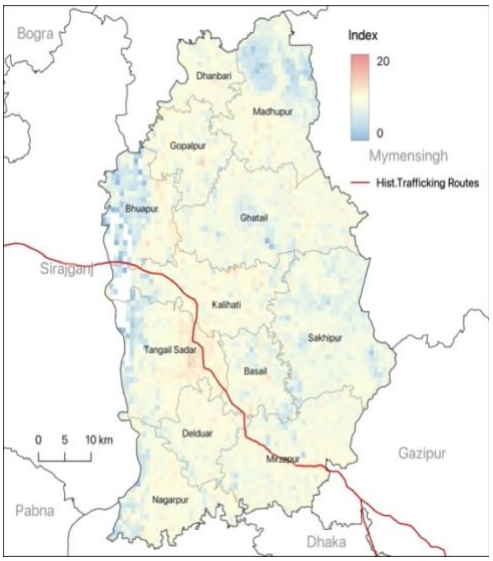
- Dhaka zila contains the capital, Dhaka, located in the center of the country and home to the Bangladesh National Parliament. With over 12 million people, it is the most densely populated, wealthy, and urban zila in the country. Dhaka is the ninth-largest city in the world and contributes 40 percent of Bangladesh's GDP.
- Dhaka is a source, transit, and destination zila for human trafficking.
- Dhaka is the wealthiest zila in Bangladesh. 72 percent of the zila's population is in the fifth wealth quintile, with less than ten percent of the population in the bottom three wealth quintiles. This couples with the fifth-lowest incidence rate for poverty and highest rankings for GNI per capita, HDI, and GDP per capita. However, despite its wealth, Dhaka also has approximately four million people living in slums.
- Gender inequality in Dhaka is relatively mild, ranking 49th in U18 marriage rates and fourth in percentage of women never abused in their household.
- With the fifth-lowest female secondary school completion rate and a low literacy rate, Dhaka lacks access to education. The 44 universities, over 5,000 total schools, and a high male maximum higher education rate suggest that educational institutions are not lacking; educational barriers are more likely due to socioeconomic status and wealth inequality.

Geographically-Targeted Interventions

In Dhaka, high priority interventions include improving transportation and services to address rapid urbanization, increasing awareness of trafficking among local law enforcement and government officials, addressing exploitation in the brick kiln industry, and providing stronger victim services. Dhaka is on track to become the sixth-largest megacity in the world by 2030, but it is experiencing the effects of rapid urbanization and wealth inequality, leaving the zila vulnerable to extreme poverty in urban slums and societal changes that fuel TIP and VE. Despite having the largest amount of people, Dhaka zila ranks 38th in total length of roads when adjusted for population. Traffic congestions are frequent and severe, with an average traffic speed of 6.4 kph. By supporting and expanding transportation networks, it becomes easier for poor rural and suburban citizens, especially women, to find work and reach economic stability in Dhaka's metropolis. The Metro Rail project is currently under construction in Dhaka, but the city should also promote the use of bicycles with designated bike lanes to further reduce air pollution and improve traffic congestion. Additionally, the municipal government should focus on safety in the new metro system. Train workers and patrol officers should be trained and incentivized to recognize and respond to trafficking.

Dhaka is well-known for its brick kiln industry, which has high levels of child and female labor exploitation. Most kilns are using outdated technology that requires higher labor amounts. Brick kilns should be subjected to labor inspections, have formal and transparent recruitment practices, and institute health and safety standards for certification. Inspectors and law enforcement should be trained to recognize exploitive labor practices and identify victims. Programs should be implemented to provide management and leadership training to females. So as not to inadvertently exacerbate the high level of existing gender inequality, such management and leadership training should also include males.

Tangail, Dhaka

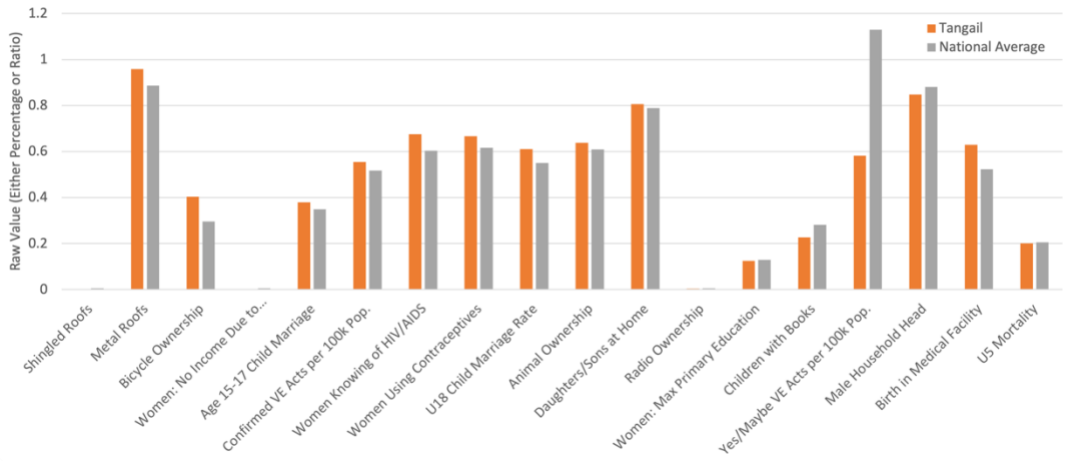


TIP Vulnerability Score:			Rank:
0.43	3.18	8.64	23/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	3.94	15.74	23/64
Number of Victims Estimate:			
761	14,200	31,261	10/64

Socio-Economic Measures

Population: 3,605,083 (#5)
Percent Urban: 16.7% (#26)
Poverty Incidence: 29.7% (#36)
Female Secondary School Completion: 63.5% (#32)
Households with Electricity: 98.8% (#7)
GNI per Capita (thousands of USD): 3.336 (#37)
Human Development Index: 0.574 (#55)
Percent of women who feel a husband is justified in beating his wife: 27.9% (#26)
Violent Extremism: 13 events since 2010 (#12)
U15 Child Marriage: 23.1% (#25)
U18 Child Marriage: 29.9 (#63)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

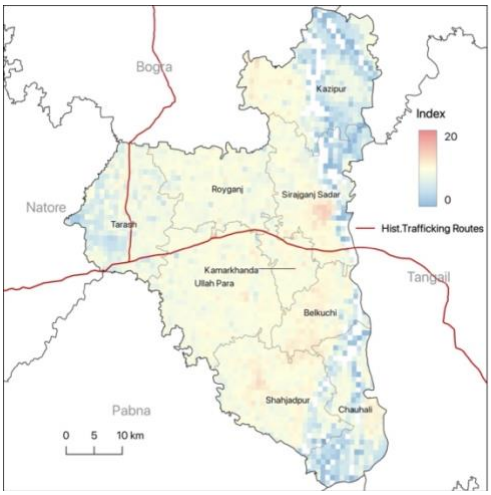
- Tangail is a large, low-lying zila in central Bangladesh, north of the Padma River. Tangail is one of the most populated zilas in Bangladesh with several businesses and factories, including a large textile and handloom industry.
- Tangail has one of the lowest HDI values, despite ranking near average in GNI per capita. Life expectancy and mean years of education, the third component of HDI after education and income, are lower than the national average.
- Female education is near average in both secondary school completion rate and women with a maximum primary education.
- Tangail is renowned for its silk saree production, with over 325,000 laborers connected with the profession. Industrial occupations are also common in the city of Tangail, mainly dealing with business and commerce.
- Tangail is a destination point and source point for human trafficking and operates some of the oldest brothels in Bangladesh.

Geographically-Targeted Interventions

In Tangail, high priority interventions include addressing exploitation in the textile industry and increasing awareness of human trafficking among community leaders and law enforcement, with special focus on communities containing brothels. The textile industry plays a significant part in Tangail's economy. 22 percent of the population engaged in the manufacturing of textiles are women, which includes Tangail's sarees (Eco Census). The textile industry is known for labor exploitation, especially for women and children, as wage rates are generally lower and work conditions are more demanding. Methods to decrease labor exploitation within the textile industry should include labor inspections, the development of formal and transparent recruitment practices, the institution of health and safety standards for certification, and the education of law enforcement personnel and health inspectors to recognize exploitive labor practices and identify victims. Programs should be implemented to empower women through educational, financial, management, and leadership training. So as not to inadvertently exacerbate the high level of existing gender inequality, such trainings should also include males.

Tangail is also home to many brothels, of which Kandapara is the most well-known, creating a demand for young girls. Families are approached to sell their girls, or the girls are targeted directly by traffickers. The average age of new brothel workers is 14, well below the legal age of prostitution of 18. Because the brothel is legal, it can and should be subject to inspections, regulations, and enforcement from the government to combat the trafficking of young girls and women. Police should regularly inspect brothels and the local government should start a public service campaign warning residents about signs of trafficking and encouraging people to report any suspicious activity. Further health and employment training programs should be made available to the women.

Sirajganj, Rajshahi



TIP Vulnerability Score: **Rank:**

0.43	3.13	8.64	24/64

Projected Prevalence Estimate (Victims per 1,000):

1.96	3.89	15.74	24/64

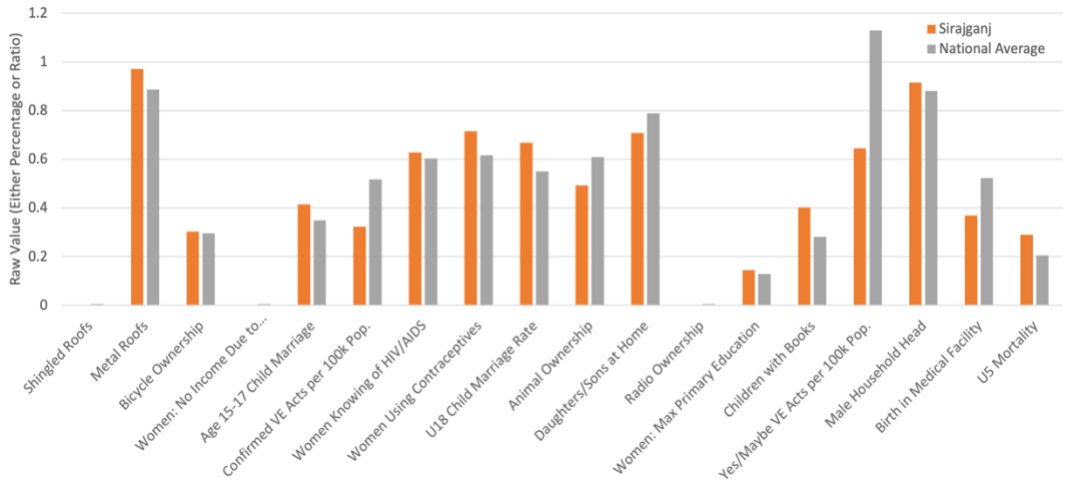
Number of Victims Estimate:

761	12,051	31,261	15/64

Socio-Economic Measures

Population: 3,097,489 (#10)
Percent Urban: 13.7% (#44)
Poverty Incidence: 38.7% (#20)
Female Secondary School Completion: 57.5% (#57)
Households with Electricity: 88.4% (#35)
GNI per Capita (thousands of USD): 3.568 (#28)
Human Development Index: 0.606 (#33)
Percent of women who feel a husband is justified in beating his wife: 33.7% (#17)
Violent Extremism: 7 events since 2010 (#22)
U15 Child Marriage: 25.3% (#16)
U18 Child Marriage: 33.1 (#60)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

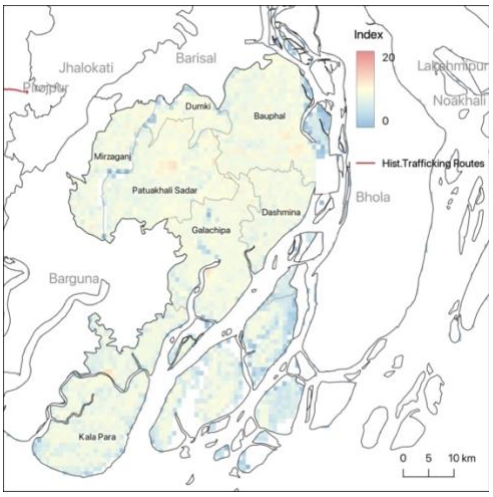
- Sirajganj is in north-central Bangladesh, situated on the Jamuna River.
- The Bangabandhu Bridge, which spans the border between Bhuapur and Sirajganj, is the longest in Bangladesh and provides important connections between the northwestern region and Dhaka.
- Sirajganj is prone to frequent flooding from the Jamuna; a recent flood displaced over 250,000 people.
- Both the U15 and U18 child marriage rates are relatively high and the zila ranks high in the percentage of women facing spousal abuse, which suggests an above-average level of societal gender inequality.
- Female secondary school completion rates are among the lowest in Bangladesh and the rate of women whose maximum education is primary school is above average. Both measures of women's education are considerably lower than expected, which suggests a lack of female empowerment efforts and education.
- Sirajganj ranks 51st in percentage of births in medical facilities, which suggests poor access to health resources, particularly for women.

Geographically-Targeted Interventions

In Sirajganj, high priority interventions include encouraging proper channels of migration, increasing awareness of trafficking among community leaders and law enforcement, promoting female education, and reducing gender inequality. Sirajganj is mainly a source and transit zila for TIP, with workers subjected to labor exploitation being trafficked to Malaysia and Thailand. Programs on safe migration, correct labor recruitment, and recognizing signs of human trafficking for the general population will allow people to understand the process and report suspicious activity. Sirajganj has a high volume of traffic going through the zila towards Dhaka and contains several traditional trafficking routes. Law enforcement efforts should be continued and expanded to include efforts at reducing human trafficking, specifically: a) increasing awareness of human trafficking, b) trainings to identify and deal with trafficking, and c) raising the roles and prevalence of female officers within the police. Such efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

Female empowerment measures like the percentage of females completing secondary school and the percentage of females giving birth in a medical facility are among the lowest in the country. Programs should encourage and incentivize communities to promote female education. Programs at local schools and community centers focused on gender equality and the value of girls should take place and include males, especially boys (age 5-10). When males are encouraged to value women as equals and are actively involved in the process of empowering women, societal attitude and structures can change more rapidly.

Patuakhali, Barisal

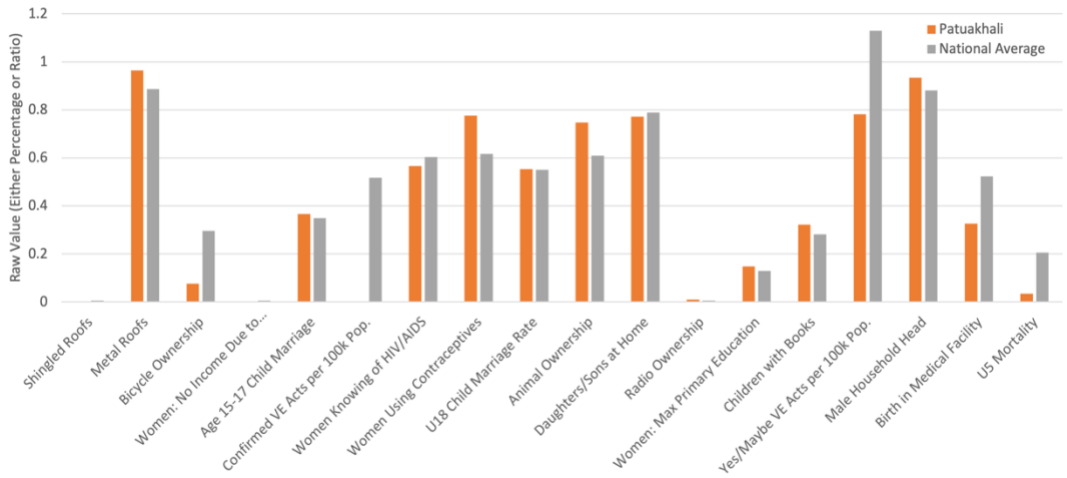


TIP Vulnerability Score:			Rank:
0.43	3.18	8.64	25/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	3.94	15.74	22/64
Number of Victims Estimate:			
761	6,056	31,261	38/64

Socio-Economic Measures

Population: 1,535,854 (#41)
Percent Urban: 13.4% (#46)
Poverty Incidence: 25.8% (#45)
Female Secondary School Completion: 57.5% (#56)
Households with Electricity: 54.8% (#61)
GNI per Capita (thousands of USD): 2.877 (#55)
Human Development Index: 0.586 (#49)
Percent of women who feel a husband is justified in beating his wife: 24.8% (#32)
Violent Extremism: 0 events since 2010 (#54)
U15 Child Marriage: 18.6% (#38)
U18 Child Marriage: 43.9 (#51)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

- Patuakhali is in south-central Bangladesh and shares a coastline with the Bay of Bengal. The primary occupations are agriculture and fishing. Main crops include rice, jute, potatoes, and mangos.
- Patuakhali has no recorded TIP cases or victims, which suggests that TIP is under-recognized and/or under-reported.
- The main transportation method in Patuakhali is boats, as the land is interspersed with backwaters and rivers.
- Patuakhali is particularly prone to extreme weather events and the monsoon season.
- Patuakhali ranks very low in wealth and infrastructure measures (GDP, poverty, electricity access, and HDI), which suggests overall poor economic conditions for a majority of the population.
- Female empowerment measures seem limited, particularly in education, as Patuakhali ranks 56th in secondary school completion rate for women, 18th in women with a maximum primary education, and below average in women's knowledge of HIV/AIDS.
- With the lowest U5 mortality in the country and a high percentage of children who own books, it appears that children are highly valued in the zila.

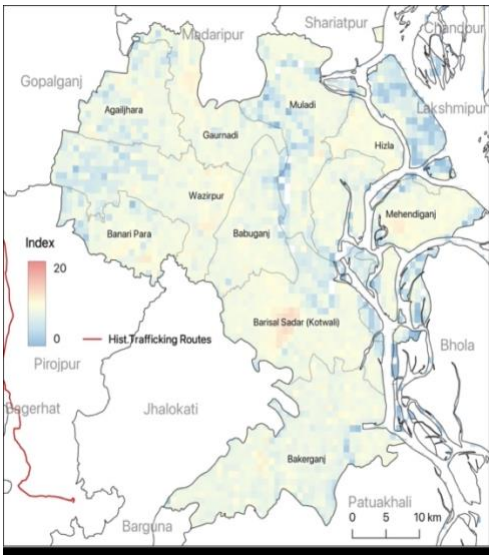
Geographically-Targeted Interventions

In Patuakhali, high priority interventions include addressing the high vulnerability to extreme weather conditions and improving female achievement in education. Currently, Patuakhali has radio and TV alerts that inform most citizens of upcoming cyclones or floods. However, less than 20 percent of households have televisions and less than three percent have radios. Potential solutions include building disaster sirens near all population centers that are vulnerable to cyclones, as well as increasing phone alerts (automated and through specific phone calls).

There are limited numbers of coastal embankments in Patuakhali, particularly in the Kalapara upazila. These embankments would help protect property, livestock, and agricultural fields from storm surges and flooding, as the saline water diminishes overall agricultural yield. Efforts to embank areas of Patuakhali's coastline could help mitigate the impact of flooding events.

Patuakhali is a source zila for trafficking, especially of women. The percentage of females completing secondary school is one of the lowest in the country. Programs could encourage young girls to remain in school by incentivizing families financially through scholarships or agricultural gains. This should also be partnered with gender equality trainings held within the schools and for parents. These programs should include males, especially boys (age 5-10). When men are encouraged to value women as equals and are actively involved in the process of empowering women, societal attitude and structures can change more rapidly.

Barisal, Barisal

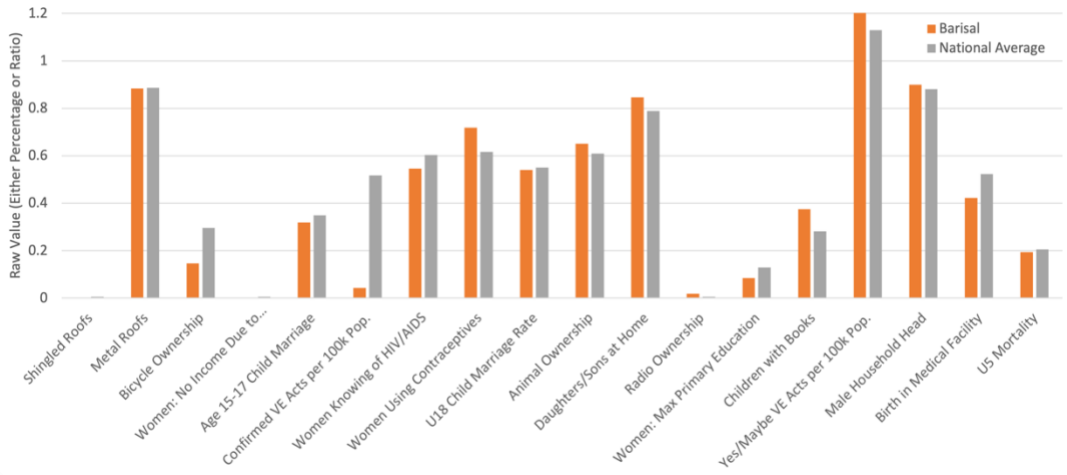


TIP Vulnerability Score:			Rank:
0.43	2.98	8.64	26/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	3.74	15.74	26/64
Number of Victims Estimate:			
761	8,693	31,261	22/64

Socio-Economic Measures

Population: 2,324,310 (#23)
Percent Urban: 23.1% (#11)
Poverty Incidence: 54.8% (#2)
Female Secondary School Completion: 61.5% (#45)
Households with Electricity: 85.4% (#42)
GNI per Capita (thousands of USD): 4.735 (#6)
Human Development Index: 0.672 (#2)
Percent of women who feel a husband is justified in beating his wife: 29.1% (#22)
Violent Extremism: 3 events since 2010 (#34)
U15 Child Marriage: 22.1% (#29)
U18 Child Marriage: 73.4 (#4)

VE Vulnerability Index for Zila & National Average Values



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Summary Description

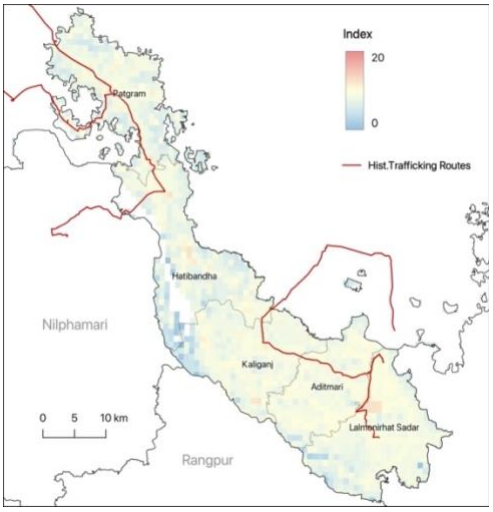
- Barisal lies in southern Bangladesh on the banks of the Meghna River and the zila's land is divided throughout by small rivers. The Barisal River Port is the second-busiest river port in the country for passenger traffic.
- Barisal has no reported legal TIP cases and no reported victims, which suggests that TIP is under-recognized and/or under-reported in this zila.
- Barisal's economy is based on agriculture and fishing. The main crops produced include rice, jute, fish, and fruit. River erosion is threatening agricultural land.
- Barisal simultaneously has some of the highest incidence rates of poverty (ranking second) and near-highest values for GNI per capita (ranking sixth) and HDI (ranking second). This combination of measures represents high levels of wealth inequality in the district, likely due to the disparity between poor, rural areas, and the economically-active port city.
- Indicators of societal gender inequality are relatively moderate. The U18 child marriage rate is 38th in the country and percentage of women not threatened with divorce ranks 20th.
- Low rates of medical birth, antenatal care, and birth registration suggest a lack of women's health infrastructure.

Geographically-Targeted Interventions

In Barisal, high priority interventions include increasing awareness of human trafficking among community leaders and law enforcement and implementing economic training for low-income population, especially women. Barisal is a geographically and economically diverse zila, containing poor agricultural areas broken up by its many rivers, as well as a major city and river port with international trade. Barisal is mainly a source and transit point for human trafficking. In 2019, over 100 male Bangladeshi males from Barisal and Tangail were trafficked to Vanuatu with false promises of employment opportunities. Barisal should implement trafficking awareness programs and develop mechanisms for reporting incidences of potential trafficking. Law enforcement and port authorities should be educated and incentivized to recognize and respond to TIP. Such efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

Almost 55 percent of the population is living in poverty, which means that the region's higher wealth is not being properly distributed and increases the vulnerability to TIP. Given the high urban population, programs could provide low-cost or free vocational training, especially for women, in urban-growth industries like pharmaceuticals, commerce, and textile production. Fostering and funding community organizations, including community banks, dialogue groups, and childcare, can provide greater economic equality and reduce poverty rates. Working with fishing communities, which are common in Barisal and often impoverished, to implement training programs on sustainable, efficient techniques in fishing will reduce poverty and vulnerability to TIP in coastal regions.

Lalmonirhat, Rangpur

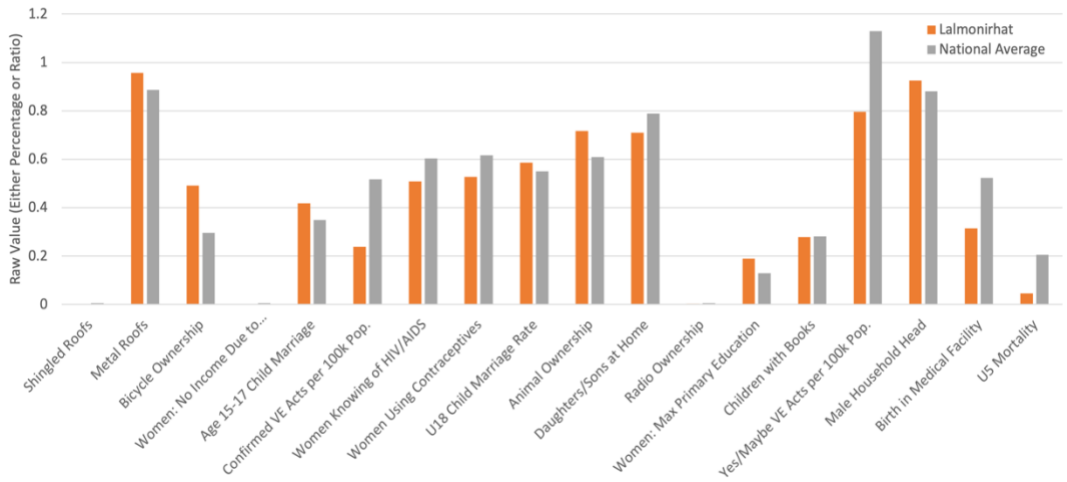


TIP Vulnerability Score:			Rank:
0.43	3.06	8.64	27/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	3.82	15.74	25/64
Number of Victims Estimate:			
761	4,798	31,261	45/64

Socio-Economic Measures

Population: 1,256,099 (#48)
Percent Urban: 11.4% (#55)
Poverty Incidence: 34.5% (#28)
Female Secondary School Completion: 60.6% (#50)
Households with Electricity: 79.1% (#51)
GNI per Capita (thousands of USD): 3.023 (#52)
Human Development Index: 0.591 (#46)
Percent of women who feel a husband is justified in beating his wife: 22.5% (#40)
Violent Extremism: 4 events since 2010 (#28)
U15 Child Marriage: 16.9% (#42)
U18 Child Marriage: 57.9 (#32)

VE Vulnerability Index for Zila & National Average Values



Derived from over 1,400 indicators, the zila vulnerability measure is composed of the subset of indicators and weightings that represent the optimal combination characteristic of the TIP ecosystem. The orange bars are the values for the particular zila. The grey bars represent the national averages. The statistical interpretation of these indicator combinations, their correlations with other factors, and the phenomena for which they serve as proxy measures, provide insight and evidence for summaries below.

Summary Description

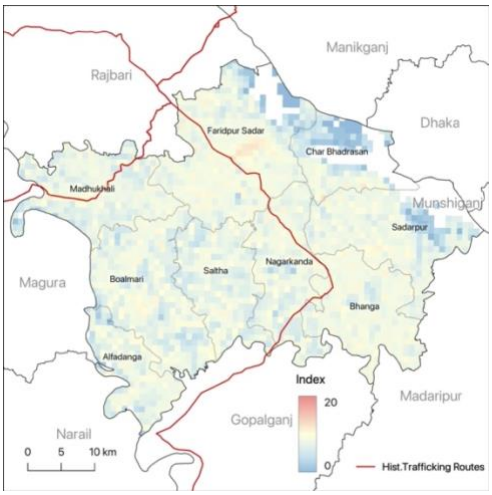
- Lalmonirhat is in far northwestern Bangladesh and shares a border with India.
- Lalmonirhat has no reported legal TIP cases and no reported victims, which suggests that TIP is under-recognized and/or under-reported in this zila. It is also one of two zilas without a CTC.
- Lalmonirhat is mainly a source region for trafficking, with instances of cross-border transit.
- Lalmonirhat's economy is heavily based on agriculture, ranking sixth-highest in the percentage of people employed in agricultural fields and tobacco production. Tobacco farming is lucrative in the region and vegetable farming is also popular.
- Women's knowledge of HIV/AIDS, the use of contraception, and the rate of females completing secondary school are well below the national average. These indicate poor female empowerment and a lack of value for female health and education.
- Lalmonirhat's lower GNI and HDI, as well as near average poverty rate, demonstrate that while overall wealth is lower in the zila, there is not the stark wealth inequalities seen in other zilas.

Geographically-Targeted Interventions

In Lalmonirhat, high priority interventions include promoting female empowerment through education for girls, improving agricultural opportunities for females, and increasing awareness of trafficking among community leaders and law enforcement. Women in Lalmonirhat generally have low scores for empowerment, including overall educational attainment, health, and economic mobility, with la ow ranking in female agricultural wage rates as well. Programs to promote female educational attainment should be carried out throughout the zila. The zila should also work to make more education and health services available. Female agricultural wages are among the lowest in the country. Investments in agricultural training programs that include low-cost machinery and techniques for increasing yield are likely to improve the quality and standing of female employment. Empowering women to take an active role in the agricultural sector can increase overall financial security for families and, henceforth, increase productivity and mobility for the women involved. Such programs should also include males, especially boys (age 5-10). When men are encouraged to value women as equals and are actively involved in the process of empowering women, societal attitude and structures can change more rapidly.

Lalmonirhat, like many other border zilas, would also benefit from increased training and incentivizing border patrols to identify and respond to human trafficking cases. Such border efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

Faridpur, Dhaka

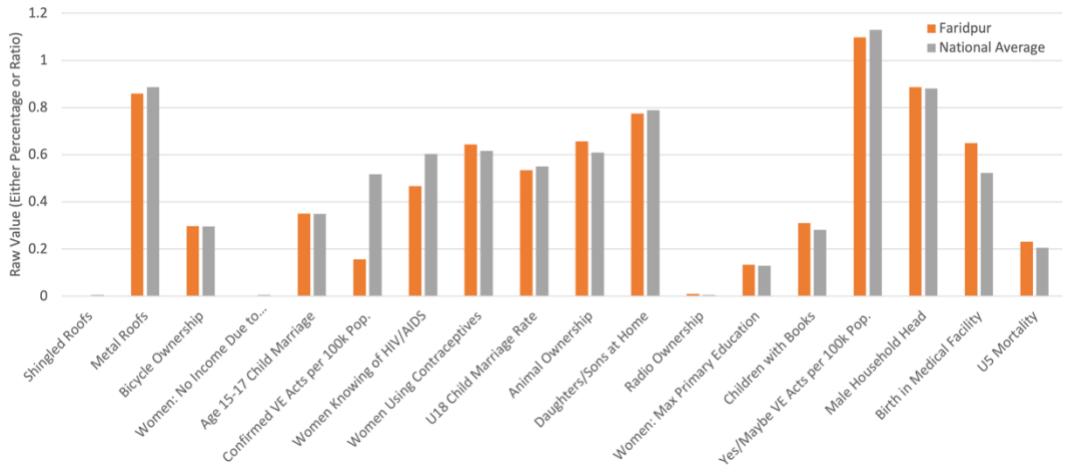


TIP Vulnerability Score:			Rank:
0.43	2.95	8.64	28/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	3.72	15.74	28/64
Number of Victims Estimate:			
761	7,114	31,261	33/64

Socio-Economic Measures

Population: 1,912,969 (#34)
Percent Urban: 14.2% (#43)
Poverty Incidence: 36.3% (#23)
Female Secondary School Completion: 64.4% (#27)
Households with Electricity: 85.0% (#43)
GNI per Capita (thousands of USD): 3.438 (#31)
Human Development Index: 0.596 (#36)
Percent of women who feel a husband is justified in beating his wife: 39.9% (#12)
Violent Extremism: 0 events since 2010 (#54)
U15 Child Marriage: 18.5% (#39)
U18 Child Marriage: 64.6 (#15)

TIP Vulnerability Measure for Zila & National Average Values



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Summary Description

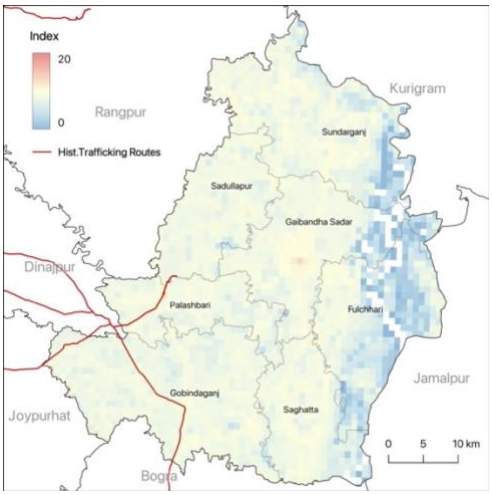
- Faridpur is in south-central Bangladesh, just south of the Padma River. Its central location allows it to serve as a hub on the Bangladeshi railway.
- Faridpur has many brothels and is both a source and destination for trafficking.
- Faridpur has the largest jute farming production in Bangladesh. Faridpur is also known for its hilsa fishing trade, which is becoming overfished, as well as numerous sugar mills.
- Measures of societal gender inequality are high. The zila ranks 15th in U18 child marriage rates. 40 percent of women said that a husband was justified in beating his wife, the 12th highest percentage in Bangladesh, which further indicates societal gender inequality and patriarchal norms persist.
- GNI per capita, HDI, and poverty incidence rates all indicate near average levels of wealth. The highest percentages of the population are in the second, third, and fourth wealth quintiles.

Geographically-Targeted Interventions

In Faridpur, high priority interventions include improving agricultural opportunities for females in the jute industry and increasing awareness of human trafficking, especially in areas with brothels. Faridpur's jute manufacturing industry consists of around 46 percent female labor. Females in the jute workforce are stereotyped as "unskilled," and are paid less than males. Female workers are often perceived as lower-class and sexually promiscuous, which degrades their opportunities and reputations. Programs are needed to provide management and leadership training for females and to incentivize the promotion of females into management positions. Investments in agricultural training programs that also include low-cost machinery and techniques for increasing yield are likely to improve the quality and standing of female employment. Such programs should be complemented with community-based programs that address societal gender inequality, and include males, especially boys (age 5-10). When men are encouraged to value women as equals and are actively involved in the process of empowering women, societal attitude and structures can change more rapidly.

Faridpur has many brothels that contribute to the zila being a destination for sex trafficking. Health service programs should be established for commercial sex workers. Without discouraging access to medical treatment and preventative care, health workers should be trained to screen, recognize, and offer resources to victims of TIP as part of their medical mission, including giving victims a chance to report TIP to a nonprofit and/or to the authorities.

Gaibandha, Rangpur

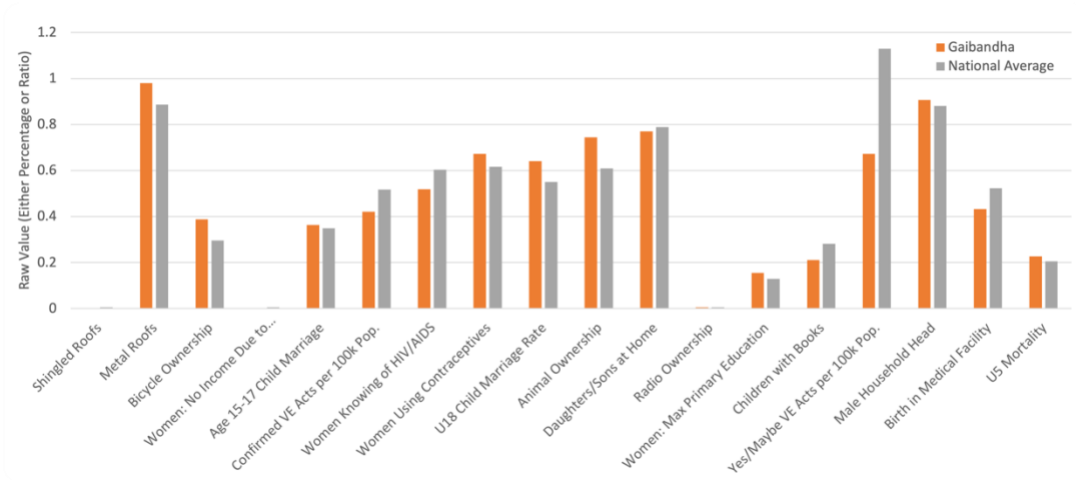


TIP Vulnerability Score:			Rank:
0.43	2.88	8.64	29/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	3.65	15.74	29/64
Number of Victims Estimate:			
761	8,681	31,261	23/64

Socio-Economic Measures

Population: 2,379,255 % (#22)
Percent Urban: 9.2% (#63)
Poverty Incidence: 48.0% (#8)
Female Secondary School Completion: 59.2% (#54)
Households with Electricity: 78.5% (#52)
GNI per Capita (thousands of USD): 3.429 (#34)
Human Development Index: 0.614 (#22)
Percent of women who feel a husband is justified in beating his wife: 20.5% (#44)
Violent Extremism: 11 events since 2010 (#15)
U15 Child Marriage: 27.7% (#7)
U18 Child Marriage: 62.7 (#17)

TIP Vulnerability Measure for Zila & National Average Values



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Summary Description

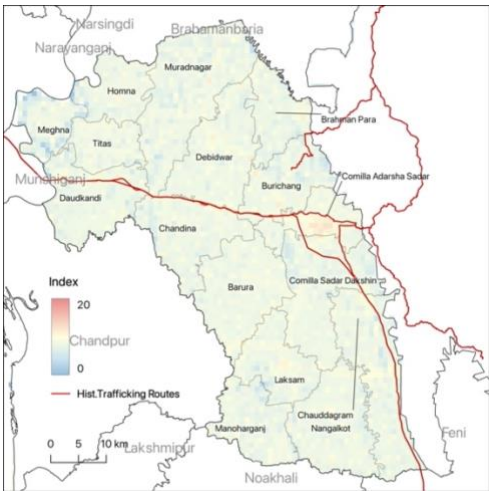
- Gaibandha is a remote zila in northwestern Bangladesh, with one of the most rural populations. Gaibandha borders the Brahmaputra River to the east and has high levels of rainfall.
- Gaibandha is mainly a transit zila for trafficking.
- Female education ratings are poor, ranking 54th in female secondary school completion rate and 16th in women: max primary education.
- Child marriage rates are high, as is the rate of women who report being threatened by their spouse, which indicates that gender inequality is high within the zila.
- The Gaibandha economy is primarily agricultural. It has the second-largest overall banana production and paddy, wheat, and jute production are also strong in the zila.
- Overall wealth is relatively low. It ranks 57th in GDP per capita and eighth in the overall poverty rates. Only nine percent of the population is in the fifth wealth quintile, and over half the population is in the first and second quintiles.
- Births in medical facilities are well below the national average and the U5 morality rate is above average, with only one government-run hospital present in the district. This is due more to a lack of access to medical services but may also show an overall societal devaluation of women.

Geographically-Targeted Interventions

In Gaibandha, high priority interventions include improving education achievement for females, reducing societal gender inequality, and increasing awareness of human trafficking among community leaders and law enforcement. Gaibandha needs greater education, health, and economic improvements for both men and women. In Gaibandha, the female education rate is low, and therefore programs are needed to incentivize girls to remain in school. Community groups and leaders should help facilitate gender equality programs in the schools and communities. These programs should involve males as well, especially young boys (age 5-10). When men are encouraged to value women as equals and are actively involved in the process of empowering women, societal attitude and structures can change more rapidly.

Gaibandha is a transit zila with historical trafficking routes to India. Gaibandha would benefit from increased training of law enforcement on identifying and responding to human trafficking cases. Such efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

Comilla, Chittagong

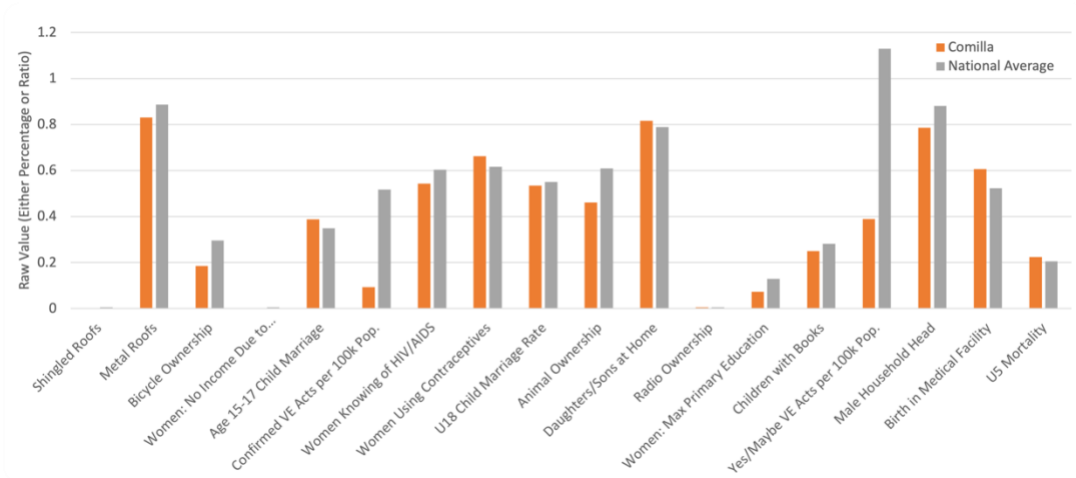


TIP Vulnerability Score:			Rank:
0.43	2.70	8.64	30/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	3.49	15.74	32/64
Number of Victims Estimate:			
761	18,810	31,261	5/64

Socio-Economic Measures

Population: 5,387,288 (#3)
Percent Urban: 15.6% (#33)
Poverty Incidence: 37.9% (#21)
Female Secondary School Completion: 74.5% (#2)
Households with Electricity: 99.1% (#4)
GNI per Capita (thousands of USD): 4.626 (#9)
Human Development Index: 0.632 (#13)
Percent of women who feel a husband is justified in beating his wife: 21.0% (#42)
Violent Extremism: 9 events since 2010 (#19)
U15 Child Marriage: 14.7% (#45)
U18 Child Marriage: 67.0 (#11)

TIP Vulnerability Measure for Zila & National Average Values



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Summary Description

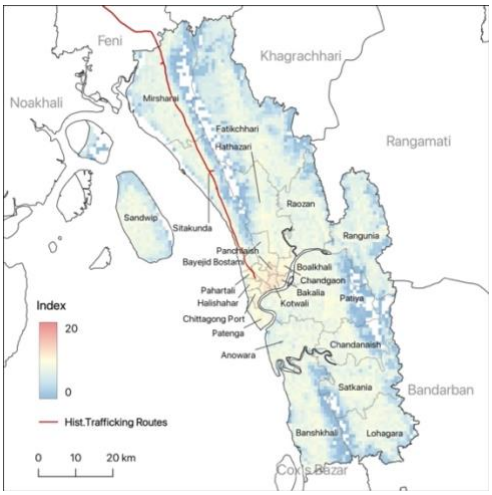
- Located on the southeastern border of Bangladesh with India, Comilla is one of the most populous zilas. Comilla's main industry is agriculture and it is a large exporter of goods to India.
- Comilla is in the top half of the TIP vulnerability measure. There is low TIP reporting in Comilla, which may signify a lack of TIP recognition.
- Female empowerment measures are strong in Comilla. The rate of females completing secondary education is one of the highest female education rates in Bangladesh. Along with above average births in medical facilities and contraceptive usage, it seems that women have good access to health and education services.
- Low rates of women who believe wife beating is justified, along with lower-than-average child marriage rates (U15), are a strong indicator of gender equality.
- The poverty rate is above the national average and the wealth measures are higher, which indicates wealth inequality in the zila.
- The rate of children who own books is below average, along with the percentage of children who know the alphabet. This indicates a lack of emphasis on early education and value on children in the society.

Geographically-Targeted Interventions

In Comilla, high priority interventions include reducing exploitation within the brickfield industry, decreasing cross-border trafficking into India, and curbing child labor practices while encouraging early education programs. Comilla is an origin location for trafficked children, many of which work in the brickfields. Comilla has a large brick-making industry, with around 4,000 brickfields, mostly located in the Chauddagram and Muradnager upazilas. The brickfields use child labor, with children ranging from nine to 15 years old. Community programs should be implemented to encourage children to stay in school and to warn parents and employers about the harm and illegality of child labor. Methods to decrease labor exploitation within the brick industry should include labor inspections of brickfields, the development of formal and transparent recruitment practices, the institution of health and safety standards, and the education of both law enforcement personnel and health inspectors to recognize exploitive labor practices and identify victims.

Similar to other border zilas, Comilla has a high volume of border crossing points to India and contains several traditional trafficking routes. Comilla should improve its TIP reporting measures and policing efforts. The border control efforts should be continued and expanded to include efforts at reducing human trafficking, specifically increasing awareness of human trafficking along the border and training and incentivizing border patrols to identify and deal with trafficking. Such border efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

Chittagong, Chittagong

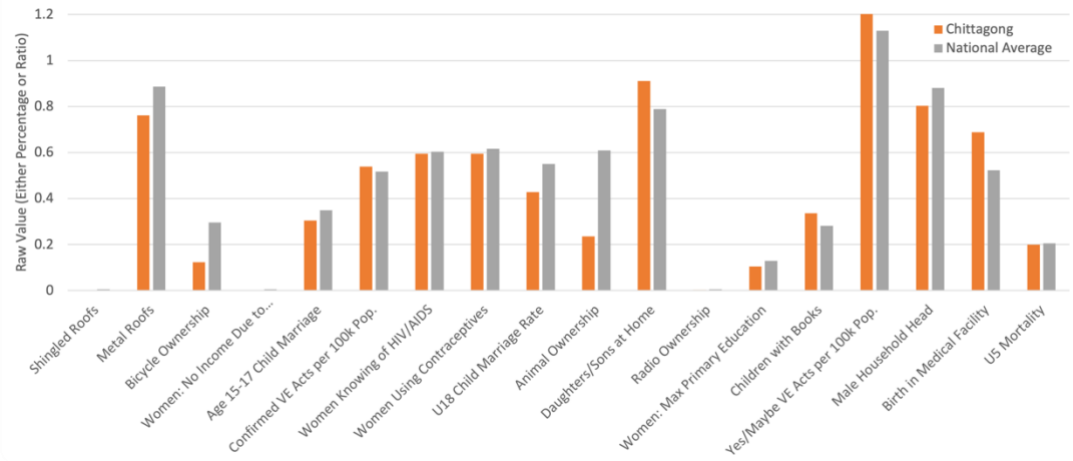


TIP Vulnerability Score:			Rank:
0.43	2.57	8.64	31/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	3.38	15.74	39/64
Number of Victims Estimate:			
761	25,708	31,261	4/64

Socio-Economic Measures

Population: 7,616,352 (#2)
Percent Urban: 42.8% (#2)
Poverty Incidence: 11.5% (#62)
Female Secondary School Completion: 66.2% (#22)
Households with Electricity: 95.9% (#18)
GNI per Capita (thousands of USD): 5.915 (#2)
Human Development Index: 0.648 (#8)
Percent of women who feel a husband is justified in beating his wife: 6.9% (#60)
Violent Extremism: 51 events since 2010 (#2)
U15 Child Marriage: 12.4% (#54)
U18 Child Marriage: 67.2 (#9)

TIP Vulnerability Measure for Zila & National Average Values



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Summary Description

- Chittagong is situated in southeastern Bangladesh, and its western edge lies on the Bay of Bengal. It is the second-most populous zila in the country, home to the second-largest city and maritime port of the same name and is a center of trade and commercial activity.
- Chittagong is within the top half of the TIP vulnerability ranking.
- The third-lowest poverty incidence and top ten GNI and HDI reflect high wealth, perhaps due to the large trade port. High TV ownership and female computer use also reflect wealth and access to technology for women.
- Low female tolerance to domestic violence indicates relatively high levels of gender equality and female empowerment. However, high percentages of females living at home, staying in the same place, and large rural wage disparity between males and females also suggest the presence of a patriarchal society where women may lack mobility or job opportunities.
- High mango and banana acreage reflect the district's agricultural productivity. Chittagong is the largest zila by area still has rural farming regions despite its high urban population.

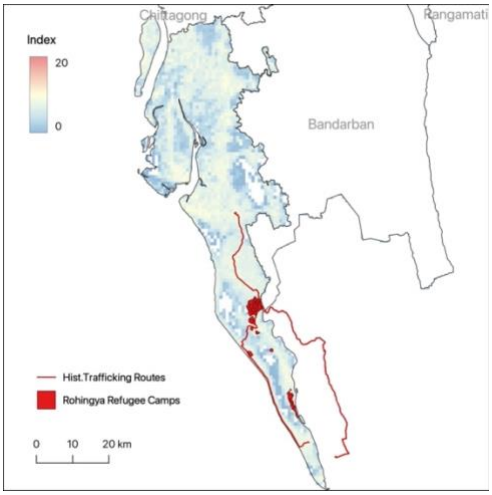
Geographically-Targeted Interventions

In Chittagong, high priority interventions include increasing awareness of trafficking among community leaders and law enforcement, increasing community programs to educate people on safe labor recruitment practices, and addressing gender inequality in the rural areas. Chittagong is a large city with every major form of transportation and is a transit area, with a major train station, airport, and seaport. The seaport is a transit area for maritime trafficking to Malaysia and Thailand. In Chittagong, Chinese traffickers coerce women, specifically indigenous women from the Chittagong Hill Tracts, into sex trafficking and domestic servitude through arranged marriages. Additionally, traffickers transport Rohingya refugee girls through Chittagong to Dhaka, India, Malaysia, and Nepal for sex trafficking, with promises of jobs or marriage.

Efforts to reduce TIP transit through the seaport, train station, and airport should be continued and expanded to include: a) increasing awareness of human trafficking; b) training and incentivizing workers in the travel industry, such as flight attendants, train conductors, and ticket collectors, along with law enforcement, to recognize and respond to suspected trafficking; and c) raising the roles and prevalence of female officers within law enforcement. Such efforts should be complemented with community-based programs to increase awareness of human trafficking and safe migration practices.

To expand opportunities for women and address gender inequality, especially in the rural farming regions, programs on financial, technical, and managerial training are needed to improve the quality and standing of female employment. Investing in agricultural training, co-ops, improved low-cost machinery, and advanced irrigation systems will help females gain valuable skills and increase female wages and socioeconomic standing. Males should be included in such programs so as not to inadvertently exacerbate gender inequality.

Cox's Bazar, Chittagong

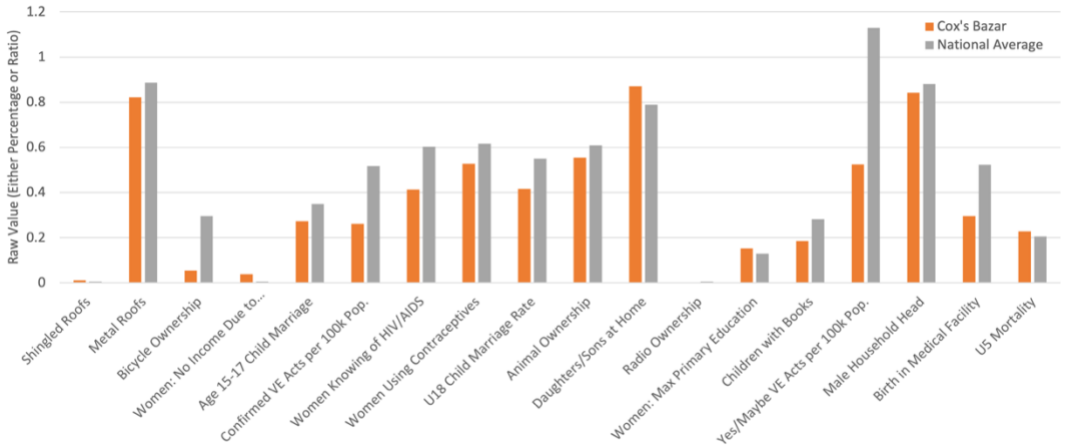


			Rank:
TIP Vulnerability Score:			
0.43	2.43	8.64	42/64
Projected Prevalence Estimate (Victims per 1,000):			
1.96	3.26	15.74	45/64
Number of Victims Estimate:			
761	7,462	31,261	31/64

Socio-Economic Measures

Population: 2,289,990 (#26)
Percent Urban: 22.0% (#13)
Poverty Incidence: 32.7% (#30)
Female Secondary School Completion: 59.9% (#52)
Households with Electricity: 69.5% (#58)
GNI per Capita (thousands of USD): 2.86 (#58)
Human Development Index: 0.538 (#61)
Percent of women who feel a husband is justified in beating his wife: 52.5% (#2)
Violent Extremism: 6 events since 2010 (#24)
U15 Child Marriage: 14.4% (#47)
U18 Child Marriage: 66.8 (#12)

TIP Vulnerability Measure for Zila & National Average Values



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Summary Description

- Cox's Bazar is the main destination for Rohingya refugees from Myanmar. The refugee camps create an ecosystem that is significantly different from the rest of the zila. While the camps create an environment of high vulnerability and have highest prevalence of reported TIP cases, the rest of the zila has relatively low vulnerability.
- The Rohingya population are not considered to be citizens of Bangladesh and are therefore not afforded full rights under the constitution. The Bangladeshi High Court has not entertained anti-trafficking cases filed by Rohingya refugees. The refugee camps are mainly a source of labor and sex trafficking, and victims are transited throughout Asia.
- The majority of refugees are women and children and almost 60 percent of the population is U18. In Myanmar, prohibitions against child marriage were strictly enforced, but that the Rohingya are no longer in Myanmar, child marriage is likely to increase, both as a means of securing the safety of young girls and as a means of reducing dowry payments.
- Outside of the refugee camps, measures of female empowerment, including women's education, via the secondary school completion rate and rate of women with a maximum primary education, and health, via U5 mortality, percent birth in medical facility, and contraceptive usage, are low which suggests low female empowerment in the zila. The zila ranks also third in women earning no income due to husband's restrictions, which also suggests high levels of societal gender inequality.
- Aquaculture and fishing are the main industries in the zila, as well as tourism involving the beaches and aquatic activities. The wealth measures of GNI per capita, households with electricity access, and HDI all rank in the lowest zilas. The first wealth quintile has 42 percent of the population.

Geographically-Targeted Interventions

In Cox's Bazar, high priority interventions should include the development of enterprises to improve the host community, promotion of refugee self-reliance, and provision of safe migration training for the Rohingya. Bangladesh is providing a humanitarian service by hosting the Rohingya, but the Rohingya do not have the right to work or freedom of movement. The Bangladesh government is resistant to providing services or opportunities that might be perceived as an incentive for Rohingya to stay. This population is likely to become increasingly vulnerable, as donor fatigue takes place, humanitarian aid decreases, and tensions between the refugees and host communities rise.

Within the Rohingya community, societal gender inequality is high. Incentives should be implemented for females to participate in employment training and educational programs. Birth registrations should be reinstituted and campaigns against child marriage and the dowry practices should be developed. To reduce gender inequality, efforts should focus on empowering women through community programs, implementing early childhood education programs that include young males (age 5-10), and educating both males and females on the benefits of gender equality, especially focusing on economic and social benefits. When men are encouraged to value women as equals and are actively involved in the process of empowering women, societal attitude and structures can change more rapidly.

Within the refugee camps, vocational and educational programs should be established to enhance marketable and transferable skills among the Rohingya that will make them desirable global workers. Investments in employment training programs that also include financial and technical training are likely to improve the quality and standing of Rohingya workers. NGOs and other organizations should be encouraged to help trained and educated refugees identify and pursue economic opportunities through safe migration practices.

ANNEX 2. TECHNICAL SUMMARY OF METHODOLOGY AND LIMITATIONS ON THE ANALYSIS

1. TECHNICAL SUMMARY OF METHODOLOGY

Novametrics' weak-signal analysis provides a means for predicting vulnerability and for identifying underlying causal relationships among multiple inter-related variables in a dynamic environment. It was originally developed through a series of research seminars at Princeton University and was supported with a USD 1.2M Small Business Innovation Research Award from the US Secretary of Defense to predict conflict in Sub-Saharan Africa. The analysis received an award for "Innovative Use of Data for Increasing Resilience" from USAID.

Weak-signal analysis begins with data fusion through a suite of statistical and regression algorithms for normalization, standardization, and vectorization, which subdivides populations into small units for which distinct attributes can be measured. A raw persistent data-storage layer contains all the raw data in its original form. A virtualized data layer provides an abstraction layer between the physical data sets and the analysis layer. This is where the data are cleaned, standardized, normalized, and vectorized. New indicators are created from the original raw data and stored in logical groupings. Singular-value decomposition is used as an unsupervised self-learning algorithm to identify agnostically key attributes and their relative weightings. The attributes are tested via resampling methods to confirm consistency and sensitivity. The outputs are sets of indicators (weak-signals) that are proxy measures for the underlying causal relationships.

We began with large volumes of data from diverse, mostly open-source datasets from NGOs, media, the USG, and the statistical authorities of local governments. These datasets include detailed national census data, health and educational survey data, remote-sensing data suitable for geospatial analysis, web-scraped data, and data from both formal and informal media sources. The Novametrics Bangladesh Database contains over half a million socioeconomic indicator values covering over 1,400 measures for 544 upazilas over 20 years, using 405,257 1km^2 pixels. Using information from hundreds of millions of data values, we developed hundreds of thousands of human-social-cultural-behavioral attributes differentiated down to the municipality level.

We consider all data to be valuable. While datasets may be of varying quality and completeness, each has the potential to carry information that reflects a characteristic of a population, either by itself or, more commonly, through combinations with other datasets.

High-resolution geospatial data (typically 1km^2 for population, but down to ten-meter resolution for imagery) and remote-sensing data are converted into tabular data by determining the number of pixels of each data type within each administrative boundary and multiplying the pixel count by the area of each 30" x 30" pixel (approximately 1km^2), totaling 405,257 distinct area-patches for Bangladesh. Depending on the data type, either we summed the values, e.g., to determine population, or we took a statistical measure of the values distribution, e.g., average travel distance to a road, market, or urban area. For each pixel, population was derived from Oak Ridge National Laboratory's LandScan global population data and represents ambient population averaged over 24 hours.

We calculated indicators from raw survey data at the lower administrative levels. We aggregated and compared these indicators to reported values at higher administrative levels to confirm accuracy of the aggregation. We then translated the responses into indicators based on the nature of the data. For example, we express a simple yes/no on whether a mother uses a mosquito net with a single indicator ("Percentage of Mothers Using a Mosquito Net"), whereas we express the religion of a household more completely with multiple indicators ("Percentage of Muslim Households," "Percentage of Christian Households," etc.). Other survey questions, such as "How many hours per week did your child attend school?" are aggregated with averages for each administrative unit.

Additional indicators were calculated by Novametrics, either by combining two raw indicators in the database, or by calculating the raw data into more meaningful indicators. For example, we calculated the percentage of female teachers, a useful indicator of gender equality, from the reported number of female teachers and number of teachers.

Non-numerical data were reformatted into numerical values and processed statistically. For example, the typical Likert scale was used to survey attitudes with responses like "Strongly Agree," "Agree," "Neutral," "Disagree," and "Strongly Disagree", with responses centered about zero. For some indicators where the data was a ranked-choice variable, the choices were converted to discrete numbers between -1 and 1, centered on zero.

Missing data were imputed using linear interpolation or a piecewise cubic polynomial that interpolates the given data if derivatives are specified at the interpolation points. If a region was missing so much data that imputation was unreasonable based on examining the distribution, and if there were significant events in the region that would make the data no longer representative, it was rejected from the analysis. Judgment was applied depending on the potential value of the indicator and the availability of alternative "proxy" indicators that might capture comparable phenomena within the socioeconomic ecosystem.

Administrative boundaries were sourced from the Bangladesh Bureau of Statistics. Names and boundaries were updated to the most current at the time of data analysis. Duplicate names that refer to different locations were differentiated by appending the name of the next administrative level up. In the US, this strategy would distinguish two familiar cities named "Springfield" as "Illinois.Springfield" and "Virginia.Springfield."

The historical trafficking routes were described by Shamim and Kabir (1998) based on analysis of newspaper reports, interviews with personnel from law enforcement agencies, and direct observations at places of procurement. The route locations were described in tables with the following columns: (1) District, (2) Transit upazila, (3) Trafficking route or last transit point in Bangladesh, and (4) First transit point in India or Myanmar. The start of the routes are the upazila mentioned as the "transit upazila," which is where the trafficking journey begins. These routes shown are land routes which were derived by mapping the routes via the road network, except where re-routing to a smaller road versus using the highway would have reduced the distance between the last transit point in Bangladesh and first transit point in India or Myanmar. The border crossings shown on the map are legal crossings, but traffickers likely also use illegal crossings. A total of 67 trafficking routes were mapped. A few routes could not be

reliably mapped because of ambiguities created by multiple locations with the same name or differences in Romanizing the Bengali name (for example "Vadli" versus the current name "Bhadli" in Satkira).

The trafficking case reports are taken from the 2016 and 2018 Country Reports on Combating Human Trafficking released annually by the MHA. The 2019 and 2020 reports are delayed and have not been released yet, and the 2017 report is not available. These case reports come from the CTCs, which are described as follows: "In every district and tiers of local administration has Counter Trafficking Committees (CTCs) having defined roles and responsibilities and headed by government officials. Government and non-government agencies, members of civil society and local elites are the members of CTCs. At present there are 64 district level Counter Trafficking Committees, 491 upazila level Counter-Trafficking Committees and 4,554 union level Counter-Trafficking Committees. Meetings of these CTCs are held once a month. There is a Case Monitoring Committee which monitors human trafficking cases. In 2018, two meetings were held of this committee. During 2018, about 561 human trafficking cases have been filed and the total number of accused persons of human trafficking crime is 2,262." The reports do not specify if the cases are from source, transit, or destination zilas. We have integrated the case data with a literature survey to determine if each zila is a source or transit area for TIP, as specific zila names have been described as source or transit areas. Any zila which is solely described as a transit area in multiple articles or reports is not included in this analysis (e.g., Brahamanbaria). The Bangladesh TIP database sources include:

- Rahman, M. S., & Hasan, M. M. (2016). Cross-Border Trafficking from Bangladesh into India: In search of a Framework for Protecting Trafficked Women. Asian Studies, Jahangirnagar University Journal of Government and Politics, 16, 15–24.
- Blanchet, T. (2005). Bangladesh Girls Sold As Wives in North India. Indian Journal of Gender Studies, 12(2&3), 306–334. https://doi.org/10.1177/097152150501200207.
- Gazi, R., & International Centre for Diarrhoeal Disease Research, Bangladesh (Eds.). (2001). Trafficking of women and children in Bangladesh: An overview. ICDDR, B Centre for Health and Population Research.
- Siraj, S. (2016). Exploring the Prospects of Community Radio in Bangladesh in Preventing Human Trafficking and Unsafe Migration: A Study on Radio Mahananda 98.8 FM. Global Media Journal, Fall 2016, 14.
- Routray, B. P. (2019). Onwards Malaysia: Rohingya focused Human Trafficking Networks Bibhu Prasad. Mantraya. http://mantraya.org/wp-content/uploads/2019/06/Mantraya-Special-Report_Onwards-Malaysia-Rohingya-focused-Human-Trafficking-Networks.pdf
- Rahman, M. M. (2018). Child Trafficking in Bangladesh. International Journal of Research in Economics and Social Sciences (IJRESS), 8(1), 13.
- Joarder, M. A. M., & Miller, P. W. (2014). The Experiences of Migrants Trafficked from Bangladesh. The Annals of the American Academy of Political and Social Science, 653, 141–161.
- Islam, M. R., & Hossain, D. (2017). Protecting children from trafficking: Responses of the governmental and non-governmental organisations in Bangladesh. The Malaysian Journal of Social Administration, 10(1), 1–28.

- Rosy, S. Y. (2013). Trafficking in Women in Bangladesh: Experiences of Survivors and Challenges to their Reintegration [University of Bergen, Norway]. https://bora.uib.no/bora-xmlui/handle/1956/7328
- United Nations. (2017, November 14). UN warns of trafficking, sexual abuse in shadow of Rohingya refugee crisis. UN News. https://news.un.org/en/story/2017/11/636002-un-warns-trafficking-sexual-abuse-shadow-rohingya-refugee-crisis
- Ahmad, N. (2001). In search of dreams: Study on the situation of trafficked women and children from Bangladesh and Nepal to India (p. 94). International Organization for Migration.
- N. M. Sajjadul Hoque. (2010). Female Child Trafficking in Bangladesh: A new form of slavery. Canadian Social Science. Vol. 6, No. 1, 2010, pp. 45-58.
- ECPAT. (2011). Global Monitoring: Status of Action against commercial sexual exploitation of children, Bangladesh.
- R. Amin and R. Sheikh. (2011). Trafficking Women and Children in Bangladesh: A Silent Tsunami of Bangladesh.
- Bangladesh Country Report, 2016: Combating Human Trafficking. Public Security Division, Government of the People's Republic of Bangladesh. Dhaka, Bangladesh.
- Bangladesh Country Report, 2018: Combating Human Trafficking. Public Security Division, Government of the People's Republic of Bangladesh. Dhaka, Bangladesh.

To add more context to the data collected, and given the uncertain nature regarding trafficking statistics, we also incorporated qualitative sources such as news reports and published literature. Each time a zila is mentioned in the literature, we tracked whether it is mentioned as a source of victims, a transit area, or both. We have also created a tier ranking system for each zila based on reported number of trafficking cases for both 2016 and 2018 per 100,000 population. The rankings range from one, for zilas with zero reported trafficking cases in 2016 or 2018 and no mention in any of the literature reviewed, to nine, for zilas with a prevalence of five to ten trafficking cases per 100,000 population. Cox's Bazar, which has a 2016 and 2018 prevalence of 10.39, has been placed into a separate tier for analysis due to the Rohingya refugee population.

Data Preprocessing: Weak-signal analysis requires preprocessing the data for each indicator used in the analysis. If the indicator distribution resembled a Gaussian distribution, we typically subtracted the mean and normalized by the standard deviation. If the indicator distribution was Log-normal or Chi-squared, we used the logarithm or square-root, respectively. If the data distribution showed clustering asymptotically near an upper limit (e.g., percentages that concentrate near 100 percent), we subtracted the indicator values from this limit and computed the logarithm or square-root of the differences. We term this transform a "reverse-log" or a "reverse-sqrt." Given limit value X_L and indicator data X_j, we compute scaled values X'_j as:

$$\text{Reverse-Log: } X'_j = -\log10(X_L - X_j + e)$$

$$\text{Reverse-Sqrt: } X'_j = -\text{sqrt}\,(X_L - X_j + e)$$

Where e is a small adjustable parameter to avoid singularities at $X_j - X_L = 0$, and the minus sign preserves the ordering of indicator values from smallest to largest. In each case, the rescaling preserved the size-ordering of data values, so that relative comparisons were maintained, and the data distribution met the requirement for the statistical analysis.

If data sets had outliers, we winsorized the data to reduce the influence of outsized data values in statistical correlations and regressions. We typically set the outlier values to three standard deviations from the mean, so that they exert strong, but not extreme, influence on statistical computations in the analysis. In some cases, where some data remained skewed in linear, $\log_{10}$ and square-root scaling, with a substantial group (>3 percent) of indicators beyond 3-sigma, the Z-threshold for winsorizing was set to four to preserve the extreme values. Exceptions were applied to indicators whose values clustered in the neighborhood of an upper bound (e.g., literacy rates, which tend to cluster near 100 percent, but have tails of values downward toward zero percent). In such cases, a reverse-log and a reverse square-root transformation were applied.

Development of the Vulnerability Index: Once the data were cleaned, the indicators were run through a Pearson Correlation Matrix by category for quality assurance and to identify redundant indicators that were highly correlated and did not exhibit sufficient statistical independence to contribute information to the full data set. Singular-value decomposition and varimax rotations were subsequently used as unsupervised self-learning algorithms to identify key attributes and their relative weightings. Thus, the algorithm pares down a large dataset into a smaller one comprised of the most defining and statistically important components. Running the analysis within specific subregions of the nation enables the identification of combinations of characteristics predictive of TIP while eliminating the combinations of characteristics that are neither conducive nor preventative. Attributes and attribute-combinations that are prominent in both areas of known high- and low-level TIP are thus deemed as inconclusive to TIP vulnerability. The attributes are then tested via resampling methods, in which the algorithm is run on different subsections of regions, to confirm consistency and sensitivity. As we want to explain as much of the variance in the data as possible, but also avoid having an overly complicated measure, various threshold values for indicator weightings are used to identify the optimal subset of indicators. The weighted values of the selected indicators are then used as inputs to the composite measure to generate vulnerability measures for each province.

Development of the Projected Prevalence and Victim Estimates: The goal of this step is to rescale the prevalence rates to a logarithmic scaling so as to emphasize the largest values and to relegate the majority of values to relatively low scores where it is plausible that TIP activity is low enough to go undetected. The vulnerability score is obtained from the indicator matrix, within which many of the indicators have been scaled logarithmically to decrease small values. When we transform from the indicator matrix back into the real world, we reapply this scaling so that extreme values become extreme values again. In particular, prevalence estimates are typically lognormal in the indicator matrix because they range in many orders of magnitude. Therefore, exponentiating the vulnerability index enables a proper scaling for our inferring zila by zila prevalence estimates.

2. LIMITATIONS ON THE ANALYSIS

Whenever possible, we have attempted to describe the uncertainties associated with weak-signal analysis in the presentation of our analytical results in the main report. When presenting the vulnerability index, we have also presented an evaluation of the "null hypotheses" that geographical fluctuations of indicator values, and their projections onto our vulnerability index, have occurred by random. We use 95 percent confidence for non-randomness as our threshold for statistical significance, though often the data relationships exceed this threshold greatly. For example, we can determine the statistical significance of the relationship between child marriage rates and the GSI prevalence by testing the alternative hypothesis that there is no relationship. In such a case, the slope would be zero using the t-distribution. The probability that there is *no* relationship between the child marriage and the GSI prevalence estimates (that the slope of their scatterplot is zero) is less than one in 10 million. Even at this confidence level, we do not assume a specific causal relationship, but we confirm that TIP and child marriage are inter-related within a common ecosystem.

Although our statistical arguments can be presented in probabilistic terms with associated confidence levels, there are many additional uncertainties due to the nature of our analysis and what we are trying to evaluate. The major limitations are associated with the nature of human trafficking itself.

Although our analysis can compute estimates of Bangladesh TIP victims in a zila or an upazila down to single individuals, such precision is an untrustworthy artifact of the mathematics. First, the geographic variation in TIP vulnerability that we estimate across Bangladesh, in particular the relative numbers of TIP victims within different locations, is subject to a scaling uncertainty, depending on the accuracy of TIP-victim estimates. Second, TIP vulnerabilities are probabilistic in nature, expressing likelihoods of TIP activity within a location. If the ecosystem is conducive to TIP, but no activity has been reported, the activity may be unreported or else the vulnerable populations may not have yet fallen victim.

An analogy with earthquake hazards is useful. Maps of predicted earthquake motion are used to develop building codes, establish insurance rates, allocate resources, and guide development. Even in a region of high probability, no earthquake may occur for several years. Alternatively, a single earthquake can cause damage that exceeds the probabilistic values for multiple years. Despite the lack of precision, earthquake hazard maps have been extremely effective in dramatically reducing the impact of earthquakes by informing policymakers, insurers, architects, planners, and responders on where to prioritize strategies to reduce vulnerability. The TIP vulnerability index should be used in the same manner, focusing policymaker attention on building resilience in the most vulnerable locations, while maintaining baseline programs in regions with lower vulnerability.

Below are limitations associated with the analytical results. They are listed in a hierarchy based on our assessment of their impact.

1) Ambiguity in what we are trying to measure

Ambiguity and differences exist in the terms human trafficking, TIP, modern slavery, slavery, slavery-like practices, etc. The only international legally binding instrument that provides an agreed upon definition of TIP is the Protocol to Prevent, Suppress and Punish Trafficking in Persons Especially Women and

Children, supplementing the UN Convention against Transnational Organized Crime (also known as the "2000 UN TIP Protocol" and as one of three "Palermo Protocols").[18]

Article 3 of 2000 UN TIP Protocol defines TIP:

(a) "Trafficking in persons" shall mean the recruitment, transportation, transfer, harbouring 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 labour or services, slavery or practices similar to slavery, servitude or the removal of organs;

(b) The consent of a victim of trafficking in persons to the intended exploitation set forth in subparagraph (a) of this article shall be irrelevant where any of the means set forth in subparagraph (a) have been used;

(c) The recruitment, transportation, transfer, harbouring or receipt of a child for the purpose of exploitation shall be considered "trafficking in persons" even if this does not involve any of the means set forth in subparagraph (a) of this article;

(d) "Child" shall mean any person under eighteen years of age.

The 2000 UN TIP Protocol definition is considered to be a comprehensive definition because it specifies what constitutes the "acts" (recruitment, transportation, transfer, harbouring, receipt), "means" (threat, use of force, coercion, abduction, fraud, deception, abuse of power), and "purpose" (sexual exploitation, forced labour or services, servitude, removal of organs) of human trafficking (Clark, 2003). The US DoS uses the Palermo Protocol definition. It is, however, specifically noted in 2019 TIP report that "a victim need not be physically transported from one location to another for the crime to fall within this definition" (US DoS, 2019).

The USG generally follows the Palermo Protocol definition of TIP, which defines the meaning of "child" as any U18 person (Article 3(d)) and specifies that means are not relevant if the act involves a child (Article 3(c)). The TIP Reports reference child marriage as a contributing factor to girl's vulnerability to exploitation, but it does consider it to be a form of human trafficking and do not include child marriage in their calculation of TIP victims.

In 2017, the ILO began counting forced marriage in their slavery statistics (ILO, 2017) under the general recommendation that "child marriage is considered to be a form of forced marriage, given that one and/or both parties have not expressed full, free and informed consent" (Article VI.B.20, CEDAW, 2014). The recommendation, however, contains the caveat that "marriage of a mature, capable child below 18 years of age may be allowed in exceptional circumstances, provided that the child is at least 16 years of age and that such decisions are made by a judge based on legitimate exceptional grounds defined by law and on the evidence of maturity, without deference to culture and tradition" (CEDAW, 2014).

[18] The other two Palermo Protocols are the Protocol against the Smuggling of Migrants by Land, Sea and Air and the Protocol against the Illicit Manufacturing of and Trafficking in Firearms.

Many organizations have attempted to measure human trafficking. The DoS included national estimates of human trafficking in their early TIP reports but abandoned the estimates after enduring criticism. The DoS uses the definition of human trafficking presented in Article 3 of the Palermo Protocol and estimates that globally there are 25 million victims of labor and sex trafficking worldwide (US DoS, 2020b). The ILO published its first estimate in 2005 of 12.3 million persons trafficked as a minimum at any given time between 1995 and 2004. As of 2012, the ILO estimates that 20.9 million people suffer forced labor at any given point in time over the ten-year period 2002 through 2011, reporting a standard error of 1.4 million at a 68 percent level of confidence (ILO, 2012). The GSI uses a broader definition for TIP than the DoS and the ILO. The GSI estimates that globally there were 40.3 million victims of modern slavery in 2018, a decrease from their estimate of 45.8 million victims in 2016 (Walk Free Foundation, 2018; Walk Free Foundation, 2016). The GSI published prevalence estimates by country in 2012, 2014, 2016, and 2018. As with the DoS estimates, the GSI estimates have also been subject to criticism (e.g., Gallagher, 2014) and the 2012 and 2014 estimates are no longer distributed due to changes in the methodology. The GSI estimate includes forced marriage, child marriage, and child soldiers, while the DoS and the ILO treat these human rights abuses separately.

2) Use of data analysis in social science

Social science and international development have been evolving from site visits and case studies to more data-based analysis. Identifying relationships in complex, dynamic systems requires statistical models. The results of the statistical models are expressed in probabilistic terms, for which there is debate over required levels of certainty. In our analysis, we quantify probability as the likelihood that a particular result might have occurred by random chance. We reject the "null hypotheses," the probability that the result occurred by chance, when the confidence level exceeds 95 percent. In other words, the probability of the result occurring by random chance is less than one in 20. Quantifying probability in this manner requires assumptions about the statistical distributions of data sets. To the extent possible, our analysis pre-processes raw data into data indicators whose statistical distributions are approximately Gaussian. We reference our uncertainties to Gaussian statistical models, using tools such as chi-squared and F variance-ratio distributions, singular-value decompositions, and bootstrap resampling techniques, depending on the application.

A common criticism of data analysis is that "correlation does not imply causation." For example, deworming children may correlate with increased school attendance. Does this prove that deworming children was the cause of increased school attendance? It is extremely difficult to prove causal relationships in complex systems.

While a statistical relationship may not be proof of a causal relationship, it is evidence for a causal relationship. Without a statistical correlation, there cannot be causation. In fact, one powerful feature of correlation estimates is that they can be used to disprove causal assumptions that seem reasonable but are not supported by the data. Lack of correlation argues that a causal relationship between social indicators is unlikely. More importantly, however, statistical relationships that are opposite to that expected, e.g., a positive correlation when looking for a negative one, can lead to a re-assessment of prior assumptions.

We do not assume in our analysis that correlation implies causation – also known as the fallacy "cum hoc ergo propter hoc" ("with this, therefore because of this"). As an example, we do not assume that a

correlation between conflict frequency and male/female literacy rates implies that conflict is caused by a disparity in literacy rates between genders. We assume the indicators we can measure are proxies for sociocultural phenomena that we are unable to measure directly or perhaps even understand. In the example above, lower female literacy rate relative to male literacy rates may indicate gender inequality, religious tenets, shortages of resources (requiring the girls to spend their time collecting water, firewood, etc.), or economic change requiring girls to access markets for alternative income producing activities. Even when we categorize these events as measures of a population's vulnerability, we both recognize and account for the fact that the indicators we are using may not be unique or even directly related to the categories in which they have been assigned. As an example, consider two population characteristics "A" and "B" that correlate with significant statistical confidence. There are at least five options:

Option 1: The correlation is the result of random coincidence and does not reveal any causal relationships between A and B.

Option 2: A is "causing" B, with the independent variable A causing the change in the dependent variable B.

Option 3: B is "causing" A, with the independent variable B causing the change in the dependent variable A.

Option 4: A and B are both dependent variables, following an independent population characteristic C that has not been measured.

Option 5: A and B are part of a larger correlated system with no unique causal factor, that is, no independent variable.

Option 5 is characteristic of "coupled systems," in which "causality" resides in the linkages between variables. In a fully coupled "holistic" system, no variable is truly independent. Such systems are common in natural ecosystems, and we assume they are also common in socioeconomic ecosystems. For example, in atmosphere-ocean interactions that lead to the El Niño and La Niña climate events, there are no dependent versus independent variables. Atmospheric pressure highs and lows induce winds that push surface seawater, and warm and cool patches of the sea surface induce variations in atmospheric pressure. Neither the atmosphere nor the ocean operates independently of the other. Neither can be taken as the independent variable in a causal relationship. Yet the relationship is unambiguous and allows us to predict both the atmospheric and oceanic effects with high degrees of certainty.

An ecosystem approach to complex, dynamic, and multi-variable problems such as human trafficking, child marriage, and VE treats them as coupled systems that lack true independent variables, but nevertheless offer situations where we can predict outcomes and intervene to effect change. The big-data ecosystem approach finds inter-relationships among many variables, not only two. With many variables and many distinct populations, there may be multiple independent correlation patterns. The different patterns indicate the problem has multiple causes, and the causes vary for different places. In an ecosystem approach, the correlations among population attributes are treated as a coupled system that can be influenced at several points, rather than as a cause-effect process that can be modified only through its dependent variable. The advantage of an ecosystems approach is that it allows us to achieve

our objectives by identifying the characteristics to be modified, therefore allowing us to identify options for the interventions that will provide the greatest return on investment.

3) The nature of self-identified victims

Victims of human trafficking generally self-identify and therefore include subjective assessments that are affected by different sociocultural norms.

4) Hidden populations

The population of victims is largely a hidden population, and it is therefore difficult to obtain a representative sample for statistical analysis.

5) Extrapolations

In any given survey, the number of self-identified alleged victims is generally small, and extrapolations from small numbers have significant uncertainty.

6) Respondent truthfulness

Survey respondents are not necessarily truthful, and their trafficking may not have been independently verified. They may claim to have been trafficked to receive perceived or actual benefits, or they may deny being trafficked to avoid social stigmas or involvement with the legal structure.

7) Human-based data collection

Survey data is collected by human surveyors who may not faithfully follow the design of the survey or record responses accurately.

8) Definitions

International definitions are not consistent with national definitions and the local customs and laws of a particular country.

ANNEX 3. EMPIRICAL ANALYSIS OF THE US STATE DEPARTMENT'S ANNUAL TRAFFICKING IN PERSONS REPORT – INSIGHTS FOR POLICY-MAKERS

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ABSTRACT

The State Department's annual Trafficking in Persons (TIP) Report is the U.S. Government's principal diplomatic tool to engage foreign governments on human trafficking. Each year, the report evaluates efforts to counter human trafficking, assigning each country to a tier level. We evaluate the relative role of various factors predictive of tier-level assignments, including (a) legislated changes to the ranking system, (b) party to the Palermo Protocol, (c) reported numbers of convictions, prosecutions, and identified victims, (d) independent estimates of prevalence, and (e) sample indicators of governance and economic development. We use singular-value decomposition to identify the relative influence among multiple inter-related factors across a matrix of tier rankings for twelve years and 189 nations. Our analysis indicates that investments in democratic institutions and individual rights may be significantly more influential than law enforcement, and the traditional economic theory for TIP vulnerability may be an oversimplification. Most significantly, the large number of attributes with small but statistically significant correlations with TIP tier levels confirms that TIP has many causal relationships. We affirm the need for Countering TIP (CTIP) strategies to apply an ecosystem approach with geographically targeted interventions consistent with Situational Crime Prevention.

KEYWORDS

Trafficking in persons; human trafficking; state department trafficking in persons report; tip; ctip; modern slavery

Introduction

The U.S. State Department's Trafficking in Persons (TIP) Report is the U.S. Government's principal diplomatic tool to engage foreign governments on human trafficking (United States Department of State [U.S. DoS]., 2020a). The report is produced in accordance with the U.S. Victims of Trafficking and Violence Protection Act (TVPA) of 2000 (P.L. 106–386) and establishes U.S. anti-trafficking policy to (1) *prevent* trafficking, (2) *protect* trafficking victims, and (3) *prosecute* and punish traffickers (known as the "three Ps").[1,2]

The TVPA was developed as domestic legislation concurrently and in a manner consistent with the principles set forth in the Protocol to Prevent, Suppress and Punish Trafficking in Persons Especially Women and Children, supplementing the United Nations Convention against Transnational Organized Crime (also known as the "2000 UN TIP Protocol" or the "Palermo Protocol") (U.S.DoS, 2020a).[3] The TVPA requires the Secretary of State to produce an annual report ranking foreign governments based on their anti-trafficking efforts. The U.S. State Department's TIP report uses a ranking system in which the best-ranked countries are identified as Tier 1 and the worst ranked as Tier

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[1]In addition, the State Department employs a fourth "P," partnerships "as a complementary means to achieve progress across the 3Ps and enlist all segments of society in the fight against modern slavery." U.S. Department of State, Policy Issues, "Human Trafficking," at https://www.state.gov/policy-issues/human-trafficking/.

[2]The US passed the TVPA October 28, 2000. The UN adopted the Palermo Protocol a few weeks later, on November 15, 2000.

[3]The "Palermo Protocol" is actually one of three "Palermo Protocols", the other two Palermo Protocols being: (a) the Protocol against the Smuggling of Migrants by Land, Sea and Air, and (b) the Protocol against the Illicit Manufacturing of and Trafficking in Firearms.

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3. Between the best and worst rankings, the State Department classifies nations into two intermediate tiers, Tier 2 and the Tier-2 Watch List, the latter ranking a probationary level. There is also the designation of *Special Case*, which describes countries that are too affected by conflict or natural disaster for a proper analysis of government-led counter-trafficking efforts to be made.

Under the TVPA, Tier-3 countries are subject to potential restrictions on certain types of U.S. foreign aid and other U.S. and multilateral funds. In 2019, for example, certain types of assistance from the U.S. were restricted for the governments of 15 countries that were ranked Tier 3 (U.S.DoS, 2020b).

Placement of each country into one of the tiers is based *not* on the size of the country's trafficking problem, but on the extent of governments' efforts to meet the TVPA's minimum standards for the elimination of human trafficking (22 USC 7106). These standards are generally consistent with the 2000 UN TIP Protocol (U.S.DoS, 2019). The minimum standards used to determine a country's tier rankings are their efforts toward (1) prohibiting severe forms of trafficking in persons and punishing acts of such trafficking, (2) prescribing punishment commensurate with that for grave crimes, (3) prescribing punishment that is sufficiently stringent to deter and reflects the heinous nature of the offense, and (4) making serious and sustained efforts to eliminate severe forms of trafficking in persons.[4] The State Department uses 12 "indicia" of "serious and sustained effort" for their evaluations, several of which have been noted to be subjective.

There are many criticisms of the TIP reports and the process through which nations are assigned to tier levels. The criticisms include not only the specific metrics that are purported to be used, but also the extent to which they are objectively applied. For example, one of the 12 indicia for determining the TVPA's minimum standards calls for reducing the demand for commercial sex acts and participation in international sex tourism. Some commentators consider the argument that certain forms of sex work can be considered legitimate enterprises rather than forms of trafficking (e.g., Jackson, 2019). In addition, there are a range of criticisms that the assignment to tier levels is not only subjective but also ultimately political in nature (e.g., DeStefano, 2007). Within the U.S. government, there are three reports by the Government Accountability Office (GAO) (2006, 2007, U.S.DoS, 2011) and two reports by the U.S. Congressional Research Service (CRS) (2013, 2019) that provide extensive reviews of the criticisms of the TIP Reports. While we recognize there are strong political and subjective aspects to the TIP reports, our goal is to present objective data analysis that both complements and informs the debates surrounding these criticisms.

The 2020 TIP Report evaluates 189 countries on their efforts to meet the TVPA's minimum standards. Figure 1 (a/b) illustrates both the percentage of countries at each tier level (left) and the

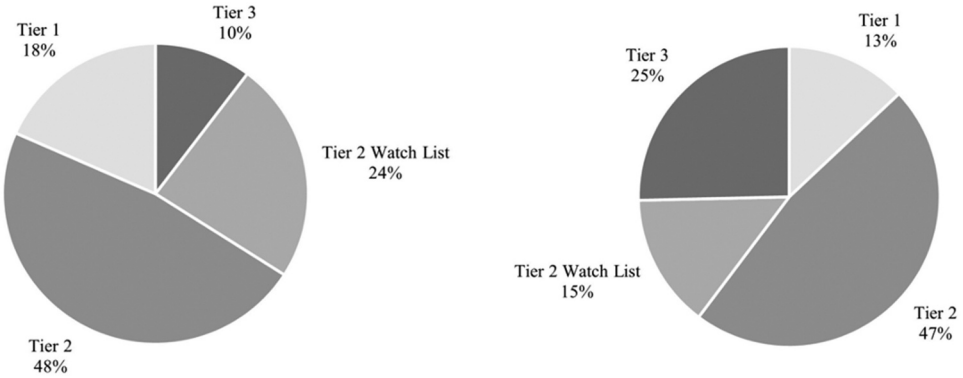

Figure 1. 2020 Global TIP Tier Rankings by Country and by Percent of Population Only about 10% of the countries fall within Tier 3 — the lowest level. However, these 10% of the countries represent 25% of the global population. So, while more nations are in Tier 1 than Tier 3 (18% vs. 10%), only half as many people are in Tier 1 as Tier 3 (13% vs. 25%). Globally, almost 2 billion people live in Tier-3 nations. Population data from United Nations Population Division, 2020.

[4]In determining if serious and sustained efforts are being made (standard #4), 12 criteria are considered as indicators.

percentage of the global population (United Nations Population Division, 2019) at each tier level (right). While the percentage of countries in Tier 3 is small (10%), the number of people living in these Tier-3 countries makes up a quarter of the global population – almost double the percentage of the population living in Tier-1 conditions.[5]

In this paper, we explore the statistical relationships between TIP tier levels and appropriate national attributes. Our analysis includes not only information contained in the annual TIP reports, but also independent measures of TIP prevalence and sample indicators of economics and governance. Various statistical approaches are used to normalize, integrate and analyze the relationships between data sets and the TIP tier-level rankings. As an analytical summary, singular-value decomposition is used to determine inter-relationships among multiple indicators and their ability to explain variance among the TIP tier rankings. Our analysis attempts to provide insight on the following array of policy questions related to TIP:

1. What Has Been the Impact of Legislative and Diplomatic Efforts?
   a) Have modifications to the TIP tier-ranking system motivated governments to intensify their Countering TIP [CTIP] efforts?
   b) Does becoming party to the Palermo Protocol signify a meaningful commitment to enhancing CTIP efforts?
2. Do the efforts represented by TIP tier levels result in meaningful reductions in victimization?
3. What is the role of law enforcement in reducing TIP?
4. To what extent do economic and governance factors influence TIP tier levels?

The goal in understanding the strength and interconnected nature of relationships among the various data sets is to offer policy insights for CTIP strategies that will result in meaningful reductions in victimization.

Question 1: What has been the Impact of Legislative and Diplomatic Efforts?

Have modifications to the TIP tier-ranking system motivated governments to intensify their CTIP efforts?

Since the first TIP Report in 2001, the report's scope has expanded and there have been changes to the methodology for assigning countries to various tier levels. Of particular importance for this analysis are the following:

(a) The Trafficking Victims Protection Reauthorization Act (TVPA) of 2003 added to the original law a requirement that foreign governments provide the Department of State with data on trafficking investigations, prosecutions, convictions (P.L. 108-193, 2003).[6]
(b) The William Wilberforce Trafficking Victims Protection Reauthorization Act of 2008 limited the number of consecutive years a country may remain on the Tier-2 Watch List to four years (P.L. 110-457, 2008).[7]
(c) The Trafficking Victims Protection Reauthorization Act of 2017, enacted in 2019, further reduced the number of consecutive years that a country may remain on the Tier-2 Watch List to three years, and reduced presidential waiver authority to one year (P.L. 115-427, 2017).
(d) The Frederick Douglass Trafficking Victims Prevention and Protection Reauthorization Act of 2018, enacted in 2019, limited to one year the time a country may remain on the Tier-2 Watch List if they previously exhausted their time on the Tier-2 Watch List (P.L. 115-425, 2018).

[5]If China (a Tier-3 nation) is removed from the analysis, the percentage of the remaining global population within Tier 3 is reduced from 25% to 8%.

[6]The 2004 TIP Report collected data on prosecutions, convictions, and identified victims for the first time. The 2007 TIP Report showed for the first time a breakout of the number of total prosecutions and convictions that related to labor trafficking.

[7]The standard limit is two (2) years, but a country may be waived from the automatic downgrade by the Secretary of State for an additional two (2) years, should a country devote significant resources to a written plan that, if implemented, would constitute significant efforts toward meeting the minimum standards for the elimination of human trafficking.

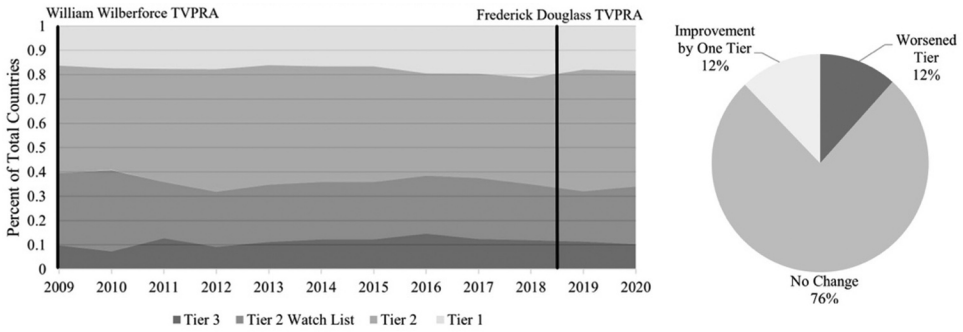

Figure 2. Percent of Countries and Global Population in Each Tier Since 2009. The percentage of countries at each tier level has remained relatively constant since 2009 (left). Of those that change tier level in a given year, equal numbers of nations (12%) improve their tier level as worsen their tier level (right) (United States Department of State annual Trafficking in Persons Reports, 2009-2019, 2020c).

Changes to the TIP Report's methodology are intended to strengthen the credibility of the TIP Report and increase its effectiveness in motivating governments to improve their anti-trafficking efforts. These changes, however, have also raised concerns that the ranking system could be seen as inconsistent, overly elaborate, or beyond reach, thus perhaps eroding some of the Report's effectiveness in motivating countries to improve their anti-trafficking efforts (U.S.CRS, 2019).

Figure 2 (a/b) shows the time-series of tier levels for up to 185 nations (special cases are excluded) from 2009 to 2020 capturing the impact of three changes to the tier-ranking system: (1) the William Wilberforce Trafficking Victims Protection Reauthorization Act of 2008, (2) the Trafficking Victims Protection Reauthorization Act of 2017, and (3) the Frederick Douglass Trafficking Victims Prevention and Protection Reauthorization Act of 2018 (U.S. DoS, 2009-2019, 2020c; P.L. 115-425, 2018).

Since 2009, the average number of countries improving their tier level is roughly equal to the average number of countries that worsen their tier level. The first year that a country received a downgrade to Tier 3 after remaining on the Tier-2 Watch List past the limit was in 2013.[8] Since then, there have been 48 instances where a country was eligible for an automatic downgrade. Of these times, 25 (52%) improved their counter-trafficking efforts and subsequently moved to Tier 2, and 23 (48%) were downgraded to Tier 3. The more recent tier-level adjustments implemented through Congressional Reauthorizations – the Frederick Douglass Trafficking Victims Prevention and Protection Reauthorization Act of 2018 and the Trafficking Victims Protection Reauthorization Act of 2017, both of which further reduced the amount of time for which a nation may be placed on Tier-2 Watch List, have coincided with tier-level changes, although not with a net improvement. In 2020, 23 nations improved a tier level, and 22 nations dropped a tier level.

For certain countries of specific interest, the legislative action may have provided a motivating factor. As of 2020, however, the legislative modifications to the TIP tier-ranking system have yet to demonstrate a significant impact on increasing counter-trafficking efforts as measured by systematic global improvements in tier levels. The number of nations at each tier level has remained stubbornly constant over the last decade.

Does becoming party to the Palermo Protocol signify a meaningful commitment to enhancing CTIP efforts?

[6]The 2004 TIP Report collected data on prosecutions, convictions, and identified victims for the first time. The 2007 TIP Report showed for the first time a breakout of the number of total prosecutions and convictions that related to labor trafficking.

[7]The standard limit is two (2) years, but a country may be waived from the automatic downgrade by the Secretary of State for an additional two (2) years, should a country devote significant resources to a written plan that, if implemented, would constitute significant efforts toward meeting the minimum standards for the elimination of human trafficking.

In concert with the TVPA, the Palermo Protocol is considered a major diplomatic tool for Countering Trafficking in Persons. The Palermo Protocol was adopted and opened for signature, ratification and accession at the fifty-fifth session of the General Assembly of the United Nations on November 15, 2000, and entered into force on December 25, 2003.[9] It is the only international legally binding instrument that provides an agreed-upon definition of trafficking in persons (United Nations, 2000). The Palermo Protocol definition is considered to be comprehensive because it specifies what constitutes the "acts" (recruitment, transportation, transfer, harboring, receipt), "means" (threat, use of force, coercion, abduction, fraud, deception, abuse of power), and "purpose" (sexual exploitation, forced labor or services, servitude, removal of organs) of human trafficking (Clark, 2003). Palermo defines the meaning of "child" to be under the age of 18 and specifies that the means of trafficking are not relevant if the act involves a child.

Becoming party to Palermo is considered part of a nation's effort toward meeting the minimum standards of the TVPA for tier-level rankings, and has been included as a prioritized recommendation for nations within the State Department's TIP Report. One would hope that becoming party to the Palermo Protocol would signal an increased effort by the nation to counter human trafficking, and that increased effort would correspond to an improvement in tier ranking.

While few nations became party to Palermo in 2001, most (107) became party over the following five years (2002–2006). Since 2007, 66 countries have joined (U.S.DoS, 2020a). Improvements in tier level should be detectable among nations that signed the Protocol, especially after the first wave of endorsements ended in 2006. Figure 3 shows the tier rankings by year for each nation that become party to Palermo since 2007.

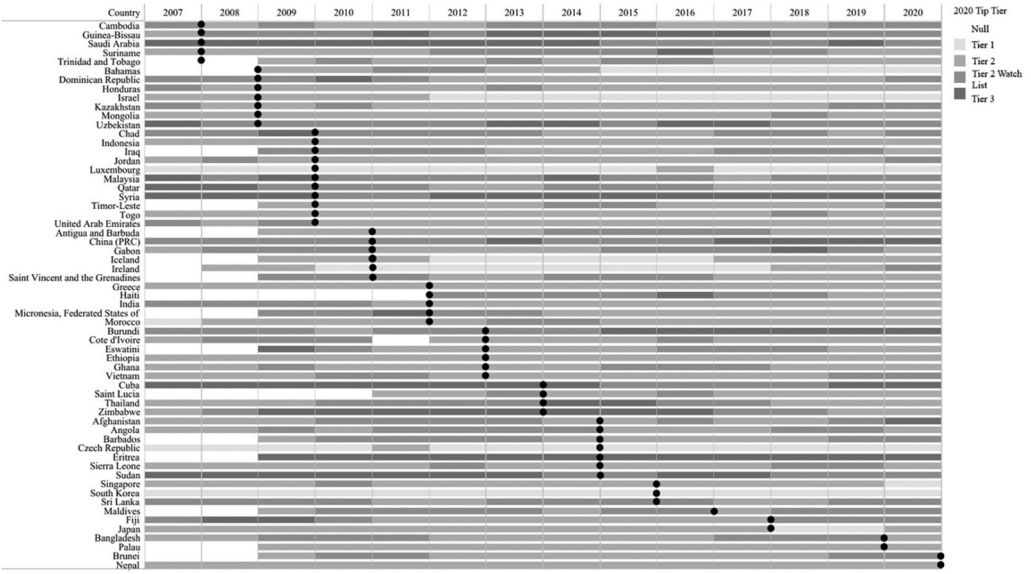

Figure 3. Parties to the Palermo Protocol 2007-2019. Since 2007, 66 countries have become party to the Palermo Protocol, 61 of which are included in the TIP Reports. The colors show the country's tier-level ranking for each year, where the lightest gray is Tier 1, the darkest gray is Tier 3, and white (labeled Null) is a country excluded from that year's TIP Report or designated as Special Case. The black dot represents the year the country became party to Palermo (USDoS, 2020a).

[8]There are discrepancies regarding these limits. For example, Malaysia was downgraded to Tier 3 in 2014 after four years on the Tier-2 Watch List. It is now on its third consecutive year on the Watch List again (since 2018). Additionally, Uzbekistan was downgraded in 2013 after four years on the Watch List and has been on it again since 2018.

Of the countries that became party to Palermo since 2007, 4 (8%) are currently in Tier 1, 27 (55%) are in Tier 2, 12 (24%) are on the Tier-2 Watch List, and 6 (12%) are in Tier 3. Only 21% of the nations that became party to Palermo improved their tier ranking within one year, and 5% fell in tier ranking. The remaining 74% of the signatory nations did not change tier level, which is the same rate of change as the average percent of countries moving in any given year.

If becoming party to the Palermo Protocol is meant to signify a nation's increased effort to CTIP, in most cases, it was not followed by an increased level of effort as measured by an improvement in tier level. While disappointing, this finding is consistent with recent research into global anti-slavery legislation which shows that despite near-universal adherence to international anti-trafficking norms, many nations have not transferred that commitment into domestic law (Schwarz & Allain, 2020), and that gaps persist between human-rights norms and implementation of those rights (de Felice & Graf, 2015).

Question 2: Do the efforts represented by TIP tier levels result in meaningful reductions in victimization?

In looking at the relationships between TIP tier levels and victimization rates, we compare levels of effort toward CTIP (as measured by tier-level assignments) with independent measures of victimization (as measured by national estimates of TIP prevalence). While the TVPA requires the Secretary of State to assign tier levels based on anti-trafficking *efforts*, rather than the extent of human trafficking in the nation, a logical assumption would be that nations providing stronger efforts toward CTIP, as indicated by their tier level, would achieve lower rates of TIP prevalence.

Early versions of the TIP Report included national estimates of trafficking victims. The U.S. GAO found such estimates "questionable" and noted "significant discrepancy" between the estimated and reported numbers of victims (U.S.GAO, 2006, 2007, 2011). Prevalence estimates are no longer included in the TIP reports. The State Department, however, does present global estimates of the number of victims in public statements (U.S.DoS, 2020b).

The State Department uses the definition of human trafficking presented in Article 3 of the Palermo Protocol and estimates that globally there are 25 million victims of labor and sex trafficking worldwide (U.S.DoS, 2020b). The International Labor Organization (ILO) published its first estimate in 2005 of 12.3 million persons trafficked as a minimum at any given time between 1995 and 2004. As of 2012, the ILO estimates that 20.9 million people suffer forced labor at any given point in time over the ten-year period 2002 through 2011, reporting a standard error of 1.4 million at a 68% level of confidence (ILO, 2012). The Global Slavery Index (GSI) published by the Minderoo Foundation's Walk Free initiative uses a broader definition for TIP than the State Department and the ILO. The GSI estimates that globally there were 40.3 million victims of modern slavery in 2018, a decrease from their estimate of 45.8 million victims in 2016 (Walk Free Foundation, 2018, 2016). The GSI published prevalence estimates by country in 2012, 2014, 2016, and 2018. As with the State Department national estimates, the GSI national estimates have also been subject to criticism (e.g., Gallagher, 2014) and the earlier estimates (2012 and 2014) are no longer distributed, due to changes in the methodology.

The GSI estimate includes forced marriage, child marriage, and child soldiers. The State Department and ILO estimates treat these human rights abuses separately. The difference between estimates can be attributed not only to differences in scope of definition, but also to the inherent uncertainty of such estimates; specifically:

1) Ambiguity and differences exist in the terms human trafficking, trafficking in persons, modern slavery, slavery, slavery-like practices, etc.

2) Recorded victims of human trafficking generally self-identify and therefore include subjective assessments that are affected by different sociocultural norms,

[9]The first nations to sign the Protocol met in a December 2000 ceremony at the Palazzi di Giustizia in Palermo, Italy. Although the US Senate did not provide advice and consent to ratification of the Palermo Protocol until November 3, 2005, the US was one of the first signatories on December 2, 2000.

3) The population of victims is largely a hidden population and it is therefore difficult to obtain a representative sample for statistical analysis, and

4) In any given survey, the number of self-identified alleged victims is generally small, and extrapolations from small numbers have significant uncertainty.

In addition, international definitions may not be fully consistent with national definitions and the local customs and laws of a particular country. For example, "forced marriage" is prohibited through the prohibitions on slavery and slavery-like practices, including servile marriage; and "child marriage" can be considered to be "forced marriage", as one and/or both parties by definition are not able to express free and informed consent (ILO & Walk Free Foundation, 2017). In many countries, however, parties under the age of 18 are legally allowed to marry. In the United States, for example, there is no federal law regarding child marriage, and each state has its own regulations.

The discrepancies in definitions and inherent ambiguity in victim identification can make estimating prevalence complex and subjective. TIP is notoriously difficult to measure and quantify. While methods that attempt to do so are imperfect, they still have merit and, as we will see, statistical significance with a nation's CTIP programs and efforts.

As an example of the relationship between the TIP tier rankings and estimates of prevalence, Figure 4 shows the most recent GSI prevalence estimates (2018) grouped by TIP tier rankings. The distribution shows that Tier-1 nations generally have lower estimated prevalence rates, and prevalence rates generally worsen as tier levels worsen. Among Tier-1 nations, the median prevalence rate is 2.0 victims per 1,000 population. The median prevalence rates are 4.5 for Tier 2, and 5.7 for the Tier-2 Watch List. In Tier 3, the median prevalence rate is 10.6.

The overall trend is consistent with the assumption that nations with stronger efforts toward CTIP (as measured by the TIP tier rankings) achieve lower rates of TIP (as measured by the GSI index). Although we are not assuming causal relationships, the correlation between stronger TIP tier rankings and lower estimated rates of TIP is a significant statistical relationship, regardless of its cause. As

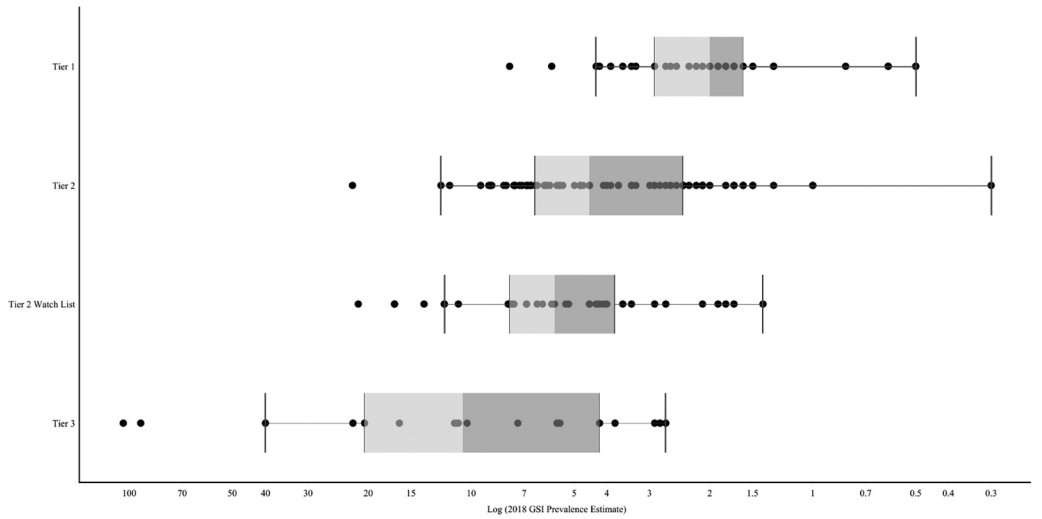

Figure 4. State Department TIP Tier Rankings and GSI Prevalence Estimates. GSI 2018 Estimates of TIP prevalence for each nation grouped by TIP tier assignment. In this box and whisker plot, each nation, represented as a dot, is plotted by its prevalence rate, where prevalence is defined as the estimated number of victims per 1,000 population. The median is marked by the change of shading in the box. The lower and upper hinges are the medians of the first and second halves of the data, roughly representing the 25th and 75th percentiles. The whiskers show the furthest data points within 1.5 interquartile ranges of the hinges. The United States is identified for reference. To increase the fidelity of the prevalence estimates and validity of the statistical representation, we have used the logarithm of the most recent GSI prevalence estimate. Prevalence rates decrease along the x-axis. The trend is consistent with the assumption that nations providing stronger efforts towards CTIP, as measured by the TIP tier rankings, have lower rates of TIP (as measured by GSI prevalence estimates).

Table 1. Factors statistically evaluated against tier levels of the US State department TIP report.
Percentage of variance in TIP tier-level rankings explained by metrics presented in the TIP Reports, selected economic and governance measures, and independent estimates of TIP prevalence. Data were normalized based on their distribution for the statistical analysis. Polarity of the correlation was adjusted for consistency.

Indicator Category	Indicator	Source	Variance (%) Tier-Ranking Explained 2009–2020	Variance (%) Tier-Ranking Explained 2020	Normalization Method	Polarity of Correlation
				2020		
Governance	Democracy Index	Economist Intelligence Unit	58.2	35.7	linear	negative
Governance	Freedom Index	Freedom House	51.0	35.1	linear	negative
Governance	Fragile-State Index	Fund for Peace	47.5	28.4	linear	positive
Governance	Economic-Freedom Index	Heritage Foundation	45.9	24.3	linear	negative
Governance	Corruption-Perception Index	Transparency International	43.7	27.7	linear	negative
Governance	Ease-of-Business Index	World Bank	39.4	18.4	linear	negative
Governance	Press-Freedom Index	Reporters Without Borders	37.7	25.0	linear	positive
Economic	GDP per capita	World Bank	25.9	16.1	logarithmic	negative
Economic	GDP PPP	World Bank	22.7	12.7	logarithmic	negative
Economic	Poverty Rate	World Bank	10.9	3.2	logarithmic	positive
Law Enforcement	Prosecutions/capita	TIP Report	8.9	11.2	logarithmic	negative
Law Enforcement	Identified-Victims/capita	TIP Report	6.5	9.0	logarithmic	negative
Economic	GINI Coefficient	World Bank	4.4	0.9	linear	negative
Economic	Gross National Income Growth	World Bank	0.6	0.0	linear	positive
Economic	Unemployment	World Bank	0.0	0.0	square-root	positive
Law Enforcement	Convictions/Prosecution	TIP Report	0.0	0.6	logarithmic	negative
Independent estimates of prevalence from the Global Slavery Index (GSI) 2016 and 2018 reports						
TIP Prevalence	2018 GSI prevalence	Global Slavery Index (2018)	35.2	26.4	logarithmic	positive
TIP Prevalence	2016 GSI prevalence	Global Slavery Index (2016)	41.9	21.3	logarithmic	positive

demonstrated demonstrated in Table 1 the correlations between GSI prevalence estimates and either the 2020 TIP tier rankings, or decade-average tier rankings are many times larger than the 99% confidence level for nonrandomness. As demonstrated in subsequent sections, however, other factors show stronger relationships; and at the national level, variables such as war, natural disaster, and disease can become overriding factors.

Question 3: What is the Role of Law Enforcement in Reducing TIP?

Since 2004, law-enforcement metrics on prosecutions, convictions, and identified victims have been reported in the Annual TIP Reports (Trafficking Victims Protection Reauthorization Act of 2003). These data are compiled at the regional level and are included in many of the individual nation narratives. The 2020 TIP report, for example, presented totals of 11,841 prosecutions, 10,847 convictions, and 118,932 identified victims (U.S.DoS, 2020b). At the same time, the State Department presented an estimate of 25 million victims (U.S.DoS, 2020c). A comparison of the U.S. State Department's estimate of victims compared to the identified victims in the 2020 TIP report suggests that less than 0.5% (1 in 200) of the globally estimated victims of TIP have been identified.

Nevertheless, law-enforcement metrics reported in the TIP Reports are presented as evidence that government efforts stemming from the Palermo Protocol are working (U.S.DoS, 2019). Others have argued that viewing TIP as a "law and order" problem requiring an aggressive criminal justice response has resulted in hundreds of millions of dollars being invested with no appreciable reduction in the absolute number of people trafficked worldwide (Chuang, 2006). Others express concern that the emphasis on prosecution data means the socio-economic settings that enable trafficking in the first place are being ignored (U.S.CRS, 2019). The underlying debate is one that has been taking place in criminology theory for decades: What is the role of prosecutions in reducing crime?

To assess law enforcement's role in CTIP, we first evaluate the relationship between the law-enforcement metrics reported in the TIP Reports and TIP tier assignments (Figure 5). We next look at the relationship between prosecution rates and changes in victimization rates, using independent measures of prevalence (Figure 6). For each nation in Figures 5 and 6, we normalized the data to the population size and applied the prevalence estimates of the GSI (Walk Free Foundation, 2018) to the estimated size of the TIP victim population.[10] In an effort to account for possible time-delays and variations in justice systems, we used the most recent three-year average of yearly prosecutions scaled by population, the three-year average of convictions scaled by prosecution, and the three-year average of yearly number of identified victims scaled by population.

Figure 5 illustrates that the law-enforcement metrics reported in the TIP Reports generally trend with TIP tier levels, but the relationship is not strong. The weak relationship provides little support for the concern that TIP tier rankings are strongly influenced by the reported law-enforcement metrics. However, the remaining, and more relevant question, is whether law enforcement is an effective means for reducing TIP. To address this question, we use the more direct analysis of comparing changes in the reported prosecutions with changes in the number of victims. In other words, do increases in prosecutions result in decreases in TIP?

In our analysis, we have used two different data sets that relate to human trafficking – one is the numbers of victims that are reported in the TIP reports (these are the numbers of victims identified "rates of victim ID") (Figure 5c) and the other is the independent measures of TIP from the Walk Free Foundation's Global Slavery Index. In the case of hidden crimes (such as TIP, but also including, for example, domestic violence and hate crime) we might expect to see victim identification increase at the same time as prosecution rates. A simultaneous increase between those two metrics could reflect that government and law-enforcement attention is increasing on the issue. We do see such a relationship, albeit weak, in Figure 5c and Figure 9. We would, however, also expect to see a reduction in the estimated amount of criminal activity.

[10]The data distribution is similar for when the reported prosecutions, convictions, and identified victims are normalized to the nation's population and to the estimated size of the number of victims in the nations, as derived from the Global Slavery Index prevalence estimates. Accordingly, we present only one of these figures in the paper.

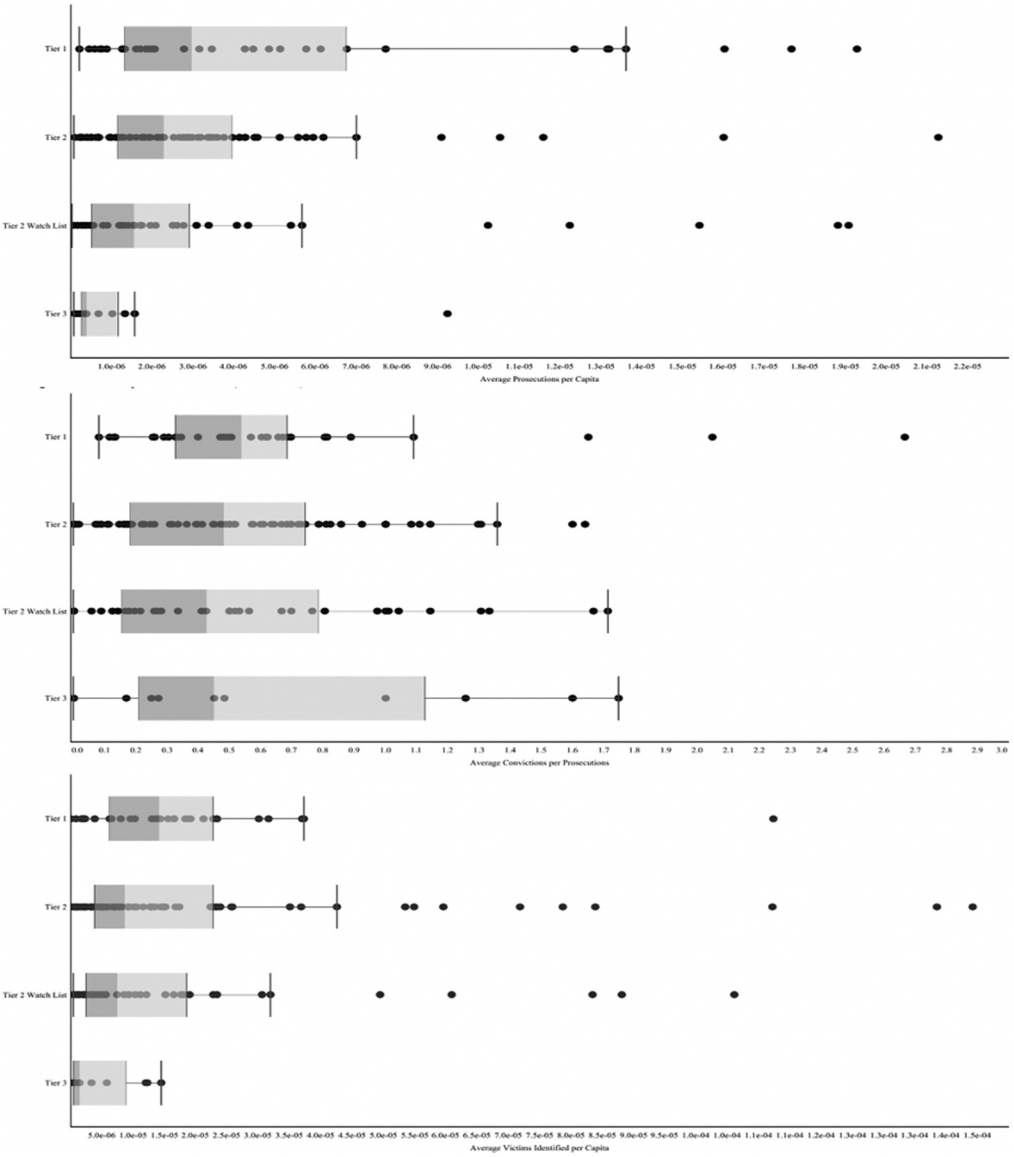

Figure 5. Prosecutions, Convictions, and Identified Victims by Tier Level. The box and whisker plot shows for each nation, the relationship between the law-enforcement metrics reported in the TIP Reports and the tier-level assignments. To make the figure more legible, two outlier countries with high rates of prosecutions per capita were excluded from the figure: Palau and the Federated States of Micronesia, both Tier 2. Three outlier countries with very high rates of convictions per prosecutions were excluded from the figure (although included within the statistical analysis): Ethiopia (Tier 2, with 751 yearly convictions on average and 10 yearly prosecutions on average for a ratio of prosecutions per conviction of 75.1), Suriname (Tier 2, with 9 yearly convictions on average and 1.3 yearly prosecutions on average for a ratio of 7), and Hong Kong (Tier-2 Watch List, with 6 yearly convictions on average and 1.3 yearly prosecutions on average for a ratio of 4.8). Three countries with high rates of victims identified per capita were also excluded: Palau (Tier 2), Saint Maarten (Tier 2), and Aruba (Tier-2 Watch List).

The analysis presented in Figure 6 is the relationship not between prosecutions and the number of reported victims, but rather the relationship between prosecutions and progress toward reducing the size of the TIP problem. In Figure 6, we are testing the hypothesis that over time, nations that devote effort toward decreasing TIP through increased prosecutions (*averaged* over 2015 to 2018 to account

for judicial time-lags) achieve decreases in the size of the problem within their country (change in estimates of TIP between 2016 and 2018).

If increased prosecutions resulted in decreases in TIP prevalence, we would expect to see the data points in Figure 6 trending from the upper right to the lower left. In other words, we would expect to see TIP decrease as prosecution rates increase. The data does not exhibit such a relationship. As presented in the analytical conclusion section of this paper, our statistical analysis reveals that nation-by-nation variations in 2015–2017 prosecutions explain 0.3% of the variance in the change in TIP between 2016 and 2018 at the 51% confidence for nonrandomness. While additional prevalence estimates and time series would improve the analysis, the lack of correlation over this time period challenges the narrative that increasing prosecutions will decrease TIP.

Question 4: To what extent do economic and governance factors influence TIP tier levels?

Many of those who have criticized the focus on "law and order" metrics in the TIP tier reports, have emphasized the need for a more holistic CTIP strategy that addresses the societal vulnerabilities that lead to TIP in the first place (e.g., Bales, 2007; Gallagher & deBaca, 2018; Wooditch, 2011).

One approach to determining the extent to which tier rankings may be associated with national characteristics not directly related to TIP is to evaluate national economic development and governance measures against TIP tier levels. For this analysis, we use indicators that measure and score each country's economy and governance.

In Figures 7 and 8 each dot represents a nation, and the nations are grouped by their tier ranking. The sample economic indicators presented in Figure 7 are: (1) Gross Domestic Product Purchasing Power Parity per capita (World Bank Group, 2020c), (2) Gross National Income Growth (World Bank Group, 2020d), (3) Gross Domestic Product per capita (GDP PPP) (World Bank Group, 2020b), (4) Poverty Rate (World Bank Group, 2020e), (5) Unemployment Rate (World Bank Group, 2020f), and, (6) GINI Index (World Bank Group, 2020d).

The sample governance indicators presented in Figure 8 are: (1) Democracy Index (Economist Intelligence Unit, 2019), (2) Ease of Doing Business (World Bank Group, 2020a), (3) Press Freedom Index (Reporters Without Borders, 2020), (4) Corruption Perception Index (Transparency International, 2019), (5) Freedom in the World (Freedom House, 2020), (6) Fragile State Index (Fund for Peace, 2020), and, (7) Economic Freedom Index (Heritage Foundation, 2020).

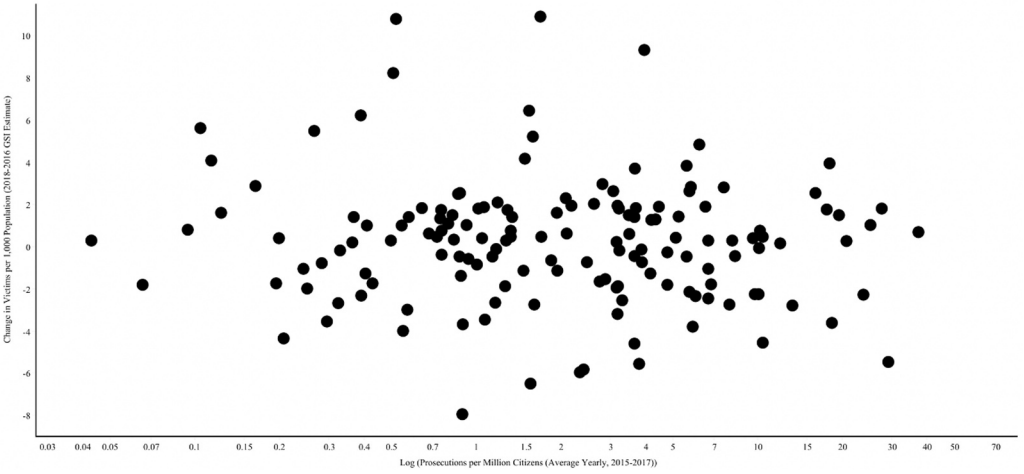

Figure 6. Relationship Between Prosecutions and Changes in TIP. Each dot represents a nation. The prosecution rates are normalized to the nation's population and averaged from 2015-2017. The change in TIP (estimates per 1,000 population) are calculated using the difference between the 2016 and 2018 GSI estimates of prevalence.

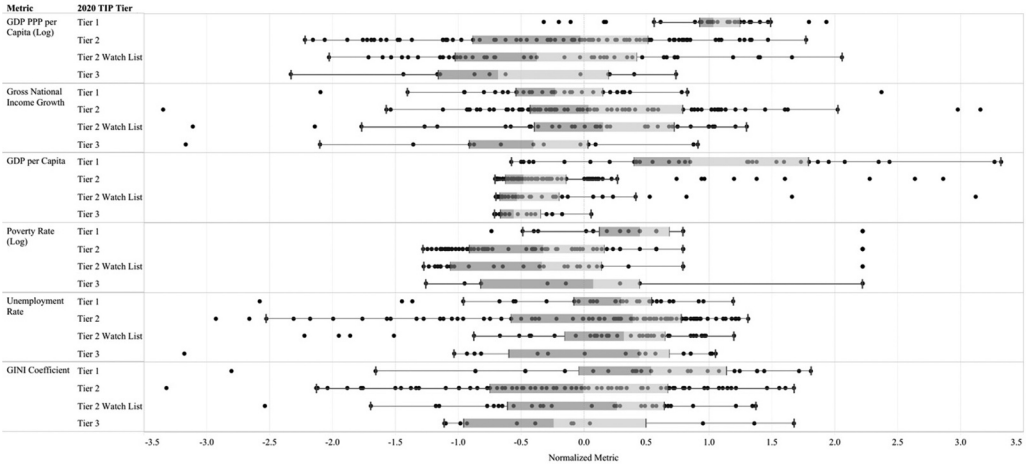

Figure 7. Economic Indicators by TIP Tier. Each dot represents a nation plotted against its economic indicator score. The nations are grouped by TIP tier level. The indicators are normalized to a common scale and adjusted so that larger x values indicate "better" performance.

To produce plots of economic and governance indicators, such that all the indicator values are on a common scale, we normalize the data using deviations from the mean. Indicators that do not demonstrate a normal (Gaussian) distribution across nations are first adjusted using the logarithm of the value, appropriate for logarithmic distributions (e.g., GDP PPP), or in some cases, using the square root of the value, appropriate for chi-squared distributions (e.g., unemployment), before applying the statistical analysis. For the indicators where a lower score is "better" (e.g., Poverty Rate, Corruption Perception Index), the normalized values are multiplied by negative one, flipping the curve over the y-axis so that all indicators can be plotted on the same graph with larger x values indicating "better" performance.

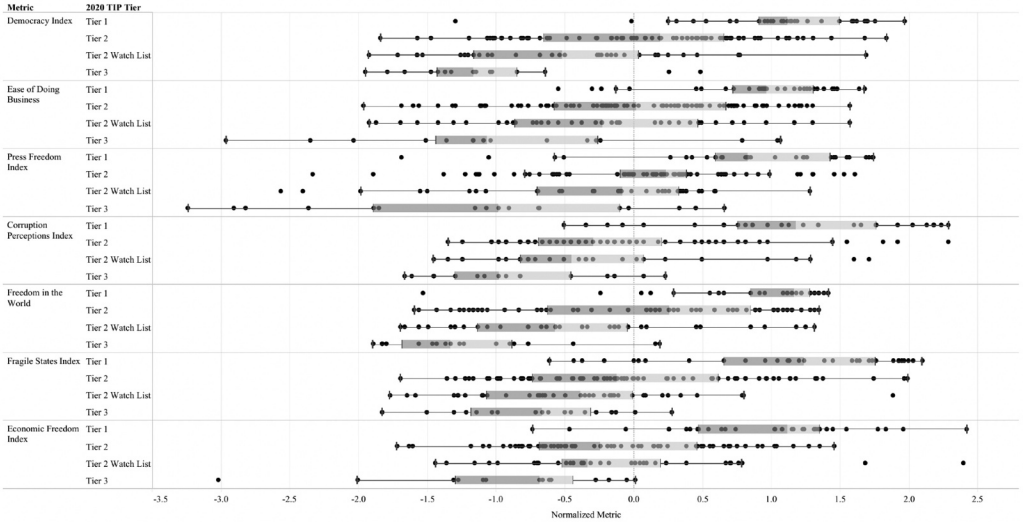

Figure 8. Governance Indicators by TIP Tier. Each dot represents a nation plotted against its governance score. The nations are grouped by TIP tier level. The indicators are normalized to a common scale and adjusted so that larger x values indicate "better" performance.

Figure 7 shows that countries with a higher GDP per capita and lower levels of income inequality (measured by the GINI Coefficient) are more often Tier 1 than Tier 3. The governance indicators shown in Figure 8 display an even stronger relationship with tier level. For example, the median Democracy Index value (a 0–100 score) is 80 for Tier-1 countries, 59 for Tier-2 countries, 43 for Tier-2 Watch List countries, and 29 for Tier-3 countries, indicating the importance of governance in a country's efforts to combat human trafficking.

Our analysis (Figures 7 and 9, and Table 1) shows there are correlations between poverty and TIP tier level (10.9% variance explained, which is twice the 99% confidence for nonrandomness). However, governance indicators correlate with the TIP tier levels more strongly than either economic indicators or law-enforcement indicators (Figure 9). For example, the democracy index explains 58.2% of the variance in the TIP tier rankings, far greater than poverty (at 10.9%), and the highest law-enforcement indicator (prosecutions at 8.9%).

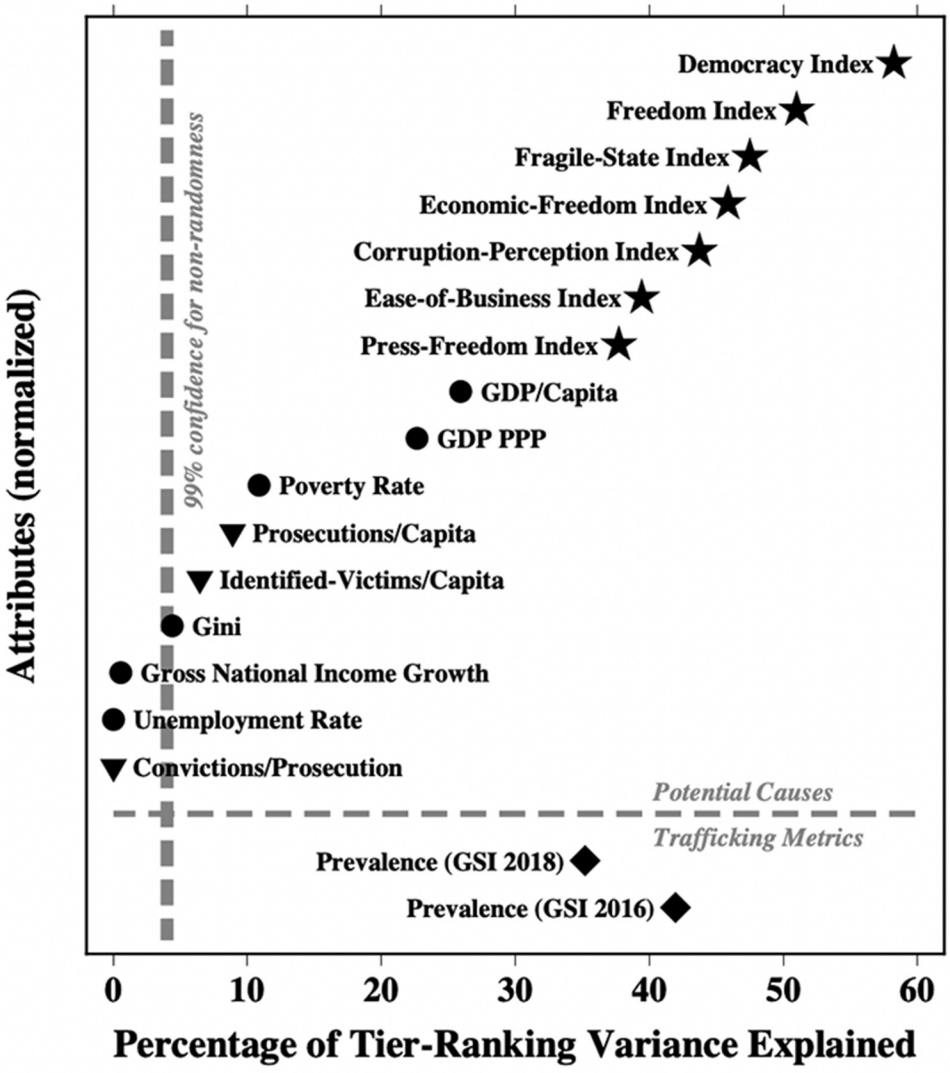

Figure 9. Percentage of Tier-Ranking Variance Explained by Various Measures.

Our sample of economic metrics traditionally associated with TIP (e.g., unemployment, poverty, etc.) are secondary to our governance measures in explaining efforts toward countering TIP, as represented by tier levels, and TIP prevalence rates. The traditional economic hypothesis that TIP arises from elevated poverty and unemployment appears to be an oversimplification. The broader question of why TIP and TIP tier rankings are more reflective of governance and social issues than economic factors is an important area of research (e.g., McGregor McGregor et al., 2013; Cho, 2015), but its full resolution is beyond the scope of this analysis. The strong relationship between governance metrics and tier assignments, however, does provide compelling support for those who have called for CTIP measures to include the promotion of democracy and individual rights (e.g., Landman & Silverman, 2019; Vidwans & Jamal, 2019).

At the broader international scale, it must also be recognized that open, democratic societies may still condone or export conditions of exploitation through transnational business practices. Many nations provide human rights protections for their own citizens but lose sight of their internal standards internationally. Legal protections for migrant workers, for example, are not yet reflected in TIP tier rankings; and international factors are also not accounted for within the Global Slavery Index prevalence estimates. Such shortfalls will perhaps be addressed in the future through revisions to the minimum standards of the TVPA.

Analytical Summary

In the previous sections, we examined relationships between tier-level assignments through time and various factors related to TIP. In this section, we summarize the analysis by quantifying the relationships in probabilistic terms. We use singular-value decomposition to identify the relative weightings among these multiple inter-related attributes across our matrix consisting of tier rankings for 12 years and 189 nations. In doing so, we estimate the relative importance to TIP tier rankings of the law-enforcement measures reported in TIP reports (reported prosecutions, convictions and identified victims), independent measures of trafficking prevalence (GSI prevalence estimates), and indicators intended to capture the nation's economic and governance conditions (e.g., indices of economics and governance). We recognize the limitations and political elements associated with the TIP tier rankings, and the weaknesses in the GSI prevalence estimates. We do not assume that correlations represent direct causal relations. Instead, we assume an ecosystem approach that treats all attributes as inter-dependent, with statistical correlations that measure the strength of the linkages.

Figure 9 and Table 1 summarize the percentage of variance among the TIP tier levels that can be explained by each of the factors analyzed. Table 1 includes the method of normalization applied to the data set before removing the mean and scaling to unit-average variance. Similar to Figures 7 and 8, for the indicators where a lower score is "better" the normalized values are multiplied by negative one so that larger values indicate "better" performance. Our null hypothesis is that the attributes of each nation are independent of the attributes of other nations. Assuming that nations are uncorrelated, the 99% confidence limit for a nonrandom correlation occurs for R-squared values of about 0.05. This means that an attribute can be considered statistically significant even though it explains only 4–5% of the nation-by-nation variance. Three metrics presented in this analysis are found to be statistically insignificant to the TIP tier levels. Two of them are economic measures: Gross National Income Growth, and Unemployment Rate. The third is the law-enforcement metric Conviction Rate (Figure 9).

Average tier rankings in the 2009–2020 TIP reports correlate best with national attributes that relate to governance (star-shaped symbols, Figure 9). The highest correlation involves the Democracy Index, accounting for 58% of its nation-by-nation variance among the 167 nations with index values. Other governance indicators correlate almost as strongly with tier rankings, but the variance explained by them tends to overlap with that explained by the Democracy Index. One of the indicators that augments the explained-variance significantly is the Economic Freedom Index; a joint regression of Democracy Index and the Economic Freedom Index explains 70% of the nation-by-nation variance in

the average tier rankings in the 2009–2020 TIP reports. Adding other national attributes to the regression does not increase this percentage significantly.

Many economic attributes (circular symbols, Figure 9) have relatively weak influence on tier ranking. The Poverty Rate explains only 11% of the tier rankings and the Unemployment Rate, Gross National Income Growth, and Convictions/Prosecution Rate are statistically insignificant. In addressing the underlying causal relationships, our sample of economic indicators suggests that the traditional economic theory of TIP being the result of poverty and unemployment may be an oversimplification.

The TIP tier levels are meant to measure a nation's efforts toward meeting the minimum standards of the TVPA. While special circumstances may apply to various nations at various times, the overall goal is to reduce the number of individuals who fall victim to human trafficking. Accordingly, one would expect that over time, nations that apply more effort would achieve better results than those that apply lesser effort. The GSI prevalence estimates vary greatly from nation to nation, with statistics similar to a log-normal distribution. After logarithmic scaling and demeaning, the 2016 and 2018 prevalence estimates explain 42% and 35%, respectively, of the nation-by-nation variance of the average 2009–2020 TIP Rankings (Figure 9).[11]

Implications for Policy Makers

For policy-makers who wish to combat TIP effectively, the results of our study offer several insights. Some previously hypothesized relationships are confirmed, others are called into question, and a few unexpected relationships emerged. The unexpected relationships are the most intriguing, as they lead to a more sophisticated understanding that, in turn, offers new opportunities for more nuanced and effective approaches.

Changes to the TIP tier-ranking system, and requirements to report prosecutions, convictions, and identified victims, have been implemented through the Congressional reauthorization of the TVPA. These legislative efforts, designed to motivate nations to increase their CTIP efforts, have almost certainly been effective for specific nations at specific times. Similarly, an individual nation's decision to become party to the Palermo Protocol has, at times, signaled a genuine increased commitment to addressing TIP. There are compelling anecdotes suggesting these tools have been effective. Anecdotes, however, are best used as illustrations supporting analysis, not as substitutes for analysis, because they are not always representative of the overall circumstances.

Using attributes for 189 nations and averaging across 12 years of TIP reports to obtain stable assessments, our analysis reveals that the overall impact of changes to tier-ranking requirements and encouraging nations to become party to the Palermo Protocol has been ambiguous. While such diplomatic approaches promote an atmosphere of increased awareness and support for CTIP activities, their role in substantially motivating countries to increase CTIP efforts, as measured by changes in tier levels, is weak. The number of nations at each tier level has remained stubbornly constant over the last decade. Since 2009, 76% of countries have not changed tiers in any given year, while approximately equal proportions (12%) of countries either improved or worsened by one tier level. For nations that become party to the Palermo Protocol, only 21% improved their tier level the following year.[12]

It may be surprising to some that there is only a weak relationship between the law-enforcement metrics reported in the TIP reports (reported prosecutions, convictions, and identified victims) and the TIP tier rankings. In addition, nation-by-nation variation in prosecution rates do not convincingly

[11] If the logarithmic-prevalence estimates for the two GSI surveys are combined, the correlation is even higher, explaining nearly 49% of the tier-ranking variance. This suggests that the GSI prevalence estimates have high uncertainties, but relatively small biases, so that averaging independent surveys may increase the overall accuracy of the prevalence estimate.

[12] At the same time, considerable changes have occurred in the landscape of CTIP over time. Tier rankings in successive years of the TIP report typically correlate with R^2 values of 0.75, but the correlations decrease as the time interval increases. Correlation between the 2009 and 2020 tier rankings has $R^2 = 0.32$.

correlate with decreases in estimates of TIP prevalence. Countries that report more prosecutions tend to report fewer identified victims the following year, but the relationship is disappointedly weak. Reported prosecutions can only explain about 5% of the variance of the reported identified victims. The relationship between prosecutions and independent estimates of *reduction* in prevalence from the GSI is even weaker. Nation-by-nation variations in prosecutions during 2015–2017 explain 0.3% of the change in estimated prevalence between 2016 and 2018, at the 51% confidence for nonrandomness, which is statistically insignificant. While prosecutions have an important role in the overall CTIP strategy, from these data, there is no evidence that prosecutions result in meaningful reductions in TIP.

While this analysis is not presented as exhaustive, it is sufficiently representative to call into question some of the prevailing narratives surrounding TIP. Accepting that the TIP tier levels are designed to measure each nation's efforts toward meeting the minimum standards of the TVPA, the apparent weak relationship between tier levels and traditional global metrics of CTIP effort – reported prosecutions, reported convictions, reported identified victims, and becoming party to the Palermo Protocol, is disappointing. Additionally, it is surprising that our sample of economic metrics traditionally associated with TIP (e.g., unemployment, poverty, etc.) are secondary to our governance measures in explaining TIP tier rankings. The traditional economic hypothesis that TIP arises from elevated poverty and unemployment may be an oversimplification. On the other hand, the strong predictive nature of governance metrics with tier assignments provides support for those who have called for CTIP measures to include the promotion of democracy and individual rights (e.g., Vidwans & Jamal, 2019).

What is perhaps the most compelling result is the high correlation of TIP tier levels and the Democracy Index. The Democracy Index explains 58% of the variance; the joint regression of the Democracy Index and the Economic Freedom Index explains 70% of the nation-by-nation variance in the average tier rankings in the 2009–2020 TIP reports. From an ecosystem perspective, the correlations are consistent with the expectation that nations with strong democratic institutions are more likely to resist the descent of their marginalized subpopulations into forced labor or sex-trafficking, and that nations where entrepreneurs can more easily pursue a legal path to profit are less tolerant of businesses that depend on the coerced labor of their fellow citizens. While no single attribute qualifies as the independent variable, our analysis affirms that nations can best address TIP if their governance is more democratic, their press less fettered, their business environment more open, and their societal institutions are strong.

The strong relationship of TIP to the Democracy Index and the Freedom of Press Index (Figure 9) resonates with the Noble Prize-Winning Economist, Amartya Sen's observation that there has never been a famine in any independent and democratic country with a relatively free press (Sen, 1999). Sen's observation has been extended to natural disasters, finding that the Democracy Index is a leading predictive indicator of the human impact of natural disasters (van der Vink et al., 2007). The strong relationship between tier levels and indicators of governance suggests that investments in democracy, governance, and human rights are also investments in CTIP.

The most exciting and actionable finding for the development of more effective CTIP strategies is the discovery of the multiple independent linkages revealed by the data. These independent linkages indicate multiple causal relationships; and the multiple causal relationships have different relative priorities in different locations. This finding explains why universal solutions have had frustratingly little success in reducing TIP. Causal relationships are seldom direct, and the circumstances that foster vulnerable subpopulations vary from location to location. Just as there is no single cause for TIP, there is no single solution.

So how do we move forward in developing more effective CTIP strategies using the insights from this analysis? The short answer is that we adopt a different approach – an ecosystem approach similar to what has been used so effectively for crime reduction.[13] By identifying the characteristics of

[13]The stability of many governance indices over time suggests that fundamental changes made in social ecosystems should be sustainable.

ecosystems that support TIP, we can formulate geographically targeted interventions to disrupt that system, and mitigate TIP in a more cost-efficient and effective manner. Ecosystem approaches have been proposed for addressing the sex trafficking of children (Finigan-Carr et al., 2019) and for building resilience to trafficking within communities (Gardner et al., 2020). Adopting an ecosystem approach for addressing TIP is consistent with the highly successful criminology theory of Situational Crime Prevention (SCP), and is focused toward the "Prevention" part of the "3P" paradigm for addressing TIP.

SCP focuses on the criminal setting and is different from most criminological approaches as it begins with an examination of the circumstances ("ecosystems") that allow particular types of crime. By gaining an understanding of these ecosystems, mechanisms are then introduced to change the relevant ecosystems and reduce the opportunities for crime. SCP focuses not on apprehending criminals, but on reducing criminal opportunities. SCP is considered an essential part of the United Nations Economic and Social Council's Guidelines for the Prevention of Crime (Resolution 2002/13) (United Nations Office on Drugs and Crime, 2010).[14]

While our analysis is not exhaustive, we feel it provides compelling evidence for an ecosystem approach to CTIP, consistent with SCP. In addition, it demonstrates the opportunity for further quantitative studies to tease out more sophisticated understandings of TIP, and the critical linkages among its array of underlying causal relationships.

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[14]Research has largely demonstrated that SCP does not necessarily lead to crime displacement (Clarke, 1995; Hesseling, 1994).

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ANNEX 4. CHILD MARRIAGE, HUMAN TRAFFICKING AND GENDER INEQUALITY: AN EMPIRICAL ECOSYSTEM ANALYSIS FOR BANGLADESH

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Keywords: child marriage, trafficking in persons, human trafficking, TIP, CTIP, modern slavery, gender inequality, female empowerment, human rights

ABSTRACT

While Bangladesh has among the highest child marriage rates in the world, it also has the opportunity to take a leadership role in ending the practice. The nation has enacted legislation prohibiting child marriage and closed the education gap between females and males. Notwithstanding these accomplishments, most girls marry before the minimum legal age, and illegal dowry payments remain common. While not all child marriage is currently classified as human trafficking, we demonstrate that child marriage and human trafficking share a common sociocultural ecosystem. We first evaluate the relative role of traditional factors predictive of child marriage: poverty levels, education, and rural vs. urban residence. We then explore the hypothesis that in patriarchal societies, female empowerment and gender inequality can be differentiated. Our analysis suggests that increases to female empowerment have been successful, gender inequality remains persistent. Future efforts to reduce child marriage would benefit from complementing female empowerment with efforts targeted at reducing gender inequality, specifically the attitudes of males. In addition to promoting further reductions in child marriage, reducing gender inequality will likely also benefit economic development, democratic governance, resistance to extremism, and the protection of human rights.

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1. INTRODUCTION: CHILD MARRIAGE AND TRAFFICKING IN PERSONS (TIP)

In Act 1, scene ii of Shakespeare's Rome and Juliet, we learn that Juliet is thirteen. While girls could legally marry in Elizabethan England at age 12 with parental consent, Juliet's father is concerned about the adverse effects of early marriage – "too soon marred are those so early made" (I.ii.13).

In the ensuing four centuries, there has been remarkably little progress in resolving the debate over the suitable age of marriage, the age of free and informed consent, and how to balance cultural norms against potential violations of human rights. In the United States, for example, many states have what are termed "Romeo and Juliet" laws. These laws attempt to preserve the freedom of young couples to engage in loving relationships while simultaneously protecting children from predatory environments. The "Romeo and Juliet" laws are perhaps an unintentional allegory for child marriage. The Shakespearean play, often presented as a love story, is a tragedy in which a three-day romance results in the death of six people.

Attempts to address "child marriage" and "child, early, and forced marriage" (CEFM) are interwoven with Trafficking in Persons through a fabric of international agreements, domestic laws, and cultural traditions that contain different definitions on the age of a child, the minimum age of marriage, the age of free and informed consent, and the factors that constitute special circumstances. There is general agreement that trafficking and child marriage intersect when marriage is used both in conjunction with force, fraud, coercion, or abuse of power, and as a means to subject spouses to conditions of slavery, often in the form of domestic or sexual servitude (e.g., UNODC, 2020). When applied to different social norms, however, the definitions of these terms and the description of circumstances contain sufficient ambiguity to create inconsistencies regarding enforcement and even interpretation.

At the international level, child marriage can be considered a violation of human rights under a series of linked international agreements to which Bangladesh is party:

1) The United Nations Universal Declaration on Human Rights (UDHR) states as Article 16 (2) "Marriage shall be entered into only with the free and full consent of the intending spouses" (United Nations, 1948).
2) The Convention on Consent to Marriage, Minimum Age for Marriage, and Registration of Marriages[i] refers in its preamble to UDHR Article 16 (2), reaffirms the consensual nature of marriages (Article 1), requires the parties to establish a minimum marriage age by law (Article 2)[ii], and requires parties to ensure the registration of marriages (Article 3) (United Nations, 1964).
3) The non-binding recommendation accompanying the Convention, "Recommendation on Consent to Marriage, Minimum Age for Marriage and Registration of Marriages" recalls Article 2 of the Supplementary Convention on the Abolition of Slavery, the Slave Trade, and Institutions and Practices Similar to Slavery and specifies (Principle II) that any minimum age "shall not be less than fifteen years of age" except "for serious reasons, in the interest of the intending spouses" (United Nations, 1965). The exception for undefined "serious reasons" makes enforcement difficult.

It can also be argued that child marriage is a "practice similar to slavery" under the United Nations Supplementary Convention on the Abolition of Slavery, the Slave Trade, and Institutions and Practices Similar to Slavery (United Nations, 1956). Although child marriage is not specifically addressed in the

convention (and no "suitable" minimum age is specified), child marriage is implicitly prohibited through article 1(C), article 1(D), and article 2.

- Article 1(C) prohibits a woman to be promised or given in marriage without the right to refuse.
- Article 1(D) prohibits "Any institution or practice whereby a child or young person under the age of 18 years, is delivered by either or both of his natural parents or by his guardian to another person, whether for reward or not, with a view to the exploitation of the child or young person or of his labour."
- Article 2 states "With a view to bringing to an end the institutions and practices mentioned in article 1 (c) of this Convention, the States Parties undertake to prescribe, where appropriate, suitable minimum ages of marriage, to encourage the use of facilities whereby the consent of both parties to a marriage may be freely expressed in the presence of a competent civil or religious authority, and to encourage the registration of marriages."

The United Nations Sustainable Development Goal (SDG) 5 is to achieve gender equality and empower all women and girls. Target 5.3 for that goal is to "eliminate all harmful practices, such as child, early and forced marriage and female genital mutilations." To measure progress towards target 5.3, the United Nations uses indicator SDG 5.3.1, "the proportion of women aged 20–24 years who were married or in a union before age 15 and before age 18" (United Nations Sustainable Development Goals, 2015).

The United States Government generally follows the definition of Trafficking in Persons (TIP) contained in the Protocol to Prevent, Suppress and Punish Trafficking in Persons Especially Women and Children, supplementing the United Nations Convention against Transnational Organized Crime, informally known as the Palermo Protocol.[iii] The Palermo Protocol is the only international legally binding instrument that provides an agreed-upon comprehensive definition of trafficking in persons (United Nations 2000). The definition (Article 3(a)) is considered to be comprehensive because it specifies what constitutes the "acts" (recruitment, transportation, transfer, harboring, receipt), "means" (threat, use of force, coercion, abduction, fraud, deception, abuse of power), and "purpose" (sexual exploitation, forced labour or services, servitude, removal of organs) of human trafficking (Clark, 2003). It also defines the meaning of "child" as any person under the age of eighteen (Article 3(d)) and specifies that means are not relevant if the act involves a child (Article 3(c)).

The US State Department Annual Trafficking in Persons (TIP) Reports reference child marriage as a contributing factor to girl's vulnerability to exploitation. They do not, however, consider it a form of human trafficking and do not include child marriage in their calculation of TIP victims. Some argue that if the State Department did consider child marriage as human trafficking and included measures to address it within their prioritized recommendations, governments would take it more seriously (Redfern, 2019).

In 2017, the International Labour Organization (ILO) began counting forced marriage in their slavery statistics (ILO, 2017) under the general recommendation that "child marriage is considered to be a form of forced marriage, given that one and/or both parties have not expressed full, free and informed consent" (Article VI.B.20, CEDAW, 2014). The recommendation, however, contains the caveat that "marriage of a mature, capable child below 18 years of age may be allowed in exceptional circumstances, provided that the child is at least 16 years of age and that such decisions are made by a judge based on legitimate exceptional grounds defined by law and on the evidence of maturity, without deference to culture and tradition" (CEDAW, 2014).

In Figure 1, each dot represents a nation. The Child Marriage Rates U18 on the vertical axis are estimates of the percentage of females (aged 15-49) ever married, divorced or in an informal union before age 18 (UN Dept of Economic and Social Affairs, 2017, UN World Marriage Data, 2017).[iv] The GSI Prevalence 2018 Estimate on the horizontal axis is the Walk Free Foundation's Global Slavery Index (GSI) estimate of the prevalence of "modern slavery" within each country (Minderoo Foundation, 2018). Each dot is colored by that nation's tier assignment in the 2018 US State Department Annual Trafficking in Persons (TIP) report (US DoS, 2018). These tier levels, ranging from Tier 1 to Tier 3, are assessments of a country's efforts to combat trafficking in persons, with a Tier 1 placement indicating the highest level of government-led CTIP effort. The dashed horizontal lines are the median child marriage rates for the countries in each TIP tier level. Even though child marriage rates are not incorporated in the calculation of TIP tier levels, there is an association. Tier 1 countries have on average two to three times lower child marriage rates than Tier 2 and 3 countries.[v]

Figure 1: Child marriage and human trafficking are inter-related within a common ecosystem

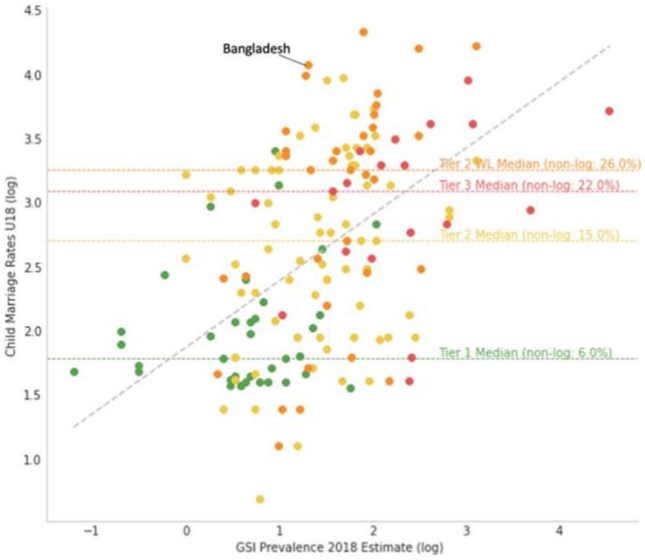

Figure 1 caption: The GSI Prevalence 2018 Estimate is the Walk Free Foundation's Global Slavery Index (GSI) estimate of the prevalence of "modern slavery" within each country. The Child Marriage Rates U18 are estimates of the percentage of girls ever married, divorced or in an informal union before age 18, based on the 2017 UN Dept of Economic and Social Affairs and MICS UNICEF data. Each dot represents a nation, colored by that nation's tier assignment in the 2018 US State Department Annual Trafficking in Persons (TIP) report. The dashed horizontal lines are the median child marriage rates for the countries in each TIP tier level.

Although "Forced Marriage" is a type of modern slavery, the GSI prevalence estimates do not specifically include child marriage. Countries with lower GSI prevalence estimates, however, typically have lower child marriage rates. While there is scatter in the data, the correlation between U18 child marriage rates and the GSI prevalence estimates (Figure 1) is statistically significant, explaining about 20% of the variance.[vi]

While the reporting of child marriage rates, the estimating of human trafficking prevalence, and the assignment to TIP tier levels are distinct activities pursued by different organizations operating under different mandates, Figure 1 demonstrates that these metrics and the associated phenomenon they attempt to measure, are inter-related within a common ecosystem. Countries with higher child marriage rates typically have higher rates of human trafficking and are assigned worse TIP tier levels by the US State Department. Statistically, the chances of the "null hypothesis" being true — that child marriage and human trafficking are not related, is less than 1 in 10 million.[vii]

While many claim that not all child marriage is TIP, the ecosystem of opportunities it creates for TIP and other negative impacts are so large, that there is increasing pressure to provide a minimum age for marriage and to classify marriage under that age as TIP. The hope is that by recognizing child marriage as a form of TIP, it will raise awareness and provide increased leverage for enforcement. If child marriage were classified as slavery, protection against it would be considered, like protection against torture and genocide, a responsibility of the international community as a whole. Under the International Court of Justice, protection could be equally enforced and independently adjudicated to all persons, entities (public and private), and states. The argument is compelling. Child marriage is recognized as a violation of human rights (UNICEF, 2020). Children, by definition, cannot provide free and informed consent. The treatment of a child, especially girls, as a commodity is consistent with the definition of human trafficking, regardless of whether that child is being exchanged in a transaction for money, goods, social status, protection, or family honor.

2. CHILD MARRIAGE IN BANGLADESH

Bangladesh is poised to take a leadership role in child marriage. The Prime Minister has pledged the nation to specific goals and timelines. Recent legislation has established a minimum age for marriage; and dowry payments have been outlawed.

- At the United Kingdom Girls Summit in 2014, Bangladesh's Prime Minister, Sheikh Hasina, committed Bangladesh to end marriage for children younger than 15 (U15) by 2021, and for all girls under age 18 (U18) by 2041; and to reduce by at least one third the difference – the number of girls married between ages 15 and 18 (U18diff) by 2021 (DFID, 2014).
- The Bangladesh Child Marriage Restraint Act of 2017 prohibits the marriage of children and defines in the case of marriage, an adult as having completed twenty-one years of age if a male, and eighteen years of age as a female (Section 2 (3)). A provision (Section 19), however, allows for marriage without a minimum age under "special circumstances when it is in the best interests of the minor" at the direction of the court and with consent of the parents or guardians of the minor. The "special circumstances" clause is demonstrably a major loophole in the legislation that makes the legislation all but ineffective, as the majority (59%) of girls in Bangladesh are still getting married before the age of 18.
- The Dowry Prevention Act of 2018 makes the demanding, giving, or taking of dowries an offense punishable by fines or imprisonment. It distinguishes (Section 2(b)) the current "dowry" system of payments to the husband from the traditional "dower" (or "mehr") which is a religiously sanctioned part of Muslim marriage when a husband pays his wife out of honor and respect, and to show that he seriously desires to marry her with a sense of responsibility and obligation (Monsoor, 2003). While illegal, dowry payments remain pervasive in Bangladesh, perpetuating the use of a child as a commodity in a transactional arrangement[viii], and attracting considerable criticism both for creating incentives for harmful practices towards girls, and for being associated with violence against females (Suran et al., 2004; Siddique, 2011; Solotaroff & Pande, 2014,).

But as T.S. Eliot noted more than a century ago, between the idea and the reality falls the shadow. Bangladesh continues to have one of the highest child marriage rates in the world. Most females marry before the legal age; and the payment of dowries remains pervasive. The circumstances in Bangladesh are consistent with research into global anti-slavery legislation that shows that despite near-universal

adherence to international anti-trafficking norms, many nations have not transferred their commitment into effective domestic laws (Schwarz & Allain, 2020), and gaps persist between human-rights norms and implementation of those rights (de Felice & Graf, 2015).

While the current dowry system may seem to be a deeply entrenched cultural norm that has been pervasive throughout Bangladesh's history, it is not. The "dowry system" is not rooted in religious tenets or long-standing social norms, but rather a relatively recent practice instituted, most likely, in response to an imbalance between men and women of marriageable age. Prior to the 1960s, husbands paid a dower to the woman's family in accordance with Islamic law (Quran 4:4). In late 1960s, the practice changed, and the payment of dowries from the families of brides to grooms took hold. The speed of the transformation is reflected in survey data. Less than eight percent of women age 45-60 paid dowries, while over 46 percent of younger women age 15-25 paid dowries (World Bank, 2008). Coincident with this change was an increase in violence towards women by their husbands: 24 percent of women age 45-60 report ever having experienced violence by their husbands, while 30 percent of women age 15-25 have already experienced violence by their husbands (World Bank, 2008).

One explanation for this change in practice is the increased leverage of males during a period of high population growth and increased urbanization and education, resulting in men postponing marriage until they were 25-30 (Rozario, 1998). During a time of increasing population growth, the postponement of marriage by men, who then marry younger women, resulted in a shortage of marriage-age men relative to marriage-age women (Figure 2). Such a surplus of women relative to men of marriageable age coincides with the emergence of the dowry (Amin & Cain, 1997). The new "tradition" continues, even though the circumstances for its creation no longer exist, and in fact, are beginning to reverse.

Figure 2: Male and Female Population Percentages 1950-2020

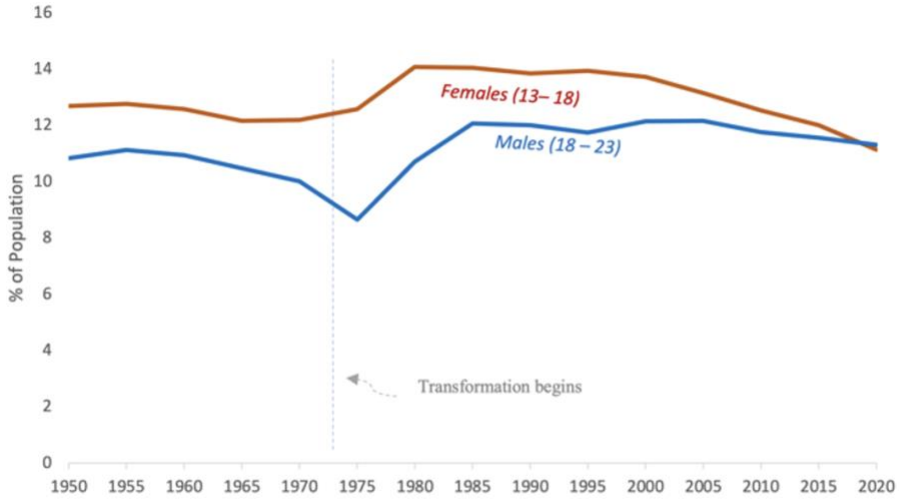

Figure 2 caption: Percentage of population for the age brackets for men and women is from the UN Department of Economic and Social Affairs, Population Division (2019). These two age brackets were chosen based on prevailing marriage practices in Bangladesh. In Bangladesh, the average age difference is currently 8.8 years.

Dowries can exacerbate child marriage because the payment to the groom is often less for a family of a younger bride. Younger brides are considered to be more desirable to Bangladeshi men, and therefore grooms are more willing to reduce their dowry "demand" to marry them (Chowdhury, 2010).

Over the last two decades, development in Bangladesh has been substantial. The poverty headcount ratio has decreased 20.0 percentage points (from 34.5% to 14.5%), and secondary school enrollment has increased 23 percentage points (World Development Indicators, 2021). During this time (2000-2017), marriage rates for children under the age of 15 (U15) have decreased 17.9 percentage points and marriage rates for children under the age of 18 (U18) decreased 9.8 percentage points (Figure 2). While progress has been substantial, the majority of girls (51.4%) are still getting married before their eighteenth birthday (UNICEF, 2019).

In Figure 3, the columns in blue are the percentage of females married under the age of 15 (U15). The columns in grey are the percentage of females married under the age of 18 (U18). The percentage of females married under 18 includes those married under 15. The difference between U18 and U15 is the percentage of females married at ages 15-17 and is designated U18diff. The data are derived from the Multiple Indicator Cluster Surveys (MICS) household surveys supported by the Bangladesh Bureau of Statistics and UNICEF (2019), and the Demographic and Health Survey (DHS) implemented by National Institute of Population Research and Training (NIPORT) and ICF, supported by USAID (NIPORT and ICF, 2020). While there is significant difference between the MICS and DHS estimates, the trends within each survey are consistent. Child marriage rates have been decreasing, but the rate of decrease, over the last two surveys for both MICS and DHS, may be slowing.

Figure 3: Female Child Marriage Rates Under 15 (U15) and Under 18 (U18) from both the DHS and MICS Surveys

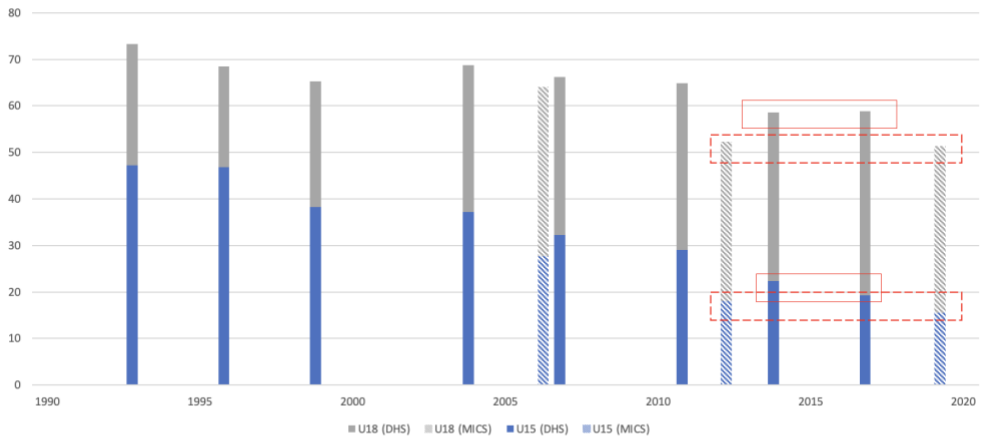

Figure 3 caption: Although child marriage rates in Bangladesh are decreasing, they remain the highest in Asia. U18 child marriage has been decreasing at a rate of about 0.6 percentage points per year (DHS 1993-2017/18), 1.1 percentage points per year (MICS, 2008-2019). U15 child marriage has been decreasing at a rate of about 1.0 percentage points per year (DHS 1993-2017/18), 1.3 percentage points per year (MICS, 2008-2019). Extrapolating these trends forward, Bangladesh is not on track to meet SDG 5.3 or the commitments made by the Prime Minister during the 2014 UK Girls Summit. Child marriage rates are from the USAID-funded National Demographic and Health Surveys (DHS) (solid) (NIPORT and ICF, 2020) and from the UNICEF Multiple Indicator Cluster Surveys (MICS) (dashed) (BBS and UNICEF, 2019).

As shown in Figure 3 there have been significant reductions over the last three decades. U18 child marriage has been decreasing at a rate of about 0.6 percentage points per year (DHS 1993-2017/18), 1.1 percentage points per year (MICS, 2008-2019). U15 child marriage has been decreasing at a rate of about 1.0 percentage points per year (DHS 1993-2017/18), 1.3 percentage points per year (MICS, 2008-2019). Extrapolating these rates using a simple linear regression curve (Table 1), reveals that, with the possible exception of the SDG 5.3 indicator goal for U15, Bangladesh is not on track to meet either its national or international goals. Furthermore, such an extrapolation seems optimistic given the apparent decrease seen in the estimated rates for the last two surveys by both DHS (2012 and 2017/18) and MICS (2012 and 2019). Neither survey shows any meaningful decrease in U18 child marriage.

Table 1: Progress towards meeting SDG 5.3 and UK Girl's Summit Pledge

	SDG 5.3 PROJECTION		*UK SUMMIT PLEDGE PROJECTION*		
	2030 U15	2030 U18	2021 U15	2041 U18	2021 1/3 15-17*
Goal	0.0%	0.0%	0.0%	0.0%	39.1%
Continuing at historical rate (DHS)	5.0%	53.0%	15.5%	47.4%	41.1%
Continuing at historical rate (MICS)	4.1%	39.1%	12.4%	28.6%	36.2%

* At the 2014 UK Girls Summit, the Prime Minister pledged to end marriage for children younger than 15 by 2021 and to reduce by at least one third the number of girls married ages 15 and 18 by 2021. For this calculation, the 2021 commitment is considered to be the equivalent of reducing the U18 rate from the 2014 rate by one-third. In 2014, the U18 rate was 58.6. Subtracting one-third of 58.6 = 39.1.

The MICS surveys report child marriage rates at the division level and at the zila level for some (about 30%) of the zilas. The survey data allows us to estimate rates at the for all of the zila level.[ix] Using the full 2019 survey data set of 68,713 respondents for the women's MICS survey, we determined the percentage of women married under the age of 15 and 18 who are within the 20-24 age range. Our calculated estimates were aggregated back to the division level and compared to the reported values to confirm consistency. While there is increased uncertainty in the estimates using the smaller sample size, in each case there were over 100 female respondents age 20-24 per zila and our aggregated division values are within two percentage points of the reported values (Table 2).

Table 2: Calculated and Reported Child Marriage Rates at the Division and Zila Level

DIVISION/ZILA	# FEMALE RESPONDENTS (20-24)	REPORTED U15(%)	CALCULATED U15 (%)	DIFFERENCE (% POINTS)	REPORTED U18 (%)	CALCULATED U18 (%)	DIFFERENCE (% POINTS)
Barisal	870	16.2	15.3	0.9	55.6	55.9	0.3
Barguna	138		12.3			60.9	
Bhola	152	19.0	19.1	0.1	60.0	60.5	0.5
Barisal	141		18.4			49.6	
Jhalokati	139		9.4			48.2	
Patuakhali	154	14.0	14.3	0.3	59.0	57.8	1.2
Pirojpur	146		17.8			57.5	
Chittagong	2,063	10.6	11.0	0.4	44.1	43.1	1.0
Brahamanbaria	165		14.5			46.7	
Bandarban	120		8.3			32.5	
Chittagong	410	7.0	7.6	0.6	39.0	39.5	0.5
Chandpur	159		13.8			49.7	
Cox's Bazar	184		9.8			37.0	
Comilla	231	10.0	10.4	0.4	53.0	53.2	0.2
Khagrachhari	152		12.5			42.1	
Feni	168		11.9			38.7	
Lakshmipur	163		13.5			48.5	
Rangamati	136		10.3			43.4	
Noakhali	175		12.6			42.9	
Dhaka	2,122	14.2	13.7	0.5	48.6	49.1	0.5

DIVISION/ZILA	# FEMALE RESPONDENTS (20-24)	REPORTED U15(%)	CALCULATED U15 (%)	DIFFERENCE (% POINTS)	REPORTED U18 (%)	CALCULATED U18 (%)	DIFFERENCE (% POINTS)
Dhaka	432	16.0	16.5	0.5	41.2	41.0	0.2
Faridpur	149		14.8			57.7	
Kishoreganj	122		9.0			40.2	
Madaripur	147		8.2			43.5	
Manikganj	118		19.5			63.6	
Munshiganj	163		14.7			48.5	
Narsingdi	132		9.8			41.7	
Narayanganj	174		14.9			44.3	
Rajbari	131		9.9			55.7	
Gazipur	153		13.1			59.5	
Gopalganj	135		9.6			48.1	
Shariatpur	121		18.2			50.4	
Tangail	145	17.0	17.0	0.0	61.0	61.0	0.0
Khulna	1,548	19.1	19.1	0.0	61.8	62.7	0.9
Bagerhat	151	20.0	19.9	0.1	70.0	70.0	0.0
Chuadanga	159		14.5			60.4	
Khulna	143	18.0	16.8	1.2	59.0	58.0	1.0
Kushtia	169	18.0	18.3	0.3	59.0	59.2	0.2
Jessore	149		18.1			56.4	
Jhenaidah	159		22.6			67.3	
Magura	143		18.2			58.0	
Meherpur	163		14.1			58.9	
Narail	148	27.0	27.0	0.0	71.0	72.0	1.0
Satkhira	164		22.0			67.1	
Mymensingh	531	17.0	17.5	0.5	52.2	53.7	1.5
Jamalpur	125	22.0	21.6	0.4	59.0	58.4	0.6
Mymensingh	153	17.0	17.0	0.0	50.0	49.7	0.3
Netrakona	131	8.0	8.4	0.4	43.0	44.3	1.3
Sherpur	122	24.0	23.8	0.2	64.0	63.9	0.1
Rajshahi	1,110	25.1	25.4	0.3	66.7	65.9	0.8
Bogra	125	19.0	18.4	0.6	69.0	69.6	1.0
Joypurhat	134		14.2			50.0	
Naogaon	124	31.0	32.3	1.3	71.0	71.0	0.0
Natore	116		21.6			69.0	
Nawabganj	195	39.0	39.0	0.0	73.0	72.8	0.2
Rajshahi	139	28.0	27.3	0.7	70.0	69.8	0.2
Sirajganj	131		15.3			61.1	
Pabna	146		28.1			61.6	
Rangpur	1,238	18.7	18.2	0.5	57.9	58.1	0.2
Dinajpur	157		19.1			59.2	
Kurigram	159		22.0			50.3	
Lalmonirhat	164		8.5			56.7	

DIVISION/ZILA	# FEMALE RESPONDENTS (20-24)	REPORTED U15(%)	CALCULATED U15 (%)	DIFFERENCE (% POINTS)	REPORTED U18 (%)	CALCULATED U18 (%)	DIFFERENCE (% POINTS)
Gaibandha	124		25.8			62.1	
Nilphamari	173	16.0	15.6	0.4	59.0	57.8	1.2
Panchagarh	155		24.5			63.9	
Rangpur	138		18.1			59.4	
Thakurgaon	168		14.3			56.5	
Sylhet	876	7.3	7.4	0.1	31.0	31.8	0.8
Habiganj	204		6.4			32.4	
Maulvibazar	224		8.0			27.2	
Sylhet	261		5.0			27.2	
Sunamganj	187		11.2			43.3	
Totals	10,358	15.1	15.5	0.4	51.4	52.1	0.7

* Calculated from survey data. Statement about comparison with reported number of respondents.

Applying the same analysis to the previous MICS Survey (2012), we estimate the change in child marriage rates at the zila level over the last seven years (2012-2019) (Figure 4). Changes in the U15 child marriage rates are shown in blue. Changes in the child marriage rates of girls 15-17 (U18diff) are shown in grey. In some zilas, the decrease in U15 has been accompanied by an increase in U18diff, suggesting that girls who may previously have been married under the age of 15 are now being married in the 15-17 age range. In other zilas, the opposite appears to occur. U15 rates are increasing, while U18diff rates are decreasing. Such cases suggest that girls who may previously have married at ages 15-17 are now getting married younger.

Figure 4: Estimates of Changes in Child Marriage Rates (2012-2019) by Zila

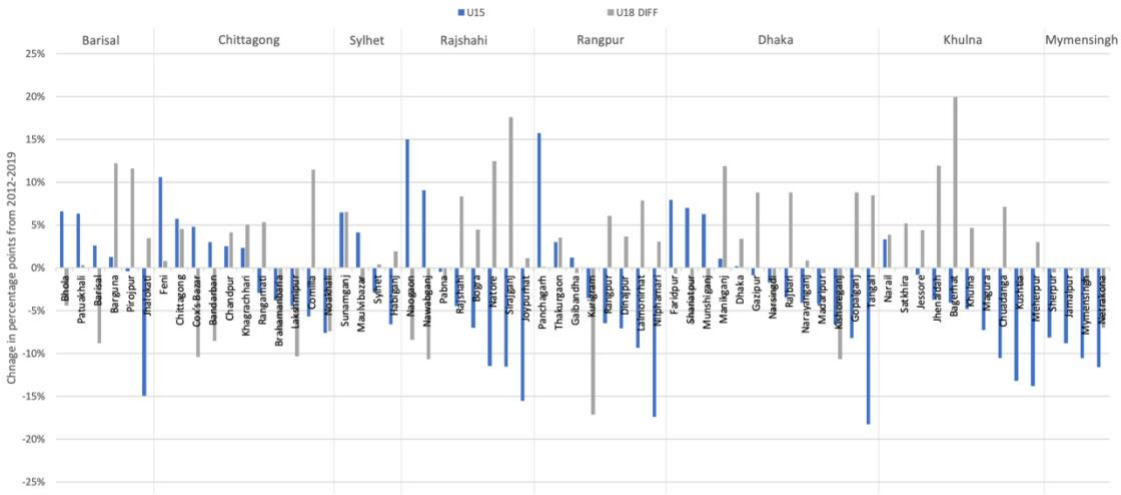

Figure 4 caption: Changes in both the U15 and U18diff child marriage rates among surveyed women aged 20-24 between 2012 and 2019 vary among zilas, even within the same division. In some zilas, the decrease in U15 has been accompanied by an increase in U18diff, suggesting that girls who may previously have been married under the age of 15 are now being married in the 15-17 age range. In other zilas, the opposite appears to occur. U15 rates are increasing, while U18diff rates are decreasing. Such cases suggest that girls who may previously have married at ages 15-17 are now getting married younger. Overall, there has been no significant reduction in child marriage during this time period. Changes in child marriage rates calculated from the 2012 and 2019 MICS (BBS and UNICEF, 2012, 2019).

The variation in progress, or recent lack thereof, towards reducing child marriage suggests that child marriage in Bangladesh has multiple causal relationships, and that further advancements may require strategies that go beyond universally-applied solutions. Multiple causal relationships indicate multiple

sociocultural ecosystems. Future progress is therefore likely to require additional, more geographically-targeted approaches.

3. CAUSES OF CHILD MARRIAGE WITHIN BANGLADESH

Child marriage in Bangladesh has been considered largely a consequence of poverty. Such a narrative is supported by the general trends between child marriage rates and measures of wealth, education, and urban versus rural populations. As progress has been made towards improving female education and reducing poverty, progress has also been made in reducing child marriage. As previously noted, however, more recent surveys show little or no meaningful reduction in child marriage, calling into question whether efforts successful in the past are sufficient for the future.

As reflected by the median age of first marriage (NIPORT et al., 2020), child marriage is most severe among the poorest wealth quintiles, the least educated, and the rural populations (Figure 6). These are also the populations where the most progress has been made (Figure 6). Since 2004:

- the median age of marriage for females with no education has risen 1.8 years (from 14.4 to 16.2), while the median age of marriage among females with secondary school education has *decreased* slightly (from 16.9 to 16.6) (Figure 6a);
- the median age of marriage for rural residences has risen 1.4 years (from 15.8 to 17.2), while the median age of marriage among urban residents has risen only 0.6 years (from 17.1 to 17.7) (Figure 6b); and
- the median age of marriage among the poorest wealth quintile has risen 1.7 years (from 14.5 to 16.2), while the median age of marriage among the wealthiest quintile has risen only 0.2 years (from 18.2 to 18.4) (Figure 6c).

Figure 5: Changes in Median Age of First Marriage 2004 – 2018

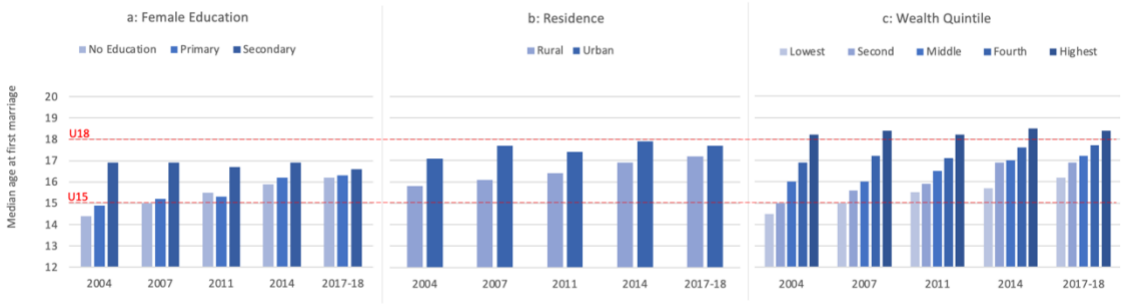

Figure 5 caption: Median age of marriage is lowest for the poor, those with less education, and who live in rural areas. These are also the populations where the most progress has been made (NIPORT et al., 2020). Ages 18 and 15 are shown with a red-dashed line.

Previously (1993-2011), female education was the single most significant determinant of child marriage (Kamel et al., 2014). Today, females have closed the education gap, and the differences in child marriage rate are less significant. The median age of marriage for those with no education, primary education, and secondary education is now within one year. The median age of marriage difference between rural and urban residence is now also less than a year. Wealth quintiles continue to be a more determining factor, with a difference in median age of two years, but that difference has decreased almost in half, with little change among the wealthiest quintile.

4. FEMALE EMPOWERMENT AND GENDER INEQUALITY

The United Nation's Sustainable Development Goal (SDG) 5, to "achieve gender equality and empower women and girls", links the concepts of female empowerment and gender equality. Female empowerment and gender equality share a sociocultural ecosystem, with historically little differentiation between them in the goals set by development organizations.

Female empowerment can be defined as the "fostering of a woman's sense of self-worth, her decision-making power, her access to opportunities and resources, her power and control over her own life inside and outside the home, and her ability to affect change" (Peace Corps, 2021). Female empowerment is related to gender equality but is generally focused on a female's degree of autonomy on a personal level, independent of the attitudes and opinions of men.

Gender equality can be defined as a state "in which both men and women have equal opportunity to benefit from and contribute to economic, social, cultural and political development; enjoy socially valued resources and rewards; and realize their human rights" (USAID, 2012). To achieve gender equality, females must feel empowered on an individual level, but the broader societal structure must also allow for equal opportunities, rights, and representation regardless of sex.

Analyzing the two concepts as separate entities, however, may be helpful in understanding how various societal factors affect the achievements and conversely, the subjugation of females, and their roles in the sociocultural ecosystems of child marriage. To evaluate the hypothesis that female empowerment and gender inequality can be differentiated, and that advances in female empowerment may not necessarily correspond to advances in gender equality, we select sample indicators consistent with our definitions of female empowerment and gender equality. We take an ecosystem approach selecting sample indicators that reflect empowerment at an individual level and indicators that reflect societal norms. There is a subjective component to the selection of indicators, and we recognize other researchers might characterize individual indicators differently. Afterall, female empowerment overlaps with gender equality, as female empowerment is a necessary pathway towards gender equality.

While recognizing the overlap, we differentiate female empowerment indicators as more representative of an individual's capacity in the decision-making process, while gender equality indicators are more representative of a society's attitudes towards women as a whole. We consider, for example, a female's attitude towards violence against women as an indicator of female empowerment, while we consider the prevalence of violence against women as an indicator of gender equality. Similarly, we consider female education to be a measure of female empowerment, while we consider a female's ability to participate in the work force as a measure of gender equality.

Increasing education, specifically female education, has been a focal area for reducing child marriage by enhancing female empowerment. Both female and male education rates have been rising in Bangladesh, with female rates improving at about twice the rate of males (slope of 1.5 vs. 0.7) (Figure 7). A generation ago (age cohort 40-45), the median years of schooling for females was near zero at 0.1 and males had almost four (3.8) more years of education than females. Today, females in the age 20-24 age cohort have a median level of education of 7.5 years and are as educated as their male peers.

Figure 6: Female Education and Sample Indicators of Gender Equality

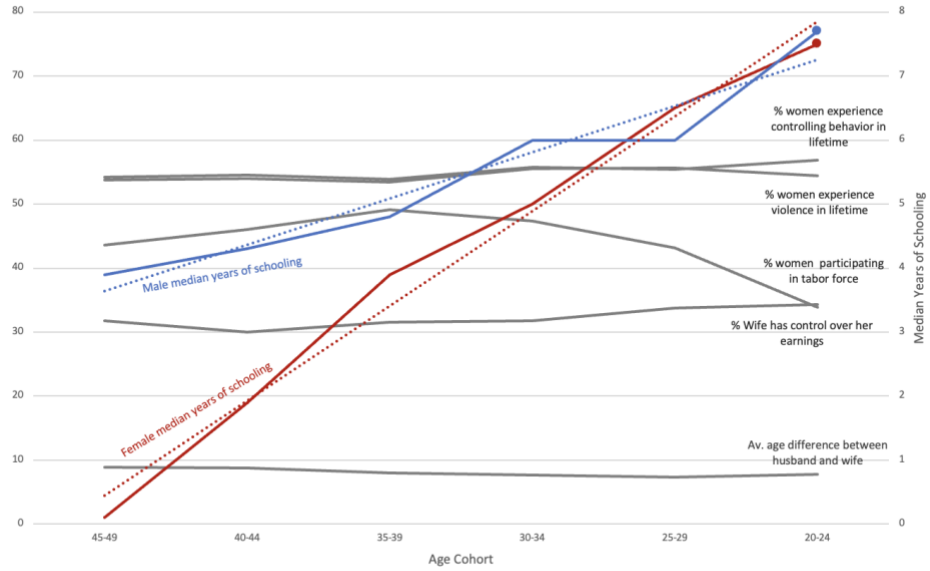

Figure 6 caption: Both female and male education rates have been rising in Bangladesh. With female rates improving at about twice the rate of males (slope of 1.5 vs. 0.7), females have closed the education gap. Despite this increase in female education, many measures of societal norms indicative of gender inequality, remain unchanged.

Despite the increase in female education, many measures indicative of gender equality, such as exposure to controlling behavior and violence, age disparity between husbands and wives, a woman's ability to control her own earnings, and participation in the workforce, show little change. As illustrated in Figure 7, females in the age 20-24 cohort are as likely to have already been exposed to violence and controlling behavior[x] as the previous generation (age 40-45 cohort) (BBS, 2016). The age disparity between husbands and wives has remained an average of eight years (BBS, 2019). Little more than a third of women have the ability to control their own earnings (NIPORT and ICF, 2020). Less than half the women at every age bracket participate in the labor force (ILO, 2020). The experience of physical violence is a leading indicator of societal inequality, and statistically explains 13.5% of the variance in child marriage rates among the 64 zilas in Bangladesh. While females have closed the education gap within a generation, many of the societal norms that support inequality stubbornly persist.

5. THE GENDER INEQUALITY AND CHILD MARRIAGE IN THE GLOBAL CONTEXT

The relationship between gender inequality and child marriage can be seen also at the global scale. Several national-level indices have been developed by various organizations to measure gender inequality among nations. The major ones are listed in Table 3.

Table 3: Sample Gender Inequality Indices Evaluated Against Child Marriage Rates

INDEX NAME	SOURCE	BASIS	INCLUSION IN ANALYSIS	REFERENCE
Gender Development Index (GDI)	UNDP	Ratio of Human Development Index using indicators of health, education, income.	Yes	UNDP 2020a UNDP 2020b
Gender Inequality Index (GII)	UNDP	Measures disparities in reproductive health (maternal mortality and adolescent birth rates), empowerment (parliamentary seats and education), economic status (labor force participation)	Yes	UNDP 2020c
Gender Social Norms Index (GSNI)	UNDP	measures gender equality in politics, work, and education.	No (recent data not available)	UNDP 2020d
Gender Parity Index (GPI)	UNESCO	measures relative access to education for females and males	No (limited to education data)	UN Statistics Division, n.d.
Global Gender Gap Index (GGGI)	World Economic Forum	measures gender equality in economic participation and opportunity, educational attainment, health and survival, and political empowerment.	No (inconsistent with other indices due to weightings (Stoet and Geary, 2019))	World Economic Forum, 2020
Social Institutions and Gender Index (SIGI)	OECD	measures of social inequality using discrimination in the family, restricted physical integrity, restricted access to productive and financial resources, and restricted civil liberties.[xi]	Yes	OECD, 2020
Gender Equity Index (GEI)	Social Watch	measures the gap between women and men in education, the economy, and political empowerment.	No (data is not as recent as other indices that cover similar metrics)	Social Watch, 2012

Rather than select any one of these indices, we combined the Gender Inequality Index (GII), the Gender Development Index (GDI), and the Social Institutions and Gender Index (SIGI) into a composite measure, so as to capture a broad range of indicators. The indices were collected for all countries, transformed to adjust for skewness in the data distribution, statistically standardized using z-scores, and averaged. The composite average was plotted against the U18 marriage rates (UNICEF Data, 2020; United Nations Department of Economic and Social Affairs, 2017) (Figure 9).[xii]

Figure 7: Gender Inequality Indices and Child Marriage at the National Level

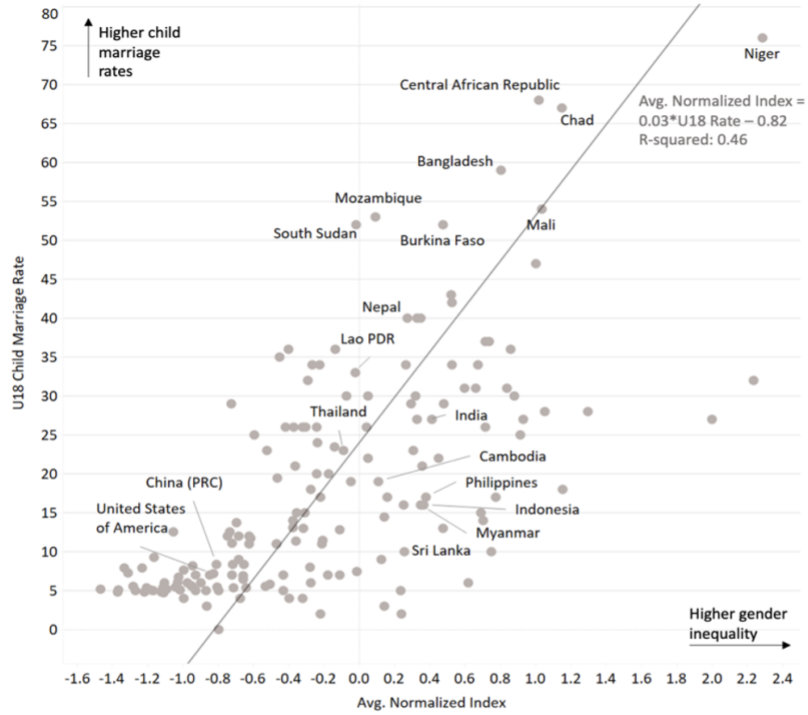

Figure 7 caption: As gender inequality increases, so does child marriage. The Average Normalized Gender Inequality Index is a composite of the Gender Inequality Index (UNDP, 2019), the Gender Development Index (UNDP, 2018), and the Social Institutions and Gender Index (OECD, 2018). The combined measure encompasses a variety of indicators (Table 2). These indices were collected for all countries, standardized using z-scores, and then the average of the three normalized scores for each country was plotted against U18 child marriage rates (UNICEF Data, 2020; United Nations Department of Economic and Social Affairs, 2017). The relationship between the averaged gender inequality indices and the U18 child marriage rate has an R-squared value of 0.46.

Child marriage rates (U18) increase with increasing gender inequality (Figure 9), with an R-squared value of 0.46. The U15 child marriage rate (not shown) has a similar relationship, with an R-squared value of 0.43. Bangladesh fits within this relationship. The nation is high, both in the combined gender inequality measure and in child marriage. The relationship between gender inequality and child marriage that we see among zilas within Bangladesh, we also see among nations at the global scale.

5. CONCLUSIONS

Internationally, there is increasing pressure to provide a minimum age for marriage and to classify marriage under that age as TIP. Our data analysis reveals that the sociocultural ecosystem that supports child marriage has attributes in common with the sociocultural ecosystem that supports TIP. Child marriage rates statistically correlate with TIP prevalence rates and with efforts to counter TIP as represented in the TIP tier level rankings of the US State Department's Annual TIP Report. The chance of the null hypothesis being true — that child marriage rates and human trafficking metrics are not related – is less than 1 in 10 million.

Bangladesh has a potential leadership role in ending child marriage. They have set national goals, enacted domestic legislation, and become party to international agreements. The Prime Minister committed Bangladesh to end marriage for children younger than 15 by 2021, and for all girls under age 18 by 2041. The Child Marriage Restraint Act of 2017 prohibits the marriage of children and defines the

age of a child. The Dowry Prevention Act of 2018 prohibits the payment of dowries. Internationally, Bangladesh is party to the series of United Nations conventions that provide a basis for prohibiting child marriage and classifying it as a slavery-like practice. Bangladesh is also among the selected countries covered under the UNFPA-UNICEF Global Programme to Accelerate Action to End Child Marriage (UNICEF, 2020).[xiii]

Within a generation (between the age cohorts of 45-49 and the age cohort of 20-24), the female education gap has been eliminated. The female rate of increased education is twice that of males. Other benefits for women and girls have also been realized over this time period. The age of first child has increased from 17.7 years to 18.6 years (NIPORT and ICF, 2020), and female life expectancy has increased from 66 years to 75 years (World Bank, 2021). While many of the negative consequences associated with child marriage have been mitigated, the broader consequences of gender inequality persist. Despite the 2017 Marriage Act, Bangladesh still has among the highest child marriage rates in the world with most girls marrying before the legal age of 18. The illegal dowry system continues. Most women experience violence during their lifetime, and 17.1% of women in 2015 (14.9% of women in 2011) are restricted from contact with their families by their spouse (Bangladesh Bureau of Statistics (BBS), 2016).

Bangladesh is not on track to meet either their national goals or SDG 5.3, which aims to end marriage for all girls under age 18 by 2030. Even assuming continuation of their overall rate of reduction, the U18 child marriage rate will be 39-53% by 2030 and 36-41% by 2041. Perhaps even more worrisome is that the last two MICS and DHS surveys show no meaningful reductions in U18 child marriage rates, suggesting the rate of progress may be stalling. How can a society in which females have taken such strong strides in education maintain such high levels of gender inequality?

Bangladesh is a male-dominated, patriarchal society. It has a traditional dominant male model of masculinity, where males are expected to be the providers and guardians. Rural areas are highly influenced by mullahs (local religious leaders), imams (mosque prayer leaders) and d'objectifs (village political elites) that promote patriarchal hierarchies and male-dominated social norms (Rahman, 2020).

Several studies globally suggest that perceived "threats to masculinity" or transgression of entrenched norms may incite violence against women (e.g. Duvvury et al, 2002). The threat to the traditional male masculinity model may be due to long-held cultural perceptions that men hold roles in society as providers and protectors. Such roles can be threatened by programs that focus on empowering women. If women are provided opportunities that are not available to men, it can foster resentment and exacerbate violence against women (Rahman, 2020). Perhaps we are seeing such an effect in Bangladesh.

Early efforts to address child marriage in Bangladesh correctly focused on empowering women through education and career resources, giving them more options and opportunities in life, which in some cases can threaten traditional masculinity. It is not clear that gender inequality can be addressed within a patriarchal society without consideration of masculinity (Mel, Peiris, and Gomez, 2013). There is the possibility that by encouraging circumstances within a patriarchal society whereby women are more educated and have emerging roles as family providers, we are threatening the traditional dominant male model of masculinity and inadvertently exacerbating gender inequality (Karim et al., 2018). Without addressing masculine gender roles, the effectiveness of initiatives designed to empower women may be

limited, and there is increasing recognition of the need to engage men in women-focused development initiatives (Karim et al., 2018).

Our data analysis provides empirical support for these theories being applicable to child marriage. We find that while there is strong overlap between female empowerment and gender equality, the two concepts can, and perhaps need to be differentiated. While efforts to promote female empowerment have been successful, as evidenced by improved education and changes in female attitudes towards gender-based violence, the impact of female empowerment in promoting sociocultural norms of societal gender equality has been disappointedly slow. Violence against women is unchanged, dowries remain prevalent, and the marriage age difference is unchanged.

Our analysis suggests that further reductions in child marriage may require complementing efforts to increase female empowerment with interventions targeted specifically at reducing gender inequality. Such interventions would need to encourage men to revise their patriarchal attitudes and views of masculinity, address societal norms that propagate traditional male and female responsibilities, and include males in female-focused development initiatives. When men are encourages to value women as equals and are actively involved in the process of empowering women, societal attitudes shift away from viewing women as commodities for early marriage and child-rearing.

The nearly forty percentage point variation in changes of child marriage rates among zilas suggest a need to move from universally-applied solutions to geographically-targeted interventions customized to the varying sociocultural ecosystems that drive child marriage. Such an undertaking may seem disproportionate to the problem of child marriage, especially when it can be argued that many of the negative consequences of child marriage are being mitigated. However, addressing gender inequality in concert with female empowerment is likely to have significant additional benefits beyond reducing child marriage. There is an emerging recognition that gender inequality undermines economic development, security, and democracy and that raising the status of women and girls has been shown to increase GDP, improve global health, combat radicalization and extremism, improve the chances of lasting peace, and strengthen democracy (Bigio & Vogelstein, 2020). Investments in reducing child marriage by specifically targeting gender inequality are therefore likely to be investments that also contribute to improvements in democracy and human rights.

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END NOTES

[i] The Convention on Consent to Marriage, Minimum Age for Marriage, and Registration of Marriages is a treaty agreed upon in the United Nations on the standards of marriage. The treaty was opened for signature and ratification by General Assembly resolution 1763 A (XVII) on 7 November 1962 and entered into force 9 December 1964

[ii] The Convention on Consent to Marriage, Minimum Age for Marriage, and Registration of Marriages also contains the statement that "No marriage shall be legally entered into by any person under this age, except where a competent authority has granted a dispensation as to age, for serious reasons, in the interest of the intending spouses."

[iii] The "Palermo Protocol" is actually one of three "Palermo Protocols", the other two Palermo Protocols being: a) the Protocol against the Smuggling of Migrants by Land, Sea and Air, and b) the Protocol against the Illicit Manufacturing of and Trafficking in Firearms.

[iv] Many western nations were missing U18 child marriage rates in the MICS UNICEF surveys. The missing values were imputed using the linear relationship between the U15 (U15 = 0.423 * Child Marriage Practice - 1.232, $r^2 = 0.716$) and U18 values (U18 = 1.141*Child Marriage Practice + 4.7, $r^2 = 0.809$) from the UN Child Marriage Practices survey (UN World Marriage Data, 2017). The latter survey measures the percentage of women aged 15-19 ever married, divorced, widowed, or in an informal union. Thus, there are discrepancies between the age groupings of the two datasets, but given the high r-squared values in the relationship between the rates, the interpolation was suitable.

[v] It is notable that seven of the 10 countries with the highest U18 child marriage rates, are on the Tier 2 watchlist.

[vi] We determine the statistical significance of the relationship between child marriage rates and the GSI prevalence, by testing the alternative hypothesis that there is no relationship. In such a case, the slope would be zero using the t-distribution. The probability that there is *no* relationship between the child marriage and the GSI prevalence estimates (that the slope is zero), is less than one in 10 million. We are not assuming a causal relationship, but rather confirming that TIP and child marriage are inter-related within a common ecosystem.

[vii] The data distributions were skewed, so a logarithmic transformation was applied to both variables (Child Marriage Rates and GSI Prevalence Estimates) for a more accurate statistical analysis. The relationship in Figure 1 has an equation of log(U18) = 0.518 x log(GSI) + 1.868 and r^2 of 0.188.

[viii] As a nation that is party to the Optional Protocol to the Convention on the Rights of the Child on the sale of children, child prostitution and child pornography, Bangladesh has a specific obligation because dowry payments can constitute a sale of children as defined in article 2 (a) of the Protocol (United Nations, 2000).

[ix] The DHS reports required specific unknown sampling to get results similar to the reported values and therefore could not be used to calculate child marriage rates at the zila level

[x] Controlling behavior by a partner is defined as experiencing any of these acts; he restricts you from the company of your friends and parental family, going to your parental homes, insist on knowing (with a suspicious mind) what you are doing and where you are at all times, ignore your feelings and opinions without caring or thinking about your priorities, angry if you speak with your relative or non-relative males, suspicious that you are unfaithful, expects you to ask permission before seeking health care for yourself, gets angry without any reason, forces you to use contraception method or forbids using them (BBS, 2016).

[xi] The SIGI index includes U18 child marriage rates, however, it is one of 32 indicators used to construct the index and so its influence is considered minimal.

[xii] U15 and U18 child marriage rates used were primarily by UNICEF (UNICEF, 2020), which compiled values obtained mostly from the Multiple Index Cluster Surveys (MICS) and the Demographic Health Surveys (DHS) dating back to 2006 at the earliest. These report the number of women aged 20-24 who were married before the age of 15 or the age of 18. However, some countries did not have values in this dataset. Another source used was the UN Child Marriage Practices (United Nations Department of Economic and Social Affairs, 2017). This dataset reported the percentage of girls aged 15-19 years ever married, divorced, widowed or in an informal union. While this is a slightly different metric than the UNICEF metric, it was used to impute missing data from the UNICEF dataset by plotting the UN Child Marriage Practices against both the U15 and U18 rates. The equations and R-squared values were as follows: U15 = 0.423 * Child Marriage Practice - 1.232 ($R^2 = 0.716$) and U18 = 1.141 * Child Marriage Practice + 4.7 ($R2 = 0.809$). For those countries missing a U15 or U18 rate but who had a Child Marriage Practice value, the least-squares regression line was used to calculate an estimate of the percentage of women married before age 15 or 18.

[xiii] The National Plan of Action to End Child Marriage (2018-2019) consists of a) enhancing the agency and voice of adolescent girls, b) investing in and supporting adolescent girls through community engagement and positive behavior, c) increasing resources and opportunities for adolescent girls, d) strengthening legislative and policy frameworks to protect and promote the rights of adolescent girls, and d) generating and using robust data and evidence.

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